Preview - Information

Thank you for your interest in this Mega Bundle. This product contains multiple Workbooks and Google Lesson Slides. Within this preview, you will see:

- ✓ A selection of Ready-To-Use Google Lesson Slides for each unit.
- ✓ A selection of worksheets included in each workbook.

When you make a purchase, you will receive a folder that contains each of the .pdf workbook files and links to where you can make copies of the Google Lessons units to your Google Drive.

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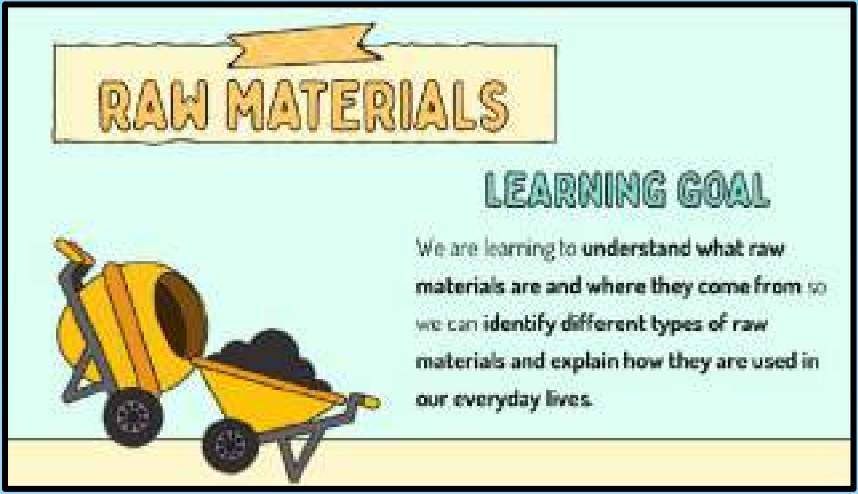
Google Slides Lessons Preview

Alberta Science Curriculum
Matter Unit – Grade 3

3-Part Lesson Format

Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!



RAW MATERIALS

LEARNING GOAL

We are learning to understand what raw materials are and where they come from so we can identify different types of raw materials and explain how they are used in our everyday lives.

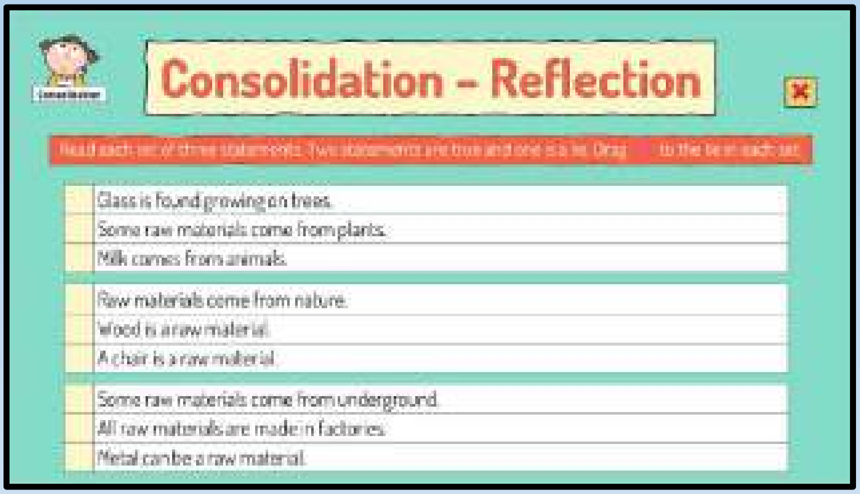
Where Did It Come From?

Drag each object into the correct box to show where it comes from: Plant, Animal, or Mined.

Plant	Animal	Mined

Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!
- Exit Cards
- Quizzes
- Reflection
- And More!



Consolidation – Reflection

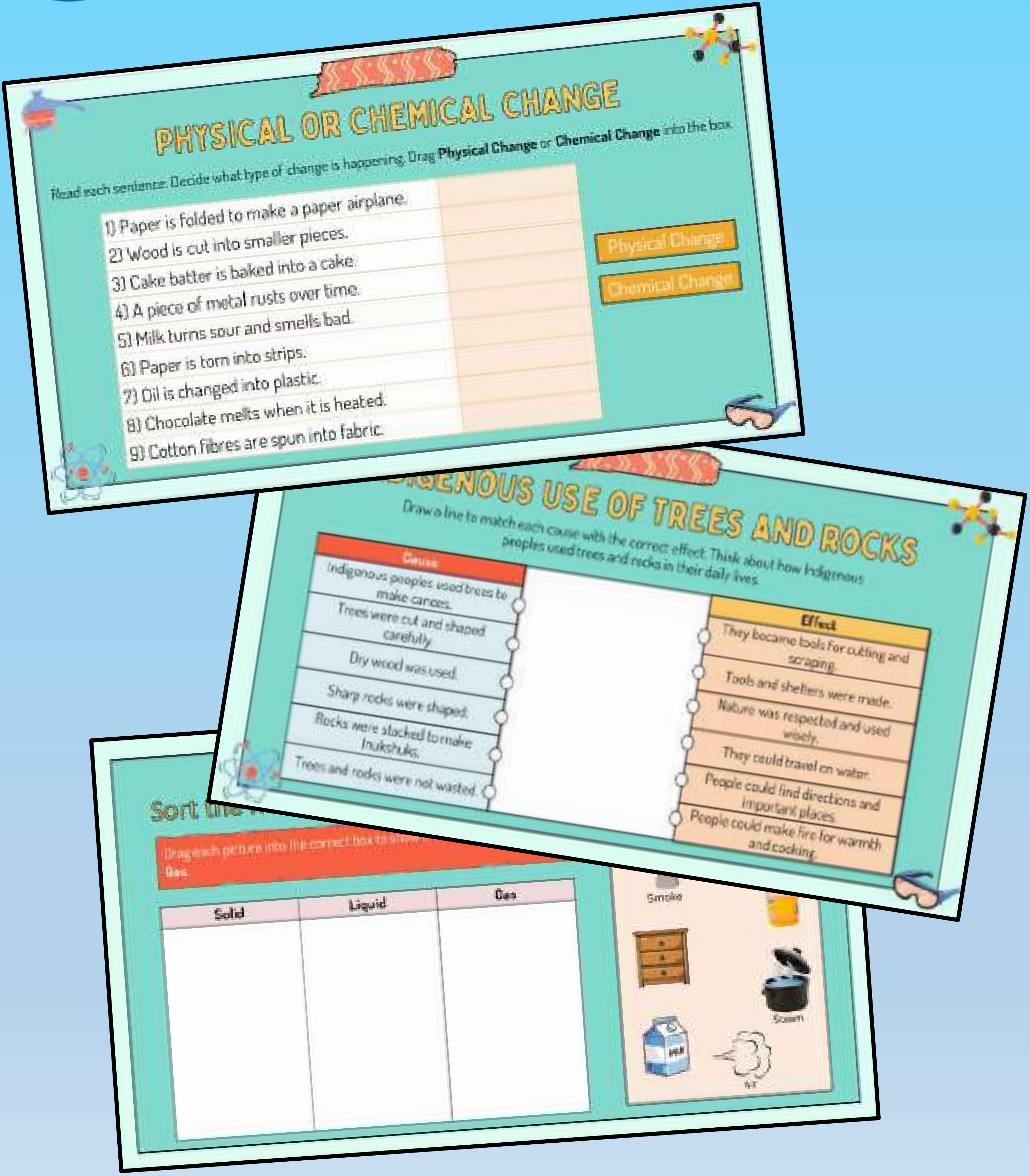
Read each set of three statements. Two statements are true and one is a lie. Drag to the lie in each set.

Glass is found growing on trees.
Some raw materials come from plants.
Milk comes from animals.

Raw materials come from nature.
Wood is a raw material.
A chair is a raw material.

Some raw materials come from underground.
All raw materials are made in factories.
Metal can be a raw material.

Alberta Science Curriculum
Matter Unit – Grade 3



PHYSICAL OR CHEMICAL CHANGE

Read each sentence. Decide what type of change is happening. Drag **Physical Change** or **Chemical Change** into the box.

1) Paper is folded to make a paper airplane.
2) Wood is cut into smaller pieces.
3) Cake batter is baked into a cake.
4) A piece of metal rusts over time.
5) Milk turns sour and smells bad.
6) Paper is torn into strips.
7) Oil is changed into plastic.
8) Chocolate melts when it is heated.
9) Cotton fibres are spun into fabric.

IGENOUS USE OF TREES AND ROCKS

Draw a line to match each cause with the correct effect. Think about how Indigenous peoples used trees and rocks in their daily lives.

Cause	Effect
Indigenous peoples used trees to make canoes.	They became tools for cutting and scraping.
Trees were cut and shaped carefully.	Tools and shelters were made.
Dry wood was used.	Nature was respected and used wisely.
Sharp rocks were shaped.	They could travel on water.
Rocks were stacked to make Inukshuks.	People could find directions and important places.
Trees and rocks were not wasted.	People could make fire for warmth and cooking.

Sort the

Drag each picture into the correct box to show
Gas

Solid	Liquid	Gas

Alberta Science Curriculum
Matter Unit – Grade 3

SPOT THE STATES OF MATTER: SOLID, LIQUID, OR GAS?

Drag the ✓ to each statement that is true about solids, liquids, or gases. Leave the ✗ on statements that are not true.

Solids keep their own shape.
Liquids take the shape of the container they are in.
Solids can be poured like water.
Liquids always keep the same shape.
Gases have a fixed shape.
Gases spread out to fill the space around them.
Water is a liquid
Air is a solid.
A desk is a solid.
Steam is a gas.
Rocks can flow like liquids.
All matter is the same state all the time

✓

✗

Sequence It:

Drag the steps into the correct order to sho

Ice forms on roads, trees, and sidewalks
Snow melts into rain as it falls
Rain hits very cold ground
Snow falls from the clouds

Drag and Drop Here

statement line. Each statement matches one change.

1) Water in a puddle slowly disappears on a warm day.
2) Water drops form on the outside of a cold glass.
3) Frost forms on a window on a cold morning.
4) Dry ice changes directly into gas.
5) Wet clothes dry outside in the sun.
6) Water vapour in the air turns into tiny water drops.
7) Snow or frost forms from water vapour in very cold air.
8) A liquid turns into a gas when it warms up.

Condensation
Deposition
Evaporation
Sublimation

Workbook Preview

Grade 3 – Science Unit

Organizing Idea Matter: Matter: Understandings of the physical world are deepened by investigating matter and energy.

Guiding Question: How can materials change?

	Learning Outcome - Students investigate and analyze how materials have the potential to be changed.	**Pages**
M3.1	Processed materials are modified from natural materials and do not occur in nature. Processed materials are designed and manufactured for a specific purpose.	7-31
M3.2		46
M3.3	Matter is anything that takes up space and has weight. States of matter include solid, liquid, and gas. Melting is a change of state from solid to liquid. Freezing is a change of state from liquid to solid. Evaporation is a change of state from liquid to gas. Condensation is a change of state from gas to liquid	47-72
M3.4	A solid is a state of matter that has a definite shape and volume. A liquid is a state of matter that has a definite volume but no definite shape. A liquid flows and takes the shape of the container it is in. A gas is a state of matter that has neither definite shape nor definite volume. A gas flows easily and expands to the size of the container it is in. Volume is the amount of space a solid, liquid, or gas takes up.	53-72

Grade 3 – Science Unit

Organizing Idea Matter: Matter: Understandings of the physical world are deepened by investigating matter and energy.

Guiding Question: How can materials change?

	Learning Outcome - Students investigate and analyze how materials have the potential to be changed.	**Pages**
M3.5	Substances are made of matter that has not been mixed with other matter, including water. The temperature at which a substance changes from solid to liquid is called the melting point. The temperature at which a substance changes from liquid to solid is called the freezing point. The melting and freezing points of a substance are the same temperature. The temperature at which a substance changes from liquid to gas is called the boiling point. The melting/freezing point of water is 0°C. The boiling point of water is 100°C	73-102
M3.6	The water cycle is a process in which water on Earth moves continuously between bodies of water, land, and the atmosphere. In the water cycle, water changes state from a liquid to a gas through evaporation, forms clouds through condensation, then falls back to Earth in a liquid or solid state (precipitation). Water can change state from solid to liquid and back again. Water can change state from liquid to gas and back again. In Alberta, the surfaces of many bodies of water change from liquid in the summer to solid in the winter.	103-108
M3.7	A reversible change is a change that can be undone, such as melting or freezing. A permanent change is a change that cannot be undone, such as cooking an egg or baking a cake	13-14, 16-22, 26
Computer Science:		
CS.1	Students apply creativity when designing instructions to achieve a desired outcome.	109-116

NAME: ____________________________

MATTER

Name: ______________________________

Curriculum Connection
M3.1

Raw Materials

What are Raw Materials?

Raw materials are the materials we find in our environment that have not been changed. They are unprocessed, meaning no one has changed the material. We get raw materials from plants, animals, and from underground. Underground raw materials are mined, which means dug from the ground.

Plant Raw Materials
- ✓ Wo[illegible]
- ✓ [illegible]
- ✓ Flowers
- ✓ Fruits and vegetables

Animal Raw Materials
- ✓ Milk
- ✓ Meat
- ✓ Furs
- ✓ [illegible]r and wool

Mined Raw Materials
- ✓ Iron ore
- ✓ Metals
- ✓ Minerals
- ✓ Oil and coal

Making Connections Descri[illegible] of the types of raw materials

Plant Raw Materials	Animal Raw Materials	Mined Raw Materials

True or False Is the statement true or false?

1) Raw materials are found in our environment	Yes	No
2) A desk is a raw material	Yes	No
3) A road is a raw material	Yes	No
4) Cheese is a raw material	Yes	No
5) Mined raw materials come from underground	Yes	No

Name: ______________________ 8

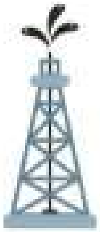
Curriculum Connection
M3.1

Directions Is the picture a raw material? Yes or no?

Iron Ore

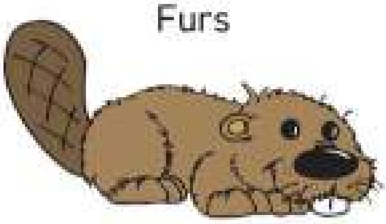
Yes | No

Oil



Yes | No

Furs

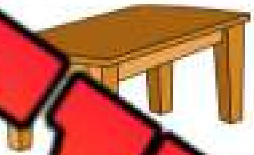


Yes | No

Plastic

Yes | No

Table

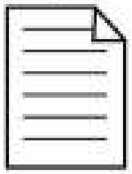


Yes | No

Almonds

Yes | No

Paper



Yes | No

Tree - Wood

Yes | No

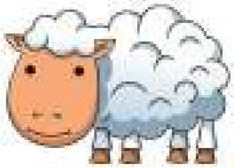
Flour

Yes | No

Pickles

Yes | No

Wool



Yes | No

Cotton

Yes | No

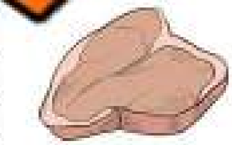
Name: ______________________

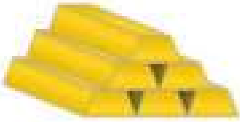
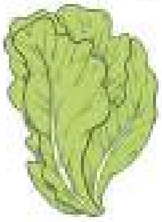
Curriculum Connection
M3.1

Directions Cut and paste the raw materials into the correct categories

PLANT	ANIMAL	MINED



Name: ______________________

Curriculum Connection
M3.1

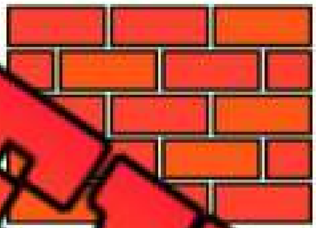
Natural or Human Made Materials

We use materials to make the things we need. Some of the materials we use are found naturally in our environment. These are materials you can look outside and see. Other materials are made by humans. These materials you would never see in nature without a human making it and putting it there.

Directions [illegible] whether the material is natural or human-made

Natural | Human-Made

Wool



[illegible]ura[illegible] | H[illegible]ade

[illegible]k

Natural | Human-Made

Steel

Natural | Human-Made

Clay

Natural | Human-Made

Wood

Natura[illegible] | [illegible]uman-Made

Leather

Natural | Human-Made

Stone

Natural | Human-Made

Glass

Natural | Human-Made

Plastic

Name: ____________________________

Curriculum Connection
M3.1, M3.7

Changing Materials

What are Materials?

Look around and you will see many objects and structures that are made from different materials. Most of these things are made from raw materials that have been changed.

We can change materials physically or chemically. A **physical change** is when only the look of [illegible]terial has changed. Physical change can be reversed. A **chemical change** is when [illegible] material so that it is a new material. It cannot be reversed.

[illegible]ples o[illegible]hanges
- ✓ Cutting [illegible]
- ✓ Warming or [illegible]g a [illegible]
- ✓ Bending a material
- ✓ Stirring or mixing a ma[illegible]

Examples of Chemical Changes
- ✓ Cooking a material
- ✓ Burning a material
- ✓ A material rusting
- A food rotting

Draw Draw examples of materials that have [illegible]ged [illegible]ally and chemically

Physical	[illegible]hemi[illegible]

Yes/No Is the answer yes or no?

1) When batter is cooked and turns into cookies, is it a chemical change?	Yes	No
2) When wood is cut, is it a chemical change?	Yes	No
3) When we heat up hot chocolate, is it a physical change?	Yes	No
4) Do we need to change materials chemically and physically?	Yes	No
5) Is cutting a paper a chemical change?	Yes	No

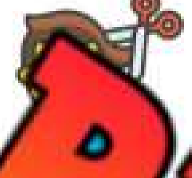
Name: ______________________

Curriculum Connection
M3.1, M3.7

Activity - Physical or Chemical Change

Directions Is the picture showing a chemical or physical change?

Cutting Hair



Physical | Chemical

Burning

Physical | Chemical

Boiling

Physical | Chemical

Chopping

Physical | Chemical

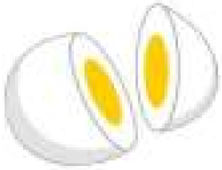
Baking

Physical | Chemical

Freezing

Physical | Chemical

Boiled Egg

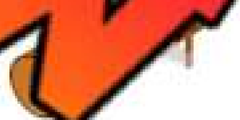


Physical | Chemical

Drilling

Physical | Chemical

wing



Physical | Chemical

Rotting Food

Physical | Chemical

Fireworks

Physical | Chemical

Mixing

Physical | Chemical

Name: ______________________

Curriculum Connection
M3.1

Where Materials Come From

Directions Write the materials that are found from the pictures below

Cloth	Rubber	Stone	Metal	Wood	Paper

Cloth	Rubber	Ston	Me	Wood	Plastic

Cloth	Rubber	Stone	Metal	Wood	Paper

Name: ____________________ 16

Curriculum Connection
M3.1, M3.7

Physical Change - Cotton

How Is Cotton Changed?

Did you know that about 75% of all clothing in the world has cotton in it? Cotton is a soft fabric that is used in many different types of clothing, including socks and shirts.

To change the raw cotton into fabric, many physical changes are done. Since no new material is made, the changes are all physical. Also, a physical change can be undone or reversed, [illegible] chemical changes are permanent. In this case, the fabric could be turned back into [illegible] even though it wouldn't look the exact same.

Making [illegible] Steps

1) Picking - [illegible] of [illegible] cotton plant
2) Separating [illegible] gin [illegible] separates the seeds from the cotton fibres
3) Carding – Turning [illegible] strands of cotton
4) Spinning – The strands [illegible] are [illegible] make yarn
5) Weaving – The yarn is weaved into [illegible]

Visualizing Draw what you were picturing while [illegible] were [illegible] Explain the picture

____
____
____
____
____
____

Question Why is making cotton fabric a physical change?

____
____
____

Name: ______________________

Curriculum Connection
M3.1, M3.7

Physical Change - Cutting

Cutting Materials

When objects are made, they are cut to be a certain size. Cutting is a physical change because a new material is not made. Instead, we could put the material back together.

Cutting is the most used physical change that is done to almost every object. Cutting needs to be done to make sure our materials are the proper size. Having the right size allows our [illegible] to fit us or our spaces properly.

Check o[illegible] of changes made to materials by cutting.

✓ C[illegible] hair
✓ Cutting wo[illegible]
✓ Cutting wood [illegible] piec[illegible] pulp for paper
✓ Fabrics are cut to [illegible]
✓ Steel is cut to size
✓ Cutting food for our meals

Making Connections When was the last tim[illegible] ut so[illegible] Why did you cut it?

____

____

____

____

Yes/No Is the answer yes or no?

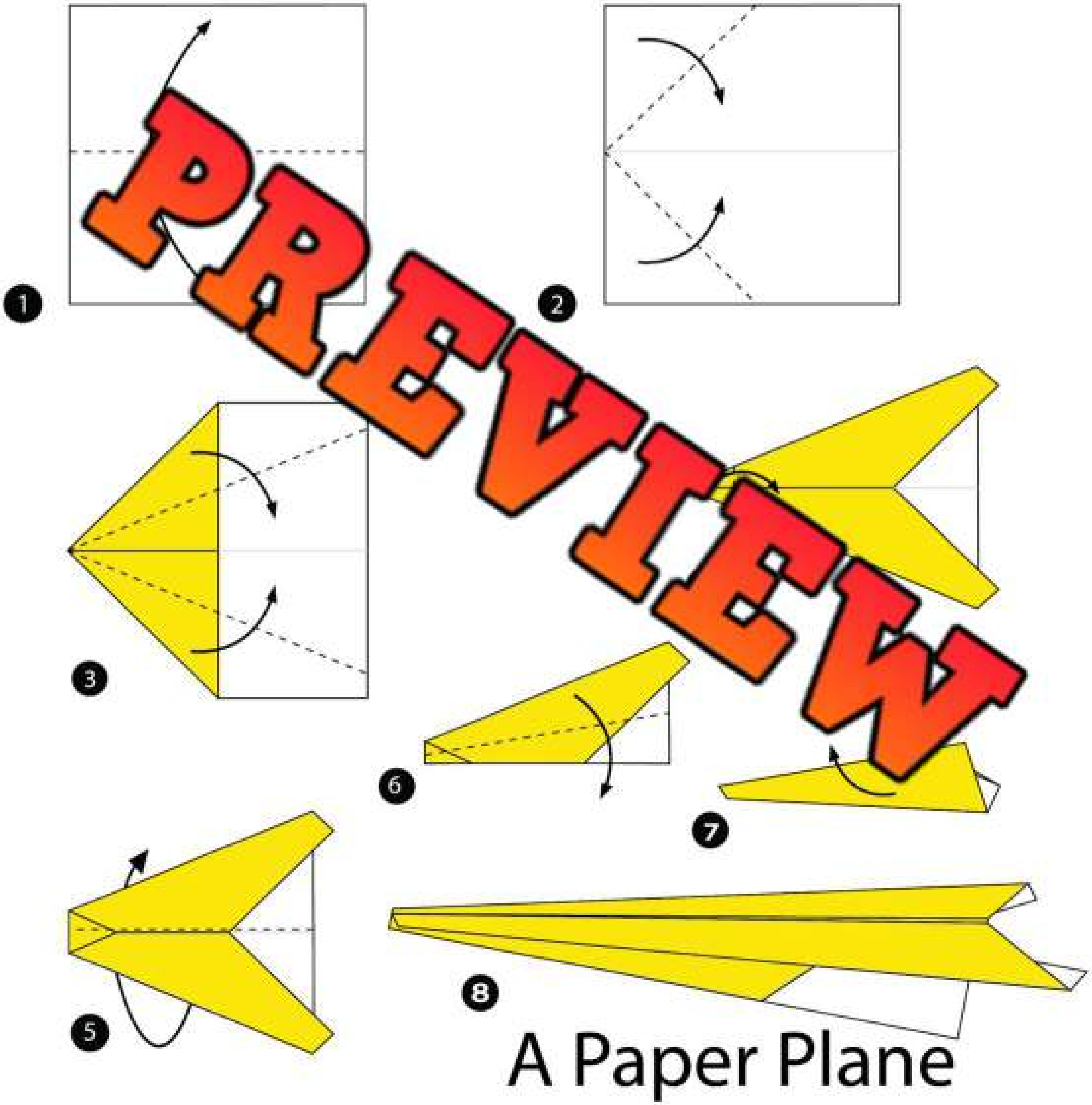
1) When we cut an object, are we making a chemical change?	Yes	No
2) Is cutting the stem off a strawberry a chemical change?	Yes	No
3) Is cutting up wood into tiny pieces for paper a physical change?	Yes	No
4) Is cutting materials important in making the things we need?	Yes	No
5) When you get your haircut, is your hair changing chemically?	Yes	No

Name: ______________________________

Curriculum Connection
M3.1, M3.7

Activity - Physical Change - Bending/Folding

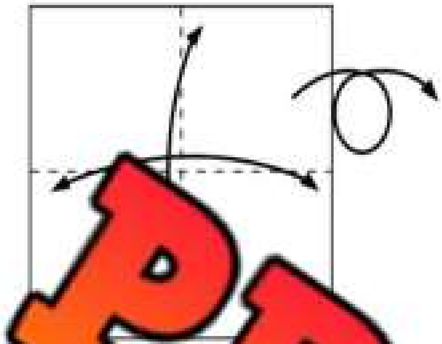
Instructions Bend and fold the paper to make a paper airplane



Name: ______________________

Curriculum Connection
M3.1, M3.7

Instructions Bend and fold the paper to make a boat



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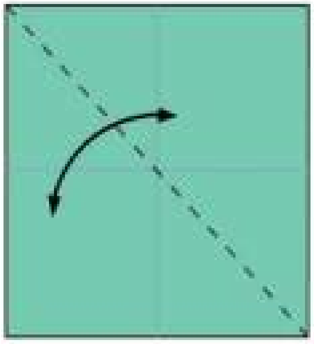

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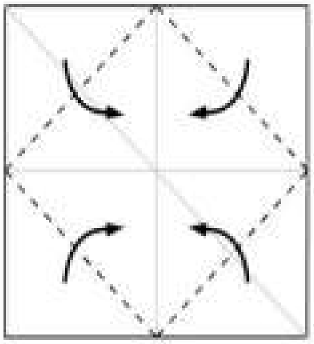

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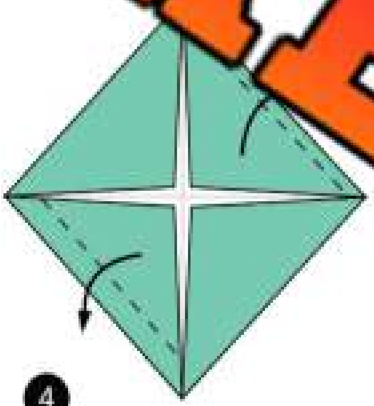

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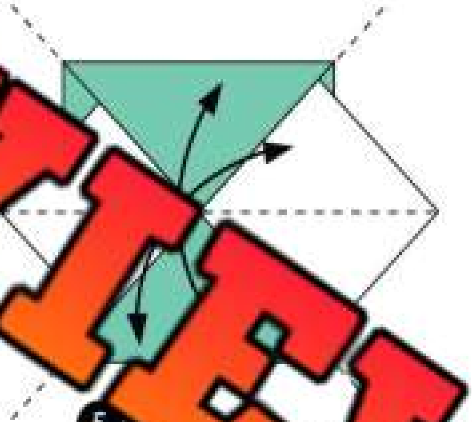

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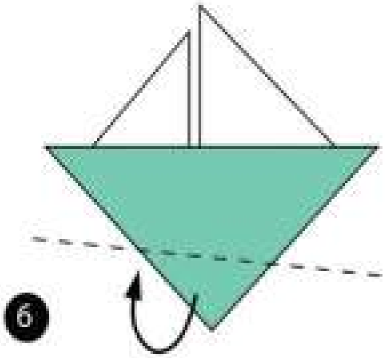

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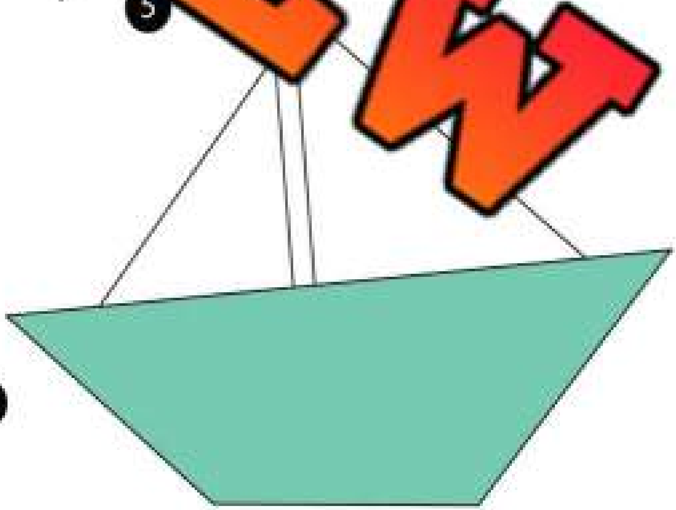

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A Little Boat

Name: ____________________________

Curriculum Connection
M3.1, M3.7

Making Paper - Physical/Chemical Changes

There are many steps in the process of making paper. Some of the changes made during each step are physical and some are chemical.

Directions Is the step a physical or chemical change?

1) Cutting down a tree	Physical	Chemical
2) Taking [illegible]ark	Physical	Chemical
3) Ch[illegible]o[illegible]tting into tiny pieces)	Physical	Chemical
4) Cooking the w[illegible]	Physical	Chemical
5) Washing the [illegible]ips	Physical	Chemical
6) Adding chemicals t[illegible] chips [illegible]ke pulp	Physical	Chemical
7) Bleaching (cleaning) the p[illegible]	Physical	Chemical
8) Forming the pulp into paper sized [illegible]s	Physical	Chemical
9) Drying the wet pulp	[illegible]ical	Chemical
10) Cutting the dry sheets to size	Phys[illegible]	Chemical

Word Search Find the words in the word bank

Word Bank	
Chemical	Physical
Cooking	Drying
Cutting	Cleaning
Forming	Wood
Chips	Pulp

V	W	T	B	L	E	H	I	X	Q	Q	[illegible]	O	D	C
E	W	G	H	K	H	V	Q	V	Z	I	O	T	X	R	O
L	Y	F	A	X	P	Y	A	S	I	D	G	J	J	Y	O
U	K	K	G	U	C	H	H	A	O	H	S	U	Z	I	K
U	A	Y	C	R	D	W	Y	O	C	H	I	P	S	N	I
F	O	R	M	I	N	G	W	S	A	Y	W	I	O	G	N
C	H	E	M	I	C	A	L	X	I	S	D	X	F	P	G
D	C	C	U	T	T	I	N	G	N	C	E	N	S	F	K
I	K	X	E	R	A	T	F	P	U	F	A	N	B	H	U
V	T	C	L	E	A	N	I	N	G	P	U	L	P	Q	H

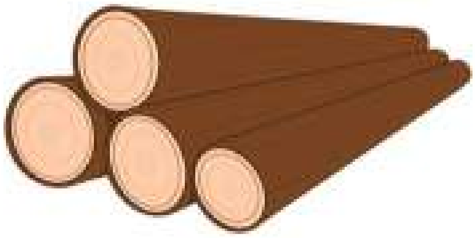
Name: ______________________________

Curriculum Connection
M3.1

Materials - Wood and Paper Products

Directions Fill in the flowchart below by drawing pictures

Trees



Logs

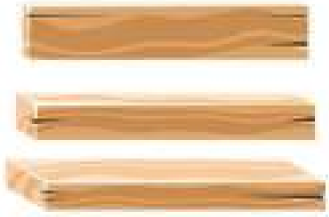
Firewood

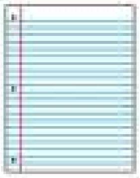
Lumber – 2

Pulp

Cardboard

Paper





Name: ______________________

Curriculum Connection
M3.1

Materials - Plastic

Plastic is made of fossil fuels. Oil and natural gas are fossil fuels found in the ground. They are used to make the plastics we use everyday.

To make plastic, oil and natural gas are heated. The plastic made is formed into water bottles, food packaging, auto parts and medical tools. The manu[illegible]ring of plastic is a chemical change where liquids are turned into soli[illegible] new substance.

[illegible] na[illegible]t. It takes the average plastic item between 10 to 1000 years to [illegible] it is best to recycle plastic when we are done with it. That way, the [illegible] can b[illegible]in.

Fill in the Blanks What [illegible]sing[illegible]

[illegible]ank					
Food	Oil	Recycle	Water Bott[illegible]	Na[illegible]	Underground

1) Plastic is made from heating ______________ a[illegible] ______________.
2) Natural gas and oil are found ______________________________
3) Plastic is used to make ______________ ______________.
4) A lot of the ______________ we buy is packaged in plas[illegible]
5) Plastic lasts a long time, so we should ______________ it.

Question Why is making plastic a chemical change? Why is it bad for the environment?

____

____

____

____

Name: ______________________________

Curriculum Connection
M3.1, M3.7

Chemical Change - Making Plastic

How is Plastic Made?

Plastic is a very important material that is used to make many objects in our lives. To make plastic, chemical changes are made to different materials.

How Plastic Is Made

1) Oil is [illegible] from the ground
2) The [illegible], making a new chemical called naphtha (NAP-THA)
3) [illegible] with naphtha to make plastic
4) The [illegible] a liquid
5) Dyes are [illegible] to change the colour
6) The liquid is [illegible] shapes with the plastic

Questions Answer the [illegible]

1) Why is making plastic a chemical [illegible]?

____

____

____

2) Look around, what plastic things do you see?

Yes/No Is the answer yes or no?

1) Is making plastic a chemical change?	Yes	No
2) When oil is pulled out of the ground, is the oil changed chemically?	Yes	No
3) When the oil is heated, is it a physical change?	Yes	No
4) When the liquid plastic is poured into a form, is it changed chemically?	Yes	No
5) When the plastic is melted, is it changed physically?	Yes	No

Name: ______________________

Curriculum Connection
M3.1

Making Natural Rubber

How Is Natural Rubber Made?

Natural rubber is made from a rubber tree. The sap that comes out of a rubber tree can be used to make natural rubber. It is a bit different than unnatural rubber made from oil.

<u>How Natural Rubber is Made</u>

1) A tap [illegible] into the tree, where sap pours out. The sap is called latex.
2) Acid [illegible] the sap. This makes clumps in the mixture.
3) [illegible] ken and rolled into sheets
4) The [illegible] eets [illegible] he [illegible] d to get rid of any water
5) The rubbe [illegible] t to d [illegible] hapes

Which Change? How is [illegible] rial c [illegible] the steps of rubber making below

Steps	Type of Change	
1) Sap it taken out of the tree	Physical	Chemical
2) Acid is added to the sap, making new clu [illegible]	Physical	Chemical
3) The clumps are rolled and flattened	Physical	Chemical
4) The flattened rubber is heated	Physical	Chemical
5) The rubber is cut into shapes	Physical	Chemical

Draw Draw a picture of 3 different things that use rubber

Name: ______________________________

Curriculum Connection
M3.1

Materials Used Now vs Then

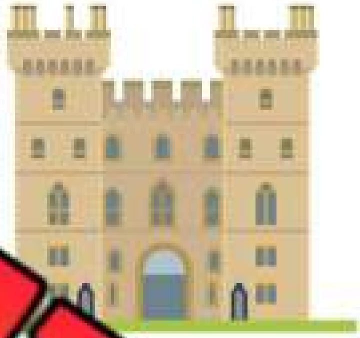
Olden Times

People used natural materials long ago. Stonehenge in England is a circle of big rocks. It's strong, but it was hard to move those big rocks.

The Great Pyramid in Egypt was made from limestone [illegible]ks. They were heavy, but they've lasted th[illegible] of years!

Middle [illegible]s

As time passe[illegible] discov[illegible]w ways to shape stone and create bricks. Castles started to ap[illegible]r. W[illegible] in England, which is still standing, was buil[illegible]rdy [illegible] hardy bricks. Using stone and brick is still do[illegible] tod[illegible] expensive and hard to move around.



Materials Used Today

Today, we use many different materials. Small buildi[illegible]ur [illegible] often use wood, bricks, and cement.

For skyscrapers, we use strong steel and sparkling glass. Look at the Burj Khalifa in Dubai! It's a towering structure made of steel and glass, standing as the tallest building in the world!

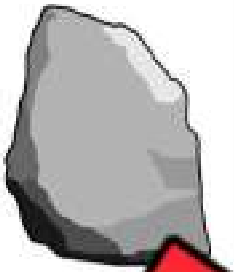
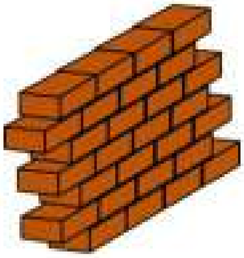
Bridges and Roads

Bridges like the Golden Gate Bridge in San Francisco use steel. It's sturdy, but it can rust. Roads use asphalt, which is strong, but it can get potholes.

Name: ______________________ 30

Curriculum Connection
M3.1

Choose Is the material **natural** or **human-made**?

Questions [illegible] the text to support your answers

1) Which materials [illegible]go?

____

____

____

2) What materials are used to make roads, homes, [illegible]crape[illegible]y?

Roads	
Homes	
Skyscrapers	

3) What are the downsides to the materials below?

Stone	
Brick	

Name: ______________________

Curriculum Connection
M3.2

Indigenous Use of Trees and Rocks

Using Trees

Indigenous communities made good use of trees. They would chop down the tree, but they made sure not to waste any part of it.

○ Hous[illegible]le built houses, known as wigwams o[illegible] tree trunks and branches.

○ Can[illegible]: They [illegible] bar[illegible] to make canoes, a type of boat, to travel on water. They also [illegible] oft-w[illegible] like cedar to make canoes.

○ Tools: The wood fr[illegible] also b[illegible] tools like bow and arrow for hunting.

○ Toys: Kids even made toy[illegible] t[illegible]

○ Fire: Dry wood helped make fire [illegible] keep wa[illegible] food.

Using Rocks

Rocks were also very useful to Indigenous communit[illegible]'s how they used them:

○ Tools: Sharp rocks became tools for cutting and scraping.

○ Cooking: Some rocks, when heated, were used for cooking. They could warm up food!

○ Symbols: The Inuit used rocks to make Inukshuks. Inukshuks were used for directions and to mark important places, like good hunting areas.

○ Building: Rocks also helped in building homes and fences.

○ Art: People drew on rocks to make beautiful art called pictographs.

Name: ____________________

Curriculum Connection
M3.2

Questions Answer the questions below using evidence from the text

1) How did Indigenous groups use trees?

____

____

____

____

2) How di[illegible]ous groups use rocks?

____

____

____

____

Visualizing Draw what you w[illegible]ctu[illegible]were reading. Explain the picture

True or False Is the statement true or false?

1) Some groups carved out hard wood to make canoes	True	False
2) They used cedar trees to make canoes	True	False
3) They cooked on rocks	True	False
4) The Inuit used rocks to make Inukshuks	True	False
5) Kids used rocks to make toys	True	False

Name: ______________________

Curriculum Connection
M3.2

Wigwam Shelter

First Nations lived in many different shelters. One of the most popular is named the Wigwam. Wigwam shelters are simple to make and easily transportable. A Wigwam can be built in just an hour! The steps to building a Wigwam are listed below in the wrong order. Can you figure out the correct order?

Directions[illegible]er the steps 1-6 beside each instruction

S[illegible]	**Instructions**
	C[illegible]am[illegible]ith birchbark, woven material, or caribou skins
	Bu[illegible]eart[illegible]r for a fire
	Make a co[illegible]l fra[illegible]ood poles
	Cover the leaves with [illegible]
	Place tree leaves on the floor [illegible] out[illegible]
	Make a hole in the roof to let the [illegible]

Questions

1. Why do you think the Wigwam was such a popular shelter?

____

____

____

2. Why didn't the First Nations use brick, steel, and other strong materials?

____

____

____

Name: ____________________________

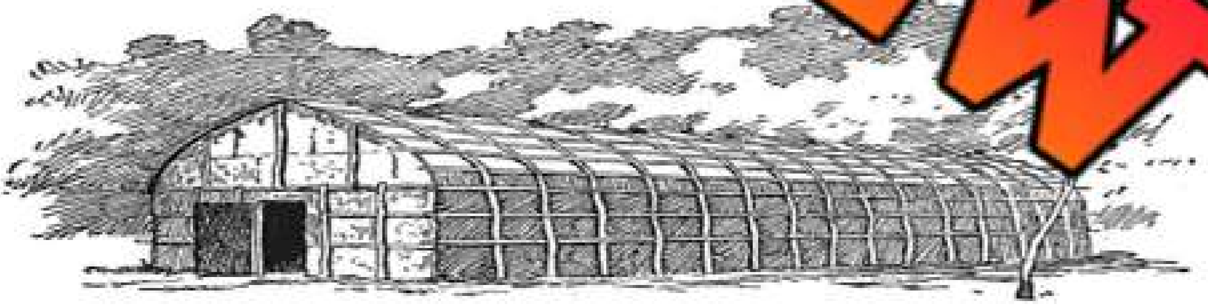
Curriculum Connection
M3.2

Longhouse Shelter

The Haudenosaunee lived in permanent shelters named Longhouses. Longhouses were permanent because they were difficult to build, and impossible to move. The steps to building a Longhouse are written below in the incorrect order. Can you figure out the correct order?

Directions: Number the steps 1-7 beside each instruction

Step	Instructions
	[illegible] [illegible]od poles with bark
	For t[illegible] [illegible]d more wood poles to run the opposite direction of the U[illegible]s
	Find [illegible] [illegible]ood [illegible] for the frame
	Make small [illegible] [illegible]he ro[illegible] smoke to escape
	Bend the wood poles to [illegible] [illegible]n ups[illegible]wn U
	Build sleeping platforms on the [illegible] [illegible]n the[illegible]se
	Build a row of hearths for the fires



What are the benefits and drawbacks of a longhouse?

____

____

____

____

Curriculum Connection
M3.2

Inukshuks

What are Inukshuks?

Inukshuks are special rock structures made by the Inuit people. They are made by stacking rocks on top of each other to form the shape of a perso[illegible]

The I[illegible]si[illegible] for three main reasons.

Navigation

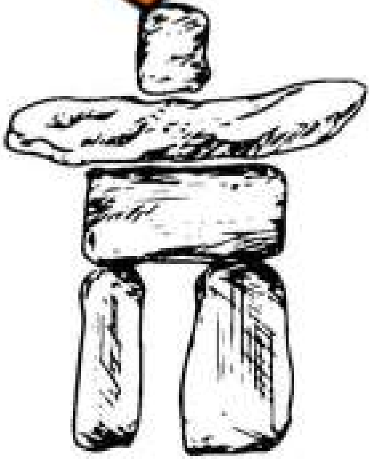
Inukshuks are u[illegible] mark t[illegible] something important.

- To mark a trail or pa[illegible]n the [illegible]rness, especially in areas with no roads or markers.
- To indicate the direction to a near[illegible]ge, h[illegible]or fishing grounds, or other important locations.
- To show the way to a good source of foo[illegible]r, o[illegible]

Communication

Inukshuks are used as a form of communication. They can tell [illegible]nters about the location of food, water, or shelter.

- To show that a hunting ground is nearby.
- To warn hunters or travelers of danger, such as a steep cliff or a fast-flowing river.



Culture

Inukshuks are part of Inuit culture. They are symbols of Inuit communities working together and helping each other out.

Name: ______________________

Curriculum Connection
M3.2

True or False Circle whether the statement is true or false

1) An inukshuk is just a bunch of rocks on top of each other	True	False
2) Inukshuks can tell us something important	True	False
3) The Inuit use inukshuks to help each other out	True	False
4) Inukshuks could tell us there is danger nearby	True	False
5) Inuksh[illegible] used by all Indigenous groups	True	False

Questi[illegible] [illegible] do [illegible] use inukshuks to help them know where important areas are?

Draw Draw 2 inukshuks. Below each one, explain [illegible] cou[illegible] esent?

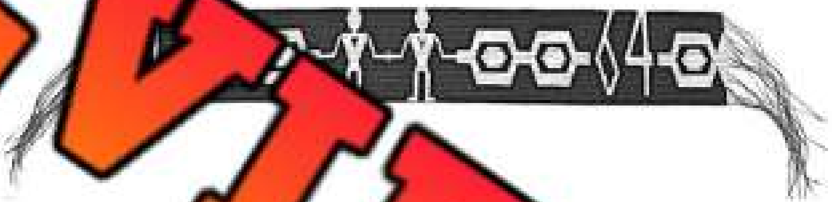
Curriculum Connection
M3.2

Indigenous Use of Ice and Shells

Using Shells: Making Wampum Belts

The Indigenous people of Canada used shells to make something special called a Wampum belt. Wampum belts were used to remember important events or agreements. Let's see how they made them:

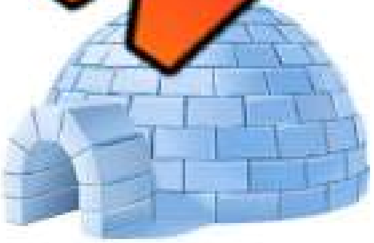
1) They [illegible] hells by the sea, especially white and purple ones.
2) [illegible] we[illegible] cleaned very well.
3) Af[illegible] clean[illegible] t t[illegible] shells into tiny bead shapes.
4) They ma[illegible] n each [illegible] ith a special tool.
5) They used a st[illegible] ads together in a pattern. The pattern told a story or messa[illegible]



Using Ice: Inuit Ways

The Inuit people, who live in the far North of [illegible] da[illegible] ws to use ice:

1) Making Igloos: The Inuit made homes called igloo[illegible] ic[illegible] ocks of ice and stacked them in a circle. They added more and [illegible] ake the igloo bigger and rounder. It was warm inside!



2) Hunting and Fishing: They cut holes in the ice to catch fish or seals that swam underneath.

3) Traveling: In winter, they would ride across the ice on sleds pulled by dogs. The hard, smooth ice made it easy to move.

4) Storing Food: The Inuit would use ice and snow to keep their food cold and fresh.

Name: ____________________

Curriculum Connection
M3.2

Questions How is a wampum belt made?

Draw [illegible] a wam[illegible] that symbolizes an agreement you have made with someone

True or False Is the statement true or false?

1) The Inuit need the ice to travel on	True	False
2) The Inuit use the ice to make igloos	True	False
3) Wampum belts were just used for fashion and didn't mean anything	True	False
4) Wampum belts are made of shells	True	False
5) Wampum belts are used to remember important events	True	False

Indigenous Use of Plants and Animals

Using Plants

The Indigenous people of Canada found many creative uses for plants:

- Clothing: They weaved plant fibers into clothing. Cedar bark, for example, could be turned into hats, mats, and clothes.
- Tools: [illegible] provided wood for making items like canoes, bows, and arrows.
- Co[illegible]ed large, sturdy leaves or woven grass to make containers fo[illegible]ring th[illegible]
- Toys: Som[illegible] make toys and games for the children to play with.

Using Animals

Animals were very important to the [illegible]ous p[illegible] and every part was used:

- Clothing: Animal skins were turned into wa[illegible] clothing. Deer skin, for example, was used to make soft, strong clothing items.
- Shelter: The hides of large animals were used to cover their ho[illegible]ke teepees or longhouses, to keep them warm and dry.
- Tools and Utensils: Bones, antlers, and even shells were transformed into tools and utensils for everyday use.
- Art: Feathers, bones, and hides were used to create beautiful pieces of art and jewelry.

Indigenous people made the most of plants and animals in their environment, always with respect and care.

Name: ______________________

Curriculum Connection
M3.2

Questions Answer the questions below using evidence from the text

1) How did Indigenous groups use plants?

2) How di[illegible]ous groups use animals?

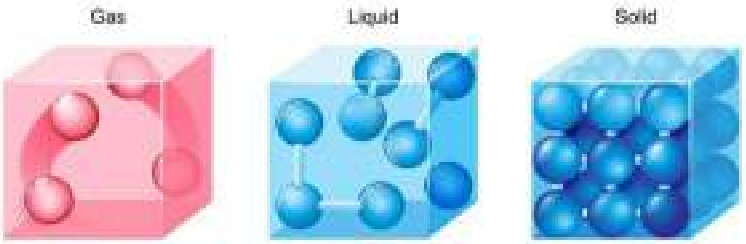
Draw Draw ways that plants a[illegible]d an[illegible]re [illegible]by Indigenous groups

Name: ______________________

Curriculum Connection
M3.3

What is Matter?

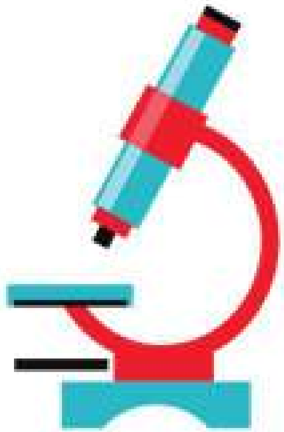
What is Matter?



Everything is made of matter. Look around. The desks in your classroom are made of matter, the air we breathe a[illegible] water we drink are all mad[illegible] en our bodies are made of matter!

[illegible] er is ev[illegible] hat has mass and occupies volume. Air is matter because air h[illegible] it[illegible] up space. We know this because a balloon that is full of air weig[illegible] e tha[illegible] balloon. Air also takes up space because when we blow up a ba[illegible] air pu[illegible] the balloon, expanding it.

A desk is also matter. [illegible] ns [illegible] eaning it has mass and it takes up space. When something takes up [illegible] we say [illegible] pies **volume**.



Particles - Atoms

All matter is made up of [illegible] s call[illegible] ms. When you look at matter, you can't se[illegible] y [illegible] with the best light microscope, single atoms [illegible] But, atoms are there. You are made of 7 billion bi[illegible] llion atoms, or 7,000,000,000,000,000,000,000,000,000.

Phases of Matter

All matter can be grouped into three phases – solid, liquid, or gas. An example of matter that goes through the three phases of matter is water. Water can be ice as a solid, regular water as a liquid, and steam as a gas.

The atoms in a solid are very close together, while they get further apart in a liquid, and very far apart in a gas.

Name: ______________________

Curriculum Connection
M3.3

Questions Use information from the text to support your answer

1) What does matter mean?

____

____

____

2) What are [illegible] three phases of matter? Explain how water can be all three phases of matter.

____

____

____

Questioning Wr[illegible] que[illegible]e about matter

1)	
2)	
3)	

True or False Circle whether the statement is true or false

1. The atoms in a solid are further apart than in a gas	True	False
2. Matter is everything that takes up space and has mass/weight	True	False
3. Our bodies are matter	True	False
4. Our thoughts and dreams are matter	True	False
5. Matter is made up of tiny particles called atoms	True	False

Name: ______________________ 51

Curriculum Connection
M3.3

Matter – Yes or No? Is the example matter – yes or no?

Dream

Yes No

Cereal

Yes No

Human

Yes No

Love

Yes No

Time

Yes No

Idea

Yes No

Flower

Yes No

Dog

Yes No

Table

Yes No

Wind

Yes No

Rainbow

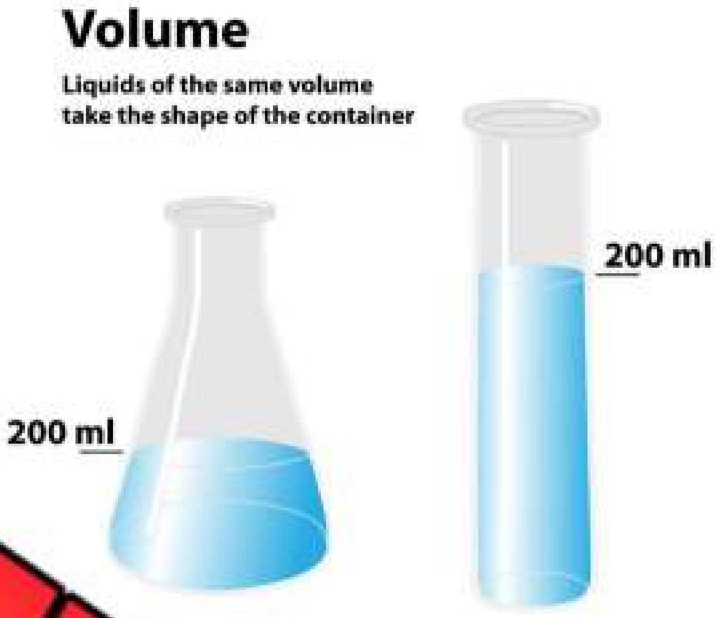
Yes No

Sunlight

Yes No

Curriculum Connection
M3.3, M3.4

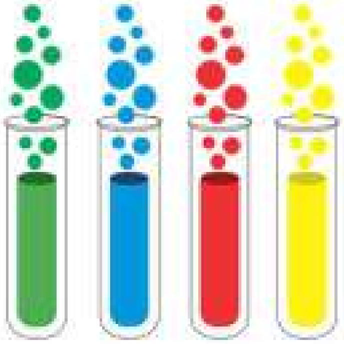
All About Liquids



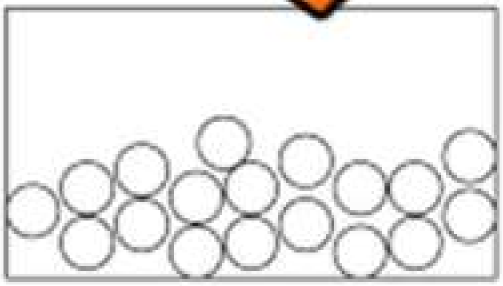
Liquids

A **liquid** is a form of matter that can be poured. When you pour a liquid, it will always take the shape of its container. [illegible]ur liquids into cups when w[illegible] The liquid will alway[illegible] the sh[illegible]e cup you are using. The[illegible]on[illegible] of liquid is water.

Liquids all have w[illegible] take up space. Liquids have a defi[illegible]olu[illegible] if you put 1 cup of water into a bowl or into a tall glass, it takes up t[illegible]e am[illegible]space. The volume of a liquid refers to how much space the liquid ta[illegible]



Liquids can chang[illegible]ei[illegible] Liquids can be made into solids when you co[illegible]o th[illegible]ezing points. Liquids can be turned into gases when y[illegible]eir boiling point. The freezing and boiling po[illegible] fo[illegible] liquid is different.



Properties of Liquids

- Do not have a definite shape
- Take the shape of their container
- Fill the bottom of a container or spread when they are not contained
- Maintain the same volume in different containers
- Are difficult to compress or squeeze because the particles are close together

Name: ______________________________ 54

Curriculum Connection
M3.3, M3.4

Word Search

Find the word bank words in the puzzle

V	N	W	F	I	B	V	K	F	H	V	L	N	O	F	C
D	A	C	J	I	L	N	R	U	W	C	M	H	T	L	O
A	Q	M	E	F	S	J	Y	T	P	D	W	Q	X	O	N
E	D	S	P	H	Y	H	E	U	W	L	Z	L	I	W	T
M	G	N	W	V	K	K	A	V	X	G	J	H	G	J	A
F	R	E	[illegible]	Z	I	N	G	P	V	O	L	U	M	E	I
L	I	Q	[illegible]	[illegible]	D	S	O	W	E	P	U	Z	B	E	N
D	P	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	R	A	T	U	R	E	T	J	E
F	G	[illegible]	A	X	[illegible]	[illegible]	[illegible]	J	H	V	W	T	B	L	R
E	H	M	A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Q	Q	F	G	O	E

Word Bank	
Liquids	Shape
Container	Flow
Temperature	Matter
Freezing	Volume

Fill in the Blanks

[illegible] on the line

1)	Liquids will always take t[illegible] sha[illegible] ______________________.
2)	The most common form of liquid i[illegible] ______________
3)	Liquids can change their states of ____________
4)	Liquids will turn into solids when they are ______________ [illegible]eated).
5)	Liquids fill the ______________________ of their contain[illegible]

Making Connections

What does this reading remind you of in your life?

____

____

____

____

____

Curriculum Connection
M3.3, M3.4

Experiment - Flowing Liquids

Research Question What are we testing?

Which liquids will flow the fastest, and which will flow the slowest?

Materials o we need for our experiment?

- Small ear pl
- Small candi
- Various liquids (w rn syrup, etc.)
- Stopwatch (optional)

Method How do we complete the ex ment?

1. Fill each of the cups full of the different liqu
2. Drop a candy into the first liquid. Use the stopwatch e h i es to drop to the bottom of the cup.
3. Repeat this step for all liquids
4. Record the length of time for each liquid on this page

Hypothesis Which liquid will flow the fastest and the slowest?

Fastest ______________________

Slowest ______________________

Name: ______________________________

Curriculum Connection
M3.3, M3.4

Observations Record how long the candy takes to sink to the bottom

Liquid	Prediction (seconds)	Actual time (seconds)

Diagram Draw a picture of your experiment. Draw t[illegible]nd s[illegible]andy flowing through the liquid

Name: ______________________________

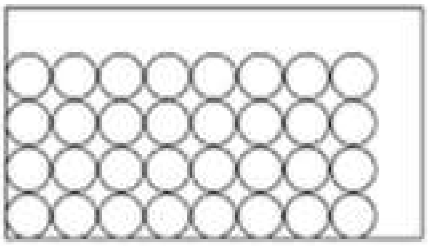
Curriculum Connection
M3.3, M3.4

Characteristics of Solids

All About Solids

Solids can have a lot of different characteristics. Many solids are hard like your desk, the walls and floors. Solids can also be soft, like a cotton ball. Some solids like play dough and clay can be molded so you can change their shape.

They [illegible]ll still solids. When you break a solid, it stays a [illegible] than one piece. When you break a cook[illegible] s[illegible]s and crumbs, but it will not become a liqu[illegible]



The particles do not move or spread out to fit the container

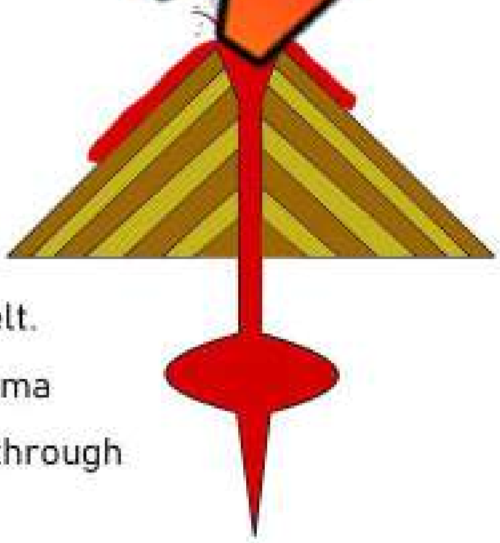
<u>Therefore, solids:</u>

- Can't be poured
- Holds their shape unless an outs[illegible] act[illegible] (example – cuts it)
- Has a definite shape (do not take the shape [illegible]eir [illegible])
- Is difficult to squeeze as the particles are [illegible]
- Is dense because there are many particles pack[illegible] tog[illegible]
- Can be described in many ways, including hard, soft, [illegible]gh, [illegible]nd

Solids Can Melt

When a solid is heated to its melting point, it will turn into a liquid. Some solids, like ice, will change into a liquid at room temperature. Other solids, like rocks, will need to be heated at very high temperatures to melt.

Rocks will melt under the ground in magma. Magma is melted rock. When magma comes up to the surface through a volcano, it is called lava.



Name: ____________________________

Curriculum Connection
M3.3, M3.4

Questions Answer the questions below using evidence from the text

1) What does it mean that solids do not take the shape of their container? Give an example.

2) What d[illegible]t mean that solids hold their shape? Give an example.

Visualizing Draw wh[illegible] y[illegible]ictur[illegible]hile you were reading. Explain the picture

True or False Is the statement true or false

1) When you break a solid into pieces, it becomes a liquid	True	False
2) When a solid melts, it becomes a liquid	True	False
3) A solid takes the shape of its container	True	False
4) Solids can be strong, weak, soft, or hard	True	False
5) Rocks can melt into liquids	True	False
6) Rocks cannot melt because they are too hard	True	False

Curriculum Connection
M3.3, M3.4

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________

Mark	

Is the statement true or false?

1) Solids take the shape of their container.	True False
2) When you break a solid, it becomes a liquid.	True False
3) Rocks will melt into lava under the ground.	True False
4) Solids can be soft, like a cotton ball.	True False
5) Solids can be poured easily like water.	True False

Name: ____________________

Mark	

Is the statement true or false?

1) Solids take the shape of their container.	True False
2) When you break a solid, it becomes a liquid.	True False
3) Rocks will melt into lava under the ground.	True False
4) Solids can be soft, like a cotton ball.	True False
5) Solids can be poured easily like water.	True False

Name: ____________________

Mark	

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5) Solids can be poured easily like water.	True False

Name: ____________________

Mark	

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3) Rocks will melt into lava under the ground.	True False
4) Solids can be soft, like a cotton ball.	True False
5) Solids can be poured easily like water.	True False

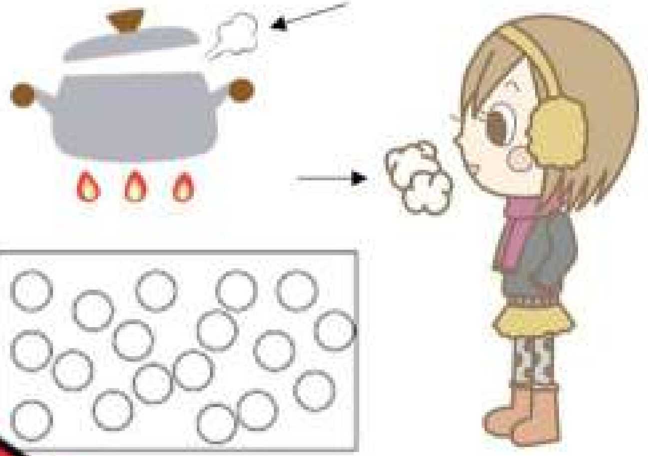
Name: ____________________

Curriculum Connection
M3.3, M3.4

All About Gases

All About Gases

One form of matter that we cannot see is a gas. The air we breathe is a gas. Even though we can't see a gas, we know it is there. It might have a smell. We might even feel it, like we feel wind.



Exam[illegible] of gases are steam, air, wind, perfume[illegible]alloon, balloon, helium.

How [illegible] Act

- Gases flo[illegible]ast[illegible]n liquids
- Gas particles [illegible]r ap[illegible]
- Gases do not hold t[illegible]ape

Yes/No Circle the best answer

1) Can we see most gases?	[illegible]	No
2) Can gases hold their shape?	Ye[illegible]	No
3) Do gases flow?	[illegible]es	No
4) Do gases flow faster than liquids?	Ye[illegible]	[illegible]
5) Is air a gas?	Yes	No

Draw Draw examples of 2 different gases

Name: ______________________________

Curriculum Connection
M3.3, M3.4

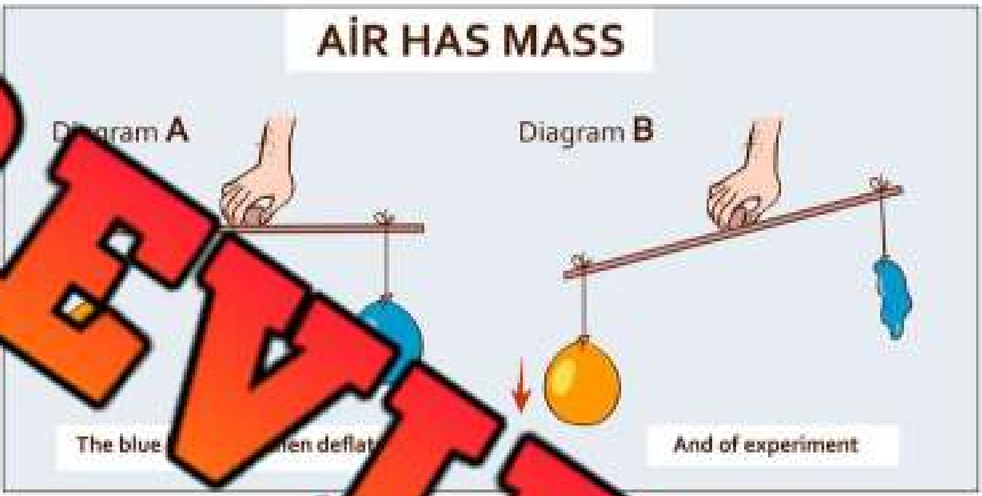
Does Air Have Any Weight

Research Question What are we testing?

Does air have any weight?

Materials What do we need for our experiment?

- 2 balloons
- A metre s
- String that is about 1 metre long



Procedure How do we do the experiment?

1) Blow up the 2 balloons to the same size.
2) Cut two 15-centimeter-long pieces of string
3) Attach a balloon to opposite ends of the metre stick using the 15 cm string pieces
4) Tie the left-over string around the centre point of the metre stick
5) Hold the string up and observe the balloons
6) Make a hole in one of the balloons letting the air out
7) Observe what happens

Name: ______________________ 67

Curriculum Connection
M3.3, M3.4

Hypothesis What do you think will happen?

____

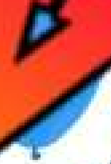
____

____

____

Resul nswer t ions below

1) Which ballo s mor



The Popped Balloon

Blown-Up Balloon

2) How do you know one balloon is heavier tha

____

____

3) Draw a diagram of the experiment. Label the popped balloon and the blown-up balloon.

Name: ______________________

Curriculum Connection
M3.3, M3.4

All About Air

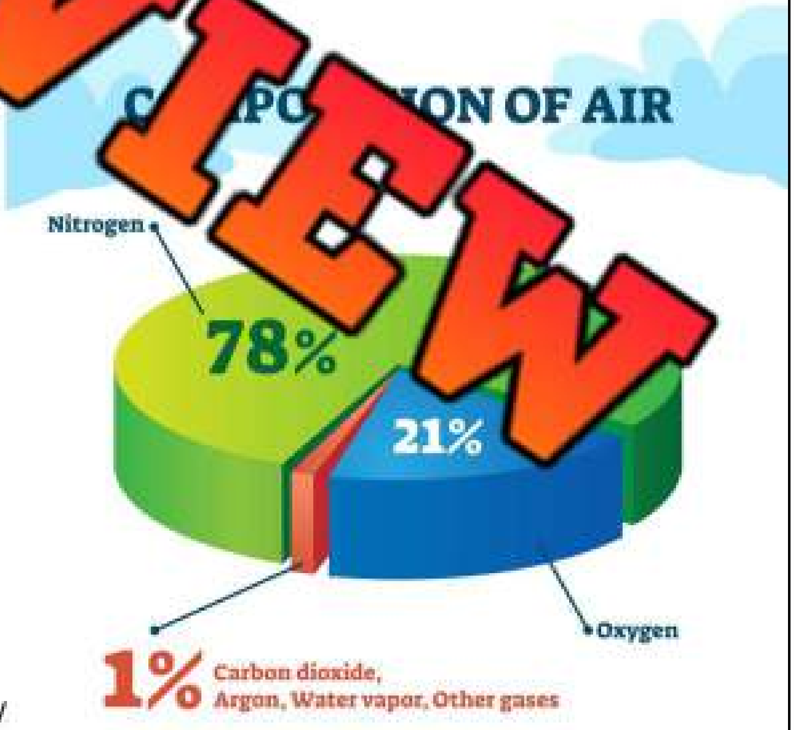
All About Air

Everything around you is matter. The air you breathe is matter. The juice you drink is matter. The chair and desk in the classroom are both matter. They are all different kinds of matter. Matter can be liquid, solid or gas.

Air [illegible]r in the form of a gas. We cannot see air, but it is all around us. Air c[illegible] a layer that is several kilometers deep. This layer is called the ea[illegible] **atmo**[illegible] you go to outer space, you leave the atmosphere and won't have a[illegible]!

<u>Air is made of several [illegible] kinds [illegible]. Air is made of:</u>

- ○ Nitrogen → 78 percent
- ○ Oxygen → 21 percent
- ○ Carbon Dioxide
- ○ Water Vapour
- ○ Argon
- ○ Rare gases



Properties of Air

- ○ We cannot feel air unless it is moving, like on a windy day
- ○ We cannot see clean air
- ○ Air has no colour, unless it is dirty
- ○ We cannot smell air unless it is polluted. Clean air has no smell
- ○ Air is a gas and a fluid. We know this because planes can fly through the air!

Name: ______________________

Curriculum Connection
M3.3, M3.4

True or False Is the statement true or false?

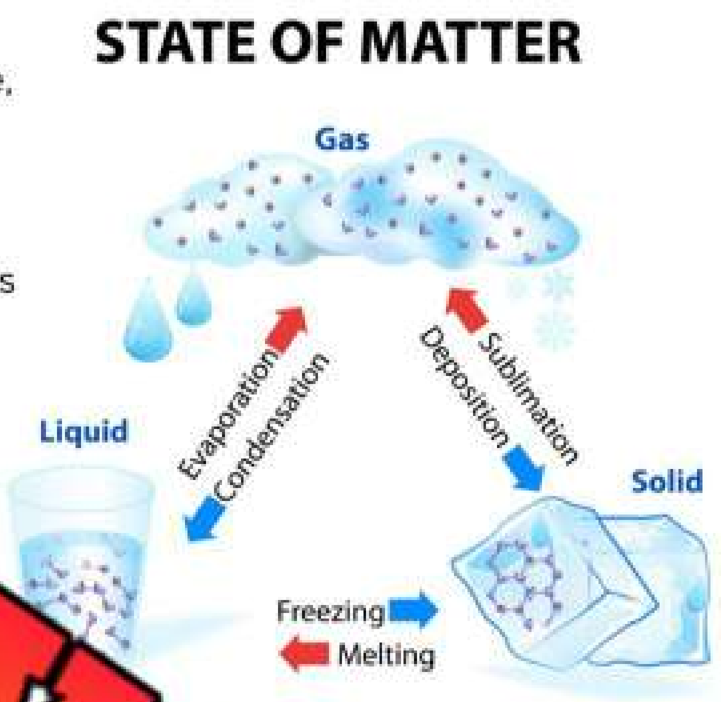
1) Air is matter	True	False
2) Our air is made mostly of oxygen	True	False
3) Our bodies are matter	True	False
4) Air is a liquid	True	False
5) We ca[illegible] or smell clean air	True	False

Search [illegible] Find [illegible]nswers to the questions below

1)	What are th[illegible] stat[illegible]r? ____________, ____________, ____________
2)	Name the two mai[illegible] air ____________, ____________
3)	Can we see clean air? ____________
4)	What kind of air can we see? ____________
5)	What layer on earth has air in it? ____________

Making Connections Have you ever seen dirty air? Expla[illegible]

Changes in State - Physical Changes Involving Heat



Changes in State – Physical Changes

When a solid, liquid or gas changes state, they have completed a physical change. Changes in state are reversible because no new substance is formed. The matter's chemical [illegible] is the exact same.

[illegible] has the chemical makeup [illegible] and oxygen (H_2O).

It does not matter if [illegible] is in liquid form, gas form, [illegible] form, it still has the same chemical [illegible] H_2[illegible]

Changes in State Involve Heat

When matter changes state, it can be reversed [illegible] heat. When matter absorbs heat, it could undergo the processes of evaporation, melting (fusion), or sublimation.

When matter releases heat, it could undergo the process [illegible] freezing (solidification), condensation or deposition.

Heat changes the particles in matter by changing the attractions between particles. When heat is absorbed by matter, the particles in the matter lose attraction and begin to move faster. They collide with each other and spread out, changing the state to a liquid or a gas.

When heat is released by matter, the particles in the matter gain attraction and get closer together. If enough heat is released, the particles may slow down and begin to vibrate instead of move, causing a change of state to a solid.

Name: ______________________

Curriculum Connection
M3.3, M3.4

Matter and Heat How is heat affecting the matter below?

Matter	Heat	New State of Matter?	Particles Movement – Circle One		
Water	Absorbed		Vibrate	Slow	Fast
Water	Released		Vibrate	Slow	Fast
Ice	Absorbed		Vibrate	Slow	Fast
Vapour	[illegible]		Vibrate	Slow	Fast

Questions An[illegible]esti[illegible] below using evidence from the text

1) If matter is left in th[illegible]e e[illegible]eat added or released), will it change phases? Explain using an example.

2) What happens when heat is released by matter?

Visualizing Draw what you were picturing while you were reading. Explain the picture

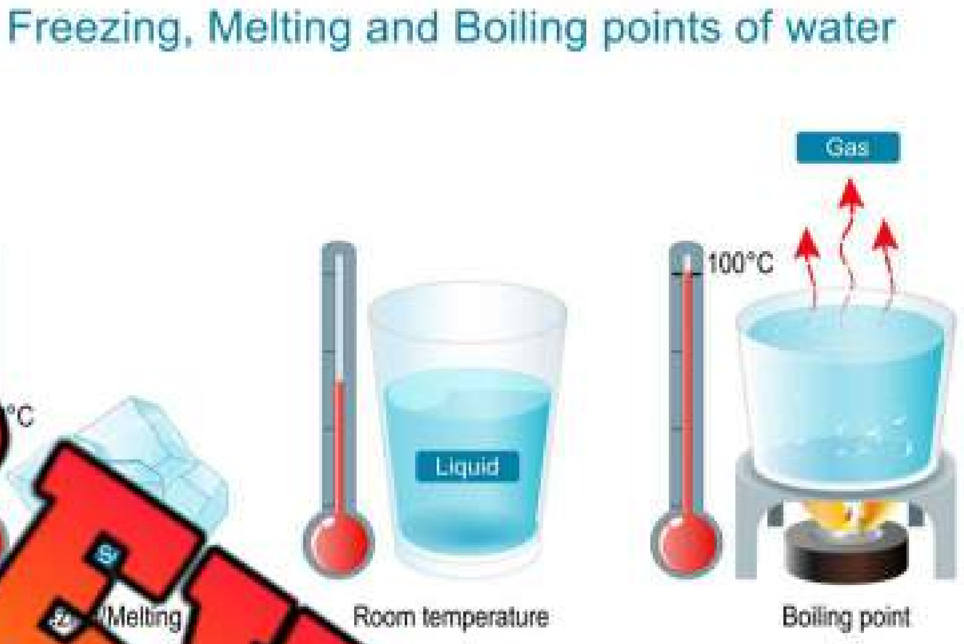
Name: ______________________

Melting Point

What is Melting?

Melting is the process of a solid changing into a liquid when heat is applied.

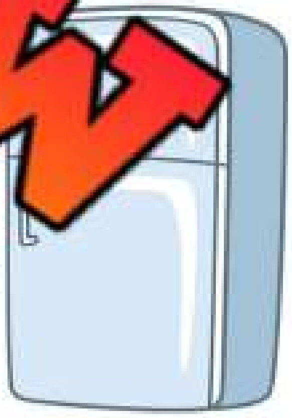
E[illegible] an ice [illegible] in a freezer will [illegible] a solid because t[illegible] is no heat added. If you take the ice cube out of t[illegible]eez[illegible]mperature is warmer, which means the ice will absorb the heat.



The heat will cause the particles inside [illegible]olid t[illegible]his will cause the particles to spread out and flow into the botto[illegible] are held in. If the ice is on a table or on the floor, it will flow and [illegible]ess!

What is a Melting Point?

All solids have a melting point. The melting point for ice is 0˚C. If you take an ice cube out of a freezer and then bring it outside into an environment colder than 0˚C, it will stay a solid because it hasn't reached its melting point.



Room temperature is about 20˚C. This means that ice melts fast when it is at room temperature.

Did you notice that the freezing and melting points are the same? This means that liquid water will freeze at below 0 and frozen water will melt at above zero.

Name: ____________________

Curriculum Connection
M3.5

Fill in the Blanks Write the missing word on the line

Word Bank				
Solid	Melting	Liquid	Temperature	Same
Gas	Boiling			

Melting h[illegible] when a ____________ reaches a temperature warmer than its ____________ po[illegible]ing it into a ____________. For example, an ice cube melts at a ____________ [illegible]mer than 0 degrees Celsius. The melting point is the ____________ a[illegible]zing [illegible]iquids don't melt, however they do have a ____________ point, where th[illegible]ge st[illegible] to a ____________.

Questions Answer the questions below

1) What happens when a solid reaches its melting point?

____

____

____

____

2) When have you seen a solid reach its melting point?

____

____

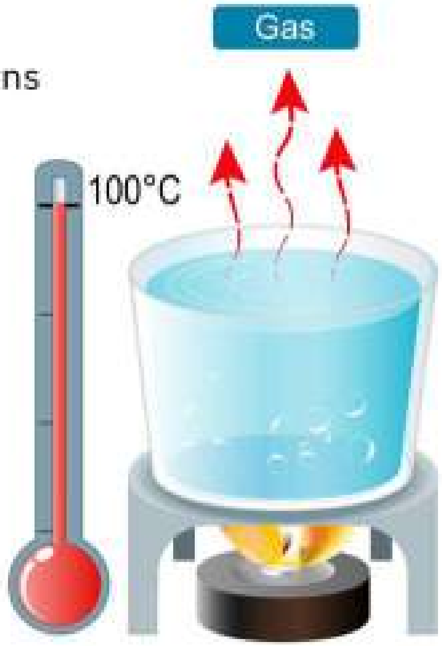
____

____

Curriculum Connection
M3.5

Boiling Point

What Does Boiling Point Mean?



Boiling point

The **boiling point** is the temperature at which a liquid turns into a gas. For example, water boils and turns into steam when it reaches 100 degrees Celsius.

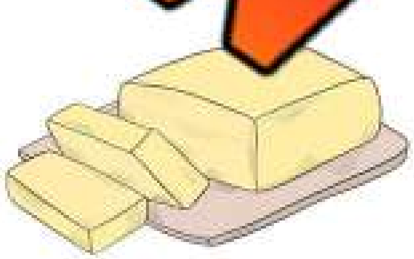
Diffe[illegible]iquids have different boiling points. When c[illegible]e, it is helpful to use different temp[illegible]es de[illegible] what you're making. For example, ma[illegible]ts h[illegible]ifferent boiling points, meaning y[illegible]ght [illegible] some on high.

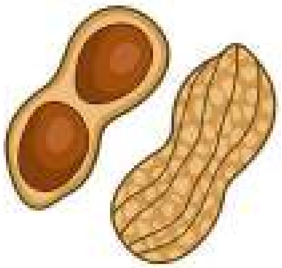
It is also helpful t[illegible]at we [illegible]n dirty water by boiling it. When we [illegible] wat[illegible]ful bacteria, viruses, and parasites that [illegible]be in t[illegible]. This means if you ever need to clean water, you can boil it to kill the[illegible]e livi[illegible] in your water.

Different Boiling Points of Liquids

Depending on the liquid being heated, it will take longe[illegible]at [illegible] boiling point. Ethanol will boil at 78.5 degrees Celsius while ca[illegible]il until it is heated to 204 degrees Celsius.

- Water: 100 degrees Celsius
- Olive oil: 205 degrees Celsius
- Peanut oil: 165 degrees Celsius
- Coconut oil: 177 degrees Celsius
- Vegetable oil: 180 degrees Celsius
- Butter: 150 degrees Celsius
- Mercury: 357 degrees Celsius





Name: ______________________

Curriculum Connection
M3.5

Questions Use information from the text to support your answer

1) What does the boiling point of a liquid mean?

____

____

____

2) How is [illegible] boiling point different in different liquids?

____

____

____

Visualizing Draw w[illegible] you [illegible] while you were reading. Explain the picture

____

____

____

____

____

____

True or False Circle whether the statement is true or false

1) Butter will boil at a lower temperature than water	True	False
2) You will need to boil water at a higher temperature than mercury	True	False
3) All liquids boil at 100 degrees Celsius	True	False
4) Boiling water will kill bacteria, parasites, and viruses	True	False
5) The boiling point of a liquid is when it will turn into a solid	True	False

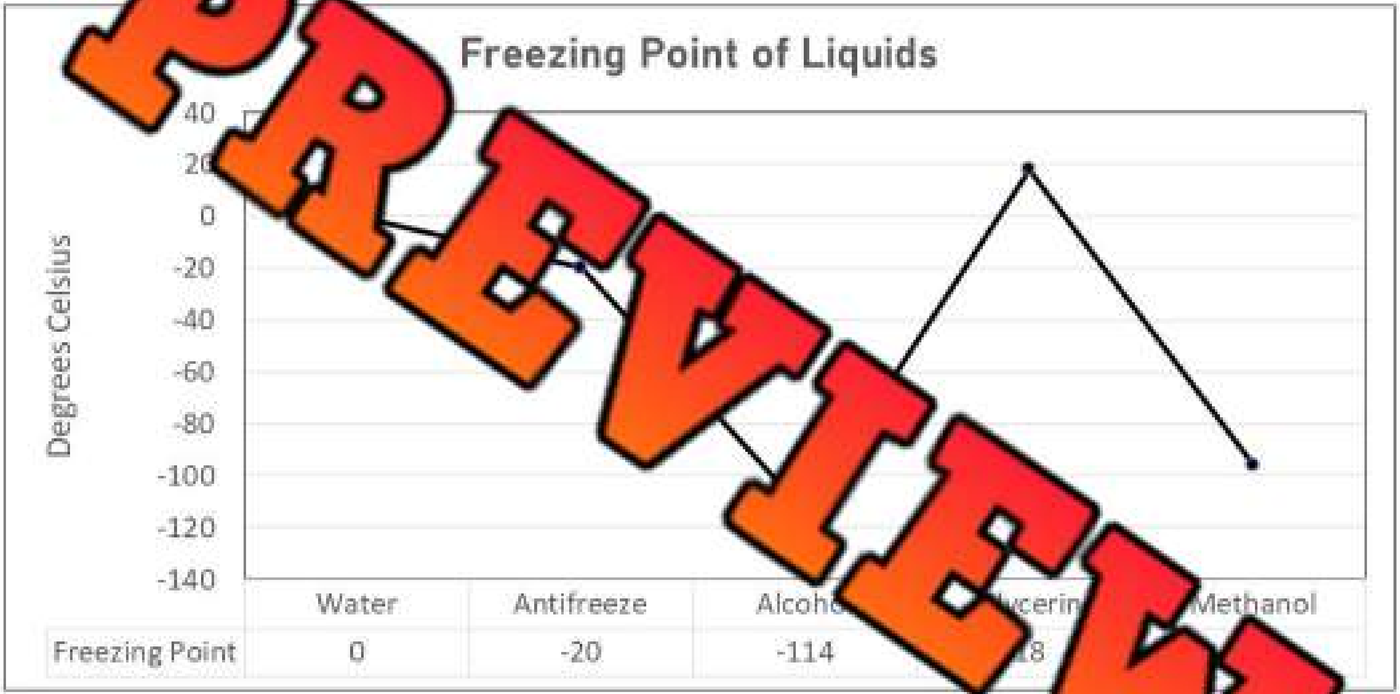
Name: ______________________________

Curriculum Connection
M3.5

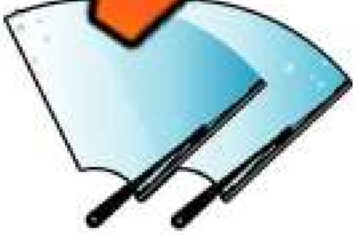
Freezing Point

Freezing and Freezing Points

Freezing is the opposite of melting. **Freezing** is when a liquid changes state to a solid. Different liquids have different freezing points. Water has a freezing point of 0 degrees Celsius. C[illegible]t the graph below to see other liquid's freezing points.



Understanding Science to Help Our Lives



Water will freeze at 0˚C, which means it would not make good anti-freeze for your car. Anti-freeze is used to stop water from freezing and damaging a car's engine. Anti-freeze is made of ethylene glycol, which has a freezing point of -20˚C.

Windshield wiper fluid is made of methanol. Methanol has a freezing point of -96˚C. This makes it a great choice to clean our windshields on very cold days!

When the weather is below 0, we need to drive very carefully as water on the roads will freeze and turn into slippery ice.

Name: ______________________

Fill in the Blanks

Write the missing word on the line

1)	Liquid water will freeze when the temperature is ________________ zero.	Below / Above
2)	Water can be a liquid or a ______________________.	Mud / Solid
3)	Diffe[illegible] liquids have different freezing _______________________.	Points / Places
4)	[illegible]ing point of ___________________ degrees Celsius.	-20 / -96
5)	Wh[illegible] the te[illegible]s below zero, there could be _______________ on the road[illegible]	Ice / Rain

Questions

Answer t[illegible]be[illegible]

1) How does water freeze?

____

____

____

2) How can freezing water be dangerous?

____

____

____

Making Connections

What does this reading remind you of in your life?

____

____

____

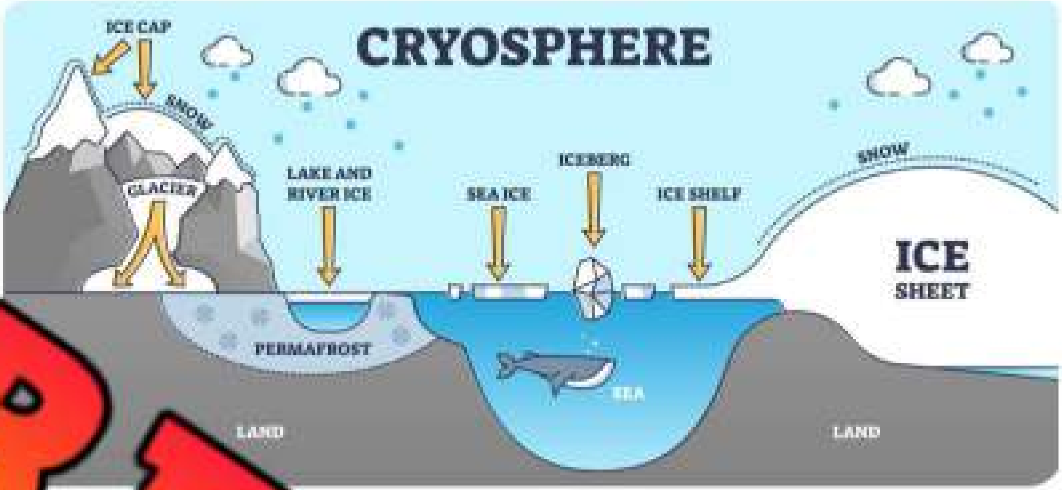
____

Name: ______________________

Curriculum Connection
M3.5

Cryosphere - Glaciers

What is the Cryosphere?



The **cryosphere** is the part of the earth's surface that has s[illegible] water – i[illegible]

What a[illegible]lacier[illegible]

A **glacier** is a[illegible] moving, large piec[illegible]e th[illegible]n over a long period of time. Most glaciers are made of freshwater [illegible]ed.

- <u>Ice Sheet</u> – Ice sheets are th[illegible] larg[illegible] or [illegible]r. Ice sheets are the size of continents as they must be bigger [illegible]an 50,0[illegible]uar[illegible]metres. The only ice sheets on Earth are in Antarctica and Gr[illegible]d.
- <u>Ice Cap</u> – Ice caps are smaller than ice sheets, a[illegible]e les[illegible] 50,000 square kilometres. Most ice caps are found near the n[illegible] a[illegible] of the earth. Canada has the Devon Ice Cap on Devon Island in Nu[illegible]
- <u>Icebergs</u> – Icebergs are floating pieces of ice that are more than 15 metres long. They are found in oceans or lakes. Icebergs are made when they break off a larger glacier. Icebergs are made of freshwater, as they begin their live on land.
- <u>Sea Ice</u> – Sea ice is frozen ocean water; therefore, it is made of saltwater. Sea ice floats on the ocean's surface.
- <u>Ice Shelf</u> – Ice shelves are permanent floating sheets of ice that are connected to a landmass. When ice breaks off an ice shelf, it can become an iceberg.

Name: ______________________________

Curriculum Connection
M3.5

Questions Use information from the text to support your answer

1) What is a glacier?

____

____

____

____

2) What is [illegible]et? Where are they found?

____

____

____

____

Order Put the glaciers below [illegible] (1) to largest (6)

Iceberg	Ice Cap	Ice Sheet	[illegible]lf	[illegible]	Lake/River Ice

Multiple Choice Circle the best answer

1) The largest glacier is an	Ice cap	Ice sheet
2) An ice sheet must be larger than	100,000 km^2	50,000 km^2
3) A glacier that is smaller and is made of freshwater	Sea Ice	Iceberg
4) Sea Ice is made of	Freshwater	Saltwater
5) Most glaciers are made of…	Freshwater	Saltwater
6) Glaciers are…	Moving	Still

Name: ______________________

Curriculum Connection
M3.5

Evaporation

What is Evaporation?
Evaporation is the process in which a liquid turns into a gas. Evaporation happens when a liquid is heated to the point that the liquid particles begin moving faster. As the particles move faster, they begin to collide with each other. This results in the liquid becoming a gas as the particles become far apart.

Evaporation or Boiling
During evaporation, only the liquid at the surface (top) will turn into a gas.
During **boi**[illegible] the particles throughout the liquid are also changing into a gas. Therefore, boiling re[illegible] liquid to be exposed to a lot of heat but evaporation can happen even at room [illegible] That is why your wet shirt will "dry" after gym class – yuck!

Fill in th[illegible]**nks** [illegible] blanks using words from the word bank

[illegible]ord Bank				
Liquid	E[illegible]o	[illegible]t	Faster	Disappear
Gas	War[illegible]	[illegible]		

The process of a ______________ ch[illegible]nto a [illegible]alled ________________. A liquid will turn into a gas as a result of ____________ [illegible]ng a[illegible]d by the liquid. A spill will ________________ as a result of being evapor[illegible]he st[illegible]flowing out of a kettle is a ___________________. The ______________ [illegible]e[illegible]peratu[illegible] ____________________ the liquid will evaporate.

Questions Answer the questions below

1) Why do hand dryers use hot air instead of just air?

____

____

2) Where does the water go when it evaporates from a liquid?

____

____

3) Name some examples of when you have seen evaporation.

____

____

Examples of Evaporation

Evaporation at Home

At home, evaporation happens often. We understand that the water used to clean our clothes will evaporate when we hang them or when we put them in a drying machine.

When we spill a drink on a table, we will notice it w[illegible] dry hours later. This is due to evapora[illegible] d[illegible]k was sugary, there will be a[illegible] substan[illegible] the table.

Evaporation in [illegible]unity

In the community, w[illegible]ring a rainy day, everything is wet and covered in water. Once it s[illegible]ing, [illegible] of evaporation will dry up the puddles. If the sun is out, the evaporat[illegible]en faster.

Evaporation in the Natural Environment

Animals use the process of evaporation to cool them down. They use **evaporative cooling** to regulate their body temperature. They do this by swimming in water or by wallowing in mud. The water is then evaporated off their bodies just like how humans sweat is evaporated.

Some animals also pant, which means they breathe rapidly with their mouth open to increase evaporation from the hot air they release from their mouths.

In the natural environment, we will notice that water levels in ponds, lakes, and rivers will lower after several hot days without rain. Rainfall will often even out the evaporation. When we see rain, it is because water from rivers, lakes, and ponds is evaporated and formed into a raincloud. Evaporation is key for our water cycle.

Name: ______________________

Curriculum Connection
M3.5

Questions Use information from the text to support your answer

1) What is evaporation?

____

____

____

2) When have you see evaporation today or recently? Describe it.

____

____

____

Examples Write examples [illegible] evaporation in the settings below

At Home	
In the Community	
In the Natural Environment	

Name: ______________________________

Curriculum Connection
M3.5

Lab Experiment - Evaporation

Research Question What are we trying to answer?

1) What happens to water after it rains?
2) How does the sun, shade, and wind affect the process of evaporation?

Hypothesis Answer the research questions below before we do the experiment

1) What hap[illegible]water after it rains?

____

____

2) How does the [illegible]rat[illegible] Does shade speed up or slow down evaporation?

____

____

3) How does wind affect evapo[illegible]

____

____

Materials What you will need for the experi[illegible]

1) Pail/cup of water for each student
2) Paintbrush for each student
3) Chalk for each student
4) Stopwatch - optional

Procedure Instructions – How to complete the experiment

1) Go outside and use the water and paintbrush to paint a simple picture on pavement in the sun
2) Use the chalk to make an outline of your picture
3) Use the results page to track how your picture looks after 2 minutes, 5 minutes, and 10 minutes.
4) Next, complete the steps above in a new shady location. Compare the results.
5) Lastly, complete the steps above but this time, blow on your picture or use a fan to simulate wind. You could also draw your picture on the side of the school as it will receive more wind than the pavement.

Name: ______________________

Curriculum Connection
M3.5

Lab Experiment - Evaporation Results

Observations Fill in the table below as you complete the experiment

Location	**Time**	**Observations – Examples Below** - No evaporation - Half evaporated - Completed evaporated
Sunny Locatio[illegible]	[illegible]fter 2 Minutes	
	[illegible]r 5 Minutes	
	[illegible]er [illegible]tes	
Shady Location	Af[illegible]s	
	A[illegible]nutes	
	After 10 [illegible]	
Windy Location	After 2 Minute[illegible]	
	After 5 Minutes	
	After 10 Minutes	

Results Answer the research questions now that you [illegible] [illegible]pleted [illegible]eriment

What happens to water after it rains?

____

____

How does the sun affect evaporation? Does shade speed up or slow down evaporation?

____

____

____

How does wind affect evaporation?

____

____

Name: ______________________

Curriculum Connection
M3.5

Condensation

What is Condensation?
Condensation is when water changes from a gas to a liquid. Condensation is the opposite of evaporation, which is the changing of water from a liquid to a gas.

Why Does Condensation Happen?
Condensation happens when a gas touches a cooler surface. The cooler surface will [illegible]use the gas to release heat. When the gas cools, the particles b[illegible] slow down, causing them to be more attracted to each othe[illegible] into water droplets.

Cond[illegible]on [illegible] my[illegible]
Have you [illegible]er not[illegible]ur cold drink "sweats" on a hot day? Well, your drink doesn't actually sweat[illegible]dens[illegible]is occurring. On a hot day, there is a lot of water vapour in the air [illegible] of ev[illegible]. When this warm air makes contact with your cold glass, the water[illegible]ur i[illegible]ses on the side of your glass. This forms water droplets on the coo[illegible]e.

Water Cycle – Formation of Clo[illegible]
Condensation is very important in the w[illegible]e. As [illegible] from lakes, rivers, and oceans evaporate, the water vapour goes up in[illegible] atmos[illegible]t [illegible]n't disappear! Instead, it rises until it comes into contact with a colder surf[illegible] our [illegible]ere, the water vapour commonly clings to dust particles, salt crystals, [illegible]ia, o[illegible]e[illegible]d from volcanoes.
We usually think of clouds only being in the s[illegible] [illegible]n be [illegible] ground level too! When we see a cloud near the ground, we call it fo[illegible] thro[illegible]g is just like walking through a cloud!

Visualizing What were you picturing while you were reading? Draw it!

What words from the text made you draw this picture?

____

____

____

____

____

Name: ____________________

Curriculum Connection
M3.5

Multiple Choice Circle the correct answer

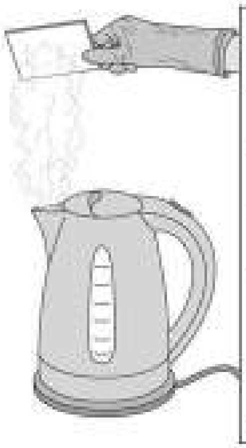
1) Condensation is when...	2) Condensation happens when...
a) vapor/gas turns into a liquid	a) water vapour suddenly freezes
b) liquids turn into a gas	b) water droplets form a liquid
c) a solid melts into a liquid	c) water freezes into ice
d) a gas turns into a solid	d) water heats up into a vapour

Fill in the [illegible] Fill in the blanks using words from the word bank

Word Bank				
Condensation	[illegible]	Condenses	Vapour	Volcanoes
Droplets	[illegible]	[illegible]	Cold	

Condensation occurs w[illegible] is evaporated and ______________ into water droplets. [illegible] from the evaporation collects on a __________ surface. This can be [illegible] soft drink has water ____________ on the can. The process of the [illegible] water droplets is called ____________________. A common example [illegible] formation of ____________. Evaporated water from lakes, rivers, and [illegible] ________________ in the air, like dust, salt, bacteria, or even ash [illegible] __________.

Question What is happening in the picture?



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____

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____

Name: ______________________

Curriculum Connection
M3.5

Lab Experiment - Condensation

Research Question

What are we trying to answer?

Will hot water evaporate and condense on a colder surface? What will happen with the condensed water droplets?

Hypothesis

Answer the research questions below before we do the experiment

1) Will hot [illegible]porate and condense on a colder surface? Explain.

____

____

____

2) What will happen w[illegible]plets?

____

____

____

Materials

What you will need for the experiment

1) 1 cup per group/person (glass or see-through)
2) 1 plate per group/person
3) Approximately 5-10 ice cubes per group
4) Hot Water

Procedure

Instructions – How to complete the experiment

1) Pour about 5-10cm of hot water into the cup
2) Quickly put the plate on top of the cup and let it sit for about 30-40 seconds
3) Put your ice cubes on top of the plate
4) Record what happens!

Name: ____________________

Curriculum Connection
M3.5

Lab Experiment - Condensation Results

Observations Fill in the table below as your complete the experiment

Step	What Happened
After hot water was poured and the plate was ed on to	
After the ice added to the	

Results Answer the questions nat ted the experiment

1) How was this experiment an example condens ?

2) When the water poured down the side of the glass, what did that environment?

3) Why did the water pour down the sides of the cup? How does this relate to our real-world water cycle?

Name: ______________________

Curriculum Connection
M3.6

Water Cycle

What is the Water Cycle?

Have you ever wondered where water goes after a heavy rainfall? Those puddles don't simply disappear! Water moves from one part of the environment to another.

No water is ever lost. The water is recycled. It goes through what we call the water cycle. The **[illegible] cycle** is the movement of water between the Earth's surface and the air, changing [illegible] to gas and gas to liquid.

How [illegible]?

The water in the [illegible] through 4 main stages – *evaporation*, *condensation*, *precipitation*, [illegible].

Evaporation

Heat from the Sun turns [illegible] streams, ponds, and even puddles into [illegible]. The rising water vapour goes up in the sky and [illegible]

Condensation

When the water vapour rises high into the air, it cools. When it cools enough, the water vapour condenses and turns into water droplets. When enough water droplets [illegible] together and form a cloud.

Precipitation

As more and more water droplets add to a cloud, they become too heavy to stay in the air. The water droplets in the cloud fall to the Earth's surface as precipitation. **Precipitation** is the process of any form of water dropping to the Earth.

Collection

The water that falls from the clouds as rain or snow lands on the Earth. This water collects in oceans, rivers, lakes, and streams. Now it can be evaporated again!

Name: ____________________________

Curriculum Connection
M3.6

Questions Use information from the text to support your answer

1) How does water change states from a liquid to a gas in the water cycle? What does that make?

____

____

____

2) How wou[illegible] life be different if water didn't change states in the water cycle?

____

____

____

Multiple Choice [illegible]e th[illegible]r

1. When liquid turns into a [illegible]	Condensation	Evaporation
2. When gas turns into a liquid	[illegible]densation	Evaporation
3. When water falls from clouds	Eva[illegible]on	Precipitation
4. Precipitation can fall as...	[illegible]	Rocks
5. Condensation leads to...	[illegible]ds	Puddles

Visualizing Draw what you were picturing while you were readi[illegible]ture

____

____

____

____

____

____

____

____

Name: ______________________ 106

Curriculum Connection
M3.6

Water Cycle Diagram

Diagram Write the stages of the water cycle on the blanks below
Evaporation, Collection, Condensation, Precipitation

Matching Match the term to the description by writing the lett[illegible]erm

Answer	Term	Description
	Precipitation	a) Water stays in oceans, lakes, and rivers
	Condensation	b) Water falls from the sky
	Evaporation	c) Water is heated and turns to water vapour that rises
	Collection	d) Water cools and turns into water droplets in clouds

Name: ______________________

Curriculum Connection
M3.6

Experiment - Water Cycle

Research Question How does water move through our environment?

How does the heating and cooling of water move water around our environment?

Materials [illegible]o we need?

- ✓ L[illegible] bowl
- ✓ Mug or s[illegible]
- ✓ Plastic w[illegible]
- ✓ String or larg[illegible]bb[illegible]
- ✓ Hot water – optio[illegible]ou ca[illegible] cold water as well
- ✓ Ice Cubes - optional

Method How do we complete the experime[illegible]

1) Place the cup or mug in the middle of the bo[illegible]
2) Fill the bowl with hot water about 2/3 of the way u[illegible] water inside the cup.
3) Cover the bowl with the plastic wrap. Use the elastic or the string to secure the plastic to the top of the bowl
4) Place a few ice cubes on the plastic wrap above the cup
5) If you used cold water, put the bowl in the sun for a couple of hours.
6) If you used hot water, you should see condensation clinging to the plastic wrap
7) Label the diagram on the back of the page

Name: ______________________________

Curriculum Connection
M3.6

Diagram Label the diagram using the word bank

Precipitation	Condensation	Collection	Evaporation

Results Label the stages of the water cycle below

The water that is in the cup	
When the water went up to the top of the bowl	
When the water stuck to the plastic wrap	
When the water fell from the plastic wrap	

Name: ______________________

Curriculum Connection
CS.1

Coding - Supercomputers Predicting Weather

A **meteorologist** is someone who studies the air to predict the weather. Meteorologists use the temperatures of the air as well as the air movement to predict if it will rain, snow, or storm.

Meteorologists need data to make their predictions. They get their data from satellites in the sky. These satellites move around the Earth, taking pictures and tracking the movement of air.

On [illegible]percomputers used by meteorologists can process quadrillions of calculati[illegible]econd. The data from the satellites is automatically sent to these comp[illegible]gh [illegible]ial sets of code. The supercomputers make models of what the w[illegible]r will [illegible]o that meteorologists can study them. All of this is possible [illegible]ecau[illegible]te[illegible]des that tell the technology what to do.

Fill in the Blanks [illegible] the [illegible]rds to fill in the blanks

[illegible]				
models	coding	[illegible]	data	weather

1) A meteorologist is someone who studie[illegible]

2) Meteorologists can predict the ____________________[illegible]

3) Satellites collect ____________________ from the in t[illegible] sk[illegible]

4) Supercomputers make ____________________ of what the weathe[illegible]ook like.

5) We wouldn't be able to predict the weather without ______________________.

Directions Read the if statement and come up with your own then statement

1)	If it is cold outside	then	
2)	If it is going to rain today	then	
3)	If it is going to snow today	then	
4)	If there is lightning today	then	

Name: ______________________

Curriculum Connection
CS.1

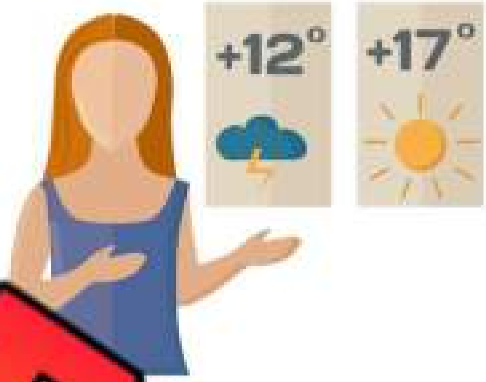
Investigate - Local Weather

Weather Reports
A weather report is a prediction of what the skies will bring to an area. The weather report uses tools and data to measure the air pressure, wind speed, and movement of weather fronts.

The data from these tools give meteorologists the ability to make strong predictions of the upcoming weather. The weather report predicts the short-term forecast (usually 36 hours) with a higher accuracy than the 14-day forecast.

Weather [illegible] information about your local weather

[illegible]	Information
[illegible]	
Relative [illegible]	
Wind Speed and [illegible]	
Probability of Precipitation [illegible]	
Type of Precipitation	
Sunny/Cloudy?	



Questions Answer the questions below

1) How does the weather look for the next couple of days?

____

____

____

2) Is there any extreme weather coming in the next 14 days – snowstorms or lightning?

____

____

____

Name: ______________________

Curriculum Connection
CS.1

Investigate - Weather Report

Pretend you are a weather network meteorologist. Write what you will tell your audience about the weather over the next 14 days. Use some of the ideas below.

- Should they plan for surfing or skiing?
- Should they be staying inside?
- Should they be golfing?
- Shoul [illegible] be finding shelter in the case of lightning?
- Shoul [illegible] ent some movies this week?
- Sh [illegible] their gardens because there isn't r [illegible] ore

Writing Write [illegible] report [illegible] n the weather in your area in the next 14 days

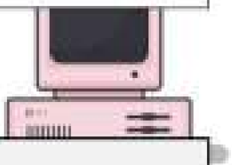
Name: ______________________

Curriculum Connection
CS.1

Writing Code - Weather Reports

When data is collected from supercomputers, codes are used to display predictions about the weather. Check out the example below.

Input	Output
dark clouds full of rain are coming	It will rain today
winds are strong, over 100 kph	It will be windy and a tornado is possible
the temp[illegible] is 2° C	The temperature is cool, almost freezing



Coding [illegible] Write a [illegible] code that goes with the inputted data

Input	Outputs
There are no clouds in th[illegible]	
The wind is 0kph	
The temperature is 25° C	

Input	Outputs
Lightning clouds are on the way	
The wind is weak at 5kph	
The temperature is 20° C	

Input	Outputs
Clouds full of water are coming	
The wind is 15kph	
The temperature is -30° C	

Name: ______________________

Curriculum Connection
CS.1

Coding: Storing Data - Weather Forecast

When we write code, we sometimes need to store data to be used later. We can store the data and name it a variable. A **variable** is a quantity that changes. We can use letters or words to represent the changing quantity.

Example – A program that collects data from a supercomputer

```
Fetch  rainfall percentage  as the variable  rain
Display  rain  on the screen
If  rain  [illegible]re than 50%
Then d[illegible]obably rain today"
```

Fetch means to find data

Coding Write [illegible] th[illegible]ollects wind, rain, and temperature data and displays it as [illegible]ssage[illegible]reen

1)

2)

3)

Name: ______________________

Curriculum Connection
CS.1

If/Else Statements - Predicting Weather

When precipitation is expected, the precipitation can take the form of rain, snow, sleet or freezing rain. An if statement could be used to display which type of precipitation will fall.

Reminder:

- **Rain** – starts as snow and melts in warm air and stays melted (liquid)
- **Freezing rain** – starts as snow and then melts in warm air and refreezes on the ground because it is frozen
- **Sleet** – starts as snow and melts in warm air and then refreezes before reaches the groun
- **Snow** as snow and stays frozen

Directic he splays which type of weather is coming. Write he The ts that would follow the If statements.

1) IF the snow s on t

THEN display, “

2) IF the snow melts and stays elted

3) IF the snow stays frozen

4) IF the snow melts and then refreezes before reaching the grou

Directions Draw one screen of the app displaying one of the then statements above

Name: ____________________________

Unit Test - Matter

Multiple Choice Circle the best answer. Only choose 1 answer!

1. Which state of matter below takes the shape of its container?

a) Liquids

b) Solids

c) Rock

d) All of [illegible]

2. Which of the following is an example of a liquid?

a) Table

b) Peanut Butter

c) Wood

d) Rock

3. Ev[illegible]g that h[illegible] and takes up space is...

a) Particles

b) Sublimation

c) Matter

d) Energy

4. When a solid turns to a liquid...

a) Freezing

b) Sublimation

c) [illegible]lting (Fusion)

d) [illegible]tion

5. When a liquid turns into a solid...

a) Freezing

b) Sublimation

c) Melting (Fusion)

d) Evaporation

6. Wh[illegible]turns to a gas...

a) [illegible]nsati[illegible]

b) [illegible]ma[illegible]

c) Melti[illegible]

d) Evaporatio[illegible]

7. When a gas turns into a liquid...

a) Condensation

b) Sublimation

c) Melting (Fusion)

d) Evaporation

8. Condensation hap[illegible]

a) water vapour suddenly [illegible]es

b) water droplets form a liquid

c) water freezes into ice

d) water heats up into a vapour

9. When a solid turns directly into a gas...

a) Condensation

b) Sublimation

c) Melting (Fusion)

d) Evaporation

10. When snow turns to rain, it is a...

a) Solid staying a solid

b) A liquid turning into a solid

c) A solid turning into a liquid

d) A liquid staying a liquid

Matter – Yes or No? Is the example matter – yes or no?

Dream

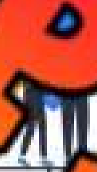
Yes No

Cereal

Yes No

Human

Yes No



Yes

Time

No

Idea

Yes No

Label the Water Cycle diagra

Evaporation Pr ipita Co ation Collection

Definitions What does each term mean? (1 mark each)

Term	Definition (what does it mean)
Freezing Point	
Ma[illegible]	

Short Answer Ans[illegible] the [illegible]w – Each question is worth 2 marks

1) What happens to the particle[illegible] a so[illegible] heated?

____

____

____

2) Write two examples of evaporation.

____

____

____

3) Explain how water goes through the 3 phases of matter?

____

____

____

Google Slides Lessons Preview

Alberta Science Curriculum
Living Systems – Grade 3

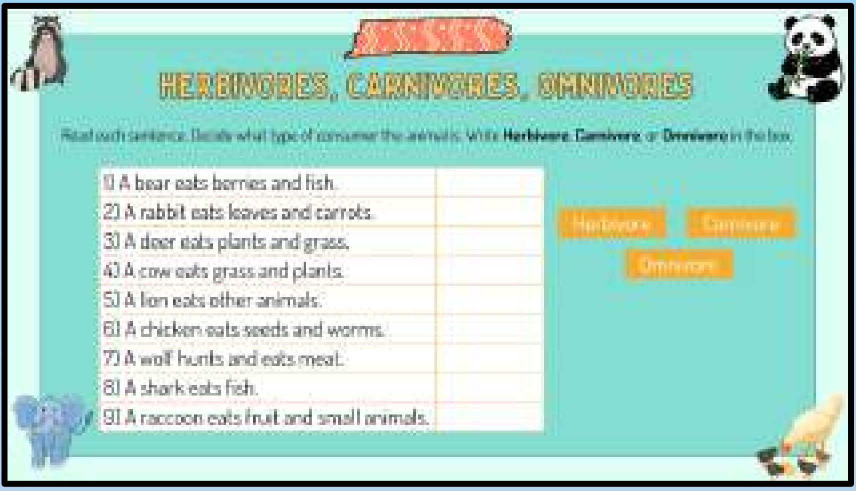
3-Part Lesson Format


TYPES OF CONSUMERS

LEARNING GOAL

We are learning to **understand different types of consumers** so we can **identify and explain the difference between herbivores, carnivores, and omnivores based on what they eat.**

Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!



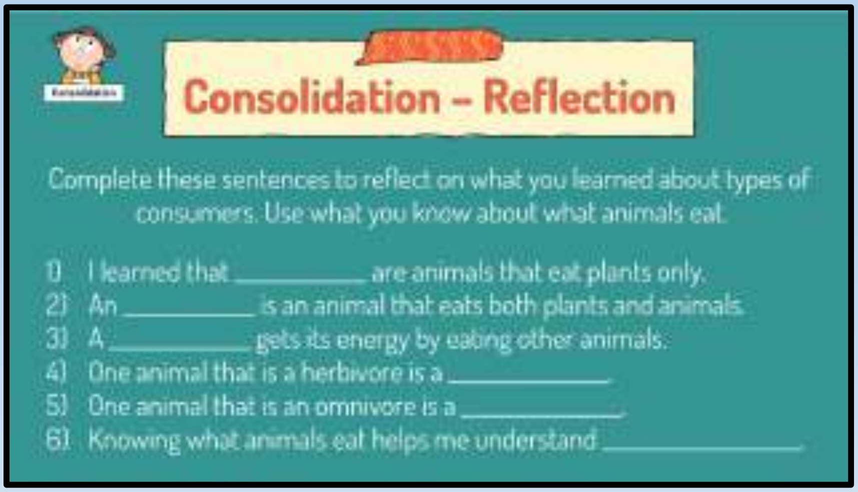
HERBIVORES, CARNIVORES, OMNIVORES

Read each sentence. Decide what type of consumer the animal is. Write **Herbivore**, **Carnivore**, or **Omnivore** in the box.

1) A bear eats berries and fish.
2) A rabbit eats leaves and carrots.
3) A deer eats plants and grass.
4) A cow eats grass and plants.
5) A lion eats other animals.
6) A chicken eats seeds and worms.
7) A wolf hunts and eats meat.
8) A shark eats fish.
9) A raccoon eats fruit and small animals.

Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!
- Exit Cards
- Quizzes
- Reflection
- And More!


Consolidation – Reflection

Complete these sentences to reflect on what you learned about types of consumers. Use what you know about what animals eat.

1) I learned that ____________ are animals that eat plants only.
2) An ____________ is an animal that eats both plants and animals.
3) A ____________ gets its energy by eating other animals.
4) One animal that is a herbivore is a ____________.
5) One animal that is an omnivore is a ____________.
6) Knowing what animals eat helps me understand ____________.

Alberta Science Curriculum Living Systems – Grade 3

Build a Food Chain

Drag the pictures to build one food chain. Start with the sun and place each picture in the correct order to show how energy moves.

TO PLANTS WHEN THEIR ENVIRONMENT CHANGES?

Read what happens to the plant on the left. Draw a line to match it with the result to the plant on the right.

What Happens to the Plant?				What Is the Result?
A plant is placed near a window	1		A	A. Roots grow downward into the soil
A plant does not get enough water	2		B	B. The plant bends toward the light
A plant is touched often	3		C	C. The plant may droop or stop growing well
A seed is watered	4		D	D. Leaves may close or move
Gravity pulls on a growing plant	5		E	E. The seed begins to sprout

Migr

Drag each animal into the correct box to show how

cold weather: Migrate or Hibernate.

Migrate	Hibernate

Alberta Science Curriculum
Living Systems – Grade 3

PLANT OR NOT A PLANT?

Look at each item. Drag a "Plant" if it comes from a plant, or a "Not A Plant" if it does not come from a plant.

RES

Look at each action. Drag a 👍 if it shows respect for plants,

THE BLANKS

ere our food comes from. Drag the rom the word bank to complete the paragraph.

Food comes from many places. Most of the food we eat comes from ______. Farmers grow food on ______, in greenhouses, and in home gardens. Plants need sunlight, water, and soil to ______. Some food is grown close to where we live. This is called ______ food. Buying local food helps our ______ and keeps food fresh.

Workbook Preview

Grade 3 – Science Unit

Organizing Idea Matter: Living Systems: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their interactions.

Guiding Question: How do plants and animals interact?

	Learning Outcome – Students analyze and describe how plants and animals interact with each other and within environments.	**Pages**
LS.1	A food chain shows the order in which plants and animals depend on each other for food. A food chain can be represented in many ways, such as illustrations, diagrams, stories, words A food chain represents one possible way that plants and animals interact.	17-32
LS.2		16
LS.3	other plants and animals.	69
LS.4	Plants and animals in local environments can be protected by actions such as ▪ respectfully interacting with nature ▪ minimizing disturbance to plants and animals ▪ being aware of animal crossings ▪ following fishing and hunting regulations ▪ counting and tracking populations Plants and animals may depend on each other and their environments for survival, such as for food and habitat. First Nations, Métis, and Inuit knowledge of plants and animals within environments includes animal behaviour, sources of food, migration, patterns, seasonal patterns	70-81, 86-108, 111-118
Computer Science:		
CS.1	Students apply creativity when designing instructions to achieve a desired outcome.	82-85, 109-110

NAME: ____________________

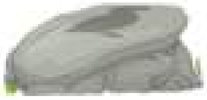
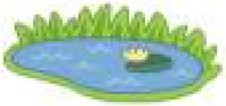
PLANTS AND ANIMALS

Name: ______________________

Curriculum Connection
LS.2

Ecosystem - Living and Non-Living Things

An ecosystem is an area where living and non-living things are together. The living things, like plants and animals need the non-living things to survive in the ecosystem.

  	  
Livin[illegible] in the Environment	**Non-Living Things in the Environment**

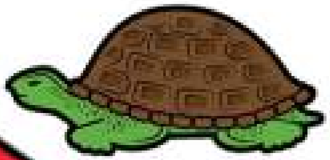
Living [illegible]y[illegible]hat grows (plants, animals, humans, bacteria)

Non-Li[illegible] Thing[illegible]g that does not grow (rocks, wind, air, sunlight, water)

Directions Circl[illegible]er t[illegible]ving or non-living

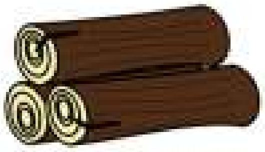
Living Non-Living

Living Non-L[illegible]



Livi[illegible] Non-Living

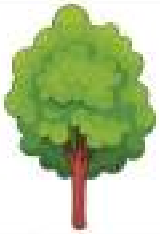
Living Non-Living



Living Non-Living

Living Non-Living

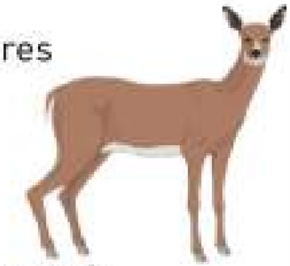
Living Non-Living



Living Non-Living

Living Non-Living

Herbivores, Carnivores, Omnivores



Herbivores
Consumers that are **herbivores** eat only plants. Examples of herbivores are cows, deer, goats, gorillas, butterflies, camels, horses, rabbits, rhinos, and sheep.

Carnivores
Consumers that are **carnivores** eat only other animals for energy. Examples are tigers, lions, sharks, walrus, platypus, penguins, wolves, owls, alligators, and snakes.

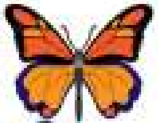
Omnivores
Consumers that are **omnivores** eat both plants and animals. They eat whatever they can find. Examples of omnivores include dogs, cats, pigs, chickens, squirrels, rats, bears, raccoons, opossums, skunks, goats, and most humans.

Questions Answer the questions below.

1) Circle the animals that are herbivores.



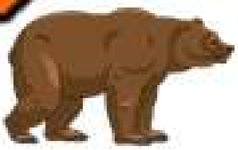


2) Circle the animals that are carnivores.



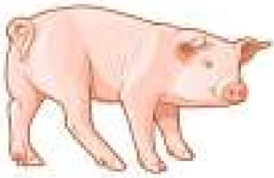
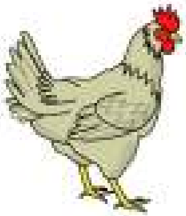


3) Circle the animals that are omnivores





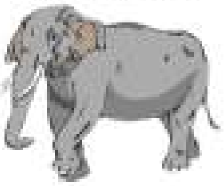



Name: ______________________________

Curriculum Connection
LS.2

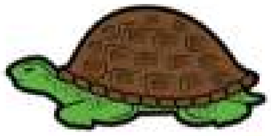
Directions Is the organism a carnivore, herbivore or omnivore?

Elephant



Bird

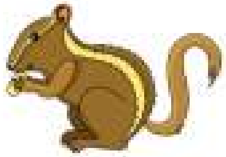
Turtle



Snake - Cobra

Skunk

Chipmunk

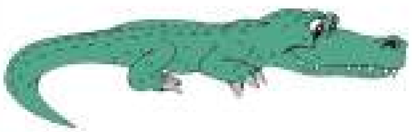


Frog

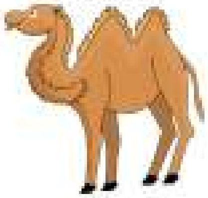
Fish

Spider

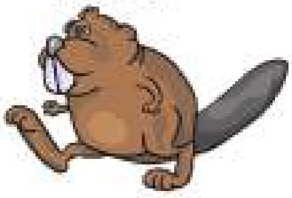
Alligator



Camel



Beaver

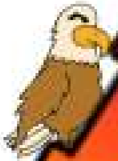
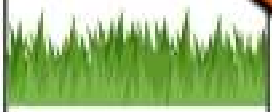
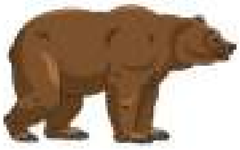
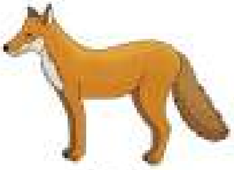


Name: ____________________

Curriculum Connection
LS.2

Classifying Organisms

Research Fill in the table about the animal in the first column

Animals	Producer, Consumer, Decomposer	Herbivore, Omnivore, Carnivore	Primary Producer or Primary, Secondary, Tertiary, Quaternary Consumer
			
 Grass			
 Rabbit			
 Bear			
 Fox			
 Deer			

Name: ______________________________

Curriculum Connection
LS.2

Research Fill in the table about any animal that you want to learn more about

Animals	Producer, Consumer, Decomposer	Herbivore, Omnivore, Carnivore	Primary Producer or Primary, Secondary, Tertiary, Quaternary Consumer

Name: ______________________

Curriculum Connection
LS.2

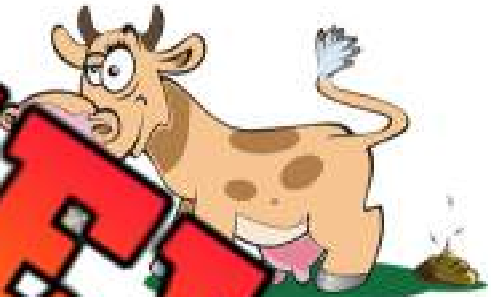
Experiment - Animal Scat

Research Question What's the difference between carnivores, omnivores, and herbivores

Animal **scat** is the poop that animals produce as waste from the food they eat. Dependin[illegible] on their diet, animals will have differently sized, coloured, and shaped scat.

Mate[illegible] Wh[illegible] need?

- ✓ Brown pla[illegible]
- ✓ Plastic toy insects [illegible] sma[illegible] animals
- ✓ Grass clippings and/or leaves
- ✓ Raisons or other dried fruits



Method How do we complete the experiment?

1) Mold the brown playdough into scat. You can think of an animal and research their size of scat or model something like the one in the picture.
2) If it is an herbivore, add plants to the scat.
3) If it an omnivore, add plants and animals to the scat.
4) If it is a carnivore, add just animals to the scat.

Herbivore Scat

Name: ____________________

Curriculum Connection
LS2

Observations | What happened?

1) What size of scat did you make? What animal might have scat that looks like this?

____

____

2) Describe the scat for each of the consumers below.

Herbivore	
Carnivore	
Omnivore	

Research | Answer the questions below

1) Can hunters track animals based on their scat? Explain.

____

____

2) Draw the animal's scat below.

Rabbit - Herbivore	Fox – Carnivore	Racoon - Omnivore

Food Chain - Producers and Consumers

Food Chain

All living things need energy to survive. We get energy from food. When we run, jump, or play, we use this energy.

Plants get their energy from sunlight, water, and things in the soil. This process is [illegible] photosynthesis.

Ani[illegible] energy by eating plants or other animals. This is how nutrients mov[illegible]ing to another.

Producers

Plants are like litt[illegible] their own food using sunlight, air, and water. They are called p[illegible] beca[illegible] can produce their own food through photosynthesis.

Consumers

Animals, including humans, can't make their own food. They eat plants or other animals to get energy. Some animals only eat meat, and they're called **carnivores**. Animals that only eat plants are **herbivores**. **Omnivores** eat both plants and animals.

Decomposers

Decomposers like bacteria and fungi eat dead plants and animals. They help break these down into soil for plants to grow. This makes the soil very good for plants because it's full of nutrients.

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Curriculum Connection
LS.2

Define What do the terms below mean?

Producer	
Consumer	
Ca	
Herbivore	
Omnivore	

True or False Circle whether the statement is tru

1. Most humans are carnivores		alse
2. Examples of producers are humans and dogs	rue	False
3. Producers are plants who can make their own food	True	False
4. Consumers are animals who cannot produce their own food	True	False
5. An omnivore is always at the top of the food chain	True	False
6. Decomposers provide nutrients for soil	True	False
7. Plants produce their own food via a process called photosynthesis	True	False

Curriculum Connection
LS.2

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________ Mark

Match each item in Column A to B.

Co[illegible]n A		Column B
	1) Pla[illegible]heir own[illegible]	A) Herbivores
	[illegible]ats that e[illegible] on[illegible]at	[illegible]hotosynthesis
	3) Plants u[illegible] and water.	C) Pr[illegible]
	4) Animals that eat only plants.	[illegible]posers
	5) Fungi that help break down dead animals.	E) Carnivores

Name: ____________________ Mark

Match each item in Column A to B.

Column A		Column B
	1) Plants make their own food.	A) Herbivores
	2) Animals that eat only meat	B) Photosynthesis
	3) Plants use sunlight and water.	C) Producers
	4) Animals that eat only plants.	D) Decomposers
	[illegible]gi that help [illegible]wn dead [illegible]	E) Carnivores

Name: ____________________ Mark

Match each item in Column A to B.

Column A		Column B
	1) Plants make their own food.	A) Herbivores
	2) Animals that eat only meat	B) Photosynthesis
	3) Plants use sunlight and water.	C) Producers
	4) Animals that eat only plants.	D) Decomposers
	5) Fungi that help break down dead animals.	E) Carnivores

Name[illegible] Mark

Match each[illegible]n C[illegible]

Column A		[illegible]n B
	1) Plants make their own food.	[illegible]erbivores
	2) Animals that eat only meat	B) Photosynthesis
	3) Plants use sunlight and water.	C) Producers
	4) Animals that eat only plants.	D) Decomposers
	5) Fungi that help break down dead animals.	E) Carnivores

Name: ______________________

Curriculum Connection
LS.2

My Food Chain

Research Create your own food chain by writing or drawing plants and animals in their appropriate step on the food chain

Question Answer the question below

What is a quaternary consumer? Who did you choose in your food chain and why?

____

____

____

Name: ______________________________

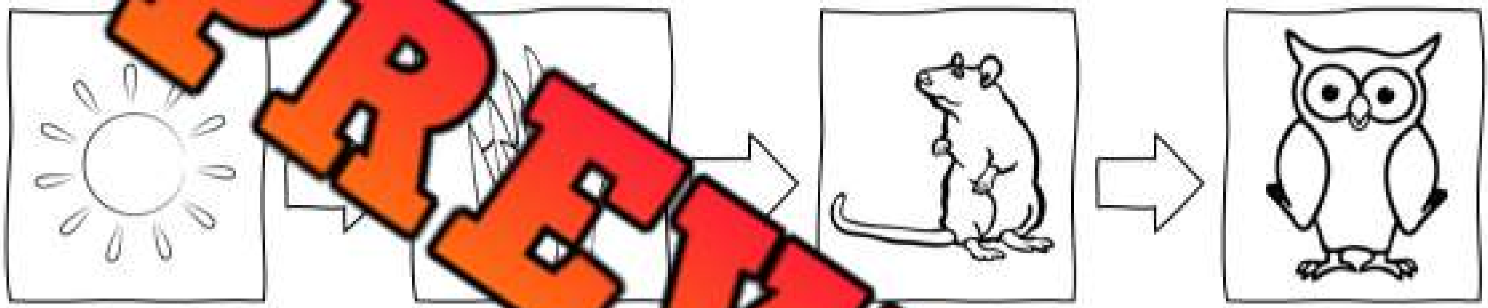
Curriculum Connection
LS.1

Food Chain

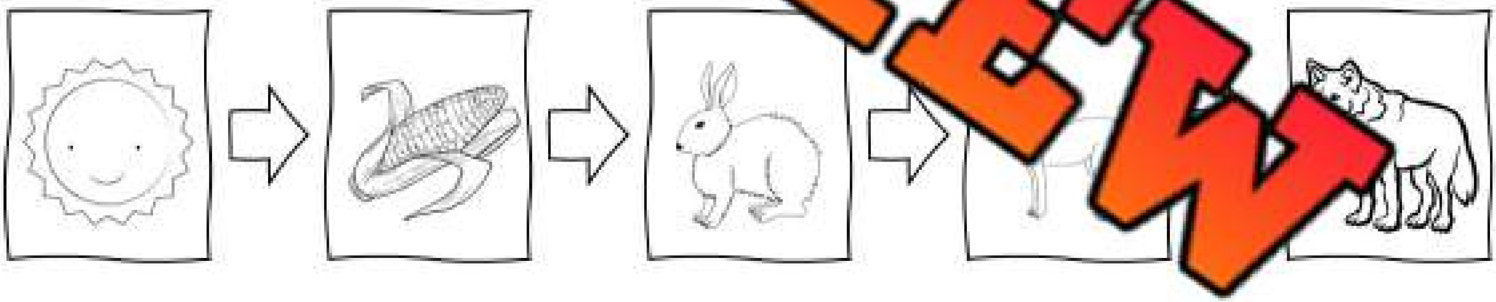
A food chain starts with the sun. The sun gives energy to producers so they can grow. The consumers herbivores and omnivores eat the plants. This gives these animals energy from the sun. Carnivores and omnivores eat other animals, which gives them energy from the sun as well. Some food chains are long, and some are short.

Food Chain Colour the food chains and label each link as a producer or consumer

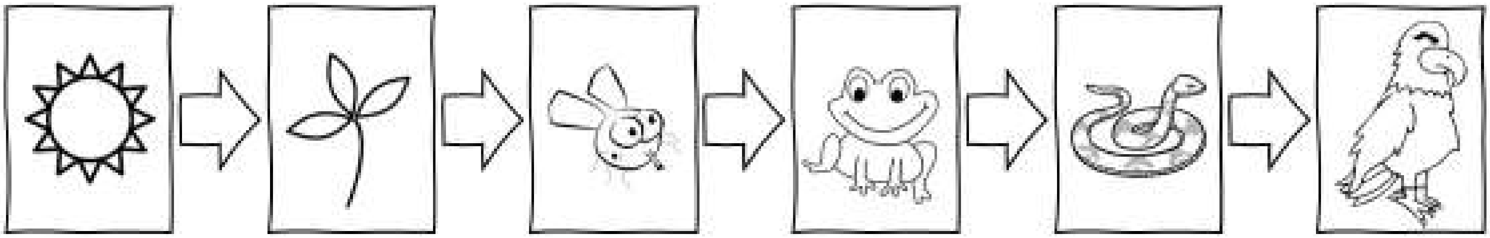
4-Link Food Chain



5-Link Food Chain



6-Link Food Chain



Name: ______________________

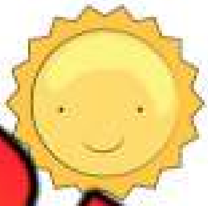
Curriculum Connection
LS.1

Ordering Food Chains

Energy Chain Order the plants and animals by numbering them

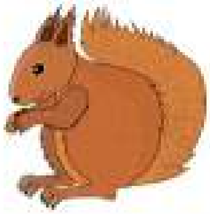
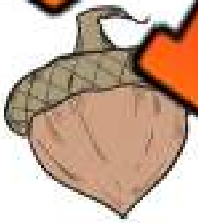
4-Link Food Chain

Number the plants/animals 1-4

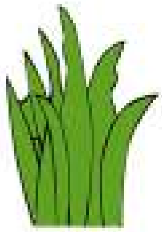
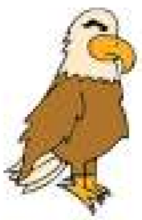
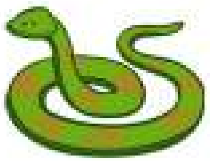
5-Link Food Chain

Number the plants/animals 1-5

6-Link Food Chain

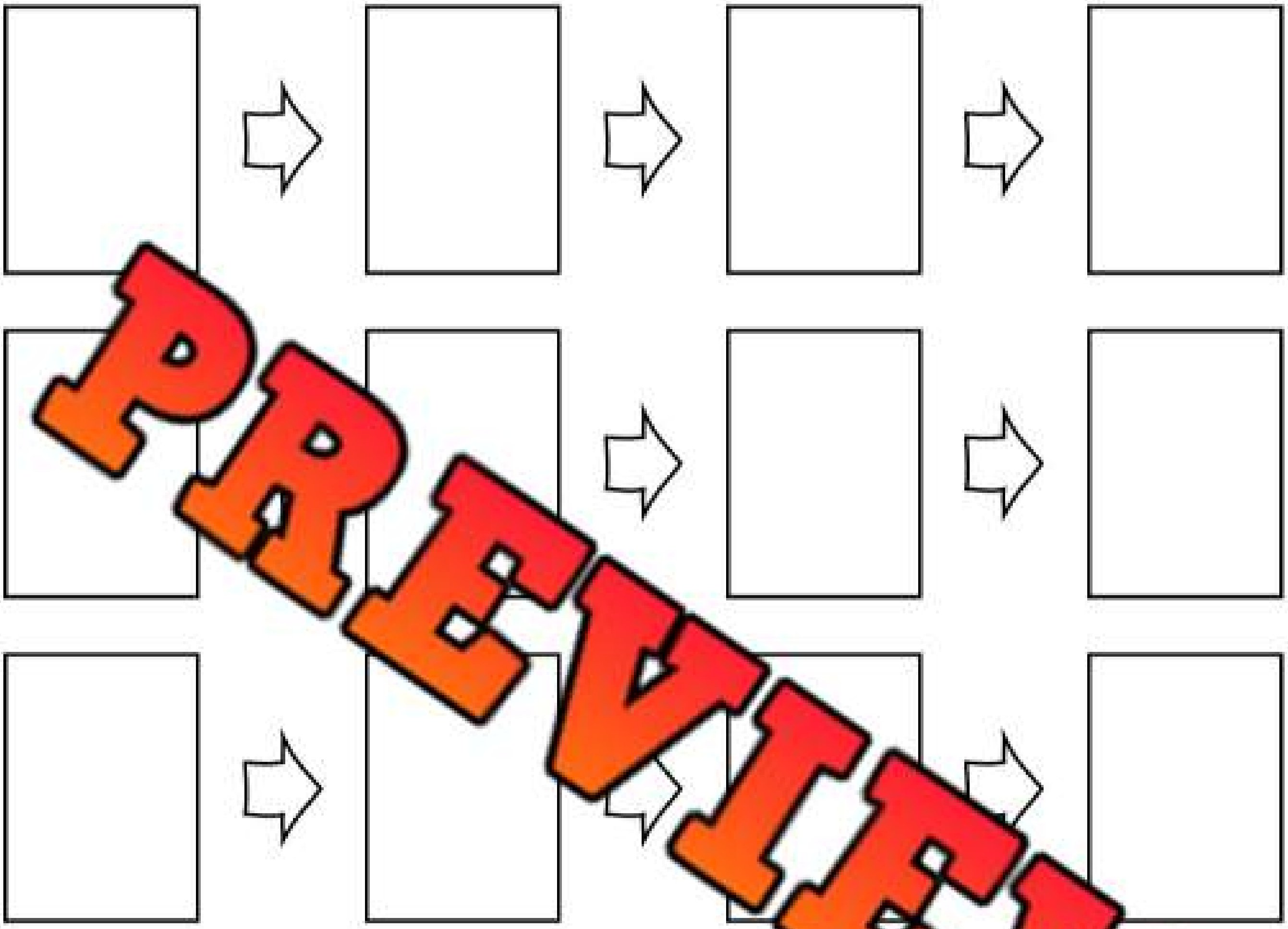
Number the plants/animals 1-6

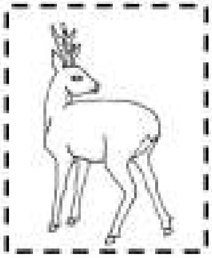
					

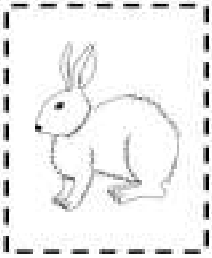
Name: ______________________________

Curriculum Connection
LS.1

Food Chains Cut and paste the plants and animals into the food chains











Name: ____________________

Curriculum Connection
LS 1

My Energy Chains

Food Chains Draw your own food chains below

5-Link Food Chain

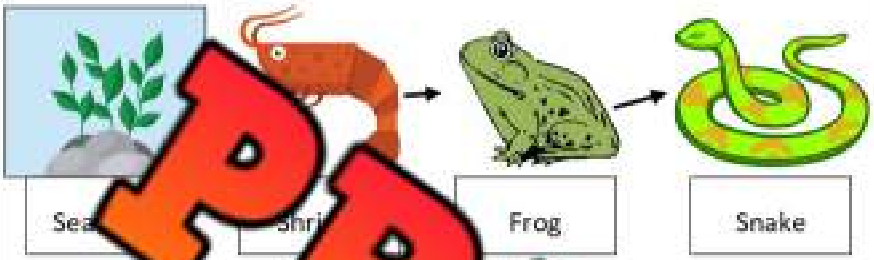
Food Chain

Name: ____________________

Curriculum Connection
LS.1

Food Chain - Wetland

Diagram Interpret the diagram of the food chain in a pond



What is happening in the food chain?

____

____

____

____

____

Diagram Draw two [illegible] Mak[illegible] the animals belong to the same habitat

What is happening in the food chain?

____

____

____

____

____

What is happening in the food chain?

____

____

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____

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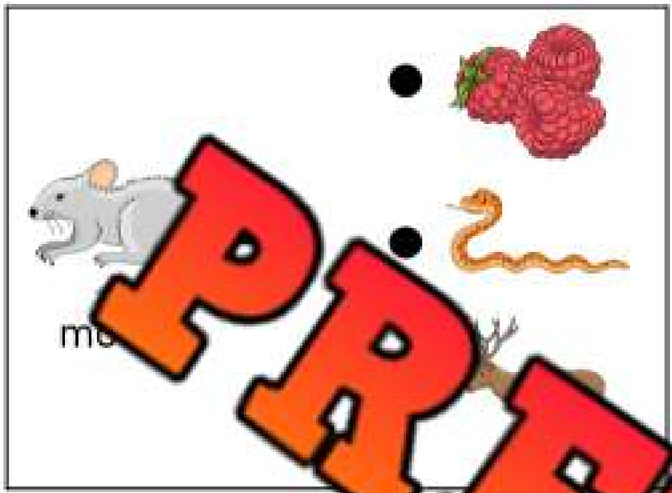
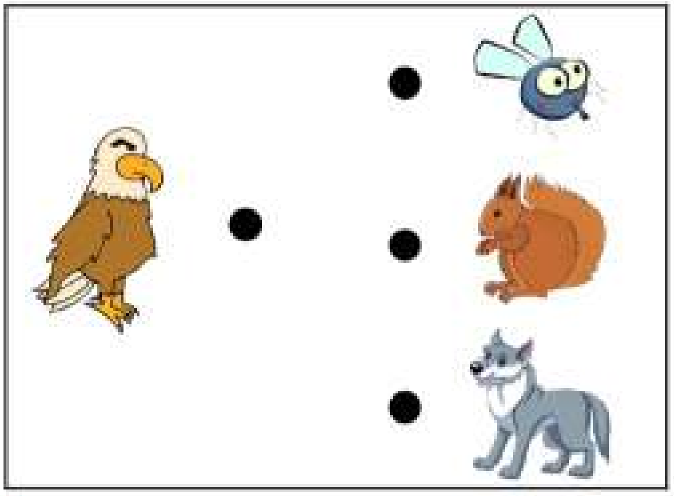
Name: ______________________

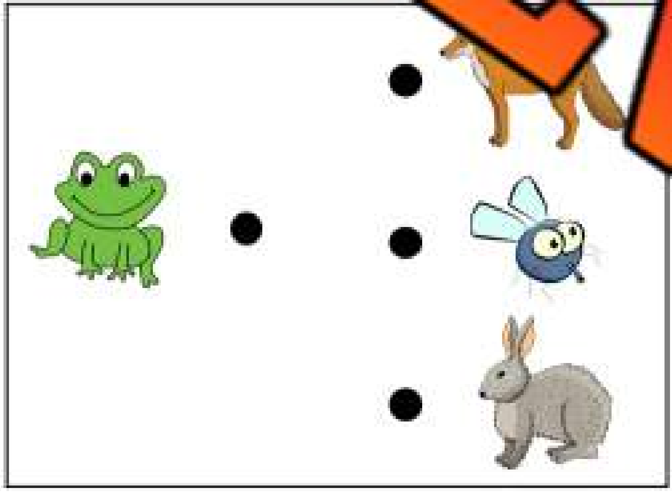
Curriculum Connection
LS.1

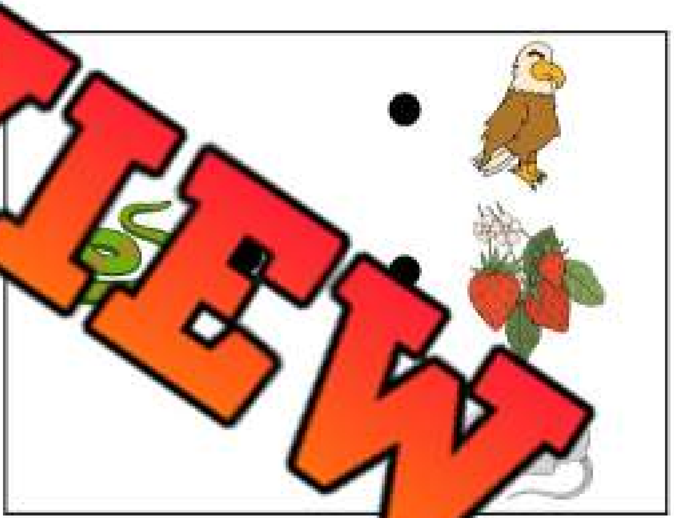
Food Chain - Animal's Food

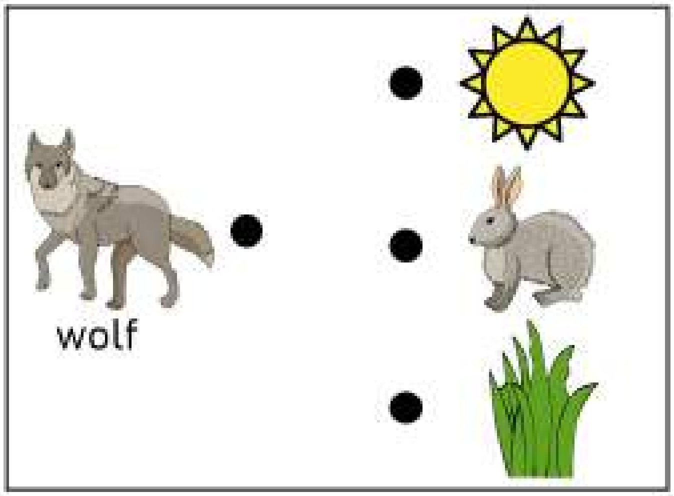
Matching Draw a line from the animal to what it eats for energy

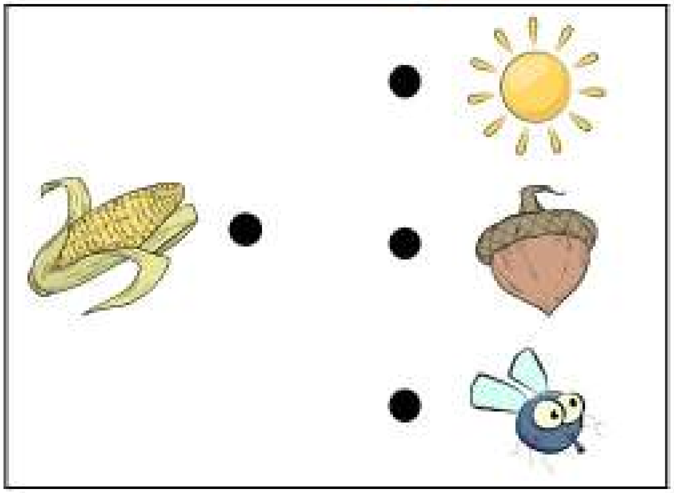












Name: ______________________

Curriculum Connection
LS.1

Altering the Food Chain

When [illegible] Chain

Sometimes when [illegible] make changes to places where animals and plants live, it can also change the [illegible]. If [illegible] something like getting rid of all the grasshoppers, the leaves will start [illegible] grow [illegible] nothing is eating them. But the mice, who eat grasshoppers, will have [illegible] and [illegible] be less mice. Owls, who eat mice, will then also have less food and [illegible] will [illegible]

A Real-Life Story: Changing the Food [illegible] in [illegible]

A long time ago in a place called Borneo, people [illegible] a [illegible] called DDT to get rid of mosquitoes that spread a sickness called malaria.

But using DDT didn't just kill mosquitoes. It killed [illegible] cockroaches. Lizards, who loved to eat cockroaches, now had less [illegible] lizards went hungry. Cats, who loved to eat lizards, now had less food [illegible] hungry as well. But with less cats around, the number of rats grew a lot because cats weren't there to catch them.

The rats caused a lot of problems in Borneo. In fact, they made more people sick than the mosquitoes did. So, to solve the rat problem, people brought lots of cats from other places to Borneo to catch the rats. This was called "Operation Cat Drop" and it worked!

This story teaches us a big lesson. When we change the food chain, it can cause problems we didn't expect.

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Curriculum Connection
LS.1

True or False Circle whether the statement is true or false

1) When humans change the food chain, it can affect other animals	True	False
2) In Borneo, humans used DDT properly	True	False
3) Getting rid of mosquitos is a good thing	True	False
4) One small change to a food chain can have big effects	True	False
5) Getting [illegible] grasshoppers means we would have less mice	True	False

Visuali[illegible] [illegible] were picturing while you were reading. Explain the picture

Questions Use information from the text to suppor[illegible]wer[illegible]

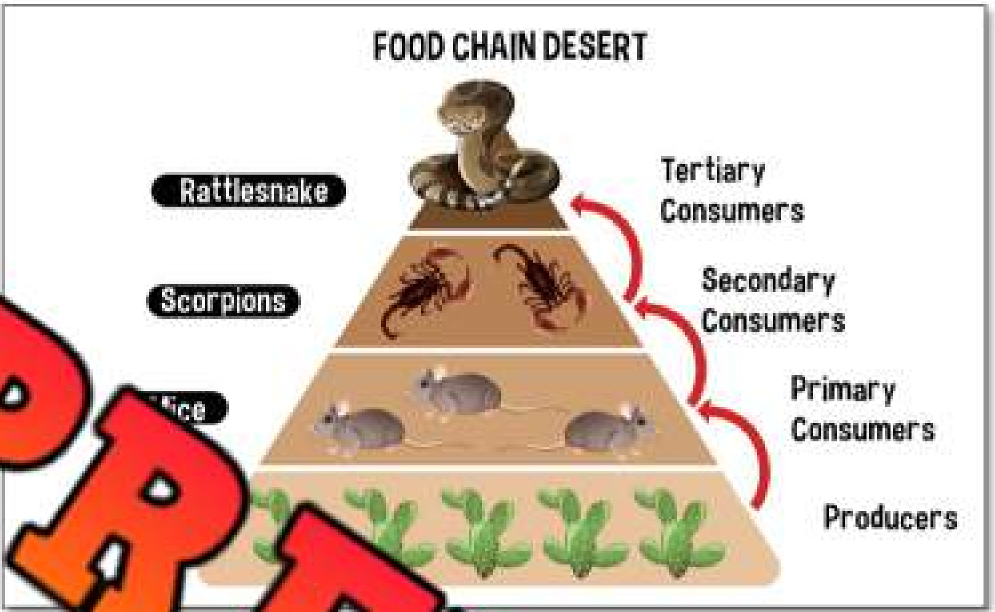
1) What would happen to the leaves and mice in a habitat if we got [illegible]s?

2) What happened to the cats in Borneo?

Name: ______________________

Curriculum Connection
LS.1

Food Chain - Desert



Questions Answer the ... belo

1) Describe the food chain in the des

____

____

____

2) What would happen if plants (cacti) stopped growing in the d

____

____

____

3) Why do you think rattlesnakes are at the top? Why aren't there larger animals or birds living in the desert?

____

____

____

Name: ______________________

Curriculum Connection
LS.1

Food Chain - African Savanna

Level	Examples
Primary [illegible]	Grass, Acacia Trees, Baobab Tree, Wild Fig, Star Grass
Prim[illegible]	Zebras, Elephants, Antelopes, Gazelles, Giraffes
Second[illegible] Cons[illegible]	[illegible], Baboons, Mongooses
Tertiary Cons[illegible]	Hye[illegible]ican Wild Dogs, Cheetahs, Jackals
Top Predators	L[illegible]diles, Leopards

Questions Answer the ques[illegible] bel[illegible]

1) Create your own food chain like th[illegible]e abo[illegible]ing [illegible]nt animals.

2) Are the biggest animals always higher on the food chain? Explain.

____

____

3) Do animals only eat the animals below them on the food chain? Explain.

____

____

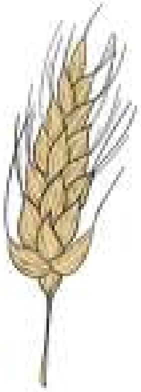
____

Name: ______________________

Curriculum Connection
LS.1

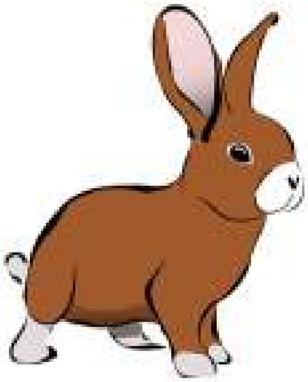
Story - Alberta Food Chain

The Adventure of the Alberta Food Chain



Once upon a time in the beautiful land of Alberta, Canada, there was a tiny seed named Sam. Sam lived in the rich soil and with the help of the sun, water [illegible] nutrients from the soil, he grew into a tall and strong wheat pla[illegible]

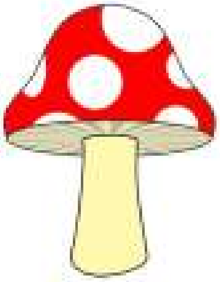
As S[illegible] u[illegible] sun's energy to turn water and air into food, a proc[illegible] called [illegible] hesis. Sam was a producer, an important part of Albert[illegible] n.



[illegible] rabbit named Herb lived. Herb was a [illegible] He l[illegible] ching on plants. When he disc[illegible] Sa[illegible] happy! Herb, a consumer, got his energy from [illegible] Sam.

Now, in the same Alb[illegible] est, [illegible] ed a cunning fox named Fergus. Ferg[illegible] a ca[illegible] imal that eats other animals. Herb, the [illegible] often part of Fergus's meals. [illegible] was also a consumer, but he got [illegible] energy from animals, not plants.

Then, there were the decomposers, like Dan, the friendly earthworm, and Fungi, the mushroom. When plants like Sam shed leaves, or animals like Herb and Fergus passed away, Dan and Fungi helped break them down. They turned these into nutrients that went back into the soil, helping new seeds like Sam to grow.



In this way, the cycle of life, the food chain, continued in the beautiful land of Alberta. From the small seeds to the big foxes, every creature had a role to play. And even when their time was over, they helped to give life to new plants and animals, keeping the cycle going forever.

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Curriculum Connection
LS.1

Question Answer the question below

What do the animals in the story eat?	
Sam	
Herb	
Fe[illegible]	
Dan	
Fungi	

True or False Is the statement true or fals[illegible]

1) Sam is a tiny animal	[illegible]	False
2) Sam became a tall Wheat plant	[illegible]	[illegible]
3) Herb, the rabbit, eats other animals	[illegible]	False
4) Fergus, the fox, eats plants like Sam	True	False
5) Dan, the earthworm, is a decomposer	True	False
6) The sun helps Sam make food	True	False
7) Fergus is a herbivore	True	False
8) Fungi, the mushroom, is a producer	True	False
9) The food chain in Alberta never ends	True	False

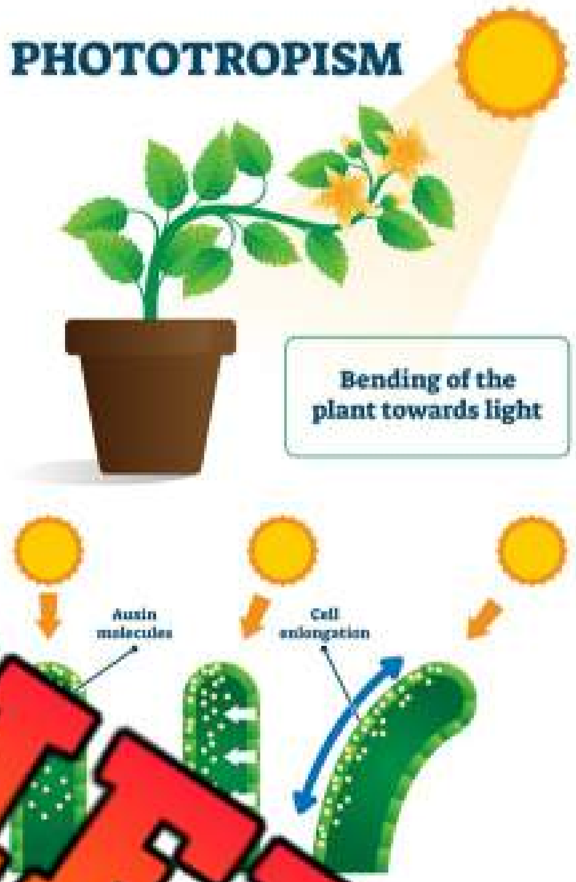
Name: ____________________

Curriculum Connection
LS.3

Plants Responding to Light

How Do Plants Respond To Light?

Plants need light in order to grow and stay alive. They will respond to light by growing towards light. This concept is known as phototropism.



What is Ph[illegible]ism?

Phototr[illegible] plant grows towards light. Just [illegible]w you t[illegible] head to look at something tha[illegible]ts[illegible] have a way of knowing where t[illegible]is, a[illegible] grow towards it. This helps the[illegible] ener[illegible] need from the sun to survive.

The hormone auxin, is found on th[illegible]d side of a plant. It makes the plant longer on that side, so it can stretch further. This causes the p[illegible] to bend towards the light.

So, the next time you see a plant growing towards a w[illegible]w, y[illegible] because of phototropism!

Why Do Plants Grow Towards Light?

There are a few reasons why plants grow towards light:

1) Photosynthesis: Light is needed for the process of photosynthesis, where plants use energy from the sun to convert carbon dioxide and water into glucose (a type of sugar) and oxygen. This is how plants make their own food and energy.

2) Survival: By growing towards light, plants can maximize their chances of survival by getting as much energy from the sun as possible.

True or False Is the statement true or false?

1) Plants tend to grow away from light	True	False
2) On the shaded side of plants, you will find the auxin hormone	True	False
3) Auxin causes plants to stretch and get longer	True	False
4) Plants will bend and grow towards light	True	False
5) Plants [illegible] eed light as water is more important	True	False

Visuali[illegible] [illegible] were picturing while you were reading. Explain the picture

____

____

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____

____

Questions Answer the questions below using evidence [illegible] the

1) What is phototropism? Why does it happen?

____

____

____

2) If plants didn't grow towards light, would they grow as well?

____

____

____

Name: ______________________

Curriculum Connection
LS.3

Activity - Plants Respond to Light

Objective What are we learning more about?

To understand how plants respond to light and understand the concept of phototropism.

Materials [illegible]t do we need?

- ✓ [illegible] potte[illegible]
- ✓ Cardbo[illegible]
- ✓ Scissors
- ✓ Tape

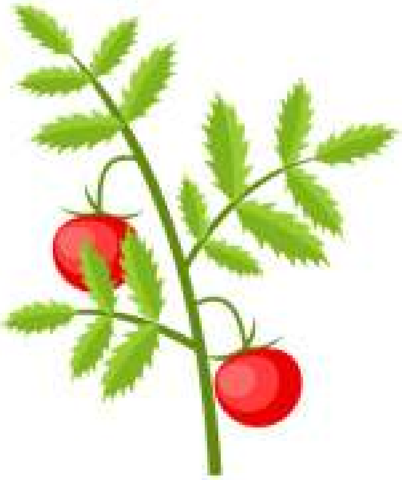
Method How do we complete the ex[illegible]nt?

1) Cut a small hole (around 2 inches in dia[illegible]r) o[illegible] side of the cardboard box.

2) Place the potted plant inside the box and tape the box shut, leaving the hole open.

3) Place the box near a window where it will receive sunlight. The sunlight should only be able to enter the hole on the side of the box.

4) Observe the plant every day for one week. Make sure to keep watering the plant as you normally would.



Name: ______________________

Curriculum Connection
LS:3

Observations What changes have happened to the plant each day

Time	Description of the Plant
Day 1	
Day 2	
Day 3	
Day 4	
Day 5	

Results What happened? Describe the changes to the plant

____

____

____

____

____

Plants Responding to Touch

How Do Plants Respond To Touch

Plants can't feel like us, but they do react to touch. They have special cells that let them know when they're being touched. When you touch a plant, it might close or fold its leaves, or even grow differently.

Rem [illegible] plants are living things. Even though they can't talk to us, they [illegible] unicate with us. Check out the examples below.

Examples o [illegible] espo [illegible] Touch

- Thigmonasty: S [illegible] to touch. For example, the Venus flytrap quickly shuts [illegible] ed.

Venus [illegible] p

- Sensitive Plant: The touch-me-not plant [illegible] protects itself by folding its leaves wh [illegible] touched.

- Turgor Pressure Change: A plant can move towards the touch. This happens because the cells of the plant near the touch get more water and those far away lose water.

Sensitive Plant

- Fresh-Cut Grass: When grass is cut, it reacts by releasing chemicals. These chemicals warn nearby creatures to help them stay safe.

Name: ______________________

Curriculum Connection
LS.3

True or False Is the statement true or false?

1) When cutting grass, you are cutting a living plant	True	False
2) Plants do not respond to being touched	True	False
3) Some plants will close their leaves when touched	True	False
4) Plants are not living things	True	False
5) Sensiti s will droop or fold up when touched	True	False

Questic Wha s do you have about the reading?

1)	
2)	

Questions Answer the questions below using evide the

1) Why do plants respond to being touched?

____

____

____

2) How do some plants respond to being touched? Give examples.

____

____

____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________

Is the statement true or false?

Mark	

1) The Venus flytrap closes when touched.	True
	False
2) Plants have special cells to sense touch.	True
	False
3) Thigmonasty happens very slowly over time.	True
	False
4) Sensitive plants fold their leaves to protect.	True
	False
5) Grass releases smells that warn other plants.	True
	False

Name: ____________________

Is the statement true or false?

Mark	

1) The Venus flytrap closes when touched.	True
	False
2) Plants have special cells to sense touch.	True
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3) Thigmonasty happens very slowly over time.	True
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Name: ____________________

Is the statement true or false?

Mark	

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	False
5) Grass releases smells that warn other plants.	True
	False

Name: ____________________

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1) The Venus flytrap closes when touched.	True
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	False
4) Sensitive plants fold their leaves to protect.	True
	False
5) Grass releases smells that warn other plants.	True
	False

Plants Responding to Water and Gravity

Responding to Water

Plants need water to grow and create food through a process called photosynthesis. They interact with water in several ways:

Hydrotro[illegible] Some plants, like cacti, have roots that grow towards water. This helps th[illegible] to survive.

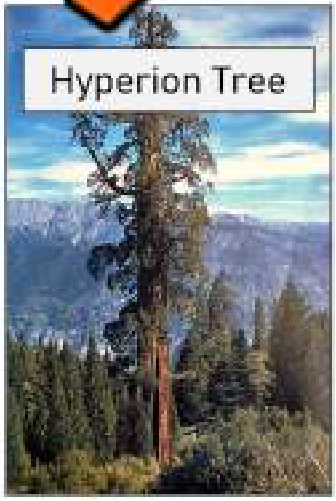
Transpiration[illegible] w[illegible] up the stem and out of the leaves through small openings. This h[illegible]e pla[illegible]n and release excess water.

Germination: When a seed [illegible] up water, it begins to sprout, starting the growth of a new plant.

Responding to Gravity

Plants also respond to gravity. If they grow too tall, they migh[illegible]ver. Some plants need support structures to keep growing tall. These plants develop bigger roots and a thicker base.

For example, the Hyperion tree, the tallest tree in the world found in California, is 115 metres tall and weighs over 1.6 million pounds. It has a diameter of 4.8 metres, which means the distance from one side of the tree to the other is 4.8 metres. This thick base allows the Hyperion tree to stand tall.



Name: ______________________

Curriculum Connection
LS.3

True or False Is the statement true or false?

1) Plants will respond to gravity by growing larger roots and trunks	True	False
2) Cacti don't need water, so they do not respond to it	True	False
3) Some plants have roots that grow towards water	True	False
4) When you water a seed, it will germinate and sprout	True	False
5) Water [illegible]er plants through transpiration	True	False

Visual[illegible] [illegible]w [illegible] were picturing while you were reading. Explain the picture

Questions Answer the questions below using eviden[illegible] the [illegible]

1) How do plants respond to water?

2) How do plants respond to gravity?

Name: ______________________ 45

Curriculum Connection
LS.3

Experiment - Tasty Leaves

Research Question What are we learning about?

If we soak the shoots of lettuce leaves in sugar and/or salt water, will the lettuce taste different?

Hypothesis Will the lettuce taste different?

T[illegible]e	Will it Taste Different?
S[illegible]r Soa[illegible]	Yes No
Salt Soak	[illegible] No

Materials What do we need [illegible]

- ✓ 2 cups with 1/3 cup of water – clea[illegible] cups w[illegible] well
- ✓ Two lettuce leaves with their shoots inta[illegible]
- ✓ 3 tablespoons of sugar
- ✓ 3 tablespoons of salt

Method How do we complete the experiment?

1) Add the 3 tablespoons of salt to the water and stir well
2) Add the 3 tablespoons of sugar to the water and stir well
3) Put one or two lettuce leaves in each solution. Only the shoots (bottom of the leaf) should be in the water solution.
4) Wait at least 5-6 hours.
5) Taste the leaves, not the shoots. Do they taste different?

Name: ______________________

Curriculum Connection
LS.3

Observations What happened?

Type of Water	Did it Taste Different?
Sugar Soaked	Yes No
Salt Soaked	Yes No

Results [illegible]nswer [illegible]ons below

1) Why would the [illegible]s tas[illegible] [illegible]fter sitting in salt or sugar water? Explain.

____

____

____

2) Why is it important that we keep our soil clean a[illegible] [illegible]olluted[illegible]

____

____

____

3) What happens to our soil when we use chemicals (pesticides and fertilizers)? How could that impact the taste and healthiness of the plant.

____

____

____

Name: ______________________

Curriculum Connection
LS3

Nocturnal and Diurnal Animals

Diurnal Animals

Diurnal animals love the sun! These animals wake up when the sun rises. They play, eat, and work during the day. When the night comes, they sleep.

Diurnal Animals

- Huma[illegible]
- Dog[illegible]
- E[illegible]
- Butterflie[illegible]

Nocturnal Animals

Nocturnal animals love the [illegible] The[illegible] when the sun sets and the moon shines. They play, eat, and work duri[illegible]ight. [illegible] the day comes, they sleep.

Nocturnal Animals

- Bats
- Owls
- Raccoons

Why Are Some Animals Nocturnal?

Nocturnal animals like the dark. It keeps them safe from other animals that might want to hurt them. The cool night air also helps some animals, like the desert mouse, stay cool.

Why Are Some Animals Diurnal?

Diurnal animals love the sunlight. It helps them see clearly. Some diurnal animals, like butterflies, need the sun's heat to fly.

Name: ______________________

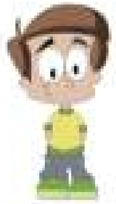
Curriculum Connection
LS.3

Nocturnal animals sleep during the day and move around at night. They do this to stay out of the heat during the day. It is cooler at night when the sun has gone down.

Which Type? Is the animal nocturnal or diurnal?

Nocturnal | Diurnal

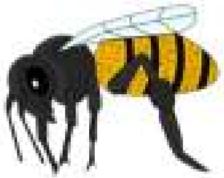
Nocturnal | Diurnal



Nocturnal | Diurnal

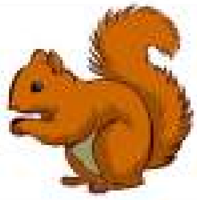
Nocturnal | Diurnal

Nocturnal | Diurnal

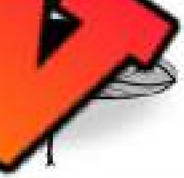


Nocturnal | Diurnal

Nocturnal | Diurnal



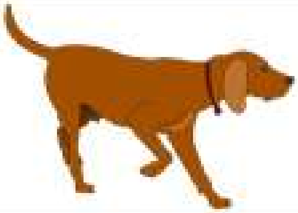
Nocturnal | Diurnal



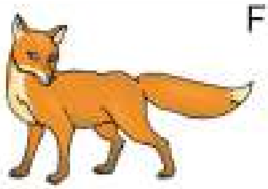
Nocturnal | Diurnal

Coyote

Nocturnal | Diurnal



Nocturnal | Diurnal



Fox

Nocturnal | Diurnal

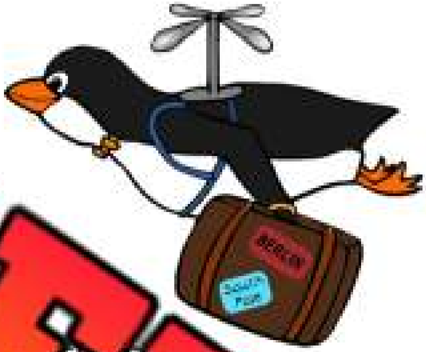
Animals Responding To Temperature - Migration

What is Migration?

Migration is like a big journey that animals take. They travel from one place to another when the seasons change. It's like going on a long holiday! Animals migrate, or move, because the weather is getting too hot or too cold. They go to places w[illegible]e weather is just right for them.

Why [illegible]imals [illegible]

In Alberta, m[illegible] ca[illegible]d food in the winter. This is because plants can't grow when [illegible]old. [illegible]nimals, they migrate south to warm[illegible]. They [illegible] food growing in these warmer ne[illegible]mes[illegible]



Animals That Migrate from Alberta

1) Birds: Many birds like the Canada Goose a[illegible] so[illegible]s Hawk fly south for the winter. They go to warme[illegible] lik[illegible]o.

2) Bats: Some bats in Alberta, like the Silver-haired Bat, migr[illegible]er places too! They fly to the United States when it's too cold in Alb[illegible]ta.

3) Butterflies: The Painted Lady butterfly is amazing. It flies all the way to the United States, too. That's a long trip for such a little creature!

4) Caribou: Caribou move long distances between seasons. In winter, they move to forest areas with less snow to find food. In summer, they migrate to cooler, northern areas.

Name: ______________________

Curriculum Connection
LS.3

True or False Is the statement true or false?

1) Migration is a big journey animals take.	True	False
2) Animals migrate because of weather changes.	True	False
3) In winter, animals in Alberta can easily find food.	True	False
4) Canada Geese fly south for the winter.	True	False
5) Caribo[illegible] the same place all year.	True	False

Draw [illegible] migrate below

Question Write 3 animals that migrate and explain where they [illegible]

Name: ____________________________

Curriculum Connection
LS:3

Experiment - Animal Adaptation: Flight

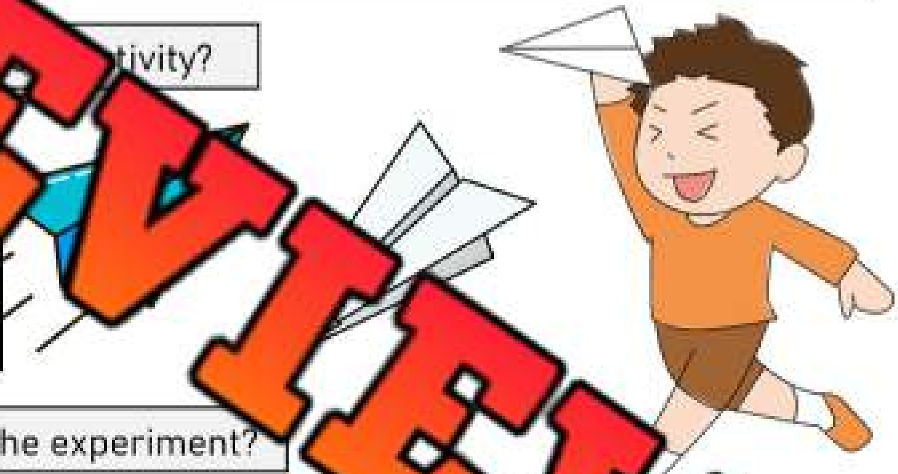
Research Question What are we learning more about?

Animals will migrate during the winter to escape the cold weather. To **migrate**, animals need to travel far distances. Birds migrate far distances because they can fly.

The [illegible] Tern migrates 70,000 kilometres to warmer weather. The Sooty Shea[illegible] 5,000 kilometres. These birds have to be able to fly efficie[illegible] so the[illegible]l far without using too much energy.

Materials Wha[illegible] need[illegible]tivity?

- Sheet of paper
- Tape measure - optional
- Tape
- Scissors
- Paper Clips



Method How do we complete the experiment?

1. Make a standard dart paper airplane. Make your folds as sh[illegible]
2. Throw your plane 5 times from a spot you've marked with tape o[illegible]ring.
3. Once you have a good idea of how far it can fly, try adjusting your plane. You could cut slits in the plane and make new folds.
4. Retest your plane with the new changes. Record your observations on the back of the page.
5. Add paper clips to the planes to see if that makes them fly better. Put them on different parts of the plane. Record your results on the back of the page.

Name: ______________________________

Curriculum Connection
LS:3

Paper Airplane - Drag Experiment

Observations What happened?

Plane	**Distance** (if you have a tape measure)	**Rank the Planes** 1 = best, 3 = worst
First Plane		
Second Plane		
Plane With Weight		

Results Answer the questions.

1) Why do birds migrate?

____

____

2) How far does the Arctic Tern migrate?

3) Why should birds be good at flying if they migrate?

____

____

4) Was your plane good at flying? Would it be good at migrating?

____

____

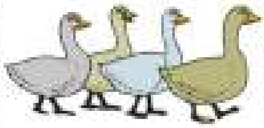
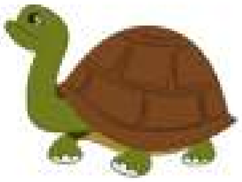
Name: ______________________________ 58

Curriculum Connection
LS.3

Animals That Migrate

Questions Cut and paste the animals putting them in the right category

Migrate	Do Not Migrate







Curriculum Connection
LS.3

Animals That Hibernate

Why do Animals Hibernate?

When it gets really cold in winter, it can be hard for animals to find food. Plants stop growing and some insects go away.

To save energy, some animals go into a deep sle[illegible]d hibernation.

Wha[illegible]ens d[illegible]rnation?

When animal[illegible] the[illegible] a safe spot like a c[illegible] a h[illegible]und. They stay there and sleep all through the winter. During this [illegible] bod[illegible] down. Their heart beats slower, they breathe slower, and they do[illegible]ed [illegible]rink water.

Animals That Hibernate in Alberta

- Bears: Did you know that black bears in A[illegible]find a cozy den and sleep all winter. In the spring, they wak[illegible]ry [illegible]ady[illegible]o find food.

- Bats: Bats like the Little Brown Bat hibernate too. They find a co[illegible]dark spot and sleep until spring.

- Ground Squirrels: These small animals find a hole in the ground and hibernate. When spring comes, they wake up and start looking for food again.

- Frogs: Even some frogs hibernate! The Wood Frog in Alberta freezes in winter and thaws in spring.

Name: ______________________

Curriculum Connection
LS.3

True or False Is the statement true or false?

1) Hibernation is a short sleep	True	False
2) During hibernation, animals eat a lot	True	False
3) Animals hibernate because of cold weather	True	False
4) Bats do not hibernate	True	False
5) All ani[illegible]ibernate in winter	True	False

Draw [illegible]ma[illegible] hibernate below

Question Why do animals hibernate?

____

____

____

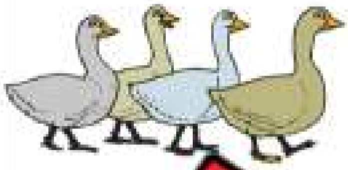
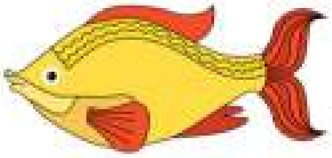
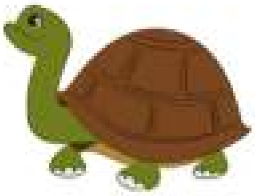
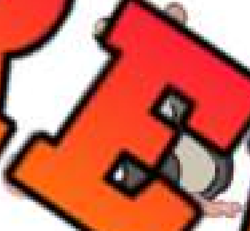
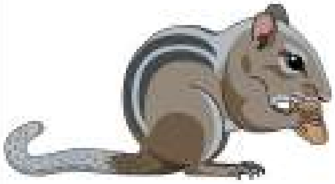
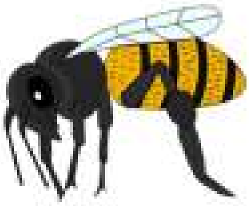
____

____

Name: ____________________

Curriculum Connection
LS3

Questions Which animals below hibernate? Circle yes or no

1)  Yes	2)  Yes No	3)  Yes No	4)  Yes No
5)  Yes No	 Yes N	7)  Ye No	8)  Yes No
9)  Yes No	10)  Yes No	 Yes No	12)  No
13)  Yes No	14)  Yes No	15)  Yes No	16)  Yes No

Name: ______________________

Curriculum Connection
LS.3

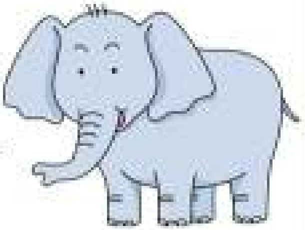
Animal Hearing and Smelling

Super Smellers:

- Bears: Bears are super smellers. They can smell food from miles away. This helps them find berries or honey hidden in the forest.

- Dogs: [illegible]s are great smellers too. They can smell things that are buried unde[illegible] That's how some dogs find bones even when they are hidden.

- Elephants: [illegible] an[illegible] their big long trunks to smell water far a[illegible]s help[illegible]d water when it is very dry.



- Moose: A moose can s[illegible]nts [illegible] far away. This helps them find food in snowy lands.

Hearing Heroes:

- Rabbits: Rabbits have large ears. They can hea[illegible] st[illegible]ng lea[illegible] far away. If a fox is sneaking up, they hear it and ho[illegible]ay f[illegible]

- Owls: Owls are night-time hearing heroes. They can hear tiny so[illegible]s in the dark. This helps them catch mice moving in the grass at night.

- Whales: Even underwater, whales can hear sounds from very far away. This helps them find their family or food in the big, wide ocean.

- Deer: A deer can turn its large ears in different direction without moving its head. This helps them hear if a wolf or other predator is coming close.

Name: ______________________

Curriculum Connection
LS.3

True or False Is the statement true or false?

1) Dogs can find bones underground	True	False
2) Elephants can smell water when it's dry	True	False
3) Rabbits have small ears	True	False
4) Owls can't hear sounds in the dark.	True	False
5) Rabbits [illegible]eir ears to hear predators	True	False

Explai[illegible] Write ho[illegible]nimal uses its hearing or smelling to survive

Bear	
Dog	
Elephant	
Rabbit	
Whale	
Deer	

Curriculum Connection
LS.3

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________ Mark ☐

Check only the true statements.

Statement	✓
Elephants smell water with trunks.	
Moose smell plants from far.	
Owls catch mice using smell.	
Rabbits can't hear quiet sounds.	
Whales hear sounds in oceans.	
Deer can't move their ears.	
Bears can smell far away.	
Dogs can smell things underwater.	
Bears use hearing to find honey.	

Name: ______________ Mark ☐

Check only the true statements.

Statement	✓
Elephants smell water with trunks.	
Moose smell plants from far.	
Owls catch mice using smell.	
Rabbits can't hear quiet sounds.	
Whales hear sounds in oceans.	
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Name: ______________ Mark ☐

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Name: ______________ Mark ☐

Check only the true statements.

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Rabbits can't hear quiet sounds.	
Whales hear sounds in oceans.	
Deer can't move their ears.	
Bears can smell far away.	
Dogs can smell things underwater.	
Bears use hearing to find honey.	

Animal Tasting and Seeing

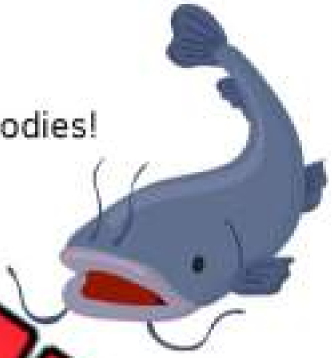
Taste Champions

- Goats: Goats have more taste buds than us! They like to taste all sorts of things to find out what's yummy and what's not. They even taste wood and paper.

- Pigs: [illegible] are also good at tasting. They can taste sweet, salty, sour, and bitter thin[illegible] we can! They use their snouts to find tasty food in the ground.

- Cat[illegible] ats c[illegible] eaters because they have a strong sense of taste. They don't like [illegible] ngs, b[illegible] ve meat!

- Fish: Some fish, like [illegible] ave [illegible] all over their bodies! They can taste their food [illegible] be[illegible] mouth.



Vision Victors

- Eagles: Eagles have eyes that are better tha[illegible] s! [illegible] spot a small mouse on the ground even when they're fly[illegible] up [illegible]

- Cats: Cats can see very well in the dark. They can't see all [illegible] we can, but their eyes are perfect for seeing movement at night.

- Dragonflies: Dragonflies have amazing eyesight. They can see all around them at the same time! This helps them to find food and stay safe.

- Bees: Bees can see colours we can't! They can see ultraviolet light, which helps them find flowers with the sweetest nectar.

Name: ____________________

Curriculum Connection
LS3

True or False Is the statement true or false?

1) Goats have more taste buds than people	True	False
2) Pigs cannot taste sweet things	True	False
3) Cats like sweet food	True	False
4) Catfish have taste buds on their bodies	True	False
5) Cats ca[illegible]ll the colours humans can	True	False

Match. [illegible] write t[illegible] from the ability beside the matching animal

Answer	[illegible]	Tasting or Seeing Ability
	Goats	[illegible]ey do[illegible]weet things, but they love meat.
	Pigs	B) They [illegible] very [illegible] the dark, especially movemen[illegible]
	Cats	C) They have lots [illegible]ste[illegible]asting different things.
	Catfish	D) They can spot a small mouse fr[illegible] sky.
	Eagles	E) They can taste sweet, salty, sour, and bitter things.
	Cats	F) They can see ultraviolet light, which helps them find sweet flowers.
	Dragonflies	G) They can see all around them at the same time.
	Bees	H) They have taste buds all over their bodies.

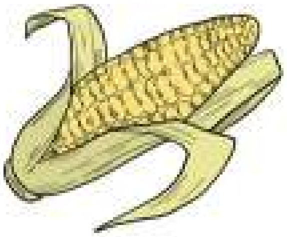
Indigenous Use of Plants

Who Are The Indigenous?

The indigenous groups in Canada are the people who lived here first. The three indigenous groups used plants in many ways to survive. These groups are the Métis, Inuit and First Nations. Some indigenous groups still live off the land, making plants very important.

Food

The Indi[illegible] f Canada ate plants that were available to them. They didn't eat bana[illegible] cause b[illegible] n't grow well in Canada. Instead, many indigenous gro[illegible] wha[illegible] called the 3 Sisters, which were beans, corn, and [illegible] They [illegible] soups out of these 3 plants.



Medicine

The indigenous people of Cana[illegible] ve b[illegible] to cure illness for thousands of years. They use plants to make herbal [illegible] fight [illegible] rom the vitamins in the plants. An example of this was when the Haudeno[illegible] e ma[illegible] ut of pine trees to treat scurvy. Pine needles have a lot of vitamin [illegible] cu[illegible] kly.

Shelter

The indigenous people of Cana[illegible] use[illegible] t ways than we do today. They built she[illegible] s[illegible] igwams and Teepees out of bark, wood poles, straw, [illegible] d vines. They also built longhouses, which were larger shelters made of cedar wood and bark.

Clothing

The indigenous used stems, roots, bark, and leaves to make clothing. Bark was easy to find, so it was used a lot to make clothes. Bark would be shredded and weaved to make skirts, aprons, shirts, belts, hats, capes, and even raincoats.

Name: ______________________

Curriculum Connection
LS.4

Questions Answer the questions below

1) What medicine did the indigenous make to cure scurvy? How did they make it?

2) How di[illegible]nous groups make clothing?

Visualizing Draw what yo[illegible]tu[illegible]w[illegible]u were reading. Explain the picture

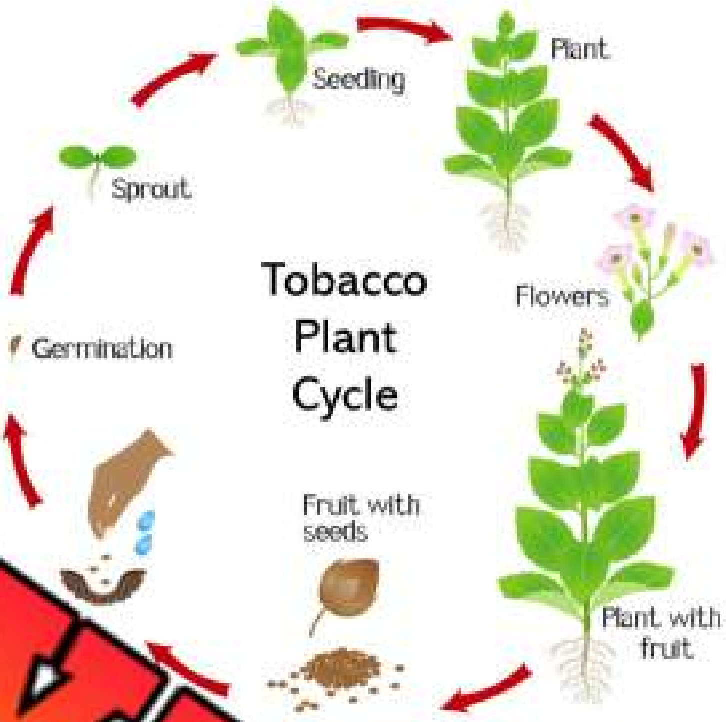
True or False Circle whether the statement is true or false

1) The 3 sisters were corn, beans, and bananas	True	False
2) The indigenous made clothing out of bark	True	False
3) Bark was hard to find for the indigenous	True	False
4) A longhouse is made of bamboo trees	True	False
5) Pine needles can be used to make tea that is rich in vitamin C	True	False

Name: ______________________________

Curriculum Connection
LS.4

Indigenous Use of Tobacco Plant



Indigenous Use of Tobacco

Tobacco is a special plant. It is very important to many First Nations and Métis people. Let's learn why.

Tobacc[illegible] **esting**

Har[illegible]**g** is whe[illegible]ther the food from the[illegible]lar[illegible] Before the Firs[illegible]s an[illegible] start harvesting food,[illegible] tobacco to the Earth. They [illegible] to say "thank you" to the Earth. The [illegible] Earth gives them food and things they need to[illegible]

Giving tobacco is a way to show respect [illegible]han[illegible] the Earth is helping them and they appreciate it. They might p[illegible] on t[illegible]und. Or they might burn it. When they burn it, the smoke goes up to t[illegible]

First Nations and Métis people use tobacco in other ways[illegible]ght give it as a gift to someone they respect, or to ask for help or advice. It's [illegible]o used in special ceremonies, like weddings or naming ceremonies.

Tobacco for Smoking

Some people smoke tobacco. But this is different from giving tobacco to the Earth. People might smoke tobacco because they like the taste or how it makes them feel. But smoking tobacco can hurt our health. It can make us sick, like giving us lung cancer or heart disease. So, it's best not to start smoking.

Name: ______________________

Curriculum Connection
LS.4

Questions Answer the questions below

1) Why do First Nations and Métis people give tobacco to the Earth?

____

____

____

2) How do [illegible] give tobacco to the Earth?

____

____

____

Visualizing Draw what y[illegible]re pictur[illegible] you were reading. Explain the picture

True or False Circle whether the statement is true or false

1) The First Nations and Métis only smoke tobacco	True	False
2) They give tobacco as a sign of respect	True	False
3) They burn tobacco to let the smoke go up in the air	True	False
4) Smoking tobacco is good for us	True	False
5) Tobacco is an important plant to the First Nations and Métis people	True	False

Curriculum Connection
LS.4

Plants Need Animals

Plants and Animals Need Each Other

Plants would not be able to survive without animals and animals would not be able to survive without plants. We need each other! Plants do not eat animals, which means we need each other in different ways.

Why Plants [illegible] Animals

Plants n[illegible] [illegible]rder to survive. Below are three main [illegible]

1) An[illegible]s sprea[illegible]

Some animal[illegible] [illegible]ts ma[illegible]lants. They carry pollen from flower to flower. Without pollen, the[illegible]ant[illegible] seeds. Seeds are needed for new plants to grow.

Animals that carry pollen a[illegible] calle[illegible] [illegible]llinators are very important animals that help plants a lot. Bees a[illegible]r inse[illegible] p[illegible]inators, but bees are the best at pollinating. Without bees, we wouldn't [illegible]ants, [illegible]ouldn't have animals!

2) Animals spread seeds

Animals are also good at spreading seeds around. This happens w[illegible] with seeds in it and compost it. Animals in the wild that eat fruit als[illegible] sp[illegible]eds. They take the seeds to new places where the seeds grow into new plants.

Horses roll around on the ground, collecting seeds on their backs. When they gallop away, seeds blow in all directions.

3) Animals make manure

Animals also help plants by providing manure that fertilizes the soil. Manure is a fancy word for poop. Animal poop has a lot of nutrients in it and it is used to make soil even better. Soil with manure in it allows plants to grow healthier and stronger.

Name: ______________________

Curriculum Connection
LS.4

Questions Answer the questions below

What are three ways why plants need animals?

1)

2)

3)

Word Search [illegible] words

H	V	W	T	B	L	E	H	[illegible]	[illegible]	[illegible]	Q	[illegible]	[illegible]	[illegible]	E	W	G	H	K
H	V	Q	V	Z	I	O	T	X	[illegible]	[illegible]	S	[illegible]	[illegible]	[illegible]	[illegible]	A	S	I	G
E	A	J	P	O	L	L	E	N	J	U	E	[illegible]	[illegible]	U	C	[illegible]	[illegible]	A	H
R	S	N	U	Z	U	A	Y	C	R	D	E	[illegible]	A	Y	[illegible]	[illegible]	B	[illegible]	I
U	O	X	I	S	D	X	F	P	D	C	D	N	E	[illegible]	[illegible]	P	[illegible]	[illegible]	[illegible]
N	K	I	K	M	X	E	R	A	T	F	S	P	L	U	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
A	H	V	T	Q	A	H	W	I	I	D	R	P	A	S	P	[illegible]	[illegible]	[illegible]	K
M	F	E	R	T	I	L	I	Z	E	R	U	H	C	G	T	A	[illegible]	[illegible]	N
N	T	R	L	N	L	Q	S	Z	C	O	P	W	Y	N	K	D	T	Y	A
E	D	Y	N	F	H	B	G	F	S	G	S	G	M	P	Q	Q	N	I	K

Plants
Spread
Bees
Animals
Seeds
Fe[illegible]lizer
[illegible]
[illegible]anure

True or False Circle whether the statement is true or false

1) Plants need animals to spread their pollen	True	False
2) Plants need animals to spread their seeds	True	False
3) Plants need animals to plant seeds deep in the soil	True	False
4) Plants need animals to give them sunlight	True	False
5) Plants grow better in manure from animals	True	False

Questions What is happening in the picture? How is the animal helping the plant?

Name: ______________________

Curriculum Connection
LS.4

Experiment - Pollination

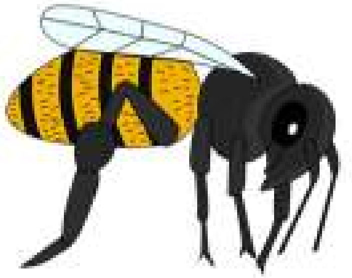
Research Question What are we learning about?

How do insects and other animals pollinate plants?

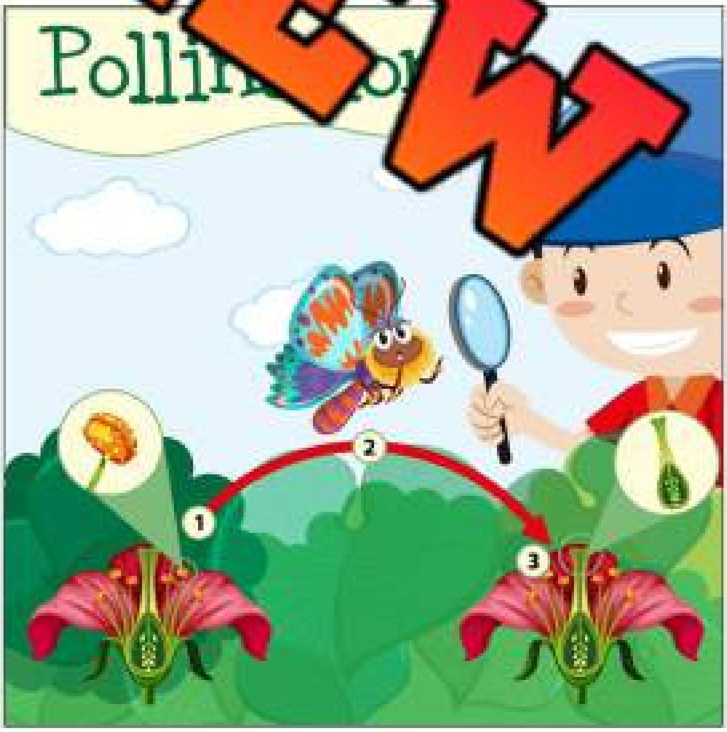
Materials [illegible] do we need for our experiment?

- ✓ 1[illegible] of [illegible] cheese corn chips or a bag of cheese popcorn
- ✓ Whi[illegible] tissue [illegible] for each student to get one

Method How do w[illegible] ent?



1) Hand out a small amount [illegible] chips/popcorn to each student
2) Have them enjoy their food but tell them not to lick their fingers!
3) When everyone is done, hand out one piece of tissue paper to each student
4) Tell the students to touch the tissue paper with their sticky fingers
5) Did any of the cheese flavouring get on the paper?
6) Answer the questions on the back of the page



Name: ______________________

Curriculum Connection
LS.4

Observations What happened?

Did any of the flavouring land on the tissue paper? How did that happen?

____

____

____

Results A[illegible] th[illegible] questions below

1) What [illegible] happe[illegible] diagram? How is pollen being spread?

____

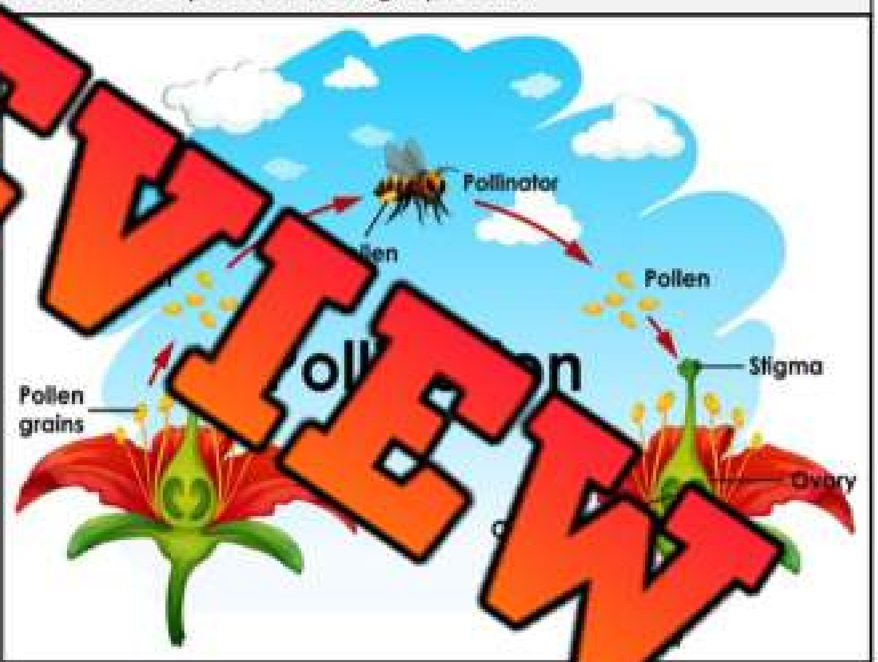
____

____

____

____

____



2) If you touched your cheesy fingers to the door handle, what would happen?

____

____

3) Why do insects and animals touch plants in the first place?

____

____

Name: ______________________

Curriculum Connection
CS.1

Writing Code - Robotic Bees

Honeybees pollinate about 80% of plants worldwide. The problem is that since 1947, we have lost 60% of our honeybees. Robotic scientists are working to solve this problem by designing robotic bees that can pollinate plants.

Direction Use the arrows to move the bee to each of the flower so it can pollinate them. Use as few moves as you can.

←
↑
↓
→

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	19	20

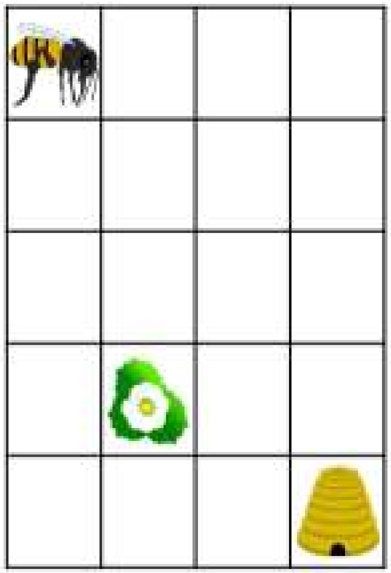
Name: ______________________

Curriculum Connection
CS.1

Directions The code below was written to send the bee to the plant(s) and then back to the hive. Are there errors in the code? Can you fix them?

Is this Correct?	
Yes	No

Your Code

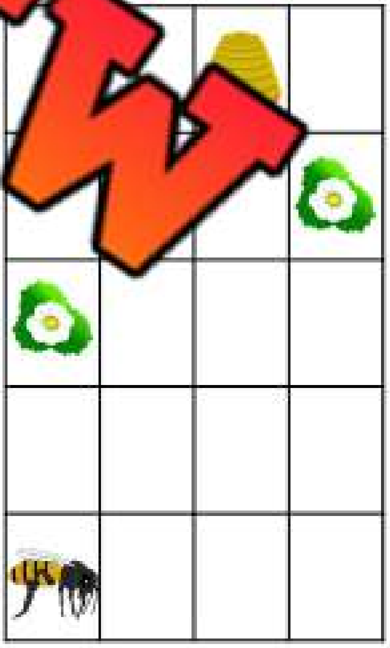


run progra
- fly ri
- fly do 4
- fly right 2
- fly down 1

run program
-
-
-
-

Is this Correct?	
Yes	No

Your Co



run program
- fly up 3
- fly right 3
- fly up 1
- fly left 1
- fly up 1

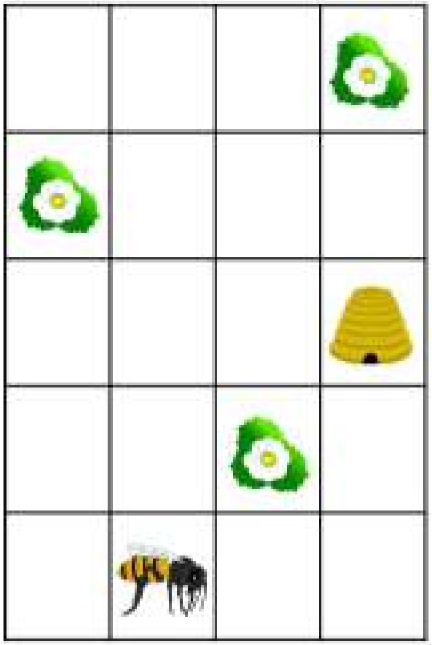
run program
-
-
-
-
-

Name: ____________________ 84

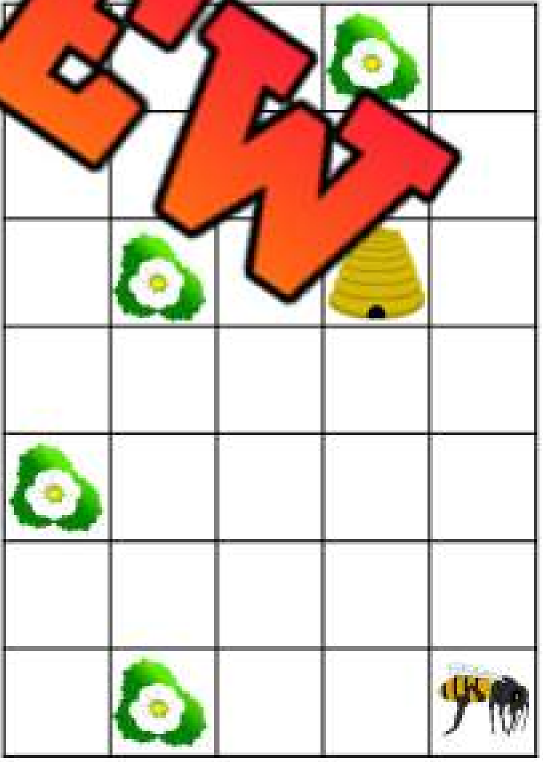
Curriculum Connection
CS.1

Directions Write your own code to get the bee to the flowers and to the hive

run program



run program



Name: ____________________

Curriculum Connection
LS.4

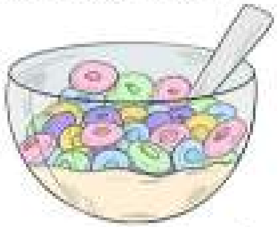
Animals Need Plants

Animals Need Plants

Without plants, animals would not be able to survive. Animals need plants for many reasons, including the three below.

1) For Food

The bigg[illegible]son we need plants is for food. We eat plants! They are yummy, especi[illegible] D[illegible] forget, even breads, cereals, and pastas are made from pla[illegible]



Without [illegible]als [illegible]d not have energy to survive. You may think a[illegible]s co[illegible] [illegible]ther animals, but with no plants, many animals [illegible]. With[illegible]imals, we would run out of animals to eat.

2) For Oxygen

We also need plants because they release [illegible] into [illegible]nimals need oxygen to breathe! Plants and animals work to[illegible] the a[illegible]ur atmosphere. Plants need the carbon dioxide that an[illegible]eat[illegible]in[illegible]der to make their own food and we need the oxygen that plants rele[illegible] animals are a great team!

3) For Shelter

Plants are a source of shelter for animals as well. Some animals burrow into trees and live inside of them. They use trees to hide inside from predators. Trees also provide shade from the sun so they can cool down. Birds use plants to make their nests. They use twigs, grass clippings, and soil to make their nests where they can protect their eggs.

Name: ______________________

Curriculum Connection
LS.4

Questions | Answer the questions below

What are three ways why animals need plants?

1)

2)

3)

Making Connectio[illegible] | [illegible]aw 3[illegible]se plants. Explain your drawings

____

____

____

____

____

____

True or False | Circle whether the statement is true or false

1) Animals need plants to eat for energy	True	False
2) Animals need plants to make oxygen for us to breathe	True	False
3) Animals need plants to make shelters	True	False
4) Animals need plants for carbon dioxide	True	False
5) Animals use plants to make cars	True	False

Name: ______________________

Curriculum Connection
LS.4

Questions What is happening in the picture? How is the animal using the plant?

Curriculum Connection
LS.4

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ______________________ Mark

There are the reasons animals need plants below. Can you circle them?

Shade	[illegible]	Cars
Food	[illegible]	[illegible]
Houses	Water	Shelter

Name: ______________________ Mark

There are the reasons animals need plants below. Can you circle them?

Shade	Toys	Cars
Food	Oxygen	Nests
Houses	Water	Shelter

Name: ______________________ Mark

There are the reasons animals need plants below. Can you circle them?

Shade	Toys	Cars
Food	Oxygen	Nests
Houses	Water	Shelter

Name: ______________________ Mark

There are the reasons animals need plants below. Can you circle them?

Shade	Toys	Cars
Food	Oxygen	Nests
Houses	Water	Shelter

Name: ______________________

Curriculum Connection
LS.6

How Food is Grown

Different Ways of Growing Food

Food is grown in many different ways around the world. We get food from farms, greenhouses, and home gardens.

Farms

A **farm** is [illegible] of land that is used for growing plan[illegible] of plant foods for many people living all over the world. Farmers grow [illegible] land. **Arable land** is land that has good soil. A beach would not be a[illegible]d, so [illegible]n't see a farm on a beach!

Farmers plant [illegible] the weather conditions they have. In Canada, our weather does [illegible] food. Bananas, mangoes, and pineapples need a longer growing se[illegible]

Greenhouses

A **Greenhouse** is a glass building where plant[illegible] gro[illegible]enhouses are used a lot in Canada because you can control the e[illegible]nt in [illegible]enhouse. You can add heat to a greenhouse in the winter, or use lights [illegible]ct [illegible]ys where the sun sets early.

In Canada, there are almost one thousand big greenhouses. These greenhouses are used to grow almost 1 million metric tons of vegetables! Most of the big greenhouses are in Ontario.

Home Gardens

Home gardens are smaller areas where people plant seeds and crops outside of their houses. Home gardens are like smaller farms and usually only provide food for one family.

Curriculum Connection
LS.4

Name: ______________________ 94

Fill in the Blanks What word is missing?

1. Arable land has good _______________.
2. A greenhouses is a __________________ building.
3. The province with the most greenhouses is ____________________.
4. Farms in [illegible]ada cannot grow mangoes, bananas, and _______________________.
5. Over ha[illegible]le in ____________________ grew at least one fruit or vegetable.

Questioni[illegible] Wri[illegible]est[illegible]ns you have about the reading

1)	
2)	
3)	

Multiple Choice Circle the best answer

1) Canada has a long/short growing season	Long	Short
2) In a greenhouse, you can add	Heat	Oxygen
3) Home gardens are like smaller	Greenhouses	Farms
4) Good land for growing plants is called	Arable land	Rich land
5) Most fruits and vegetables are grown in	Home gardens	Farms

Curriculum Connection
LS.4

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ______________________

Mark

Circle the correct answer.

1) Which land has good soil?	
Arable land	Greenhouse
2) Where do families grow food?	
Home gardens	Greenhouse
3) Where are vegetables grown indoors?	
Greenhouse	Arable land
4) Where can you add heat?	
Home gardens	Greenhouse

Name: ______________________

Mark

Circle the correct answer.

1) Which land has good soil?	
Arable land	Greenhouse
2) Where do families grow food?	
Home gardens	Greenhouse
3) Where are vegetables grown indoors?	
Greenhouse	Arable land
4) Where can you add heat?	
Home gardens	Greenhouse

Name: ______________________

Mark

Circle the correct answer.

1) Which land has good soil?	
Arable land	Greenhouse
2) Where do families grow food?	
Home gardens	Greenhouse
3) Where are vegetables grown indoors?	
Greenhouse	Arable land
4) Where can you add heat?	
Home gardens	Greenhouse

Name: ______________________

Mark

Circle the correct answer.

1) Which land has good soil?	
Arable land	Greenhouse
2) Where do families grow food?	
Home gardens	Greenhouse
3) Where are vegetables grown indoors?	
Greenhouse	Arable land
4) Where can you add heat?	
Home gardens	Greenhouse

Name: ____________________

Curriculum Connection
LS.4

Locally Grown Food

Locally Grown Food

Food that is grown locally means the food has been grown nearby. Local food could have been grown down the street from where you live. The best way to buy local food is to go to a farmers' market. At a farme [illegible] market, local farmers bring their crops and sell them.

Wh [illegible] p at a grocery store, almost all of the food is not grow [illegible] its and vegetables come from Mexico, where the growing season [illegible] nger.

Some fo [illegible] not b [illegible] lly. For example, bananas, pineapples, and mangoes do not gr [illegible] Ca [illegible] g the winter months, nothing grows in Canada. This means we c [illegible] resh f [illegible] vegetables from local farmers.

Benefits of Buying Local Food

There are 3 main benefits of buying lo [illegible] grown [illegible] Ch [illegible] hem out below.

1) Fresh fruits and vegetables

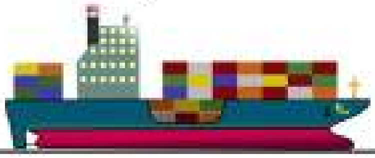
When we buy locally, we know the fruits and veget [illegible] a not h [illegible] travel a long distance. This means the fruits or vegetables could [illegible] bee [illegible] y!

2) Supporting local families

If you buy locally grown food, the money you are spending on the foo [illegible] ays in your community. This extra money in your community can help to pay for community buildings like parks and hockey rinks. You are also helping people you might know!

3) Better for the environment

When you buy locally, the food does not have to travel as far. This is better for the environment because it means less transports or airplanes travelling to send food other places. Airplanes and transports release gases into our environment that make it sick.



Name: ____________________ 97

Curriculum Connection
LS.4

Questions Use information from the text to support your answer

1) Why is it hard to always buy fruits and vegetables locally?

____

____

____

____

2) Wh[illegible]uits and vegetables locally?

____

3) What are th[illegible]ns w[illegible]uld buy fruits and vegetables locally?

____

____

____

Visualizing Draw what you were picturing while you were reading. Ex[illegible]e picture

____

____

____

____

____

____

____

Name: ______________________________

Curriculum Connection
LS 4

Rules and Counts: Caring for Alberta's Animals

Fishing and Hunting Rules

In Alberta, we have special rules for fishing and hunting. These rules tell us how many fish or animals we can catch or hunt and when we can do these activities. For example, we can only [illegible]r certain types of fish during specific months[illegible]

[illegible] **Wardens** help make sure everyone follows these [illegible] mig[illegible]sk to see your fishing or hunting license[illegible] might [illegible] see what you've caught. If someone breaks th[illegible] y ca[illegible] trouble.

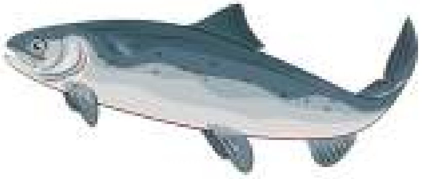
Counting Animals and Fish

Besides these rules, scientists and park ranger[illegible]o co[illegible] track, how many animals and fish there are in an area. This is [illegible] a[illegible]ulations. They might count how many deer are in a forest or how [illegible] fish are [illegible]ke.

They do this by observing animals, using cameras, [illegible]ome[illegible]ing and releasing animals to keep track of them.

Why Counting is Important

Counting animals and fish is very important. The number they find helps to decide the rules for fishing and hunting.



If there are a lot of fish in a lake, people might be able to fish more. But if there aren't many fish, people might need to fish less. This way, we can make sure there are always plenty of animals and fish in Alberta's beautiful outdoors.

Name: ______________________ 104

Questions Answer the questions below

1) Why do we count and track animals?

2) What c[illegible] done if animal populations are getting smaller?

Visualizing Draw what y[illegible] pictur[illegible] you were reading. Explain the picture

True or False Circle whether the statement is true or false

1) Fishing rules tell us when to fish	True	False
2) Game Wardens check fishing licenses	True	False
3) We don't need to count fish in a lake	True	False
4) Counting animals helps us decide hunting rules	True	False
5) You can fish for any fish in any month	True	False

Replenishing Plants

What Does Replenishing Plants Mean?

Humans need wood in order to build many of the things we use everyday. Trees provide us with the wood we need, which means trees need to be cut down in order to manufacture wood.

Lo[illegible]re workers who cut down trees.

Devel[illegible]fields full of plants so they can build hous[illegible]d stor[illegible]**ishing Plants** means we plant new trees o[illegible]t hav[illegible] cut down or removed.

Why Replenish Plants

We need to replenish plants [illegible]man[illegible]

1. Plants are needed for animals [illegible]vive. W[illegible]pl[illegible]ts in the form of fruits and vegetables and most of the animal[illegible]at, al[illegible]nts.

2. If we cut down trees and forests without repla[illegible]will[illegible]ut of wood. We use wood to build structures.

3. Plants are needed to absorb carbon dioxide. If we have too muc[illegible]arbon dioxide, our planet gets sick!

4. Plants release oxygen for us to breathe. We need oxygen to survive!

5. We get medicine from plants. Plants help cure diseases and injuries that people suffer from.

Name: ______________________

Curriculum Connection
LS.4

Questions Use information from the text to support your answer

1) Why are trees cut down?

____

____

2) Why is it important to replenish plants?

____

____

Making Connectio [illegible] hat d [illegible] ading remind you of? Draw and explain.

____

____

____

____

____

True or False Circle whether the statement is true or false

1) We need to cut down trees to get wood to build structures	True	False
2) We need to plant new trees to keep us healthy	True	False
3) We need trees to absorb carbon dioxide	True	False
4) We need wood more than we need growing trees	True	False
5) We can cut down as many trees as we want and stay healthy	True	False

Name: ______________________

Curriculum Connection
LS.4

Two Billion Trees

Two Billion Trees

In the year 2020, the Canadian government made a plan to plant two billion trees. They hope to have the two billion trees planted by 2030. As of 2022, they have planted 30 million trees.

Why Two Billion Trees?

- ***Climat*** [illegible] - Trees collect carbon which will help stop climate change
- ***Save*** [illegible] Trees are homes to many animals. Planting new trees will save animals
- ***For*** [illegible] green spaces and parks for people to enjoy

How [illegible]**u Help?**

If you want to [illegible]s, y[illegible]uld join a team that plants [illegible]eck [illegible] Canadian government 2Bil[illegible]s web[illegible] a form to join. The government gives money to teams so they can [illegible]. Th[illegible]s the trees in good places.

Questions Answer the questions b[illegible]

Why is the Canadian government planting two-b[illegible]trees[illegible]ns.

1) ______________________

2) ______________________

3) ______________________

True or False Circle whether the statement is true or false

1) The Canadian government by 2022 had planted 1 billion trees	True	False
2) They are planting trees to fix climate change	True	False
3) You can join a team to help Canada plant 2 billion trees	True	False
4) Trees are only needed to make us oxygen to breathe	True	False
5) Trees save animals by giving them a home	True	False

Name: ______________________

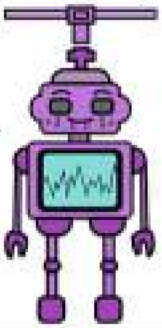
Curriculum Connection
CS.1

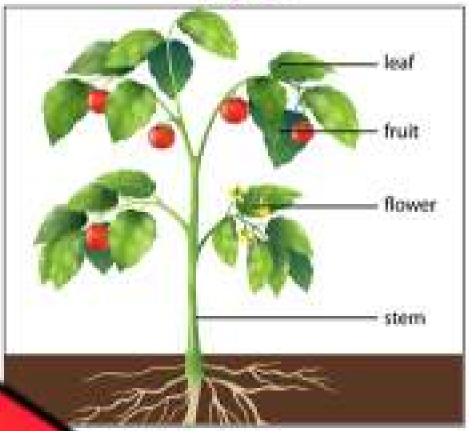
Coding - Drawing Plants

Directions Follow the code from Nora to draw a plant

Hi, Nora here. Can you follow my code to draw a plant?

```
run pro[illegible]m
    dr[illegible]rizontal line for the ground
    [illegible] the ground line
    [illegible]w a st[illegible]t up
    draw [illegible]ing[illegible] stem
    draw bla[illegible]the [illegible]tioles
    draw strawber[illegible]comi[illegible]
    some of the petiole[illegible]
    draw a flower coming o[illegible] the[illegible]
```





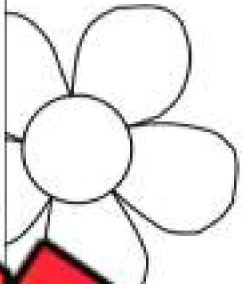
Name: ____________________

Writing Code - Drawing a Flower

Directions Can you write code that will make a flower?

Write codes that a classmate can follow to draw a flower. Remember, your classmate will only draw what you code.

run program



Output

Indigenous Understanding of Animals

Indigenous Understanding of Animals

First Nations, Métis, and Inuit people have a deep knowledge about animals and how they behave. They also understand when animals move from one place to another. This knowledge helps them in many special ways.

Understa [illegible] nimal Behaviour

- P[illegible] [illegible]e[illegible] They can watch birds and predict wh[illegible] a stor[illegible]g. Birds will stop flying and hide in their ne[illegible] [illegible]e a st[illegible]
- Know Seasons: Squ[illegible] [illegible]rt co[illegible] [illegible]uts when winter is near. This tells them when the seasons [illegible]an[illegible]
- Stay Safe: If a bear stands on its [illegible]k legs, [illegible] kno[illegible] might be worried and it's time to step b[illegible]
- Learn Skills: By watching beavers build dams, [illegible] how to build strong homes.

Understanding Migration Patterns

- Mark Seasons: When geese fly south, they know winter is coming. When robins come back, they know spring is here.
- Plan Hunting: They only hunt caribou when they know they are migrating through their lands.
- Find Food: They follow the herds of bison during their migrations to ensure they have food.

Name: ______________________________

Think Answer the questions below

1) What is one way the Indigenous know when a storm is coming?

____

____

____

2) How d[illegible]digenous know the seasons are changing?

____

____

____

Visualizing Draw what y[illegible] pictur[illegible] you were reading. Explain the picture

____

____

____

____

____

____

Word Search Find the words!

Season	Safe
Storm	Animal
Bear	Stand
Bird	Nest

S	E	A	S	O	N	S	A	F	E	S	T	A	N	D	Z	N	U
H	M	A	N	I	M	A	L	N	E	S	T	W	S	H	U	Q	X
I	G	T	M	T	A	T	S	T	Z	N	F	E	B	I	R	D	K
X	J	R	K	U	R	U	E	D	O	B	F	G	O	D	S	P	W
I	G	S	T	O	R	M	Z	L	O	W	E	V	U	H	P	N	V
B	E	A	R	L	Y	H	I	B	B	Y	I	W	D	Z	F	X	N

Name: ______________________________

Curriculum Connection
LS.6

Indigenous Understanding of Life Cycle

Indigenous Understanding of Life Cycles

Indigenous groups in Alberta have fished successfully for thousands of years. They understand the life cycles of fish. Even though there were no rules in place as [illegible] many fish you could catch, they did not overfish. Overfishing has led to the [illegible] have today.

<u>Problems Today</u>

As of now, [illegible] rivers in Alberta that have low [illegible] salmon and trout. The government [illegible] people from catching certain fish. [illegible] are [illegible] place because we need fish to lay eggs so that [illegible] fish can be born.

Even with the rules, many anglers (people [illegible] do not follow them. This has led to the fish population [illegible]

<u>The Indigenous groups in Alberta did things differently.</u>

- ✓ They would catch fish downstream, after they laid eggs
- ✓ Their fishing nets had a large hole, letting some of the fish escape. This was out of respect for the fish. They now had a chance to survive.
- ✓ They didn't have rules, but they all followed the unwritten rules of conservation. Conservation means only using what you need.

Name: ____________________

Curriculum Connection
LS.6

True or False Circle whether the statement is true or false

1) Overfishing isn't a problem because there will always be more fish	True	False
2) Many Indigenous groups overfish	True	False
3) Many Canadian anglers overfish	True	False
4) The amount of salmon in Alberta rivers and lakes is healthy	True	False
5) The Ind[illegible]us wouldn't catch fish before they lay eggs	True	False

Visuali[illegible] [illegible]u were picturing while you were reading. Explain the picture

Questions Use information from the text to suppo[illegible]swer[illegible]

1) Why did the government put in rules as to how many salmon can [illegible]

2) Why were the Indigenous able to fish for thousands of years without affecting the salmon population?

Curriculum Connection
LS.6

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ____________________

Mark

2 Truths and a Lie – Can you find the one that's not true?

	The Indigenous groups in Alberta didn't have rules, but they all followed the unwritten rules of conservation.
	The Indigenous groups in Alberta would catch fish downstream, after they laid eggs.
	Conservation means using all you want.

Name: ____________________

Mark

2 Truths and a Lie – Can you find the one that's not true?

	The Indigenous groups in Alberta didn't have rules, but they all followed the unwritten rules of conservation.
	The Indigenous groups in Alberta would catch fish downstream, after they laid eggs.
	Conservation means using all you want.

Name: ____________________

Mark

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	The Indigenous groups in Alberta would catch fish downstream, after they laid eggs.
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Name: ____________________

Mark

2 Truths and a Lie – Can you find the one that's not true?

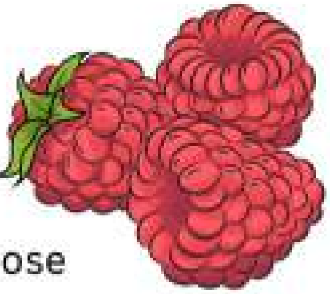
	The Indigenous groups in Alberta didn't have rules, but they all followed the unwritten rules of conservation.
	The Indigenous groups in Alberta would catch fish downstream, after they laid eggs.
	Conservation means using all you want.

Métis Seasonal Rounds

Living on a seasonal cycle means you live differently in different seasons. The Métis traditionally did the following in each season.

Spring

- Hunt [illegible]ffalo, ducks, geese, swans, moose, deer, and elk
- Trap [illegible]tters, beavers, rabbits, and wolves
- Col[illegible]k for canoes and household items
- T[illegible]an[illegible] trees
- Pla[illegible] whea[illegible]er [illegible]ains

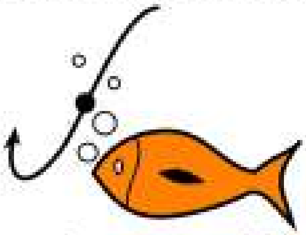


Summer

- Hunt buffalo, wol[illegible]otes, [illegible]abbits, and moose
- Trap bears
- Gather Seneca root, blueber[illegible]spbe[illegible] and currants
- Fish with nets
- Plant and harvest barley
- Shear sheep for their wool

Fall

- Hunt buffalo to save food for the winter
- Hunt moose, deer, chickens, ducks, geese, and swans
- Fish for whitefish and salmon
- Trap and hunt bears, wolves, coyotes, mink, otters and beavers
- Harvest wheat
- Slaughter livestock



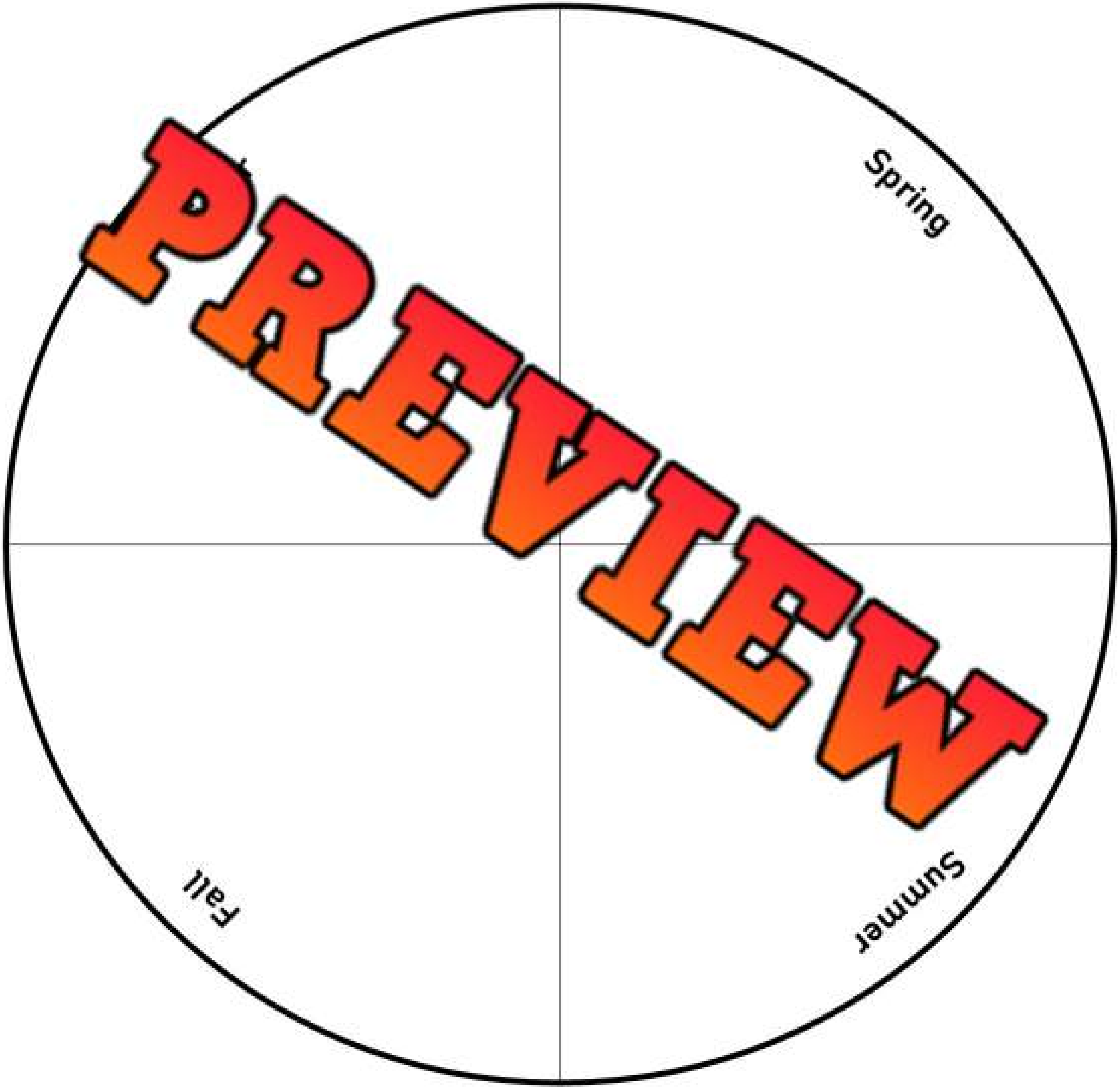
Winter

- Trap skunks, weasels, mink, otters, beavers, muskrats, and bears
- Hunt buffalo, bears, wolves, coyotes, chickens, rabbits, and moose
- Ice fish with nets

Name: ______________________________

Curriculum Connection
LS.6

Instructions Use the information from the previous page to fill in the seasonal round below for the Métis Indigenous group



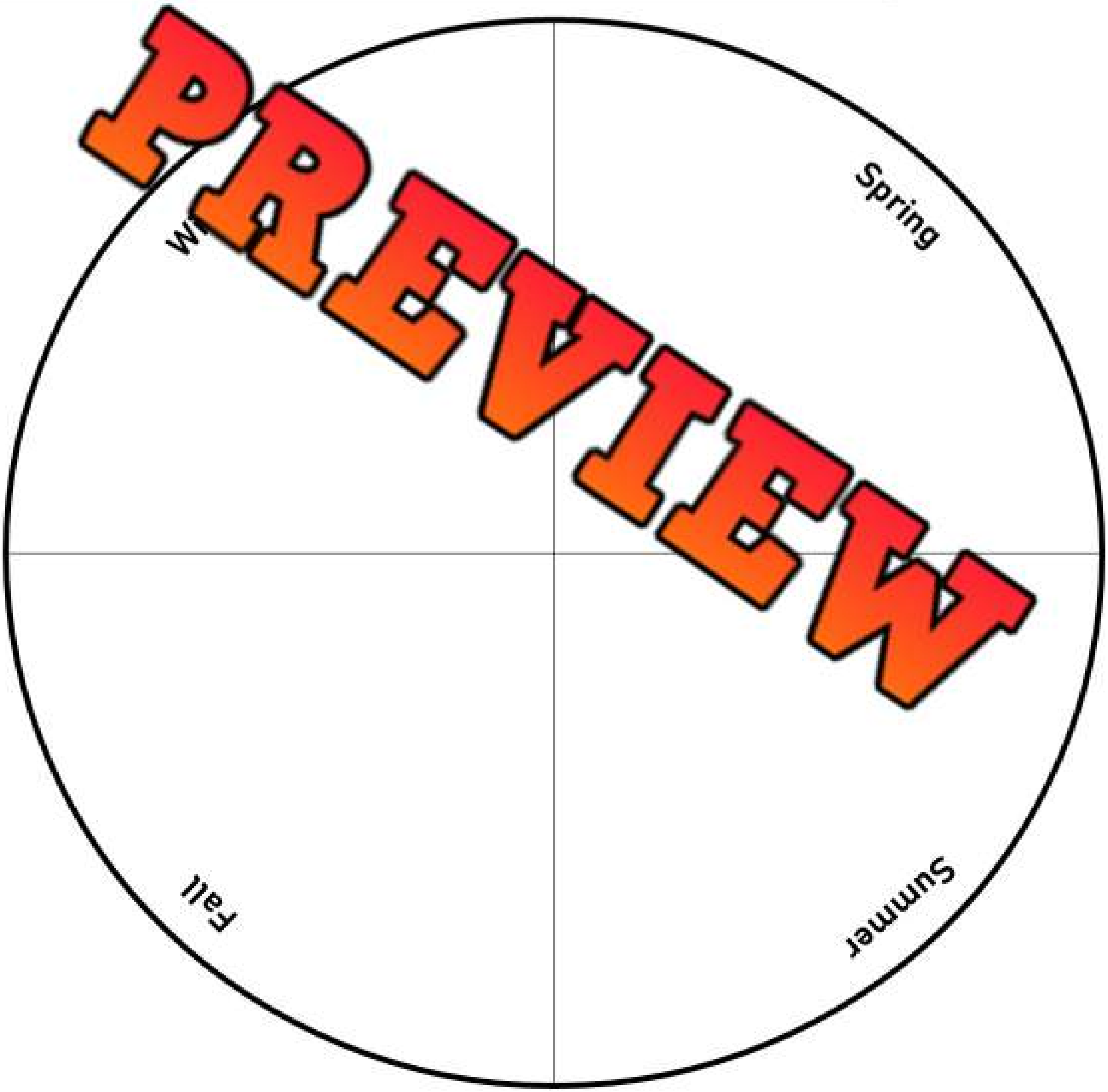
Name: ______________________________ 118

Curriculum Connection
LS.6

Your Own Seasonal Round

You will likely have different things happening in your life from season to season. Do you celebrate certain holidays in a season? Do you play different sports or do different activities in different seasons?

Instructions Draw or write the things you do from season to season



Name: ____________________________ Date: ____________________________

Unit Test - Plants and Animals

Multiple Choice /10

1) Who is highest on the food chain?

a) Wheat plant

b) Fox

c) Rabbit

d) Mouse

2) An animal that eats both plants and animals is a…

a) Carnivore

b) Herbivore

c) Omnivore

d) Multivore

3) Pla[illegible]heir own food are…

a) Consumers

b) Decomposers

c) Producers

d) All of the above

4) Animals that do not have any predators are…

a) Tertiary Consumers

b) Primary Consumers

[illegible] Quaternary Consumers

[illegible]ondary Consumers

5) What gives grass energy?

a) Rabbits

b) Snakes

c) Bugs

d) Sunlight

[illegible] Whi[illegible]e following is a decomposer?

a) S[illegible]

[illegible]

c) Fung[illegible]

d) Dragonfly

7) What gives snakes energy?

a) Mice

b) Sunlight

c) Wolves

d) Grass

8) Which animal is a [illegible]

a) Racoon

b) Bat

c) Dog

d) Owl

9) Which animal does not hibernate?

a) Bears

b) Bats

c) Squirrels

d) Birds

10) Which animal is an omnivore?

a) Deer

b) Bear

c) Penguin

d) Horse

Define What do the terms below mean?

Mark	/

Term	Definition (what does it mean)
Carnivores	
Herbivore	
Omnivore	

Short Answer Answer the [illegible] ns b[illegible]

Mark	/

1) Do plants need light? How do they [illegible] pond to [illegible]

2) Why do humans track animal populations?

3) Why do animals migrate and hibernate?

Long Answer Answer the questions below.

Mark /

1) What is a food chain? Draw a food chain with 5 different parts.

2) Why do plants need animals and why [illegible] animals [illegible]?

Google Slides Lessons Preview

Alberta Science Curriculum
Earth Systems Unit – Grade 3

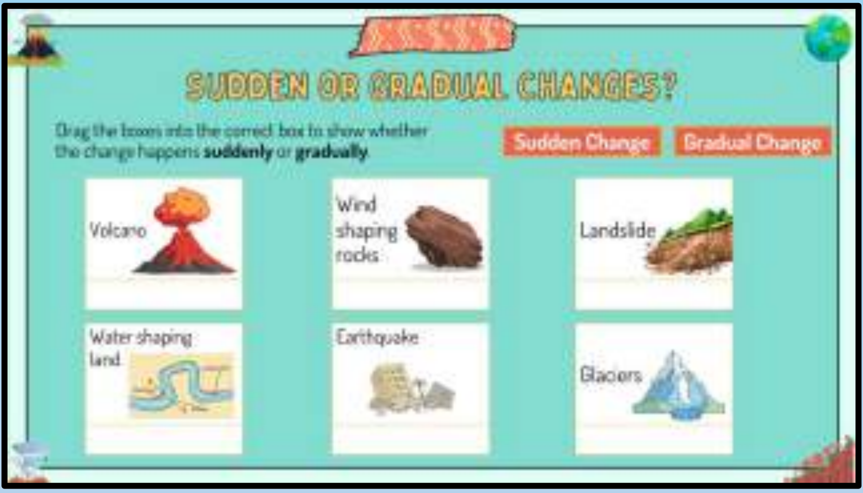
3-Part Lesson Format

Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!

SUDDEN VS GRADUAL CHANGES TO EARTH

LEARNING GOAL

We are learning **to understand sudden and gradual changes to Earth** so we can **explain how the land can change quickly or slowly over time due to natural forces.**

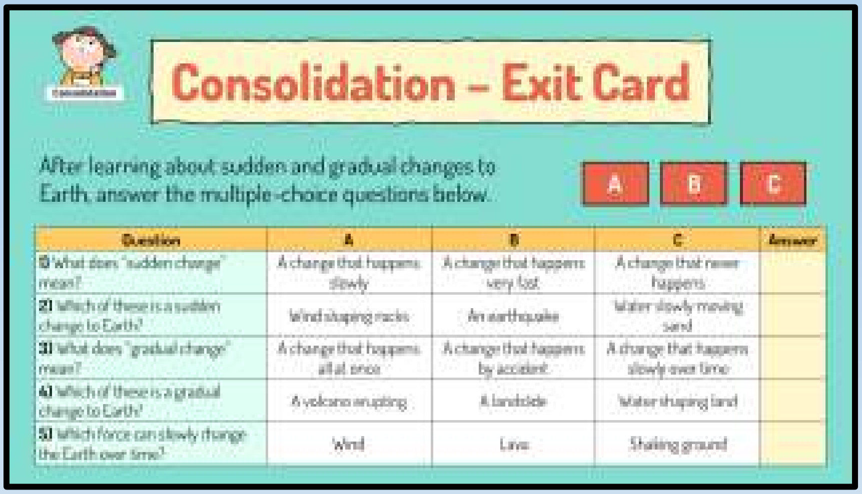


SUDDEN OR GRADUAL CHANGES?

Drag the boxes into the correct box to show whether the change happens **suddenly** or **gradually**.

Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!
- Exit Cards
- Quizzes
- Reflection
- And More!



Consolidation – Exit Card

After learning about sudden and gradual changes to Earth, answer the multiple-choice questions below.

Question	A	B	C	Answer
1) What does "sudden change" mean?	A change that happens slowly	A change that happens very fast	A change that never happens	
2) Which of these is a sudden change to Earth?	Wind shaping rocks	An earthquake	Water slowly moving sand	
3) What does "gradual change" mean?	A change that happens all at once	A change that happens by accident	A change that happens slowly over time	
4) Which of these is a gradual change to Earth?	A volcano erupting	A landslide	Water shaping land	
5) Which force can slowly change the Earth over time?	Wind	Lava	Shaking ground	

Alberta Science Curriculum
Earth Systems Unit – Grade 3

THE EARTH'S PLATES

Sort the following statements into two groups.

✓ The statement is correct

✗ The statement is incorrect

✓ ✗

1) The Earth's crust is broken into large pieces called plates.
2) Earth's plates never move. They always stay in one place.
3) When plates push together, mountains can form.
4) When plates move apart, the ground never changes.
5) Some plates slide past each other, which can make the ground shake.
6) All plate boundaries are the same and cause the same changes.
7) Some plates are under the ocean.
8) Transform boundaries happen when plates slide past each other.

OUNTAINS ARE FORMED

names of the four mountain types by dragging the boxes to the correct places in the table

Folded Mountain

Fault-Block Mountain

Upwarped Mountain

Volcanic Mountain

MATCH THE

Valley

Riverbed

Delta

SUPER Simple SHEETS

Alberta Science Curriculum
Earth Systems Unit – Grade 3

DRAG & SORT: HELPFUL OR HARMFUL?

Drag each statement into the correct box: **Helpful** to the Earth or **Harmful** to the Earth (makes glaciers melt).

1) Turning off lights to save energy
2) Leaving the car engine running
3) Using buses or carpooling
4) Throwing garbage on the ground
5) Picking up litter
6) Planting more trees
7) Driving a car every day
8) Riding a bike or walking
9) Cutting down trees
10) Recycling paper and plastic

SPOT THE CON

Drag the ✓ to each statement that is true abou statements that are not true.

	Heavy rain can make the ground too wet and cause a landslide.		Landslides can block roads and make it hard for people to travel.
	Landslides only happen on flat ground.		A tiny amount of water can cause a very big landslide.
	Landslides can move rocks, dirt, and old trees down a hill.		Landslides only move soft soil, not rocks.
	Landslides can change how the land looks.		Landslides can fill up rivers and make new lakes.
	All landslides move slowly and take many years to happen.		Earthquakes can shake the ground and start a landslide.

R FALSE?

n how weathering changes rocks. Decide if the statement is **True** or **False**.

1) Weathering only happens in winter.
2) Weathering happens very quickly, like in a few minutes.
3) Water freezing in cracks can make rocks break apart.
4) Weathering means rocks break down into smaller pieces over time.
5) Rocks can rub against each other and wear down.
6) Chemicals in rain can cause rocks to break down.
7) Weathering makes rocks get bigger and sharper.
8) Abrasion is when rocks bump or scrape against each other.
9) Weathering can happen because of wind, water, or ice.

Workbook Preview

Grade 3 – Science Unit

Organizing Idea Matter: Earth Systems: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their interactions

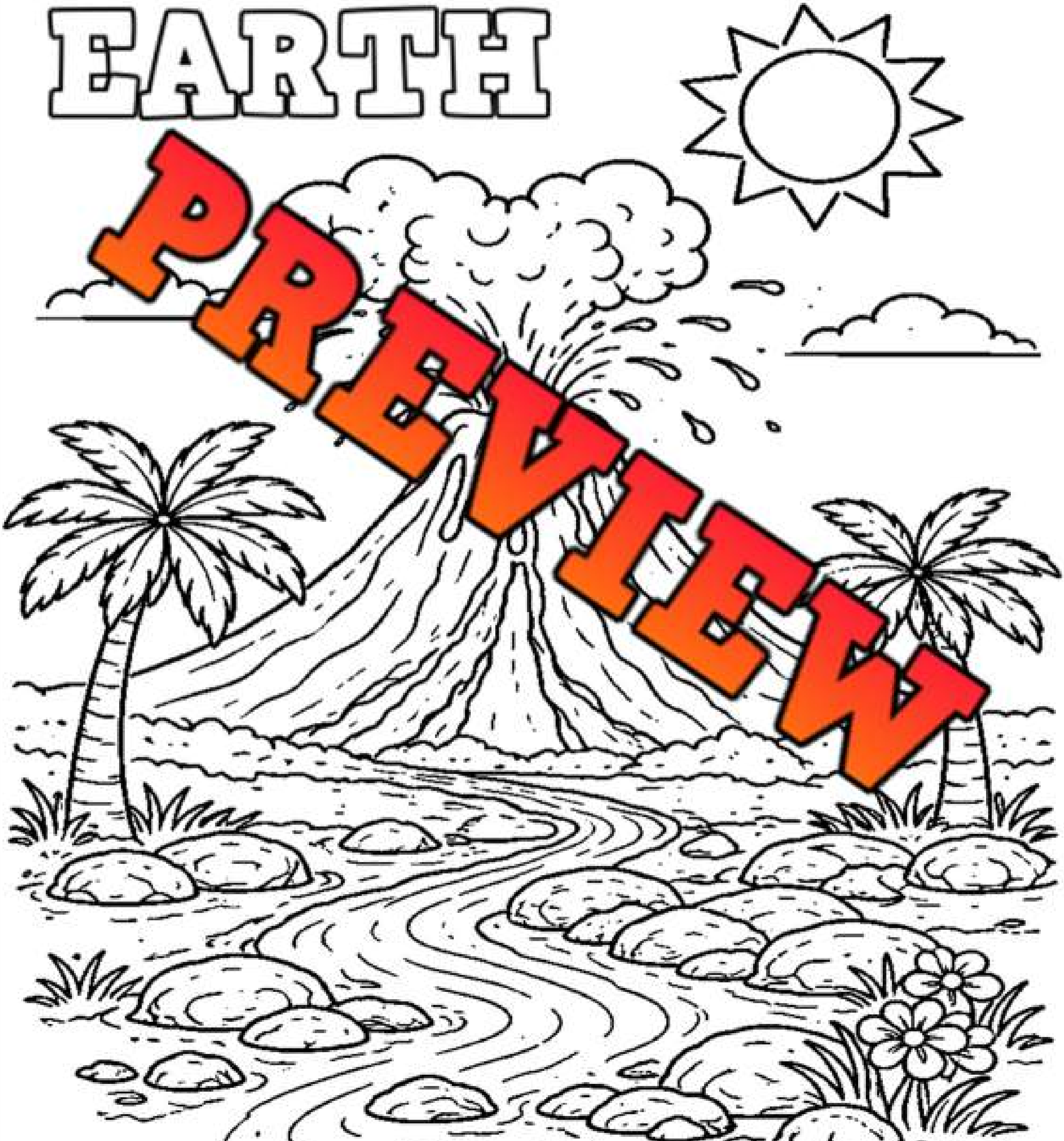
Guiding Question: What visible changes can be identified by examining Earth's surface?

	Learning Outcome – Students analyze changes in Earth's surface and explain how its layers hold stories of the past.	**Pages**
ES.1	Changes that can occur to Earth's surface over a long period of time include • mountains wearing down, rivers changing course, lakes and seas drying out and refilling, glaciers moving, advancing, and receding Natural events that can change Earth's surface in a short period of	7-31, 37-47, 63
ES.2	all of Canada. Melting glacier ice creates runoff that forms and maintains many of the major rivers in Alberta. Earth is warming up from natural and human causes, which is accelerating the melting of glaciers. Interactions with wind and water have shaped Earth's surface, including Alberta's badlands and the Grand Canyon in the United States.	24-36, 48-57, 64-65
ES.3	Human activities that can change Earth's surface include • living on the land, building towns and cities, getting and using resources, growing crops and farming (agriculture), polluting, stewardship Plant and animal activities can change Earth's surface, such as • overpopulation, using resources, parasite infestation; e.g., mountain pine beetle, animals burrowing	66-71

	Learning Outcome - Students analyze changes in Earth's surface and explain how its layers hold stories of the past.	**Pages**
ES.4	Earth's surface contains layers that have been deposited over long periods of time. Fossilized dinosaur bones found in many locations around the world show that dinosaurs lived on Earth millions of years ago. Millions of years ago, Earth's surface in Alberta included lush tropical forests and an inland sea that supported dinosaur life and the preservation of dinosaur bones. Fossilized dinosaur bones can be collected from the surfaces of Earth or by digging up (excavating) its layers. Fossilized dinosaur bones have been found in several locations in Alberta, such as • Alberta's badlands, the Grande Cache area, the Fort McMurray area Dinosaur Provincial Park, located in Alberta's badlands, has been classified as a UNESCO World Heritage Site. Many dinosaurs lived in Alberta, such as • Albertosaurus, Edmontosaurus, Nodosaurus, Tyrannosaurus Displays of fossilized dinosaur bones can be viewed in museums in Alberta such as the • Royal Tyrrell Museum in Drumheller, Philip J. Currie Dinosaur Museum in Wembley A scientist who studies fossilized dinosaur bones is called a paleontologist.	72-94
ES.5	Soil includes • living plants and animals, decaying plants and animals, rock particles, air, water Soil provides a habitat for many animals. Habitats are environments where plants or animals establish a home. Soil can change due to the influence of plants and animals, such as • plants and crops growing, worms tunneling and eating matter	95-119
	Computer Science - Learning Outcome	
CS.1	Students investigate creativity and its relationship to computational thinking	N/A

NAME: ______________________________

CHANGING EARTH



Name: ______________________

Curriculum Connection
ES.1

Sudden vs Gradual Changes to Earth

Changes to Earth: Sudden (Fast) and Gradual (Slow)

The Earth is always changing. Some changes happen very quickly because of strong forces like earthquakes, landslides, and volcanoes. Other changes happen slowly over a lot of time, like when wind and water shape the land.

Fast Cha[illegible]arth

Eart[illegible]

Sometimes, p[illegible]s c[illegible]ge our Earth very quic[illegible]015, a[illegible]ke changed Mount Kina[illegible]ysia. [illegible] mountain had a part called [illegible]'s [illegible] and the earthquake damaged it.

Volcanoes

A volcano is a hole in the Earth's ground that can [illegible]a, ash[illegible] steam. When a volcano erupts, its lava can cool down and turn into ro[illegible]his[illegible] parts of the Earth. Volcanoes in Hawaii have even made new is[illegible]

Slow Changes to Earth

Wind, water, and ice can change the Earth slowly. This can happen through processes called erosion and weathering. Erosion is when parts of the Earth are worn away or moved. An example of erosion is when wind moves soil, glaciers scrape the ground, or water changes our coastlines. Weathering is when rocks break down into smaller pieces, but don't move. Both erosion and weathering shape the Earth slowly over time.

Name: ______________________ 8

Curriculum Connection
ES.1

Questions Answer the questions below using evidence from the text

1) What is the difference between sudden and gradual changes to Earth?

____

____

____

2) Write ex[illegible]les of sudden and gradual changes to Earth.

[illegible]udden	Gradual

Visualizing Draw what you w[illegible] pict[illegible] [illegible]ere reading. Explain the picture

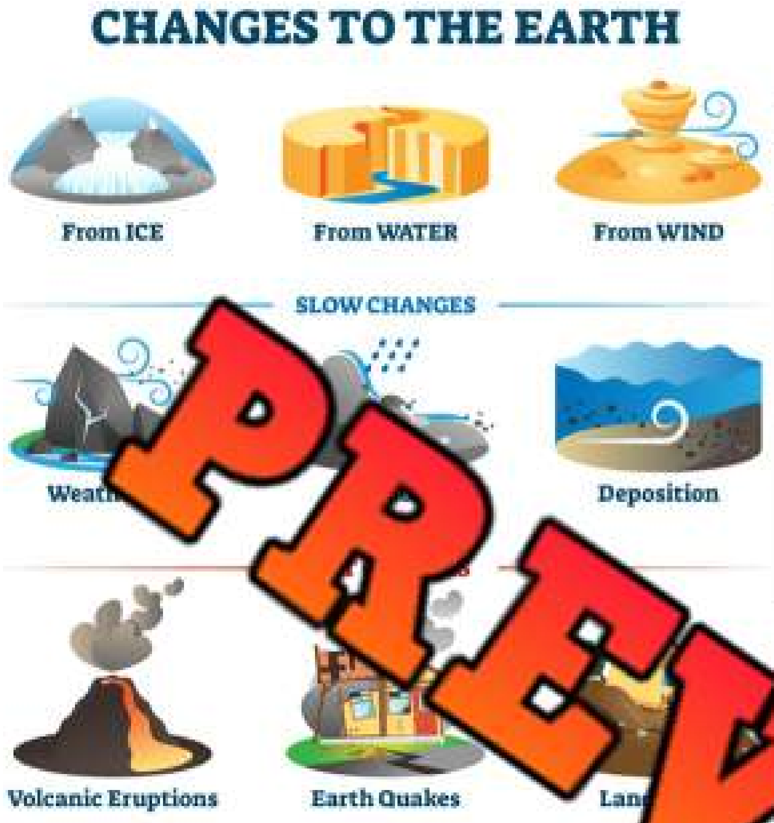
Sudden or Gradual Is the example a gradual or sudden change?

1) A landslide destroys a forest	
2) A waterfall is formed after years of water erosion	
3) A glacier carved out the Cape Cod River	
4) An earthquake created fissures in the ground	

Name: ______________________

Curriculum Connection
ES.1

Research - Sudden and Gradual Changes to Earth



Definitions	What do the terms below mean?

Term	Definition
Erosion	
Weathering	
Deposition	

Term	Definition
Glacier Erosion	
Water Erosion	
Wind Erosion	

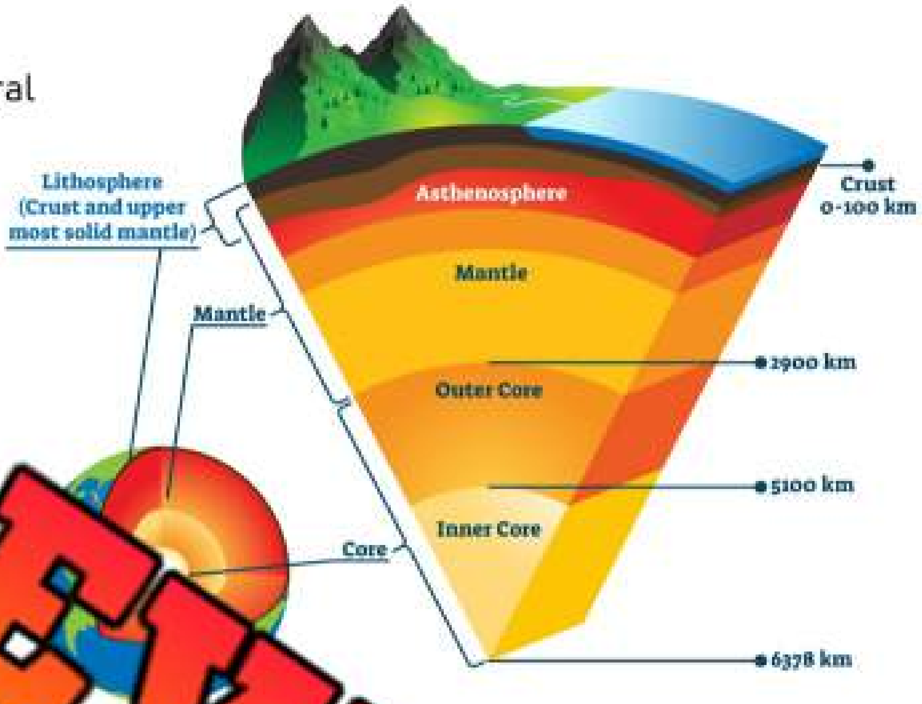
Research	Research your own examples of sudden and gradual changes to the Earth

Sudden	
Gradual	

Curriculum Connection
ES.1

Layers of Earth

Layers of the Earth



The Earth is made up of several layers, which are composed of different materials and have diffe[illegible]roperties. From th[illegible]f [illegible]e Earth outw[illegible]lay[illegible]

The Inner Co[illegible]

The inner core is t[illegible]ddl[illegible] part of the Earth. It is m[illegible] up of solid iron and nickel. It is the hottest part of the Earth, with [illegible]eratur[illegible] [illegible]00 degrees Celsius. The inner core is thought to be about the same s[illegible] the M[illegible]

The Outer Core

The outer core is made up of molten iron and nickel. It is [illegible]oler[illegible]ore. The outer core is a liquid.

The Mantle

The mantle is made of hot, molten rock. It is the largest layer of the Earth. The mantle is hot liquid rock that is always moving.

The Crust

The crust is the outermost layer of the Earth and is made up of solid rock. The crust is thin, but it is still about 35 kilometers thick. The crust is made of seven major plates, like jigsaw pieces.

Name: ____________________ 11

Curriculum Connection
ES.1

True or False Circle whether the statement is true or false

1) The Earth's mantle is solid	True	False
2) The crust is made of 7 big plates	True	False
3) The inner core is about the same size of the moon	True	False
4) The crust is the hottest layer of the Earth	True	False
5) The crust is the thinnest layer of Earth	True	False

Draw [illegible] a[illegible]m of the Earth and label each layer

Question Describe the layers of the Earth so someone who didn't know t[illegible]ere layers

Curriculum Connection
ES.1

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________ Mark ☐

Is the statement true or false?

1) The crust is made of hard rock.	True
	False
2) The inner core is cooler than the crust.	True
	False
3) The outer core is cooler than the inner core.	True
	False
4) The mantle never moves inside the Earth.	True
	False
5) The crust is the thickest layer.	True
	False

Name: ____________________ Mark ☐

Is the statement true or false?

1) The crust is made of hard rock.	True
	False
2) The inner core is cooler than the crust.	True
	False
3) The outer core is cooler than the inner core.	True
	False
4) The mantle never moves inside the Earth.	True
	False
5) The crust is the thickest layer.	True
	False

Name: ____________________ Mark ☐

Is the statement true or false?

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	False
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	False
4) The mantle never moves inside the Earth.	True
	False
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	False

Name: ____________________ Mark ☐

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	False
3) The outer core is cooler than the inner core.	True
	False
4) The mantle never moves inside the Earth.	True
	False
5) The crust is the thickest layer.	True
	False

Name: ____________________ 15

Curriculum Connection
ES.1

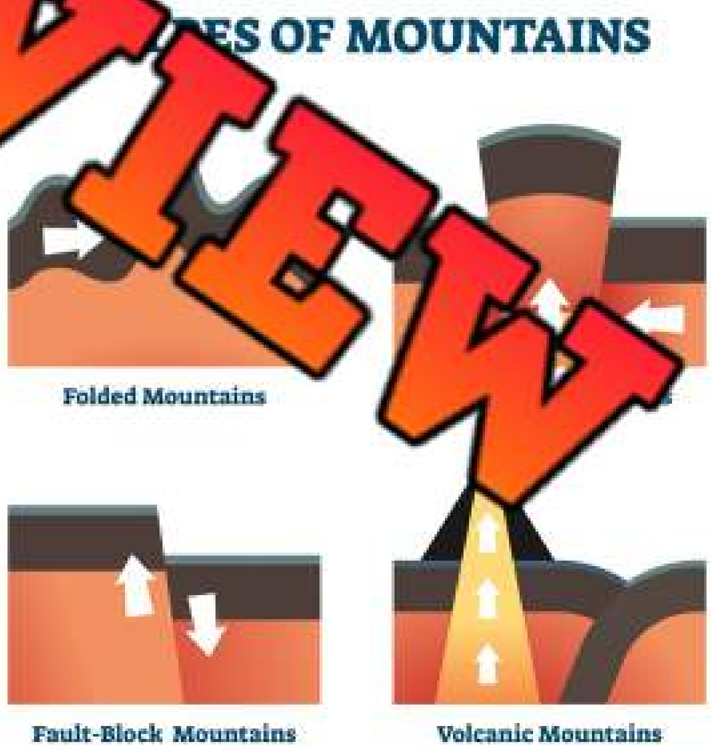
Mountains

Mountain Landform

A **mountain** is a landform that rises high above the surrounding ground. Mountains are usually higher than 300 metres above the ground, otherwise they are called hills. Mountains are made from rocks and earth.

Features [illegible]ntain

Mou[illegible] tw[illegible] features – a sloped side of the mountain, and the summit, which is [illegible]e to[illegible]nta[illegible] Mountains usually form together in a line that we call a mountai[illegible] On a [illegible]ange, there is one summit that is the top of all mountains. The m[illegible]ge [illegible] several peaks, which are the tops of the other mountains in the [illegible]



How Do Mountains Form?

There are four types of mountains.

1) Folded – form when two plates crash into each other.

2) Fault Block – Form when the Earth's crust cracks because of plates moving. When it cracks, one side of the crack can be higher than the other

3) Upwarped – form when magma underground pushes the crust up

4) Volcanic – form when a crack in the Earth's crust gets bigger and magma rises and spills out of the crack. Over time, the magma cools and a volcano grows.

Name: ______________________ 16

Curriculum Connection
ES.1

True or False Circle whether the statement is true or false

1. Mountains have to be at least 50 metres tall	True	False
2. Folded mountains happen when plates crash into each other	True	False
3. Magma is only found above the ground	True	False
4. Volcanos form when magma rises out of a crack	True	False
5. Mountai [illegible] formed because of the Earth's plates	True	False

Questi[illegible] [illegible]at [illegible]ns do you have after reading the information?

1)

2)

Questions Use information from the text to sup[illegible]our a[illegible]

1) What is a mountain?

____

____

____

2) How are mountains made?

____

____

____

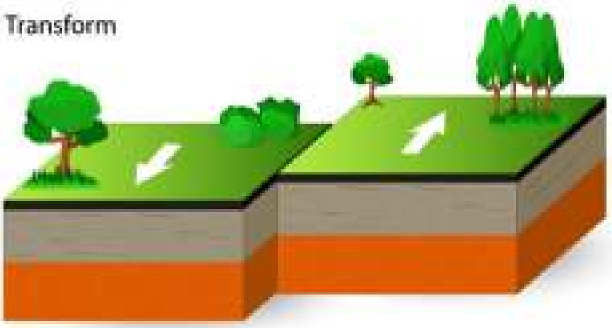
____

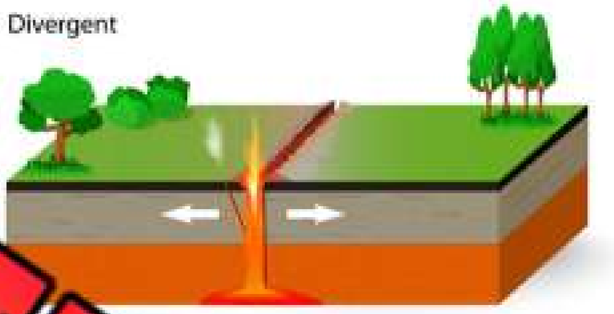
Name: ____________________ 17

Plate Boundaries

Plate Boundaries

A **plate boundary** is where two plates meet. There are three types of plate boundaries – divergent, convergent, and trans[illegible]





Diverg[illegible] (Sprea[illegible]en two plates move away fr[illegible] a[illegible]er, [illegible] divergent plate boundary.

Volcanic mountai[illegible] form at [illegible] boundaries because the mag[illegible]ses [illegible] the ground and then it cools.

Convergent (Colliding) – Happens when plates move towards each other and hit. Fold mountains happen at convergent plate boundaries. They happen because when the plates hit, one pla[illegible]ves under the other. The plate that is denser or heavier, will often slide under the other plate. This pushes up the other plate, which makes a fold mountain.

Transform – Happens when plates slide past each other. Earthquakes can happen at these plate boundaries because the plates rub on each other. This friction makes a strong force that can shake the ground. The San Andreas fault zone in California is an example of a transform plate boundary.

Name: ______________________

True or False Circle whether the statement is true or false

1) Plate boundaries are where plates meet each other	True	False
2) Convergent boundaries are where plates move away from each other	True	False
3) Mountains are formed at transform plate boundaries	True	False
4) Divergent boundaries are where plates move away from each other	True	False
5) Heavie[illegible]s move under lighter plates	True	False

Define [illegible]a[illegible]e plate boundaries?

Divergent Plate Boundary	
Convergent Plate Boundary	
Transform Plate Boundary	

Diagram Draw a diagram of each type of plate boundary

Divergent Plate Boundary	**Convergent Plate Boundary**	**Transform Plate Boundary**

Name: ______________________

Curriculum Connection
ES.1

Experiment - Types of Plate Boundaries

Background | What is the lab about?

The plates that make up part of our Earth's crust are constantly moving, shifting, and interacting with each other. As they float on the mantle, the plate boundaries can be convergent, divergent, or transform.

Materials | [illegible]u will need to complete the experiment

○ A paper plate
○ A thick su[illegible]e used [illegible] but icing/frosting will work
○ Two crackers – [illegible]ed [illegible] will also work

Procedure | How you will con[illegible] the [illegible]

1) Spread the thick substance on the [illegible] plate. This will be the mantle
2) Put two crackers on the mantle. The crackers represent the plates.
3) First perform the transform plate boundary by sliding the crackers by each other. They should rub against each other, as the friction causes earthquakes.
4) Next, perform a divergent plate boundary by pulling the crackers apart.
5) Lastly, perform a convergent plate boundary by pushing the crackers into each other. You may need to lift one cracker up to slide it past the other cracker. Make a folded mountain by cracking the cracker that went over top the other cracker.
6) Draw diagrams of your demonstrations on the back of this page.

Name: ______________________ 20

Curriculum Connection
ES.1

Observations Draw a diagram on the paper plates below. Use arrows to show the movement of the crackers (plates)

Transform [illegible]

[illegible]ivergent Boundary

Convergent Boundary

Results Answer t[illegible] bel[illegible]

1) What is a plate boundary? W[illegible]at do[illegible]es[illegible]n?

____

____

____

2) How do plate boundaries make folded mountains?

____

____

____

3) What can form at a divergent plate boundary?

____

____

____

Name: ______________________ 21

Curriculum Connection
ES.1

The Rocky Mountains

How did the Rocky Mountains Form?

The Rocky Mountains are a mountain range that runs through the United States and Canada. They were formed because of the movement of the Earth's plates.

The [illegible] Mountains formed because of th[illegible] North American plate. About 80 million [illegible], the North American plate [illegible] to hit [illegible] plate. The Pacific Plate is a[illegible] thin but heavy. When the p[illegible] went under the land plate. This made [illegible] North American Plate move over top.

[illegible] Now [illegible]ine pushing on the [illegible] of a [illegible] likely cause the rug [illegible] folded a[illegible]ed up over the floor. [illegible] doe[illegible] where you touch[illegible], it happens further in, to[illegible] the centre of the rug.

When the Rocky Mountains formed, the plates hit near the Pacific Ocean. But the same thing happened as above. The mountains formed about 1000 km inland. That is why the mountains are not right at the plate boundaries.

Name: ______________________ 22

Curriculum Connection
ES.1

Questions Answer the questions below using evidence from the text

1) Where are the Rocky Mountains?

2) How di[illegible]cky Mountains form?

Visualizing Draw what yo[illegible]ctu[illegible]u were reading. Explain the picture

True or False Circle whether the statement is true or false

1) The Rocky Mountains were formed by plate movement	True	False
2) Mountains always form where the plate boundaries are	True	False
3) The Rocky Mountains are only in Alberta	True	False
4) There are no plates in our oceans	True	False
5) The Rocky Mountains formed about 80 million years ago	True	False

Name: ______________________

Curriculum Connection
ES1, ES2

Landform - Glaciers

What is a Glacier?

A **glacier** is a huge mass of ice that moves very slowly over land. The largest glacier in the world is L[illegible]t Glacier, which is in Ant[illegible]

[illegible]00km w[illegible]m long, and 2.5k[illegible] is [illegible] 40,000 kilometre[illegible]ed. I[illegible] is 48 times bigger than [illegible] Calg[illegible]58 times bigger than Edmonton.

How Glaciers Form

Glaciers are huge pieces of ice that s[illegible]ozen f[illegible] year. In colder regions, not all the snow and ice melts during the sp[illegible]d su[illegible]ths. This means more snow and ice pile on top of the old snow a[illegible]ear.

Over time, massive chunks of snow and ice form[illegible]are[illegible]ers. Most of the glaciers are in the Antarctic and Greenland, but gla[illegible]n nearly every continent, even Africa.

Glacial Erosion

As glaciers move slowly, they scrape and grind over the ground. This scraping and grinding can change the land around them. It can make valleys deeper, create lakes, and even make new mountains. This process is called glacial erosion.

Just like how we use tools to shape things, like when we use a hammer to make a sculpture, the glacier uses its weight and movement to shape the land. So, over thousands of years, glaciers can change the way our planet looks.

Name: ______________________

Curriculum Connection
ES.1, ES.2

Questions Answer the questions below using evidence from the text

1) What is a glacier?

____

____

____

2) How do [illegible]rs change our land?

____

____

____

Draw Draw mountains a[illegible]r slid[illegible]valleys between the mountains

True or False Circle whether the statement is true or false

1) Glaciers move fast	True	False
2) Glaciers are any piece of ice	True	False
3) Glaciers scrape the land, changing it	True	False
4) Glaciers can carve out valleys, making them bigger	True	False
5) Most glaciers are found in Africa	True	False

Name: ____________________

Curriculum Connection
ES1, ES2

Landform - Valleys

What is a Valley?

Valleys are long and deep areas of land that are found between hills and mountains. They look like large ditches. P[illegible]wo mountains or large hi[illegible]other. A valle[illegible]e space[illegible]en these mountains.

How are Valleys Fo[illegible]d?

Most valleys are formed [illegible]hat[illegible]wear down the soil and rocks. Imagine making a large mound [illegible] sa[illegible]. If you poured a lot of water over the middle of the mound, the wa[illegible]will fin[illegible]ay t[illegible]e bottom of the hill.

The result will be a valley that looks ju[illegible]a di[illegible]ow valleys are formed. The only difference is that valleys take th[illegible] milli[illegible]years to form.

Erosion

As river water flows towards a larger body of water, the speed of the [illegible]ater will break away the soil and land from the sides of the water. This is called erosion. Erosion will make a valley bigger and bigger.

Glaciers

Not all valleys are formed by rivers. Some valleys are formed by large, slowly moving bodies of ice called glaciers. As the glaciers slid across our land, they scraped and molded valleys.

Name: ______________________ 27

Curriculum Connection
ES1, ES2

Questions Answer the questions below using evidence from the text

1) What is a valley? Where do they form?

____

____

____

2) How ar[illegible]ys formed? Explain two ways.

____

____

____

Draw Draw a picture of 2 [illegible] with [illegible] in between. Label the peaks and valley

True or False Circle whether the statement is true or false

1) Valleys form when people dig with shovels	True	False
2) Glaciers made valleys when they slid across the land	True	False
3) Rivers can erode valleys, making them bigger	True	False
4) Valleys are long and deep areas of land	True	False
5) Peaks are at the bottom of mountains	True	False

Name: ______________________

Curriculum Connection
ES.1, ES.2

Experiment - Making a Valley

Research Question What are we learning about?

What is a valley? How do valleys change over time with the movement of water and sediment?

Materials What you will need for the experiment

1) La[illegible]iner
2) [illegible]
3) Cylinder [illegible]ick [illegible]tery
4) Water
5) Sand

Method How you will complete the [illegible]ment

1) Fill a large tray or container with clay t[illegible]e a f[illegible]
2) Slide the cylinder down the clay, making a riv[illegible]inder [illegible]acier that is scraping the land, digging a valley
3) Add some sand to it to the trench, simulating the bottom o[illegible]
4) Pour a small amount of water on one side of the trench. Then rest of the one side of the container on something to tip it up. This should make the water run down the riverbed.
5) Observe how the water erodes the sand and the clay. Make notes on the back of the page.
6) Change the experiment by adding more water or tipping the container more, changing the flow of the water. Does this change the erosion?

Name: ______________________________

Curriculum Connection
ES1, ES2

Observations What happened?

1) What happened when you poured the water into the container?

2) Did th [illegible] e the sand or clay more? Explain why that happened.

Results What happened? Answer [illegible]stions

1) How was the valley made? What did the [illegible] re[illegible]

2) How did the valley change? What caused the change?

3) How do valleys form in real life? How do they change over time?

Name: ____________________ 35

Curriculum Connection
ES2

From Ice to Ocean: The Great Journey of Water

1) Starting from the Freezing Cold

Our little water drop's journey begins at a big, icy place called the Columbia Icefield in the Rocky Mountains. This place is full of glaciers. When the sun comes out and warms up the ice, it starts to melt into water. Our little water drop is one of those that melts and starts [illegible] journey.

2) Dow[illegible]

After [illegible]ng, ou[illegible]p flows down the mountain, joi[illegible]ter[illegible] to become a small stream. [illegible]eam [illegible]iver known as the Athabasc[illegible]w, ou[illegible] water drop is part of this big [illegible]lo[illegible] downhill.

3) A Quick Stop at Lake Athabasca

The Athabasca River flows and flows until it reache[illegible]ake nam[illegible]e Athabasca. Our water drop, along with many others, rest[illegible] fo[illegible]

4) Onward to the Slave River and Great Slave Lake

After its break, our water drop leaves Lake Athabasca and moves along with the water of the Slave River. This river takes our little friend to an even bigger lake, the Great Slave Lake.

5) The Final Stretch: Mackenzie River to the Arctic Ocean

After Great Slave Lake, our brave little water drop enters the Mackenzie River. This is the last river on its journey. It flows and flows until finally, it reaches its destination, the Arctic Ocean.

Name: ______________________

Curriculum Connection
ES2

Diagram Draw and label the landforms on the map, showing the journey water takes from a glacier to the ocean

Landforms
☐ Columbia Icefield
☐ A[illegible]asca R[illegible]
☐ Lake Athabasca
☐ Slave River
☐ Great Slave Lake
☐ Mackenzie River
☐ Arctic Ocean

Name: ______________________

Curriculum Connection
ES.1

Activity: Glacier Coding Journey

Objective What are we learning about?

Through this activity, students can gain a basic understanding of coding concepts like sequences and algorithms. They also get to move around and act out the slow, but impactful, journey of a glacier.

Coding Leg[illegible] What do the coding actions mean?

1) [illegible] forward [illegible]ps)
2) Move backw[illegible] ste[illegible])
3) Turn left

4) Turn Right
5) Melt (sit down)
6) Grow (stand up)

7) Float (lay down)

Instructions How you w[illegible]plete t[illegible]ty

1) Go over the coding actions with [illegible]ents

2) Have each student write a "program" us[illegible] coding actions. They will write down the [illegible] sequence of actions they want their partner to perform.

3) Split the class into pairs

4) Have them move into an area where they can move around freely

5) Have one partner start as the coder and the other as the glacier

6) The coder will read the program to the glacier and the glacier will perform the coding actions. Where will the glacier end up on its journey?

7) Have the students switch roles

Name: ______________________

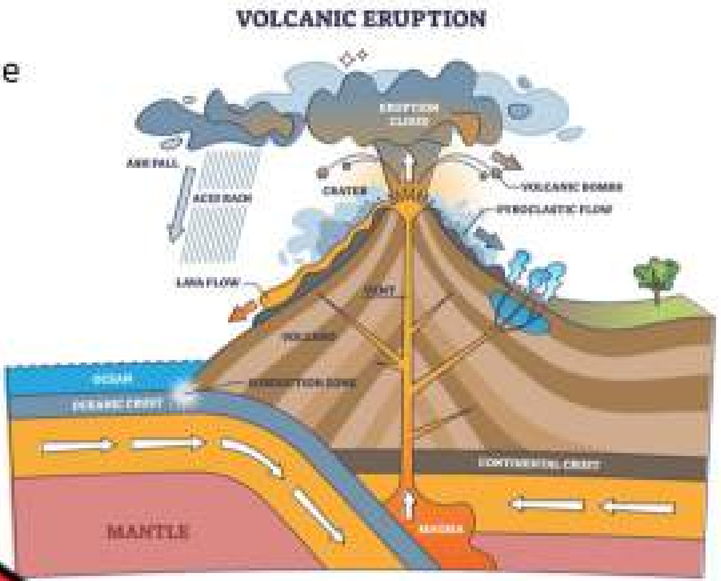
Curriculum Connection
ES.1

Program Coding Instructions

run glacier program

Name: ______________________

Volcanoes



What is a Volcano?

A volcano is a mountain with a hole at the top called a crater. Inside the volcano, there is hot, melted rock called magma. Sometim[illegible]ssure builds up inside the volc[illegible]e magma shoots out of th[illegible] b[illegible]sion. This is called an erupti[illegible]

When the [illegible] lands [illegible] of the volcano, it is ca[illegible]hen [illegible] cools, it turns into rock an[illegible]ild[illegible] he volcano to make it bigger.

Cinder Cone Volcanoes

[illegible]anoes

Types of Volcanoes

There are different types of volcanoes, like shield volcanoes, which are made mostly of lava flows and have gently sloping sides. Another type is cinder cone volcanoes, which are made mostly of volcanic ash and have steep sides.

Shield Volcanoes

Lava Domes

Are Volcanoes Dangerous?

When a volcano erupts, it can be dangerous for people and animals living nearby. The eruption can shoot out hot ash, rocks, and lava, and can also cause landslides and floods. But on the other hand, volcanoes also help create new land and can make the land around them more fertile for plants to grow.

Name: ____________________ 42

Curriculum Connection
ES.1

True or False Circle whether the statement is true or false

1) Volcanoes are always exploding	True	False
2) Volcanoes all look the same	True	False
3) A shield volcano is wider and a composite volcano is taller	True	False
4) The crater is the hole at the top of a volcano	True	False
5) Magma [illegible]side a volcano	True	False

Questio[illegible] [illegible]ion from the text to support your answer

1) What is a v[illegible]

____

____

____

2) Are volcanoes dangerous?

____

____

____

Draw Draw a diagram of a volcano. Label the vent, ash, crater, lava, magm[illegible]canic bombs

Name: ____________________________

Curriculum Connection
ES.1

Experiment - Making a Volcano

Research Question What are we learning about?

Can you make your favourite type of volcano? Can you make it erupt?

Materials What you will need for the experiment

1) A s[illegible]ttle (such as a water bottle)
2) [illegible] play d[illegible]
3) Baking so[illegible]
4) Vinegar
5) Food coloring (opt[illegible]
6) A tray, large plate, or b[illegible]he[illegible] overflow

Method How you will complete the experiment

1) Place the small plastic bottle on the middle of [illegible]te. Yo[illegible]d cut the top off the bottle to make the volcano shorter.

2) Using the play dough or clay, make a volcano around the bottle. [illegible]ttle will be the inside of the volcano and the top of the bottle will be the crater.

3) Mix a small amount of baking soda and a few drops of food coloring (if desired) in a separate container.

4) Slowly pour the baking soda mixture into the volcano's crater.

5) Slowly pour vinegar into the volcano. The mixture of baking soda and vinegar will create a chemical reaction that will cause the volcano to "erupt."

Name: ______________________

Curriculum Connection
ES.1

Observations What happened?

What happened to the volcano? Explain using the terms: magma, erupt, and lava

Results Wha[illegible]d? Answer the questions below.

1) What type of vo[illegible]id yo[illegible]lain how you know.

2) What happened to the overflowing lava?

3) When lava overflows, what happens to it in real life?

4) Draw your volcano below.

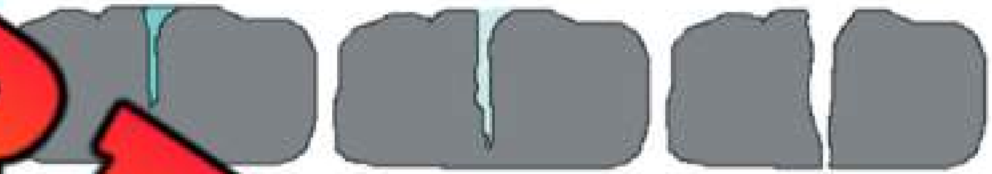
Name: ______________________

Weathering

Weathering

The term **weathering** means that rocks are broken down into smaller rocks. The weathering process is very slow and is a result of temperature changes, abrasion, and chemical reactions.

Temperat[illegible]*nges* – As the temperature changes from warm to freezing cold, rock[illegible]t. This ha[illegible]ns because wat[illegible]s into the cracks in [illegible] W[illegible]freezes, it gets bigger as it changes into ice. As it gets bigger, it c[illegible]n th[illegible]



Abrasion – Abrasion happens when [illegible] collide[illegible]against each other and break down. This happens a lot to rocks at the bottom of a stream or river. The water moves the rocks so they bump into other rocks. This makes the rocks smoother as the corners of rocks are chipped off.

Abrasion can also happen when wind and water carry small pieces of rock that hit against bigger rocks. The bigger rocks can be broken down into small pieces called sediment. Sediment is like rock dust. Sediment can get compacted together to form a sedimentary rock.

Chemical Reactions – Rocks will breakdown when they react with water, air, or other chemicals. Acids from rain or chemicals humans add to water can also weather rocks.

Name: ____________________ 49

Curriculum Connection
ES.2

True or False Circle whether the statement is true or false

1) Temperature changes can cause rocks to break	True	False
2) Weathering means rocks break apart	True	False
3) Sediments are large pieces of rock	True	False
4) When rocks hit each other, they can break apart	True	False
5) Rocks [illegible] ottom of a stream are rough	True	False

Questi[illegible] [illegible] wer [illegible] estions below using evidence from the text

1) How do roc [illegible] hered?

____

____

____

2) Inference: What do you think happens to rock o[illegible] has [illegible] athered?

____

____

____

Visualizing Draw what you were picturing while you were reading. Expla[illegible] the picture

____

____

____

____

____

____

Name: ______________________

Curriculum Connection
ES2

Erosion - Wind, Water, Ice

Erosion

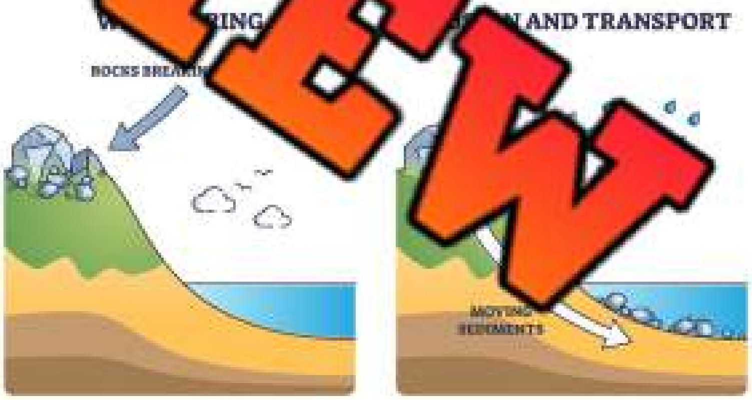
Weathering is the breaking down of rocks. **Erosion** is when the weathered rock gets moved to a new place. Erosion happens because of wind, water, and ice. Over a long time, these forces change our landscape by eroding them.

Water Er[illegible]

Water i[illegible]one cause of erosion. Below is a list of the most significant form[illegible]ater er[illegible]

- Rainfall – [illegible]l h[illegible]e Earth's surface, it is called **splash erosion**. The raindrops ac[illegible]ttle [illegible]move soil and destroy its structure.
- Rivers – at the bott[illegible]ver, t[illegible]r breaks up particles and caries them downstream. These part[illegible]re [illegible]nt. The flow of a river is often strong, which will break down ro[illegible] soil a[illegible]e edges of the river.
- Waves – the movement of water as wave[illegible]werf[illegible]h to polish rocks on the shorelines.

Wind Erosion



Wind is a major type of erosion, especially in dry areas. The soil in dry climates is lighter, which allows the wind to move this soil easier. Wind shapes sand dunes, which are hills of sand near oceans or in deserts.

Ice Erosion

Glaciers are so powerful that when they move, they carve out valleys and shape mountains. Glaciers erode the underlying rock by abrasion. In addition to glaciers, when water gets into rock and freezes, the ice can cause rocks to split.

Name: ____________________

Curriculum Connection
ES.2

True or False Circle whether the statement is true or false

1) Wind is the biggest cause of erosion	True	False
2) Rivers can cause erosion on the shorelines	True	False
3) When waves crash into the shore, they erode it	True	False
4) Erosion is only the breaking down of rocks	True	False
5) Erosion [illegible] movement of broken down rocks	True	False

Questi[illegible] [illegible]er[illegible]estions below using evidence from the text

1) What is ero[illegible]

____

____

____

2) How does wind cause erosion?

____

____

____

Visualizing Draw what you were picturing while you were reading. Expla[illegible] the picture

Meandering Streams

What is a Meandering Stream?

A **meandering stream** has a single channel that winds like a snake through a valley. Meanderi[illegible]eams start as straight [illegible] the wate[illegible] [illegible]lley, it often begins t[illegible] erodes its way [illegible] the easiest path. For [illegible] if the path has softer rock on one side of the stream, it will begin to erode that side of the stream. Th[illegible]arts [illegible]nd, or what scientist called the meander.

What Causes Meandering Streams?

As water flows through the stream, it pushes with a stronger f[illegible]tside of the bend than on the inside of the bend. This erodes the outside of th[illegible]urves more, making bigger bends.

To make the bends even curvier, the inside of the stream has a slower flow. This makes the eroded sediment more likely to deposit on the inside, creating even larger bends! This is because if the sediment is moving slow, it is more likely to stop moving. If it is moving fast, it will keep moving and cause more erosion.

Notice this is represented on the diagram - deposition on the inside and erosion on the outside.

Name: ______________________

Curriculum Connection
ES.1

True or False Circle whether the statement is true or false

1) Erosion happens on the inside of a curve more than the outside	True	False
2) Deposition happens on the inside of a curve more than the outside	True	False
3) Bendy streams start as straight streams	True	False
4) If water moves fast, the sediment will likely stop moving	True	False
5) Water m faster on the outside of a curve	True	False

Questio er uestions below using evidence from the text

1) How do mea ms ? Why are they so bendy?

____

____

____

2) How does water in a stream cause e

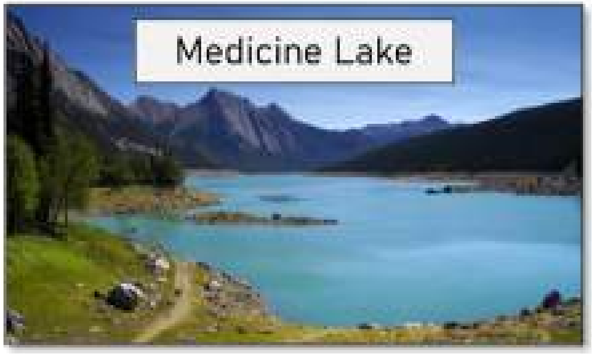
____

____

____

Diagram Draw a diagram of a meandering stream

Lakes in Alberta: Drying and Refilling



Lakes in Alberta: Drying and Refilling

In Alberta, we have lots of beautiful lakes. Sometimes, these lakes can dry up, but don't worry! They can refill too.

When L[illegible] Up

Lak[illegible] up [illegible]rent reasons. Sometimes, it is because of less rain or snow. In [illegible] make the water in the lakes go up into the sky. This is called **ev[illegible]on**. S[illegible]ry hot and there is not much rain, the lake can dry up.

A Special Lake: Medicine Lake

One special lake in Alberta is called Medicine [illegible] It's really amazing! Sometimes, it looks like [illegible] lake, but at other times, it looks almost empty. This is because Medicine Lake has special underground holes, almost like drains in a bathtub.

When there is a lot of water, like in the spring, the lake fills up[illegible] in other seasons, the water drains away underground, making the lake look empty. But don't worry, it always fills up again!

When Lakes Refill

Lakes can refill too! In the winter, the snow falls and when it melts, it goes into the lake. When it rains, the water also goes into the lake. So, even if a lake dries up in the summer, it can refill when it rains or when the snow melts.

Name: ______________________

Curriculum Connection
ES.1

True or False Circle whether the statement is true or false

1) Lakes always have the same amount of water	True	False
2) Water can evaporate when it is hot	True	False
3) Medicine Lake drains like a bathtub	True	False
4) Lakes can never refill	True	False
5) Heavy [illegible] snow melting can refill lakes	True	False

Questio[illegible] Use in[illegible] from the text to support your answer

1) Why do lake[illegible]?

____

____

____

2) How do lakes refill?

____

____

____

Questioning Write 2 questions you have about the reading

1)

2)

Curriculum Connection
ES.1

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________ Mark

Check only the true statements.

Statement	✓
Snow melt[illegible]efill lakes.	
Lakes [illegible]	
The su[illegible]es evap[illegible]	
Medicine Lake i[illegible]	
Rain makes lakes look [illegible]	
Medicine Lake never looks em[illegible]	
Lakes dry up in winter.	
Snow melting fills the lakes.	

Name: ______________ Mark

Check only the true statements.

Statement	✓
Snow melting helps refill lakes.	
Lakes never fill up again.	
The sun causes evaporation.	
Medicine Lake is in Alberta.	
Rain makes lakes look empty.	
[illegible]dicine Lake never looks empty.	
[illegible]up in winter.	
Sn[illegible]g [illegible] the lakes.	

Name: ______________ Mark

Check only the true statements.

Statement	✓
Snow melting helps refill lakes.	
Lakes never fill up again.	
The sun causes evaporation.	
Medicine Lake is in Alberta.	
Rain makes lakes look empty.	
Medicine Lake never looks empty.	
Lakes dry up in winter.	
Snow melting fills the lakes.	

Name[illegible] Mark

Check only [illegible] true[illegible]

State[illegible]	✓
Snow melting helps refill lake[illegible]	
Lakes never fill up again.	
The sun causes evaporation.	
Medicine Lake is in Alberta.	
Rain makes lakes look empty.	
Medicine Lake never looks empty.	
Lakes dry up in winter.	
Snow melting fills the lakes.	

Name: ______________________

Curriculum Connection
ES.2

Wind/Water Shaping The Badlands

Wind and Water Work Together

In the Alberta Badlands, wind and water have worked together to make the land look very special. They help create the big cliffs and deep gullies we see today.

The Land [illegible]adlands

The B[illegible] of soft rock and dirt. The soil is made of dense clay that doesn[illegible] many [illegible]w. It is a dry place because it doesn't rain much. This is why you don[illegible] or [illegible] plants growing in [illegible]adl[illegible]

Making the Badlands Look Special

When it rains a lot, the water runs down the hills and takes some of the dirt with it. When it's windy, the wind can also carry away bits of rock and dirt. What is left is only the hard rock. Over a lot of years, this has made the land in the Badlands look like [illegible]es now.

Creating the Hoodoos

One of the cool things you can see in the Badlands are the "hoodoos". Hoodoos are like tall, thin towers of rock that stick up from the ground. They are made when a hard rock on top protects the softer rocks below from the wind and rain.

So, when you see a hoodoo, you are seeing how wind and water can change the shape of the land!

Name: ______________________________

Curriculum Connection
ES.2

Questions Answer the questions below using evidence from the text

1) What do the Badlands look like?

2) H[illegible]d [illegible]ter change the Badlands?

Draw Draw a hoodoo in the Badlands

Name: ______________________

Curriculum Connection
ES3

How Humans Change Earth's Surface

Living on the Land

Making Our Homes: When we decide to live in a place, we need to prepare the land for our homes. We might have to clear a space, which could mean cutting down trees or moving rocks. This changes the land.

Planting [illegible] Gardens: Sometimes, we plant gardens in our yards. We might plant flowers or vegetables. This means we change the types of plants that grow in that place.

Creating Paths: Even when [illegible] play in a park, we can make paths that weren't there before. Every [illegible] we [illegible] same way, we leave a mark. Over time, these marks can become paths.

Building Towns and Cities

Clearing Land: When we build towns and cities, we clear large areas to make space for buildings, roads, and parks. This is a big change to the land.

Building Infrastructure: We also dig into the Earth to put down pipes for water and cables for electricity. These changes are hidden under the ground, but they're still important.

Paving Roads and Building Bridges: When we build roads and bridges, we change the land too. Roads cover the ground with hard materials, and bridges allow us to cross rivers and valleys.

Name: ______________________

Curriculum Connection
ES.3

Questions Use information from the text to support your answer

1) How do humans change the Earth's surface by living on the land?

____

____

____

2) How d[illegible]es and towns change the Earth's surface?

____

____

____

Draw Draw four ways humans chang[illegible]rth's [illegible]ce

Curriculum Connection
ES3

The Impact of Plants/Animals on Earth’s Surface

Overpopulation: Too Many Animals or Plants

Sometimes, there can be too many animals or plants living in one area. This is called overpopulation. Overpopulation can really change how the land looks and feels.

For[illegible]nce, if there are too many deer in a forest, they might eat all the leaves a[illegible]. This can make the forest look bare and less green. It also means less [illegible]her [illegible]ls that also eat those plants.

An[illegible]ther [illegible]ld [illegible] if there are too many plants of one kind. They might take all t[illegible]ents f[illegible]oil. This can stop other plants from growing there. When the land [illegible]s wa[illegible]ffects all the living things in that area.

Pests and Parasites: The Mountain P[illegible]le's [illegible]

One example of a little creature causing big ch[illegible]s is [illegible]untain pine beetle. This tiny bug makes its home inside pine tre[illegible]t it's [illegible]uest!

It harms the trees until they can't live anym[illegible]e many [illegible] die, it changes the look of the land. Whole forests can turn fr[illegible]ree[illegible]

Burrowing Animals: Changing the Earth from Underground

Some animals, like rabbits, moles, and groundhogs, love to dig holes in the ground. This digging is called burrowing.

When animals burrow, they change the surface of the Earth by creating new tunnels and holes. If you've ever tripped over a rabbit hole, you know just how much this can change a patch of land!

Name: ______________________________

71

Curriculum Connection
ES3

Questions Use information from the text to support your answer

1) How does overpopulation affect the Earth's surface?

____

____

____

2) How do [illegible] Mountain Pine Beetle affect the Earth's surface?

____

____

____

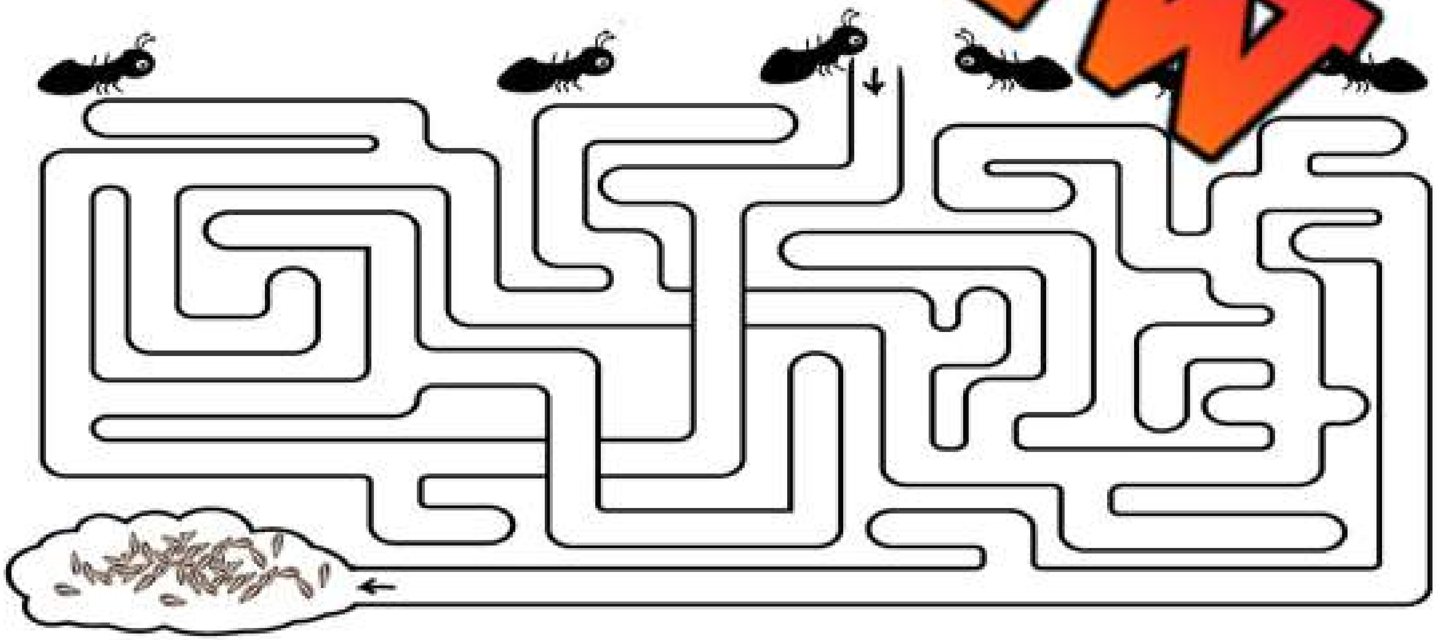
3) How do burrowing [illegible] th's surface?

____

____

____

Maze Draw the path the ants need to take to [illegible]



Earth’s Layers and Fossils

Earth's Layers: Like a Giant Sandwich

Our Earth is like a giant sandwich, but instead of bread and cheese, it has layers of rocks and soil. These layers were made over a long, long time. As time goes on, new layers are added on top. The older layers get squished down and become hard rocks.

Dino[illegible]go

A long [illegible]e ago[illegible]re [illegible]ur grandparents or great-great-grandparents were born, di[illegible]ved o[illegible]. They roamed the lands, flew in the s[illegible]nd[illegible]ers.

How Dinosaurs Turn into Fos[illegible]

Sometimes, a dinosaur would die ne[illegible]ver o[illegible] swamp. Its body would sink into the mud. O[illegible]e, more and more mud and sand covered the din[illegible]years, the dinosaur's bones turned into rock. We call these roc[illegible]fos[illegible]

Digging for Fossils

Today, scientists called paleontologists dig into the Earth's layers to [illegible] these fossils. By looking at which layer a fossil is found in, they can tell how old it is. The deeper the layer, the older the fossil!

Finding Dinosaurs in Fossils

Fossils are like a secret message from the past. They tell us what kinds of dinosaurs lived long ago. When we find a fossil, it's like finding a puzzle piece of history.

Name: ______________________

Curriculum Connection
ES.4

True or False Circle whether the statement is true or false

1) The Earth has just one layer	True	False
2) Rocks and soil never move	True	False
3) New layers of rock and soil are on top of older layers	True	False
4) The deeper we find a fossil, the older it is	True	False
5) We kno [illegible] saurs lived because we've found dinosaur fossils	True	False

Questi [illegible] **wer** [illegible] **stions below using evidence from the text**

1) What is a f [illegible]

____

____

____

2) Is the Earth made of layers? Explain.

____

____

____

Draw Draw fossils below

Curriculum Connection
ES 4

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________

Circle the word that fits on the blank.

1) _____ are bones turned into rock.	Shells
	Fossils
2) A _____ digs to find fossils.	Paleontologist
	Astronaut
3) Dinosaur bones turned into _____ over time.	Fossils
	Rock
4) The _____ the layer, the older the fossil.	Deeper
	Higher
5) Fossils are found by digging into _____ .	Earth's layers
	History

Name: ____________________

Circle the word that fits on the blank.

1) _____ are bones turned into rock.	Shells
	Fossils
2) A _____ digs to find fossils.	Paleontologist
	Astronaut
3) Dinosaur bones turned into _____ over time.	Fossils
	Rock
4) The _____ the layer, the older the fossil.	Deeper
	Higher
5) Fossils are found by digging into _____ .	Earth's layers
	History

Name: ____________________

Circle the word that fits on the blank.

1) _____ are bones turned into rock.	Shells
	Fossils
2) A _____ digs to find fossils.	Paleontologist
	Astronaut
3) Dinosaur bones turned into _____ over time.	Fossils
	Rock
4) The _____ the layer, the older the fossil.	Deeper
	Higher
5) Fossils are found by digging into _____ .	Earth's layers
	History

Name: ____________________

Circle the word that fits on the blank.

1) _____ are bones turned into rock.	Shells
	Fossils
2) A _____ digs to find fossils.	Paleontologist
	Astronaut
3) Dinosaur bones turned into _____ over time.	Fossils
	Rock
4) The _____ the layer, the older the fossil.	Deeper
	Higher
5) Fossils are found by digging into _____ .	Earth's layers
	History

Name: ______________________ 75

Curriculum Connection
ES.4

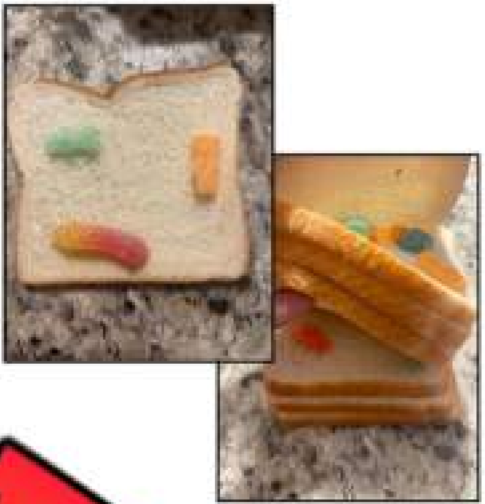
Experiment - Fossils

Research Question What are we learning about?

How are fossils formed? What needs to happen for an animal to become a fossil?

Materials [illegible] you will need for the experiment

- ☐ 7 [illegible] we used 7 but if you're [illegible] this with [illegible] group, you could use 3 pieces for [illegible]
- ☐ Gummy [illegible] if [illegible] texture on them that can [illegible]
- ☐ Gummy worms – [illegible] the [illegible] texture
- ☐ Plastic wrap



Method How you will complete the [illegible]

1) Put 3 or 4 candies on each slice of bread.
2) Layer the bread and keep adding candies between the layers
3) Wrap the layers of bread in plastic wrap
4) Put something heavy on top and let it compress the bread for at least 8 hours – we used books
5) Unwrap the plastic and carefully pull apart the layers. What do you see?

Name: ____________________________

Curriculum Connection
ES.4

Observations What happened?

____

____

____

____

Results [illegible] the questions below

1) Wha[illegible] the w[illegible] gummy bears represent?

____

____

2) What did the weights on t[illegible] res[illegible]

____

____

____

3) Why was this experiment an example of how fossils ar[illegible] mad[illegible]

____

____

____

____

4) Since the bread is soft, which type of rock did it represent? Explain.

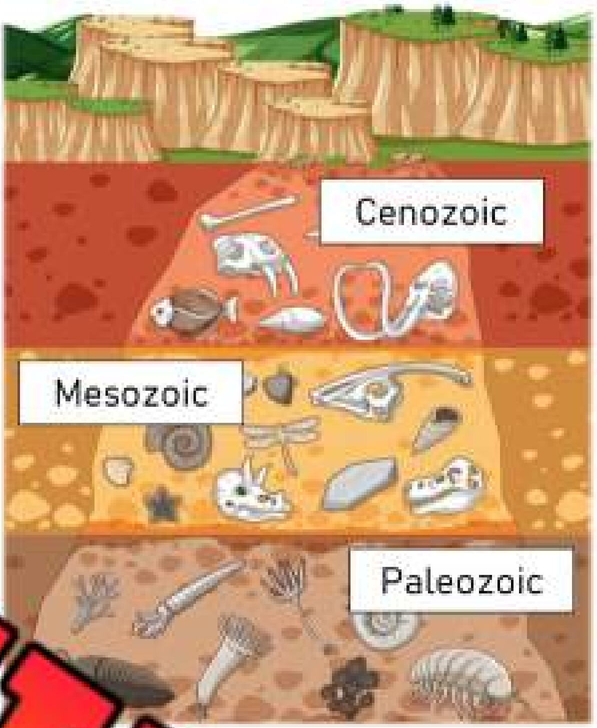
____

____

Curriculum Connection
ES4

Dating Fossils - Relative Dating

Learning from Fossils



Fossils are remains of old plants and animals that help us understand life long ago. Scientists use different methods to find out how old f[illegible] are, and one way is relative dating.

Understandin[illegible]tin[illegible]

Relative dating [illegible] reati[illegible]e of when things happene[illegible]owin[illegible] exact years. It involves look[illegible] whe[illegible] fossils are found and comparing the[illegible]es.

For instance, if a scientist finds a fossil [illegible] an[illegible]re called a trilobite in one rock layer and a dinosaur fossil in a[illegible]ve i[illegible] know the trilobite lived before the dinosaur. This is based on a rule [illegible]lled[illegible]" which says older rocks and fossils are found deeper in the gro[illegible].

Another way of relative dating is biostratigraphy, where scientists compare fossils from different rock layers. If one layer has a simple fish fossil and another layer has a more developed fish fossil, they know the layer with the simpler fish is older.

But remember, relative dating only tells us the order of events, not the exact age of fossils or rocks. For that, scientists use other methods, like carbon dating.

Name: ______________________

Curriculum Connection
ES.4

True or False Circle whether the statement is true or false

1) Relative dating tells us the exact age of a fossil	True	False
2) The Paleozoic Era is older than the Cenozoic Era	True	False
3) Superposition means older fossils are not as deep	True	False
4) Relative dating gives us less information than carbon dating	True	False
5) Relativ [illegible] is complex and couldn't be done by a non-scientist	True	False

Questi[illegible] [illegible] how do [illegible] how old fossils are?

____

____

____

____

____

Draw Draw the dinosaurs from the different eras be[illegible]

Triassic Period	**Jurassic Period**	**C[illegible]iod**
Coelophysis	Stegosaurus	Tyrann[illegible]us Rex

Triassic Period (230 – 200 MYA)	**Jurassic Period** (200 – 145 MYA)	**Cretaceous Period** (145 – 65 MYA)

Curriculum Connection
ES4

A Long, Long Time Ago in Alberta

When Dinosaurs Roamed

Can you believe that a long, long time ago, millions of years ago, Alberta looked very different? It wasn't snowy or cold. Instead, Alberta w[illegible]lled with lush, green forests. It was so [illegible] like a tropical rainforest! Ima[illegible] t[illegible]rywhere and big leaves rustlin[illegible].

In these [illegible] here[illegible]saurs! Big dinosaurs, small din[illegible] sau[illegible]te plants, and dinosaurs that [illegible]t. T[illegible] roamed around, eating, playing, and [illegible]eir d[illegible]r lives.

Alberta's Inland Sea

But forests were not the only thing in Alberta bac[illegible]ere w[illegible]o a big sea, right in the middle of the land! This is called an "inland s[illegible] Ju[illegible]s today, this sea had lots of water and lots of animals living in it[illegible]

Preserving Dinosaur Bones

When dinosaurs died, their bodies sank into the soft mud at the bottom of the sea. Over time, more and more layers of mud, leaves, and sand covered them up. This is how the dinosaurs' bones became fossils.

The mud, leaves, and sand slowly turned into rock, but the dinosaur bones inside stayed the same. They turned into fossils, a kind of rock that keeps the shape of the dinosaur bones. That's why we can find dinosaur fossils in Alberta!

Name: ____________________ 80

True or False Circle whether the statement is true or false

1) Alberta used to have a sea running through it	True	False
2) Alberta has always been cold	True	False
3) Alberta had rainforests with tall trees	True	False
4) Alberta has always looked the way it does today	True	False
5) Albert[illegible] [illegible] ea in it 500 years ago	True	False

Questio[illegible] What w[illegible] nt about Alberta when dinosaurs roamed?

Draw Draw a picture of a rainforest, like the ones fou[illegible] be[illegible] [illegible] e ago

Name: ______________________

Curriculum Connection
ES.4

Finding Fossils in Alberta's Badlands

Finding Fossils in Alberta's Badlands

The Badlands in Alberta are not like most places. They're a bit like a desert, with lots of hills and not many trees. But what makes them tru[illegible]cial are the treasures hidden inside th[illegible] – dinosaur fossils!

[illegible] a[illegible]saurs lived in this area. When they died, their bodies got covered by di[illegible] ove[illegible]illions of years, these layers turned into rock, and the dinosaur bo[illegible]ned i[illegible] The Badlands were once full of water and plants, which helped [illegible] thes[illegible]saur bones really well.

Dinosaur Provincial Park: A Special [illegible]

Among the Badlands, there's an extra special [illegible] – D[illegible] Provincial Park. This park is a World Heritage Site because it [illegible]ne [illegible] dinosaur fossil fields in the world. That means we've found more [illegible] kinds [illegible]osaur fossils here than almost anywhere else!

Why Here and Not Other Places?

You might wonder why we find so many fossils in the Badlands and not in other places. That's because of the special conditions that existed here long ago. The area was once a big, flat floodplain. When a dinosaur died, its body was quickly covered by sediment brought in by water, which helped save the bones.

Today, wind and water slowly wear away the rocks in the Badlands. This helps to expose the hidden fossils. In many other places, the fossils might still be buried deep under the ground, or the conditions weren't right for fossils to form.

Name: ____________________

Curriculum Connection
ES.4

True or False Circle whether the statement is true or false

1) More dinosaurs have been found in the Badlands than other places	True	False
2) The Badlands have always been dry	True	False
3) Wind and water slowly wear away rocks in the Badlands	True	False
4) There a[illegible] no more fossils on Earth	True	False
5) There [illegible] more fossils in the Badlands	True	False

Question Why a[illegible]y dinosaur fossils found in the Alberta Badlands?

____

____

____

____

____

Wordsearch Find the words from the word bank

Word Bank	
Fossil	Badlands
Alberta	Desert
Hills	Trees
Dinosaur	Dirt
Buried	Deep

F	O	S	S	I	L	Z	N	U	H	[illegible]	[illegible]	S	H	U
T	R	E	E	S	D	I	R	T	D	E	E	P	Q	X
H	I	L	L	S	I	T	M	T	A	T	S	T	Z	N
F	E	K	X	J	R	K	U	R	U	E	D	O	B	F
G	O	D	S	P	W	I	G	Z	L	O	W	E	V	U
H	P	N	V	L	Y	B	U	R	I	E	D	H	I	B
B	Y	I	W	D	Z	F	X	N	P	R	H	O	F	C
B	A	D	L	A	N	D	S	Z	W	C	B	L	O	G
M	D	E	S	E	R	T	D	I	N	O	S	A	U	R
J	U	A	L	B	E	R	T	A	F	Y	H	Y	X	Z

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________________ Mark ☐

Draw a line to match each question on the left with the correct answer on the right.

Why are the Badlands special? ☐	☐ Wind and water erosion
What turned dinosaur bones into fossils? ☐	☐ Dirt and mud layers
Why are fossils found easily in the Badlands? ☐	☐ Hidden fossils

Name: ______________________ Mark ☐

Draw a line to match each question on the left with the correct answer on the right.

Why are the Badlands special? ☐	☐ Wind and water erosion
What turned dinosaur bones into fossils? ☐	☐ Dirt and mud layers
Why are fossils found easily in the Badlands? ☐	☐ Hidden fossils

Name: ______________________ Mark ☐

Draw a line to match each question on the left with the correct answer on the right.

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What turned dinosaur bones into fossils? ☐	☐ Dirt and mud layers
Why are fossils found easily in the Badlands? ☐	☐ Hidden fossils

Name: ______________________ Mark ☐

Draw a line to match each question on the left with the correct answer on the right.

Why are the Badlands special? ☐	☐ Wind and water erosion
What turned dinosaur bones into fossils? ☐	☐ Dirt and mud layers
Why are fossils found easily in the Badlands? ☐	☐ Hidden fossils

Name: ______________________

Curriculum Connection
ES 4

The Dinosaurs of Alberta

The Dinosaurs of Alberta

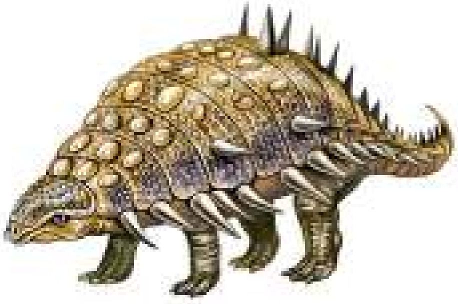
Albertosaurus

One of the dinosaurs that used to live right here in Alberta was the Albertosaurus. Albertosaurus was a large dino[illegible]ur, kind of like a T-Rex, but a bit smaller. It was a me[illegible] with sharp teeth. The name Albe[illegible] [illegible] [illegible]lberta lizard", and it's named after our province!

Edmontosaur[illegible]

Another dinosaur [illegible] [illegible]ed i[illegible] [illegible] the Edmontosaurus. This dinosaur was a big p[illegible] It wa[illegible] [illegible]aller than a school bus is long! Edmontos[illegible] [illegible]ad [illegible] [illegible] kind of like a duck, which it used to eat plants.

EDMONTOSAURUS

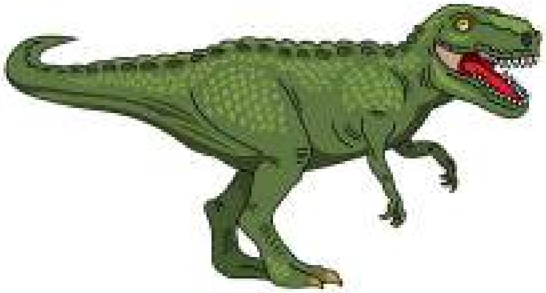


Nodosaurus

The Nodosaurus also c[illegible] [illegible]erta ho[illegible] [illegible]s dinosaur was a plant eater too, but i[illegible] [illegible] spe[illegible] [illegible] [illegible] safe from meat eaters. Nodosaurus [illegible] [illegible] [illegible] its back and spikes on its sides. It was like a [illegible] fortress!

Tyrannosaurus

You probably know the last dinosaur on our list – the Tyrannosaurus! Even though we usually think of T-Rex living in other places, some Tyrannosaurus also lived in Alberta. They were one of the biggest meat-eating dinosaurs, with huge teeth and powerful jaws.



Name: ______________________

Curriculum Connection
ES4

Draw Draw and describe each of the dinosaurs found in Alberta below

Albertosaurus

Edmontosaurus

Nodosaurus

aurus

Name: ______________________________

Curriculum Connection
ES.4

Look up "dinosaurs found in Alberta" so you can learn more about the dinosaurs that lived in Alberta millions of years ago. Write anything you learned about them and draw a picture of them as well.

Research Learn more about the dinosaurs that lived in Alberta

Name: ____________________

Curriculum Connection
ES4

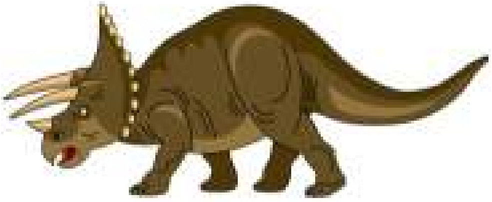
Research Learn more about the dinosaurs that lived in Alberta

Name: ____________________

Curriculum Connection
ES.4

The Dinosaurs of Alberta

The Dinosaurs of Alberta



Long, long ago, dinosaurs roamed the place we now call Alberta. They were big and small, fast and slow, meat-eaters and plant-eaters.

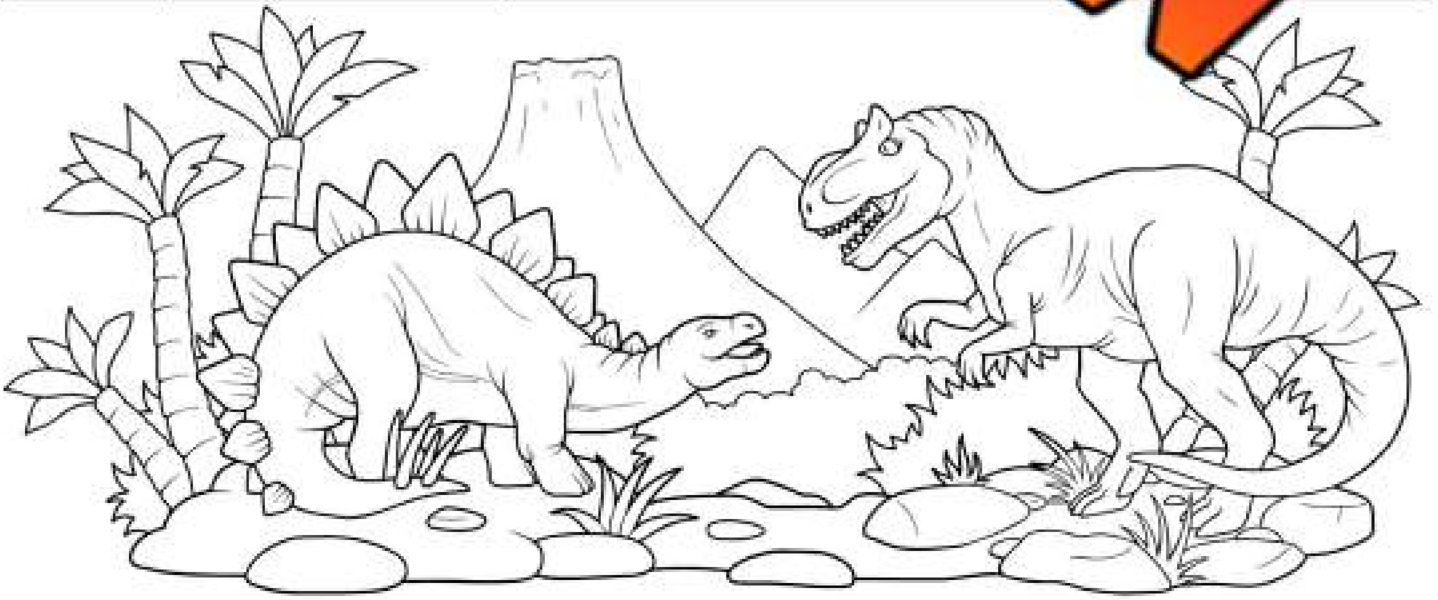
Here are [illegible] of the special dinosaurs that lived in Alberta:

Dinosaur	Description
Albertosaurus	Albertosaurus was a meat-eater, a little smaller than T-Rex [illegible] fierce. It is named after Alberta.
Triceratops	Triceratops [illegible] plant-eater with three horns and a shield [illegible] head. It was as big as a truck!
Tyrannosaurus Rex (T-Rex)	The T-Rex is [illegible] famous dinosaurs. It was a powerful meat-eater with [illegible] teeth.
Edmontosaurus	Edmontosaurus was [illegible] plant[illegible] that walked both on two legs and fo[illegible] as as [illegible] school bus!
Stegosaurus	A dinosaur with bony plates [illegible] spikes on [illegible] back. It was a slow-moving plant-eater.
Pterodactyl	The Pterodactyl was not really a dinosaur [illegible] reptile that lived at the same time.
Brachiosaurus	The Brachiosaurus was one of the biggest dinosaurs. It had a long neck and ate plants from the tops of trees.
Velociraptor	Velociraptors were small but fast and clever hunters. They had sharp claws and worked together to catch their food.
Pachyrhinosaurus	Pachyrhinosaurus was a plant-eater like Triceratops, but it had a big bump on its nose instead of a horn.
Ankylosaurus	The Ankylosaurus was like a living tank, with a tough, armored back and a big club on its tail for protection.

Name: ______________________

Matching Write the letter from the description beside the correct dinosaur

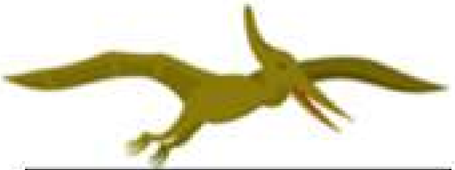
Answer	Dinosaur	Description
	Albertosaurus	A) Was one of the most famous dinosaurs. It was a powerful meat-eater with giant teeth.
	Triceratops	B) Was not really a dinosaur, but a flying reptile that lived at the same time.
	[illegible]yrannosaurus [illegible] (T-Rex)	C) Was a meat-eater, a little smaller than T-Rex but still fierce. It is named after Alberta.
	[illegible]	D) Was a small but fast hunter. They had sharp claws and worked together to catch their food.
	[illegible]	[illegible] dinosaur with bony plates and spikes on its back. It [illegible]low-moving plant-eater.
	Pteroda[illegible]	[illegible] living tank, with a tough, armored back and [illegible]g clu[illegible]ail for protection.
	Brachiosaurus	[illegible]as [illegible]ith three horns and a large shield around [illegible]t wa[illegible]g as a truck!
	Velociraptor	H) Was a [illegible]lant-eat[illegible]e Tr[illegible]ps, but it had a big bump on its no[illegible]ad of[illegible]
	Pachyrhinosaurus	I) Was one of the bi[illegible]e[illegible]rs[illegible] long neck and ate plants from th[illegible]ees.
	Ankylosaurus	J) Was a big plant-eater that [illegible]ked [illegible] and four. It was as tall as a school bus!

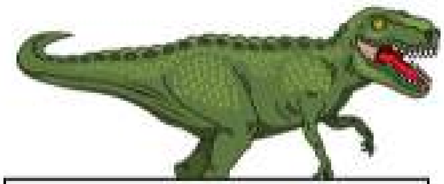


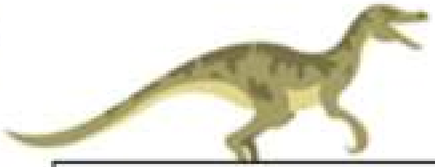
Name: ______________________

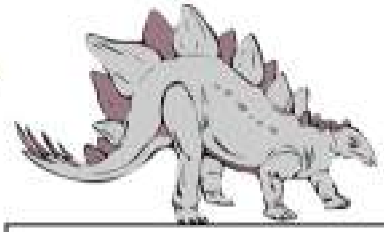
Curriculum Connection
ES.4

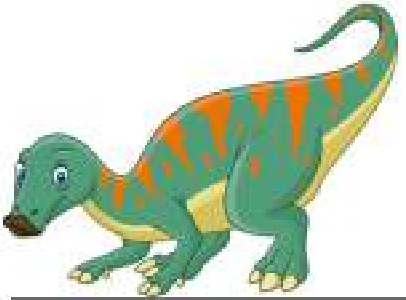
Label From the list of dinosaurs from the other reading, label the dinosaurs below

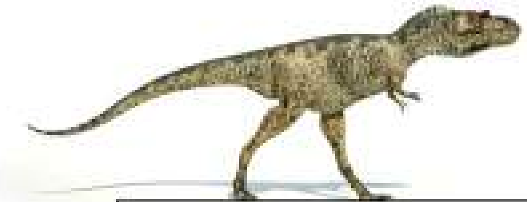


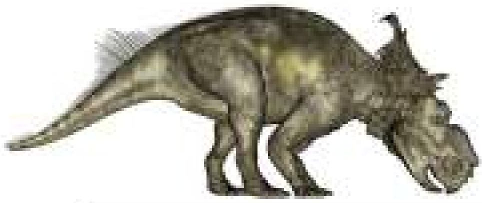










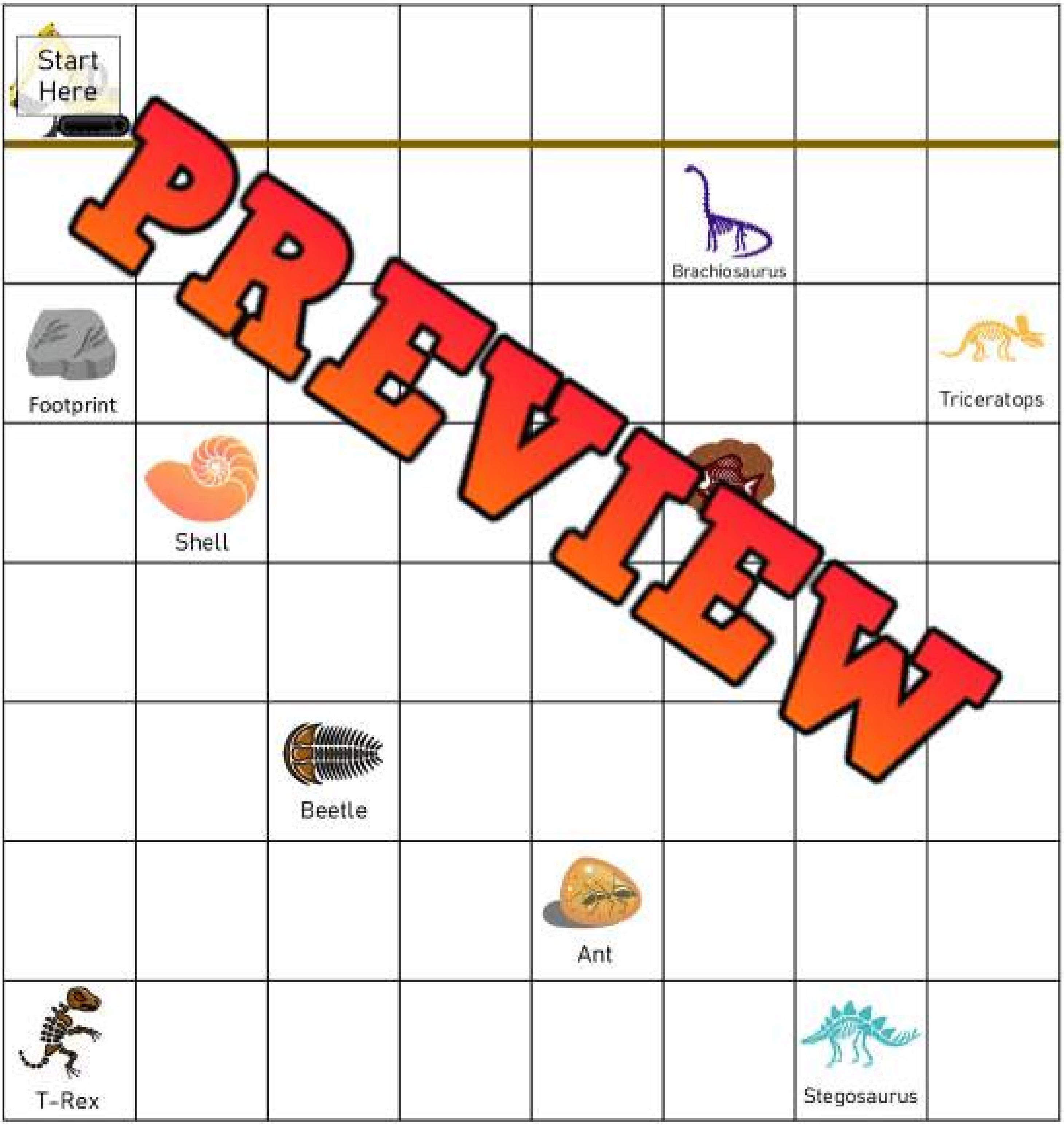


Name: ______________________

Curriculum Connection
ES.4

Coding Activity - Fossils

Digging Use the map to write code on the back of the page



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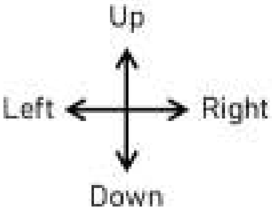
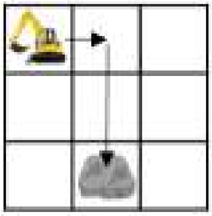
Curriculum Connection
ES.4



Commands – Use the example below to learn the code

Move 1 right
Move 2 down



Digging Tell the excavator where to dig to find the fossils

1) Find the footprint and triceratops

2) Find the shell and [illegible]

3) Find the beetle, fish, and the triceratops

Name: ______________________________

Curriculum Connection
ES4

Digging Tell the excavator where to dig to find the fossils. Use as few lines of code as possible. You can find them in any order.

4) Find the T-Rex, shell, ant, and fish

5) Find the fish, footprint, shell, beet[illegible]nd T[illegible]tops

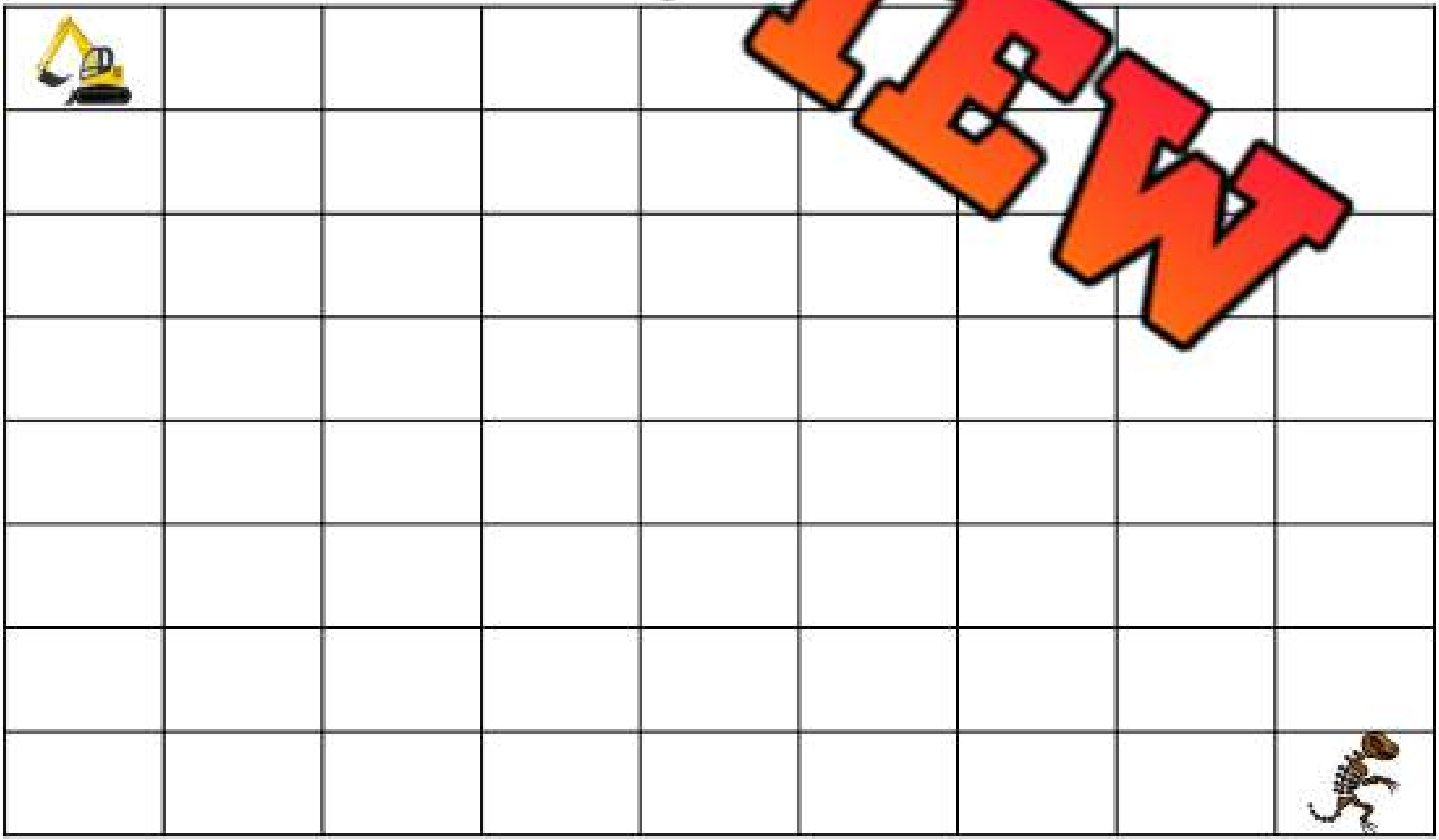
Name: ______________________ 94

Curriculum Connection
ES 4

IF/THEN Statements - Fossils

Directions Follow the if/then statements to move the excavator to the fossil

1)	If Albertosaurus is a dinosaur found in Alberta.	then	Move down 3 spots
2)	If Dinosaur Provincial Park is in Alberta.	then	Move right 5 spots
3)	If the Edmontosaurus was found in Toronto.	then	Move left 4 spots
4)	If di[illegible]idn't live with humans	then	Move down 2 spots
5)	[illegible] d[illegible] [illegible]erta used to be a tropical forest.	then	Move right 3 spots
6)	If [illegible]erato[illegible] [illegible]f di[illegible]osaur found in Alberta.	then	Move down 1 spot
7)	If dinosau[illegible] [illegible]e fou[illegible] [illegible]here in Alberta.	then	Move left 3 spots
8)	If dinosaurs like[illegible] [illegible]d. [illegible]	then	Move left 7 spots
9)	If dinosaur fossils are j[illegible] [illegible]ock[illegible]	then	Move right 2 spots
10)	If Alberta was once covered by a[illegible] [illegible]sea.	then	Move down 1 spot

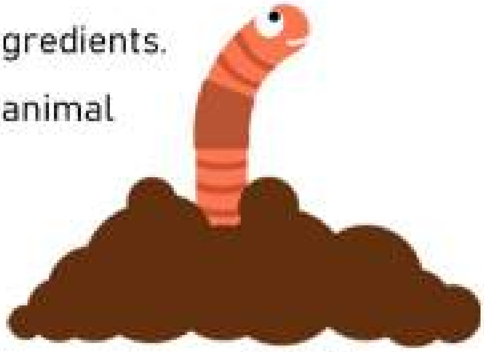


Name: ______________________

Curriculum Connection
ES.5

All About Soil

All About Soil



Soil is like a cake that is made from a lot of different ingredients.
Soil has little bits of rock or sand, clay, dead plant and animal remains, fungi, and even manure – animal poop!

Soil [illegible] contains lots of little creatures!
Earthw[illegible] important for soil because they turn plan[illegible] animal [illegible] into nutrients. They also dig through the soil. This helps loosen the so[illegible] [illegible] can [illegible] better.

Importance of Soil

We need soil to provide pla[illegible] th[illegible] and nutrients they need to grow.
This means that without soil, plants [illegible] ot gr[illegible] and without plants, humans could not survive. [illegible]
Soil is very important!

Interesting Facts About Soil

- Soil is alive! There are more microorganisms in a handful o[illegible] ere are people on Earth
- Soil prevents floods because it soaks up and stores water
- Soil acts as a water filter as it filters out pollutants in our groundwater
- Without soil, humans could not survive because we need soil to grow plants
- Not all soil is the same. There are six main types of soil
- Sand is a type of soil that can grow some types of plants
- Darker soil is better for growing plants because it has more nutrients in it
- Erosion is the movement of soil from one place to another

Name: ______________________ 96

Curriculum Connection
ES.5

Questions Answer the questions below using evidence from the text

1) What is soil? What is in it?

____

____

____

2) Why is [illegible] important to humans and animals?

____

____

____

Questioning Write 3 qu [illegible] ou h [illegible] soil

1)	
2)	
3)	

True or False Is the statement true or false?

1) Soil is alive because it has living things in it	True	False
2) Soil is not very important to humans	True	False
3) Nothing grows in sand	True	False
4) The darker the soil, the better it is for growing plants	True	False
5) Worms make soil better for plants	True	False

Curriculum Connection
ES5

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________ | Mark | ☐

Check only the true statements.

Statement	✓
There are fewer organisms in soil than people.	
Humans can live without soil easily.	
Sand is not a type of soil.	
Soil helps filter water from pollution.	
Darker soil has more nutrients in it.	
There are six main soil types.	
Soil is alive and full of life.	
All soil has the same nutrients.	
Soil can soak up rainwater.	

Name: ____________ | Mark | ☐

Check only the true statements.

Statement	✓
There are fewer organisms in soil than people.	
Humans can live without soil easily.	
Sand is not a type of soil.	
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Name: ____________ | Mark | ☐

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There are fewer organisms in soil than people.	
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Name: ____________ | Mark | ☐

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Soil helps filter water from pollution.	
Darker soil has more nutrients in it.	
There are six main soil types.	
Soil is alive and full of life.	
All soil has the same nutrients.	
Soil can soak up rainwater.	

Name: ______________________ 100

Curriculum Connection
ES5

What Is In Our Soil?

What Is Soil Made Of?

Soil is made up of rocks, organic material, living organisms, and water. These four ingredients make one of the Earth's most important [illegible]ural resources.

Rocks

We h[illegible] seen [illegible]nd our schoolyard or in our backyard. Rocks are slowly weathered, m[illegible] [illegible]eak [illegible] small pieces of rock that form soil.

Weathering [illegible]ns as [illegible] to deal with rain and snow as well as heat and freezing temperatures. [illegible]ors [illegible]ks into tiny grains of soil. Soil is made up of different sized rocks, [illegible]g [illegible] of soil.

Organic Material

Soil also has organic material in it. **Organic m[illegible]** is an[illegible] was alive and is now dead. So the leaves that fell in the Fall seas[illegible] [illegible]ga[illegible]rial because they are now dead. Sticks, twigs, and even dead plants [illegible] als[illegible] or[illegible]nic material. Organic material is found on the top layer of soil.

Living Organisms

The soil also has many living organisms in it. Worms, moles, grubs, centipedes, slugs, mushrooms and many others all live in the soil. Most living things are found in the topsoil, which is the layer of soil close to the surface.

Water

Depending on the types of rocks in the soil, water could make up over 60% of the soil. Clay soils have a lot of water in them, making them fun to mould them!

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Curriculum Connection
ES.5

Questions Answer the questions below using evidence from the text

1) What four things are in soil?

____

____

2) How are each of the things below in soil?

Rocks	
Organic Material	
Living Organism	
Water	

Questions Answer the questions below using evidence from the

____

____

____

____

____

____

Name: ______________________

Curriculum Connection
ES5

Experiment - Soil Composition Test

Research Questions What are we learning about?

Soil is usually made up of different types and textures of rocks. Soil could be mostly clay, silt, sand, or it could be a combination of all three. Today we will test soil from our environment to learn more about what is in it.

Materials [illegible] do we need for our experiment?

- Mason ja[illegible]
- Water
- Shovel or trowel
- Dish soap

Method How do we complete the experim[illegible]

1. Find an area with soil that you can see – perhaps a g[illegible] o[illegible] a ditch
2. Use the shovel to dig down about 20 cm
3. Fill the mason jar half full of soil
4. Add water to the mason jar so that it is three-quarters full
5. Add a teaspoon of liquid dish soap
6. Shake the jar for at least three minutes
7. Leave the jar for at least 24 hours and if the soil has heavy clay, leave it for 48 hours
8. Observe the different layers in your soil.

Name: ______________________

Curriculum Connection
ES5

Observations Common results you may see

Soil Types	Common Results
Sandy Soil	Sandy particles will appear on the bottom of the jar. The water will be fairly clear.
Clay [illegible]	The water will still look cloudy. There will be a thin layer of dirt particles on the bottom. The water stays cloudy because it takes [illegible]er for the clay particles to settle.
Peaty Soil	T[illegible]e will [illegible] of floating pieces on the surface with a small [illegible]unt [illegible] the bottom. The water will be a bit cl[illegible].
Chalky Soil	There will be a la[illegible]hite [illegible]nt on the bottom of the jar and the water will [illegible]a grayi[illegible]clou[illegible]
Loamy Soil	The water will be clear and t[illegible]e in l[illegible]on the bottom with the smallest partic[illegible]top.

Observations What did you notice?

Which type of soil is in your jar? Explain how you know.

____

____

____

____

Name: ______________________

Curriculum Connection
ES5

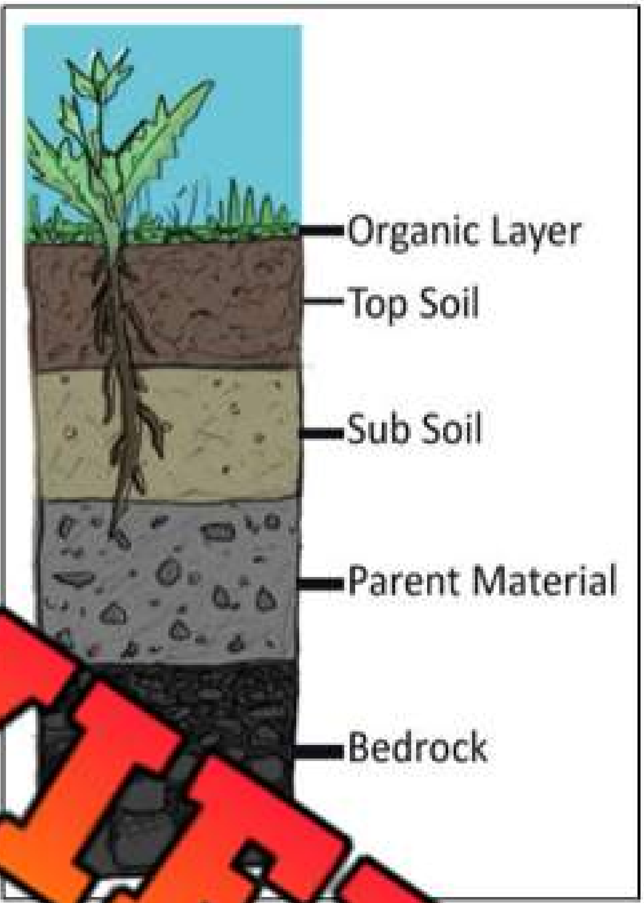
Diagram Draw the mason jar with the soils in it. Colour and label the layers

Curriculum Connection
ES5

Layers of Soil

Layers of Soil

Soil has many layers below what we see from the surface. Each layer has different types of soil in it.



Organic [illegible] 5 cm)

- [illegible], twigs, dead animals, [illegible]
- The organic [illegible] has [illegible] decomposed yet [illegible]

Topsoil (5 – 15 cm)

- Fairly thin layer where seeds beg[illegible] grow into sprouts
- Made from organic matter like broken down plants and animals as well as tiny rock partic[illegible]

Subsoil (15 – 75 cm)

- Made from clay, iron, and organic materials

Parent Material (75 – 200 cm)

- Made of mostly large rocks. Very difficult to dig beyond this layer!

Bedrock (2 m – 1000+ m)

- Bottom layer that is made up of a large solid rock. This layer cannot be dug using a shovel. Instead, a drill is needed to dig through, like when a well is dug.

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Curriculum Connection
ES.5

Questions Answer the questions below using evidence from the text

1) What are the different layers of soil made from?

____

____

____

2) What c[illegible]es would you have if you were digging a pool in your yard?

____

____

____

Draw Draw the things you [illegible] se[illegible]er

Organic Layer	
Topsoil	
Subsoil	
Parent Material	
Bedrock	

Curriculum Connection
ES.5

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ______________________ Mark

Circle the correct answer.

1) Which layer has clay and iron in it?	Organic layer
	Subsoil
2) Which layer cannot be dug using a shovel.	Bedrock
	Topsoil
3) Which layer is made of large rocks?	Parent material
	Bedrock
4) Which layer is made up of dead plants?	Organic layer
	Topsoil
5) Which layer has tiny rock particles?	Subsoil
	Topsoil

Name: ______________________ Mark

Circle the correct answer.

1) Which layer has clay and iron in it?	Organic layer
	Subsoil
2) Which layer cannot be dug using a shovel.	Bedrock
	Topsoil
3) Which layer is made of large rocks?	Parent material
	Bedrock
4) Which layer is made up of dead plants?	Organic layer
	Topsoil
5) Which layer has tiny rock particles?	Subsoil
	Topsoil

Name: ______________________ Mark

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1) Which layer has clay and iron in it?	Organic layer
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2) Which layer cannot be dug using a shovel.	Bedrock
	Topsoil
3) Which layer is made of large rocks?	Parent material
	Bedrock
4) Which layer is made up of dead plants?	Organic layer
	Topsoil
5) Which layer has tiny rock particles?	Subsoil
	Topsoil

Name: ______________________ Mark

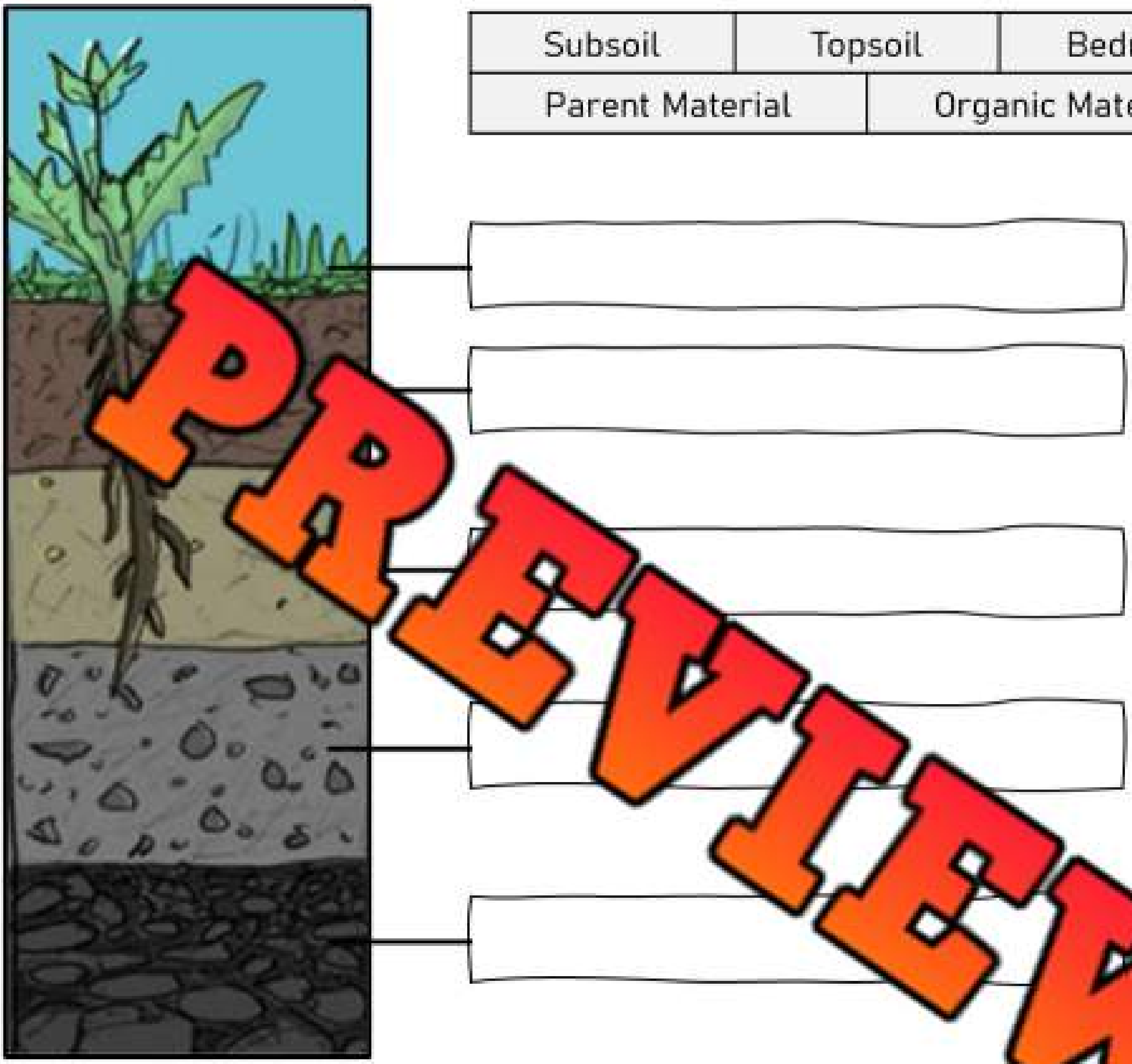
Circle the correct answer.

1) Which layer has clay and iron in it?	Organic layer
	Subsoil
2) Which layer cannot be dug using a shovel.	Bedrock
	Topsoil
3) Which layer is made of large rocks?	Parent material
	Bedrock
4) Which layer is made up of dead plants?	Organic layer
	Topsoil
5) Which layer has tiny rock particles?	Subsoil
	Topsoil

Curriculum Connection
ES5

Questions Label the layers of soil below

Subsoil	Topsoil	Bedrock
Parent Material	Organic Material	



Matching Write the letter from the description beside the matching layer

	Subsoil	a) Made up of large solid rock
	Topsoil	b) Made up of twigs, leaves and other organic matter
	Organic Layer	c) Made of mostly large rocks
	Bedrock	d) Made from clay, iron, and other organic material
	Parent Material	e) Made of organic matter – decomposed plants and animals as well as some small rocks

Name: ______________________

Curriculum Connection
ES.5

Experiment - Layers of Soil Model

Background Label the layers of soil below

Soil is much more than just the dirt under our grass. Each layer is made-up of different particles and serves a specific purpose. Today we will be making a model representation of the layers of soil using yummy ingredients!

Materials [illegible]ill you need for this experiment?

- Ch[illegible]ate an[illegible]otch chips mixed
- Chocolate [illegible]
- Whole Oreos a[illegible]ush[illegible]
- Gummy worms
- Shredded coconut mixed w[illegible] gre[illegible]g
- Clear cups or glasses to hold the [illegible]s of s[illegible]
- Spoons
- Tape, sticky-notes or labels

Method How you will complete the experiment

1. Drop an Oreo into the bottom to represent the bedrock
2. Put in a small handful of chocolate/butterscotch chips to represent the parent material
3. Spoon in the chocolate pudding to represent the subsoil
4. Toss in the crushed-up Oreos to portray the topsoil. Stick the gummy worms out of the topsoil
5. Sprinkle your coloured coconut on top, allowing the gummy worms to poke out.
6. Use tape, labels or sticky-notes to label each of the layers on the side of the cup.

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Curriculum Connection
ES5

Diagram Draw a diagram of your cup with each layer of soil. Label the diagram

Results Answer the questions bel

1) What did you learn about the different lay soil?

____

____

____

____

2) If you were digging in your yard, which layer of soil would you struggle to dig through? Why?

____

____

____

____

Name: ______________________

Curriculum Connection
ES5

Different Uses of Earth's Materials

How Different Cultures Use Earth Materials

Earth materials are used to make many different things around the world. In some cultures, clay is still used to make houses, In other cultures, houses are made from sod. Read below to learn more about the different uses of Earth's materials around the world[illegible]

Adobe [illegible]

When [illegible] mix mu[illegible]aw together, it will dry and beco[illegible] material that is called **[illegible]** [illegible] to build houses in dry [illegible] such as Texas, Mexico, and Arizona.

Sod Houses

Soddies are houses that are made of blocks [illegible] taking a shovel and digg[illegible] to build a house with. The soil [illegible] held together by the grass's roots [illegible]uilt in the Prairies in the 1800's becau[illegible] settlers did not have access to other building materials.

Clay Pots

Clay is used for pottery and construction projects around the world. When clay dries, it becomes hard like cement. This means it can be molded and shaped into pots or bricks that will become hard when dried. Pottery has been around for over 20,000 years!

Name: ______________________

Curriculum Connection
ES.5

Draw and Write Draw the structures and write which Earth materials you would use

Adobe House	Soddie – Sod House	Clay Pot
______ ______ ______ ______ ______ ______	______ ______ ______ ______ ______ ______	______ ______ ______ ______ ______ ______

True or False Circle whether the statement is true or false

1. Adobe houses are made from clay	True	False
2. Clay pots have been around for over 20,000 years	True	False
3. Sod houses are made from grass and soil	True	False
4. Clay can be used for pottery or bricks	True	False
5. Sod houses are still used often in Canada	True	False

Curriculum Connection
ES.5

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ____________________ | Mark |

Circle the correct answer.

1) Which house is made of mud?	
Sod houses	Adobe houses
2) Which is used for pottery work?	
Adobe	Clay
3) Which becomes hard when dried?	
Clay	Sod
4) Pottery has been around for _____.	
20 000 years	30 000 years
5) Mixing straw and mud makes…	
Sod	Adobe

Name: ____________________ | Mark |

Circle the correct answer.

1) Which house is made of mud?	
Sod houses	Adobe houses
2) Which is used for pottery work?	
Adobe	Clay
3) Which becomes hard when dried?	
Clay	Sod
4) Pottery has been around for _____.	
20 000 years	30 000 years
5) Mixing straw and mud makes…	
Sod	Adobe

Name: ____________________ | Mark |

Circle the correct answer.

1) Which house is made of mud?	
Sod houses	Adobe houses
2) Which is used for pottery work?	
Adobe	Clay
3) Which becomes hard when dried?	
Clay	Sod
4) Pottery has been around for _____.	
20 000 years	30 000 years
5) Mixing straw and mud makes…	
Sod	Adobe

Name: ____________________ | Mark |

Circle the correct answer.

1) Which house is made of mud?	
Sod houses	Adobe houses
2) Which is used for pottery work?	
Adobe	Clay
3) Which becomes hard when dried?	
Clay	Sod
4) Pottery has been around for _____.	
20 000 years	30 000 years
5) Mixing straw and mud makes…	
Sod	Adobe

Name: ____________________ Date: ____________________

Unit Test - Changing Earth

Multiple Choice /10

1) What is able to make a valley?

a) Water
b) Wind
c) Glacier
d) Air

2) Where does the Columbia Icefield drain into?

a) Pacific Ocean
b) Arctic Ocean
c) Atlantic Ocean
d) Indian Ocean

3) What i[illegible]lled when it lands on Earth?

a) Lava
b) Magma
c) Fire
d) Ash

4) What are the 3 forms of erosion?

a) Wind, water, fire
b) Wind, fire, ice
c) Fire, ice, water
d) Wind, water, ice

5) Which type of erosion polish[illegible]on coastline

a) Wind
b) Water
c) Ice
d) Fire

6) [illegible]re the oldest fossils found?

a) To[illegible]f[illegible]th
b) [illegible]n lay[illegible]

7) Where are most fossils found in Alberta?

a) Lake Athabasca
b) Badlands
c) Rocky Mountains
d) Fort McMurray

8) When sedim[illegible]stop[illegible]led ___.

a) Weathering
b) Sediment
c) Erosion
d) Deposition

9) Why do many mountains form?

a) When humans pile up dirt
b) When we pile up garbage
c) When the Earth's plates hit each other
d) When the plates move away from each other

10) Millions of years ago, Alberta was...

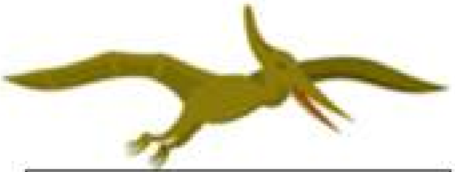
a) A warm rainforest
b) A cold arctic
c) A dry desert
d) A frozen glacier

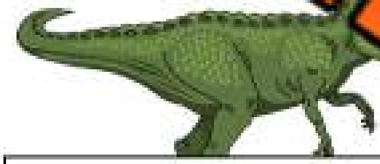
Definitions What do each of the words mean?

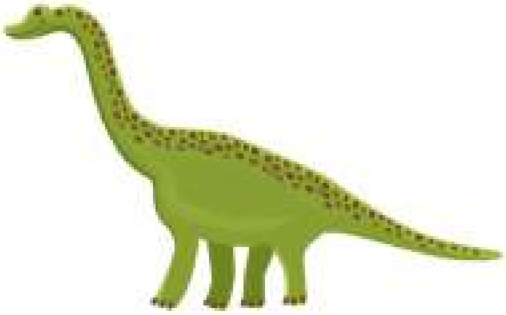
Term	Definition (what does it mean)
Glacier	
Lan[illegible]	

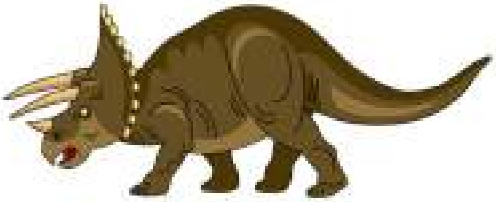
Label Name each [illegible]

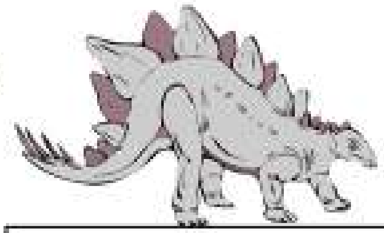
Triceratops	P[illegible]	Stegosaurus
Brachiosaurus	[illegible]raptor	T-Rex











Long Answer Answer the long answer questions. Each question is 5 marks

1) Do glaciers move? How do they change the Earth's surface?

2) What is a fossil? Where are they fou[illegible]y are s[illegible] f[illegible]sils found in the Badlands?

Google Slides Lessons Preview

Alberta Science Curriculum
Energy Force Unit – Grade 3

3-Part Lesson Format

FORCES - PUSH AND PULL

LEARNING GOAL

We are learning to **understand how forces like pushes and pulls can make objects move, stop, or change direction** so we can **explain how things move in our everyday lives.**

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!

Push or Pull? Let's Sort It Out!

Drag each picture card into the correct box: **Push** or **Pull**. Think about whether the object is being moved away from you or toward you.

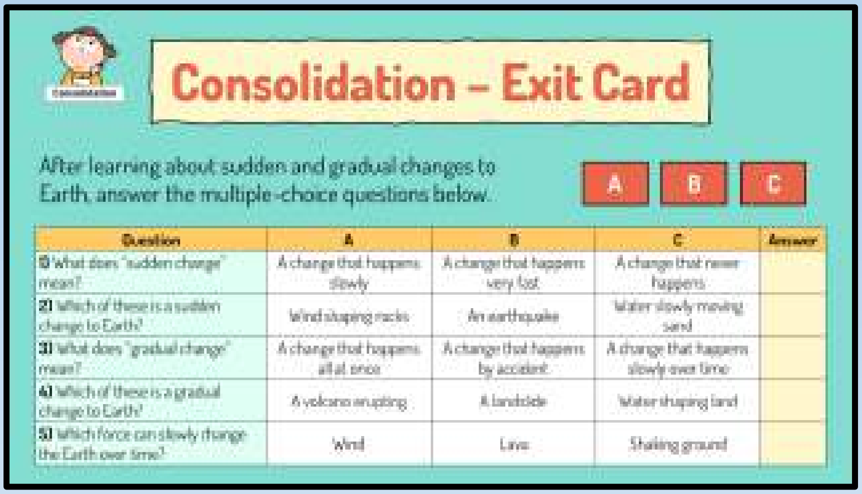
Push	Pull

Part 2 – Action!

- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!



Consolidation – Exit Card

After learning about sudden and gradual changes to Earth, answer the multiple-choice questions below.

Question	A	B	C	Answer
1) What does "sudden change" mean?	A change that happens slowly	A change that happens very fast	A change that never happens	
2) Which of these is a sudden change to Earth?	Wind shaping rocks	An earthquake	Water slowly moving sand	
3) What does "gradual change" mean?	A change that happens all at once	A change that happens by accident	A change that happens slowly over time	
4) Which of these is a gradual change to Earth?	A volcano erupting	A landslide	Water shaping land	
5) Which force can slowly change the Earth over time?	Wind	Lava	Shaking ground	

SUPER Simple SHEETS

Alberta Science Curriculum Energy Force Unit – Grade 3

SPOT THE CONTACT FORCE: TRUE OR FALSE?

Drag the ✓ to each statement that is true about contact forces. Leave the ✗ on statements that are not true.

☐ A push or pull can make an object move.
☐ Contact forces happen when objects touch.
☐ Friction helps slow objects down.
☐ You can pull something without touching it.
☐ Tension happens when a rope or string is pulled tight.
☐ Spring force happens when a spring is stretched or pressed.
☐ Friction makes it easier to slide on ice.
☐ Applied force can be a push or a pull.
☐ A loose rope has tension force.
☐ A spring has force even when it is not stretched or pressed.

✓

✗

GE! WHAT CHANGES THE MOTION?

h situation. Drag the correct label to show what changes or stops the motion.

Nothing Yet

Gravity

Air Resistance

Friction

A ball is rolled on the floor and slowly stops.

A ball is thrown up into the air and comes back down.

A toy car is pushed and keeps rolling on a smooth floor.

A bike slows down when the rider stops pedalling.

A leaf falls slowly through the air.

A parachute slows down as it falls from the sky.

BALAN

Sort the following statements into two g

✓ The statement is correct ✗ The statement is incorr

1) When forces are balanced, an object does not move.
2) An unbalanced force can make an object move or change direction.
3) A book sitting still on a table has balanced forces.
4) Balanced forces always make objects move faster.
5) If one force is stronger than the other, the forces are unbalanced.
6) Tug-of-war with equal pulling on both sides is an example of unbalanced forces.
7) Unbalanced forces can change how fast an object moves.
8) Balanced forces mean there are no forces acting at all.

Alberta Science Curriculum
Energy Force Unit – Grade 3

DRAG & SORT: STRONG OR WEAK FORCE

Read each sentence. Decide what type of force they would use. Drag **Strong Force** or **Weak Force** in the box.

1) Bulldozer pushing dirt
2) Petting a kitten
3) Pushing a heavy box
4) Picking up a feather
5) Pushing a toy car
6) Lifting a full backpack
7) Kicking a soccer ball hard
8) Turning the pages of a book

Drag & Sort: Is it

Drag each picture card into the correct box: **Machine** or **Not A Ma**

Think about whether the object can be used as a machine or not.

Machine	Not A Machine

rop stars to show how easy each object is to move:

★ = Very easy to move and ★ = Very hard to move

Workbook Preview

Grade 3 – Science Unit

Organizing Idea Matter: Energy: Understandings of the physical world are deepened by investigating matter and energy.

Guiding Question: How can forces relate to changes in movement?

	Learning Outcome – Students investigate and explain how forces affect the movement of objects.	**Pages**
E3.1	A force is a push or pull on an object resulting from an interaction with another object.	6-9
E3.2	An object that is not moving will stay still until a force makes it move, and an object that is moving will keep moving until a force stops it. (Newton's First Law)	27-35
E3.3	Contact forces occur between objects that touch each other. Contact forces include pulling, squeezing, pushing	26
E3.4	The strength of forces applied to objects can be described as strong, weak, large, small	46-51
E3.5	The direction of forces applied to objects can be described as upward, downward, from the left, from the right, from both sides, from all directions Changes to an object's movement when a force is applied include changing speed, starting stopping, changing direction	36-45
E3.6	The effort needed to move objects is reduced by simple machines, such as levers, wheels, inclined planes	54-87
E3.7	Many First Nations, Métis, and Inuit designed, tested, and continue to use simple machines, such as an antler wedge, a paddle, Inuit scraping tools; e.g., ulu	88-97
Computer Science:		
CS.1	Students apply creativity when designing instructions to achieve a desired outcome.	52-53, 93-102

Preview of 80 pages from this product that contains 166 pages total.

NAME: ______________________________

Forces

Name: ______________________

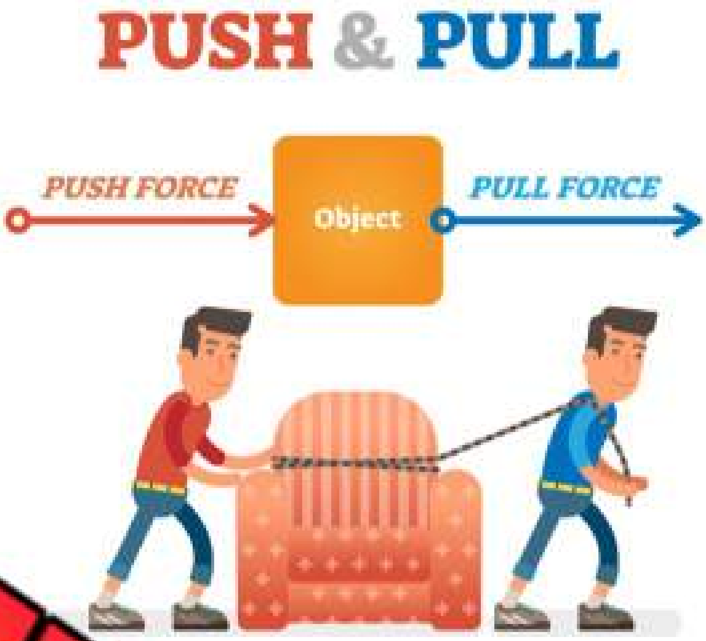
Curriculum Connection
E3.1

Forces - Push and Pull

What is a Force?

A **force** is any push or pull that causes an object to move. Think about it, if an object moves, a force must have acted on the ob [illegible]

A [illegible] y [illegible] ve pushed a book acro [illegible] esk to s [illegible] you, or maybe they pulled a [illegible] yo [illegible] nds. These are two ex [illegible] s of [illegible] pull forces that cause [illegible] o mov [illegible]



Pushing Forc [illegible]

A **push** is when we mov [illegible] objec [illegible] from us. The child on this swing is the obj [illegible] ein [illegible] an is pushing the child using a pushing fo [illegible] man [illegible] 't apply enough pushing force, the child w [illegible] ha [illegible] hey won't swing very far!

Pulling Force

A **pull** is when we move an object closer to us. A fun game of tug of war is an example of two teams using pulling forces. The team that uses the most pulling force will win. Check out more examples below:

- Lifting a bag – we pull the object closer to us
- Opening a drawer – we pull the drawer open

Name: ______________________________

Curriculum Connection
E3.1

Push or Pull Is the example a push or pull force?

1) Shooting a basketball into the net	Push	Pull
2) Plugging in a cord to an outlet	Push	Pull
3) A tow-truck towing a car behind them	Push	Pull
4) Kicking a ball	Push	Pull
5) Climbin [illegible]	Push	Pull

Think [illegible] ve an [illegible] f a push and a pull force

Push	
Pull	

Visualizing Draw what you were picturing while you were readi [illegible] ture

Name: ______________________________ 8

Curriculum Connection
E3.1

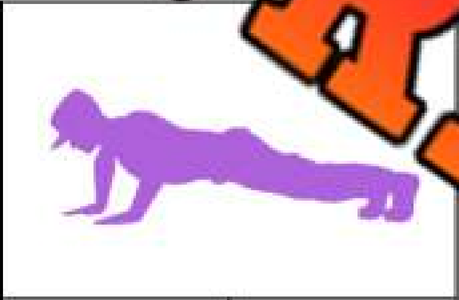
Push or Pull?

Directions Is the picture a push or pull?

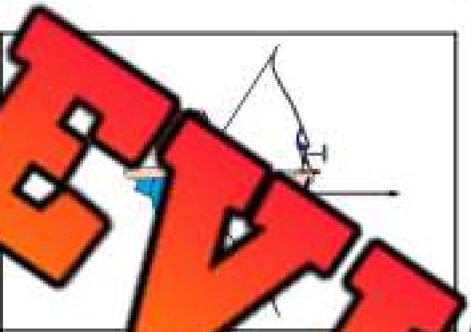
Push Pull

Push Pull

Push Pull



Push Pull



Push Pull

Push Pull

Push Pull

Push Pull

Push Pull

Push Pull

Push Pull

Push Pull

Name: ______________________

Curriculum Connection
E3.3

Contact Force - Applied Force

What is a Contact Force?

Contact forces are the pushes or pulls that happen when two things touch each other. Imagine you are pushing a toy car. Your hand is applying a force to the car. This is a [illegible] force.

Appl[illegible]rces

Applied forc[illegible] of [illegible]t force. This happens when a person or an object pushes or [illegible] on a [illegible]. For example, when you kick a ball, you're using an applied force. [illegible] a book i[illegible]ble, the table is using an applied force to keep the book from [illegible]g t[illegible]

Examples of Contact Forces

☑ Playing Tug of War: When you pull on the [illegible] war, you're using a contact force. Your hands have to touch [illegible] to [illegible]

☑ Pushing a Swing: When you push someone on a swing, you[illegible]ntact force. Your hands push the swing to make it move.

☑ Pulling a Wagon: If you pull a wagon full of toys, you're using a contact force. Your hand pulls the handle of the wagon to make it move.

So remember, a contact force happens when two things touch each other and one pushes or pulls on the other.

Name: ______________________ 11

Curriculum Connection
E3.3

True or False Is the statement true or false?

1) Throwing a ball is an applied force	True	False
2) A ball rolling down a hill with no one touching it is an applied force	True	False
3) Pulling a wagon is an applied force	True	False
4) An apple falls from a tree because of an applied force	True	False
5) Pushing [illegible] is an applied force	True	False

Making Connections What applied forces have you used today?

____

____

____

____

Questions Answer the questions below

1) What is a contact force?

____

____

____

2) What is an applied force?

____

____

____

Curriculum Connection
E3.3

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________________ Mark

Is this a contact force? Yes or No?

Swing moves by pushing	Yes	No
Pulling rope in tug war	Yes	No
Wind blowing a leaf	Yes	No
Pushing door open	Yes	No
Pulling a Wagon	Yes	No
Book stays on table	Yes	No
Magnet pulling an object	Yes	No
Balloon floating in air	Yes	No
Kicking a ball	Yes	No
Sitting on a chair	Yes	No

Name: ______________________ Mark

Is this a contact force? Yes or No?

Swing moves by pushing	Yes	No
Pulling rope in tug war	Yes	No
Wind blowing a leaf	Yes	No
Pushing door open	Yes	No
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Balloon floating in air	Yes	No
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Kicking a ball	Yes	No
Sitting on a chair	Yes	No

Name: ______________________ Mark

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Wind blowing a leaf	Yes	No
Pushing door open	Yes	No
Pulling a Wagon	Yes	No
Book stays on table	Yes	No
Magnet pulling an object	Yes	No
Balloon floating in air	Yes	No
Kicking a ball	Yes	No
Sitting on a chair	Yes	No

Name: ______________________________

Curriculum Connection
E3.3

Experiment - Applied Force

Research Question What are we learning more about?

How much applied force can I make?

Materials [illegible]at do we need?

- ✓ 1 [illegible]
- ✓ 1 [illegible]ty ba[illegible]
- ✓ 1 tennis [illegible]
- ✓ 1 golf ba[illegible]
- ✓ 1 hula-hoop

Method How do we complete [illegible] ex[illegible]

1) Which ball do you think you will be[illegible] to throw the furthest? Which ball w[illegible] you throw the least far? Write your hypothesis on the back of the page.

2) Stand in the hula-hoop

3) Throw one ball at a time as far as you can. Leave the balls where they land so you can compare how far you threw them

4) Fill in your observation page

5) Answer the questions on the back of the page

Name: ______________________ 14

Curriculum Connection
E3.3

Hypothesis Rank how far you think you will be able to throw the ball

Furthest	⟵	⟶	**Shortest**

Observatic[illegible] What happened?

1) We[illegible] which ball you could throw the furthest? Explain.

____

____

2) Could you throw a heavie[illegible] furt[illegible] [illegible]er ball?

Heavier	Lighter

3) Could you throw a smaller ball further or [illegible]er b[illegible]

Smaller	Bigg[illegible]

4) Which force are you using to move the ball?

Friction	Gravity	Magnetism	[illegible]pplied

5) What muscles do you think you are using to move the ball with the applied force? Where are the muscles in your body?

____

____

____

____

Curriculum Connection
E3.3

Contact Force - Frictional Force

Frictional Force

Friction is a force that makes it harder to slide objects across each other. For example, if you tried to slide a box on ice, there isn't much friction to slow the box down. But, if you slide the same box on pavement, there is a lot of friction to slow down the box. Friction is that force that make [illegible]jects stick together.

[illegible] [illegible]t because it allows us to walk on the ground without slipping. Some m[illegible]ve surfaces that create more friction, like rubber, which is why [illegible] rubb[illegible]s on the bottom.

Questions Use infor[illegible]m the [illegible] support your answer

1) What is friction?

____

____

____

2) Why is it better to wear basketball shoes while playi[illegible]ke[illegible] socks?

____

____

____

Explain Why is friction making it hard to move the stone?

____

____

____

Name: ______________________

Experiment - Friction Car Ramp

Research Question Does more friction slow down a moving car?

If we roll a car down a smooth ramp, will it go further than a bumpy ramp?

Materials What do we need?

- ✓ Car[illegible] make the ramps
- ✓ B[illegible] to rest on
- ✓ O[illegible]y car p[illegible]
- ✓ Glue

- ✓ Textured mat[illegible]
  - ➢ Bubble wrap
  - ➢ Bread tabs
  - ➢ Rubber bands
  - ➢ Rice
  - ➢ Staples

Method How do we complete the experiment

1) Each group will make one ramp. The teacher can be [illegible] co[illegible] a ramp that is smooth

2) Groups will need cardboard cut into a rectangle that will act as [illegible] ramp

3) Students can use some of the textured materials listed above to make a textured ramp. They can glue rice to the ramp, put staples in it, glue bubble wrap down, or wrap rubber bands around the ramp. Be creative!

4) Have each group test their ramps with their toy car

5) When all groups are finished, they can demonstrate their car going down the smooth ramp versus the textured ramp.

6) Mark how far the toy car travelled on the smooth ramp versus the textured ramp. Record your results on the back of the page.

Name: ____________________

Curriculum Connection
E3.3

Observations What happened?

1) How did you make your textured ramp? Which materials did you use?

____

____

____

2) Did th[illegible]el further on the smooth or textured ramp?

Smo[illegible]	Textured Ramp

Results An[illegible]he q[illegible]below

1) Which ramp did the car [illegible]re [illegible]n it travelled down it?

Smooth Ramp	Textured Ramp

2) Why did the car travel further on the smooth[illegible]p?

____

____

____

3) If the car raced on ice, would the ice give more or less friction?

More	Less

4) Would the car travel further if it travelled on ice? What do you think?

____

____

____

____

Name: ______________________

Curriculum Connection
E3.3

Experiment - Friction Force Power

Research Question What are we learning about?

Can we make a model that uses friction to lift an object?

Materials [illegible]hat do we need?

- ✓ [illegible]
- ✓ Wa[illegible] bottl[illegible] m[illegible]dium sized
- ✓ Paintbrus[illegible]cil
- ✓ Optional - Fun[illegible]

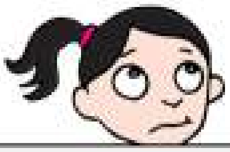
Method How do we complete[illegible]e ex[illegible]

1) Fill the water bottle with rice using the funnel
2) Bang the bottle gently on the table to settle the rice
3) Ensure the bottle is mostly full
4) Place the pencil in the bottle
5) Bang the bottle on the table while you push the pencil to the bottom. This will ensure the rice settles around the pencil
6) Try to lift the bottle by pulling up on the pencil
7) Record your observations on the back of this page

Name: ______________________

Curriculum Connection
E3.3

Observations | What happened?



Were you able to lift the bottle using the pencil? Explain what happened.

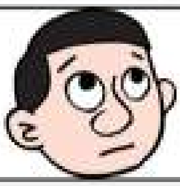
____

____

____

____

Results | An[illegible] qu[illegible]tions below



1) What force allow[illegible] bottle?

____

2) How did friction allow the pencil t[illegible]e bot[illegible]

____

____

____

3) Draw a picture of the experiment.

Contact Force - Tension

What is Tension?

Tension is a type of contact force. It happens when you pull on a string, a rope, or anything else that's stretchy. When yo[illegible]ou make the string or rope ti[illegible]ss is called tensi[illegible]

Tensio[illegible]hat [illegible]ve objects. A tow tru[illegible]n us[illegible] wire under tension to p[illegible]f the wire is pulled tight, the tow tr[illegible]k wil[illegible] pull the car. But if the wire is loose, the car will not move.

Tension in Action

Imagine you are playing with a toy on a string. When you pull the string, the toy comes towards you[illegible] working! The force you used to pull the string made the toy move.

Examples of Tension

☑ Flying a Kite: When you fly a kite, you hold onto the string and pull. The tension in the string helps the kite to fly high in the sky.

☑ Playing Tug of War: In a game of tug of war, when you pull on the rope, you create tension. This tension helps you to try and pull the other team over the line.

Name: ____________________

Curriculum Connection
E3.3

Draw Draw a tow truck using tension to pull a car

Questions Answe [illegible] nsw [illegible]

1) What is tension force?

____

____

____

2) Write 3 examples of tension force in action.

1	
2	
3	

Curriculum Connection
E3.3

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________

Check only the facts that describe tension.

☐ Tension happens when you pull on a string, rope, or anything stretchy.

☐ Tension can help move objects, like when a tow truck pulls a car.

☐ Tension works only when the rope or string is loose.

☐ When you pull a toy on a string and it moves toward you, that is tension.

☐ Tension is a force that pushes objects apart.

☐ In tug of war, pulling the rope creates tension.

Name: ____________________

Mark

Check only the facts that describe tension.

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Name: ____________________

Mark

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☐ In tug of war, pulling the rope creates tension.

Name: ____________________

Mark

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☐ When you pull a toy on a string and it moves toward you, that is tension.

☐ Tension is a force that pushes objects apart.

☐ In tug of war, pulling the rope creates tension.

Name: ____________________

Curriculum Connection
E3.2

Newton's First Law of Motion

What is Newton's First Law of Motion?

Newton's first law of motion, also called the "law of inertia," tells us about how things move or stay still. It says that if an object is not moving, it will stay that way until something makes it move.

On th[illegible] other hand, if an object is already moving, it will keep moving in a straight li[illegible]t the same speed, unless something makes it stop. Here on Earth, there [illegible]hat change the motion of objects.

- **Fric[illegible]** is a f[illegible]lows down the movement of objects sliding past each other.
- **Air resistance** h[illegible]ns[illegible] moves through air. The air pushes back on the object, slowing [illegible]
- **Gravity** is the force that pu[illegible] eve[illegible]wa[illegible]he Earth's center.

Examples of Newton's First Law

✓ If you roll a ball on a smooth floor, it will [illegible] roll[illegible] something or until the floor's roughness, or friction, stops it.

✓ When you throw a ball in the air, gravity pulls it back down. [illegible] to push through the air, so air resistance slows it down. Once it hits [illegible]ound, friction makes it stop rolling.

✓ But if you were in outer space, where there is no gravity or air, and you threw a ball, it would keep moving in the same direction and speed until it hit something.

An object at rest stays at rest

An object acted upon by an unbalanced force changes speed and direction

An object in motion stays in motion

An object acted upon by an unbalanced force changes speed and direction

Name: ____________________________

Curriculum Connection
E3.2

Questions Answer the questions below using evidence from the text

1) What is Newton's First Law of Motion?

____

____

____

2) Provide [illegible] own example of the First Law of Motion. Explain a force that might stop the object from [illegible]

____

____

____

True or False Is the sta[illegible]ue [illegible]

1) In space, there is no air or gravity to [illegible] otion	True	False
2) Gravity is the only force that stops motion on [illegible]	True	False
3) When you throw a ball into the air, gravity and ai[illegible] s[illegible]	True	False
4) When you roll a ball, air resistance is the strongest forc[illegible] it d[illegible]	Tr[illegible]	False
5) Friction is the force that slows down objects that slide agai[illegible] eac[illegible] other	[illegible]	False

Making Connections What does this remind you of in your life?

____

____

____

____

____

Curriculum Connection
E3.2

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________

Circle the correct force.

1) Which force pulls things to Earth?	Friction
	Gravity
2) Which force slows objects moving through air?	Air resistance
	Friction
3) Which force keeps a ball from rolling forever?	Gravity
	Friction
4) Which force slows objects sliding on floor?	Air resistance
	Friction
5) Which force keeps us from floating into space?	Gravity
	Friction

Name: ____________

Circle the correct force.

1) Which force pulls things to Earth?	Friction
	Gravity
2) Which force slows objects moving through air?	Air resistance
	Friction
3) Which force keeps a ball from rolling forever?	Gravity
	Friction
4) Which force slows objects sliding on floor?	Air resistance
	Friction
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	Friction

Name: ____________

Circle the correct force.

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	Gravity
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3) Which force keeps a ball from rolling forever?	Gravity
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4) Which force slows objects sliding on floor?	Air resistance
	Friction
5) Which force keeps us from floating into space?	Gravity
	Friction

Name: ____________

Circle the correct force.

1) Which force pulls things to Earth?	Friction
	Gravity
2) Which force slows objects moving through air?	Air resistance
	Friction
3) Which force keeps a ball from rolling forever?	Gravity
	Friction
4) Which force slows objects sliding on floor?	Air resistance
	Friction
5) Which force keeps us from floating into space?	Gravity
	Friction

Name: ______________________

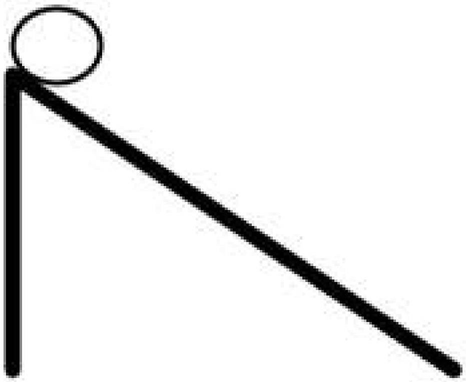
Curriculum Connection
E3.2

Experiment - First Law of Motion

Research Question What are we learning about?

Will a marble or ball travel at the same speed down a ramp if you perform the experiment 5 times?

Materials [illegible]hat do we need?



- ✓ A [illegible]at will fit the ramp.
- ✓ A [illegible] ramp [illegible] surface. You could use a slide out[illegible] boar[illegible] stack of books
- ✓ A stopwatch

Method How do we co[illegible] the [illegible]?

1) Place the ramp on a flat surface [illegible] ensure [illegible]
2) Place the marble or ball at the top of th[illegible]p. M[illegible]t to push the ball down the ramp. Instead, let it go at the exa[illegible] sa[illegible]e.
3) Use the stopwatch or timer to measure the time [illegible] for [illegible] ball to reach the bottom of the ramp.
4) Measure the distance from the top of the ramp to the bottom.
5) Repeat the experiment several times to ensure accuracy and to average out any minor differences.

Hypothesis Will it take the same amount of time for the object to roll to the end of the ramp? Explain your opinion.

____

____

____

Name: ______________________

Curriculum Connection
E3.2

Observations What happened?

Trial	Time	Speed = Distance/Time	Speed = Distance/Second
1			
2			
3			
4			
5			

Results An[illegible] questio[illegible]ow

1) Explain your resul[illegible] time[illegible]lar or very different?

2) Why would the results be the same or very similar? [illegible] he [illegible] tion in your answer.

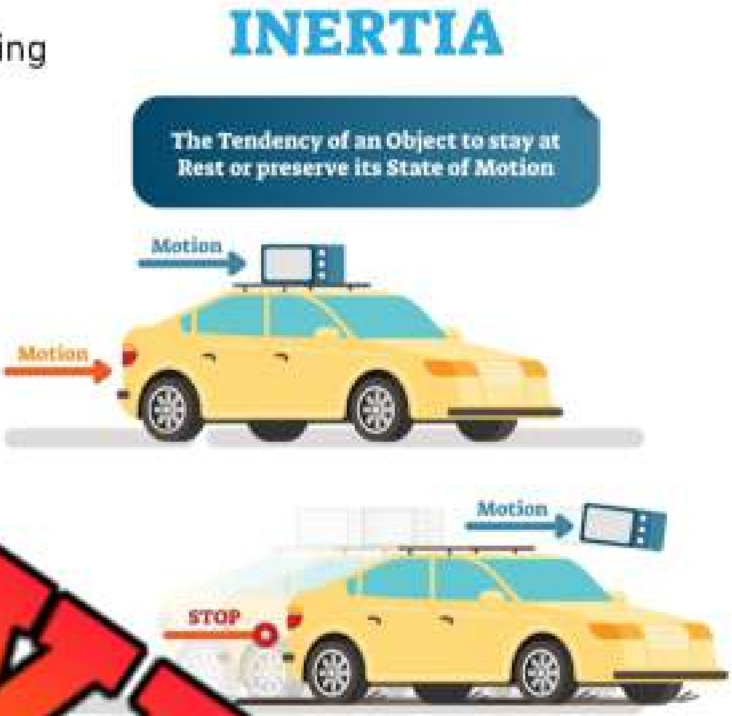
3) What forces acted on your rolling object?

Name: ______________________ 32

Curriculum Connection
E3.2

Inertia - First Law of Motion

What is Inertia?



Inertia means an object wants to keep doing what it's already doing. For example, if a toy car is rolling on the floor, it wants to keep rolli[illegible] it's sitting still, it wants to stay s[illegible] it's moving in a circl[illegible] ants to [illegible]ving in a circle.

Imagine y[illegible]tting [illegible] and the car suddenly [illegible] will feel like you're being pushe[illegible]rd. This is because your body wants to keep moving forward, because of inertia.

It's like a toy train that is moving on a t[illegible] w[illegible]ing until something makes it stop. Like a wall or a barrier, o[illegible]ke it [illegible] tracks.

More Examples of Inertia

☑ A roller coaster at a theme park uses inertia to keep the cars mo[illegible]g along the tracks. The cars have a lot of inertia, so they can keep moving even when they go over hills and through loops.

☑ A person trying to stop a bike that is moving at high speed, they have to overcome the inertia of the bike to stop it.

☑ A person trying to push a heavy object, they have to overcome the inertia of the object to make it move.

Name: ______________________

Curriculum Connection
E3.2

Questions Answer the questions below using evidence from the text

1) What is inertia?

2) Give an example of how inertia keeps objects still and how it keeps objects moving.

Objects Stay At Rest	
Objects Keep Moving	

Visualizing Draw what you were picturing while you we[illegible]in[illegible] picture

Curriculum Connection
E3.2

Inertia - Experiment

Research Question What are we learning about?

This experiment demonstrates the concept of inertia, where objects at rest resist motion.

Materials [illegible]hat do we need?

- ✓ Cu[illegible]
- ✓ [illegible]
- ✓ [illegible]g card

Method How d[illegible]plet[illegible]riment?

1) Put the cup right side up on a flat surface
2) Place the card on top of the cup
3) Place the coin flat on top of the card
4) Flick the card using a strong force in a horizontal direction. Be careful not to flick upwards. Do multiple trials.
5) Did the coin move with the card? Record what happened to the coin on the back of the page
6) Answer the questions

Name: ____________________

Curriculum Connection
E3.2

Observations What happened when you completed the experiment? Did the coin move or did it fall straight down?

Result nswer t ions below

1) Why would t all str n?

2) Explain why this experiment demonstrate once tia.

3) What does friction have to do with this experiment? If the card was rubber, what would happen? How is this a force that changes the outcome?

Name: ______________________

Curriculum Connection
E3.5

Balanced and Unbalanced Forces

Balanced Forces

A **balanced force** happens when 2 equal forces act on an object in opposite directions. An example would be a book resting on a table.

There [illegible]re two forces acting on the book. One force is the Earth's gravitati[illegible] [illegible]ownward on the book. The second force is the push of the [illegible] on the [illegible] [illegible]ich pushes upward on the book. The forces on the book are balanced, [illegible] [illegible]k wil[illegible] [illegible]ve.

Unbalanced Force

An **unbalanced force** is a force [illegible]at c[illegible] [illegible]p[illegible]ion, speed, or direction of an object. When the sa[illegible] book a[illegible] [illegible]ve [illegible] from right to left across the table, the forces a[illegible] [illegible]nba[illegible] [illegible] it to move.

The upward and downward forces are balanced [illegible] bu[illegible] [illegible]de[illegible] side forces are unbalanced. The force on the right side of the book i[illegible] [illegible] on the left side because no one or nothing is blocking the left side.

Try This!

Stand across from your partner with your arms straight ahead of you. Put your palms facing them and line them up with your partners palms. Now with both partners pushing equally, take a step back (so that you would fall without your partners force). How does this represent balanced and unbalanced forces?

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Curriculum Connection
E3.5

Questions Answer the questions below using evidence from the text

1) What is a balanced force?

____

____

____

2) What is [illegible]balanced force?

____

____

____

True or False Is the sta[illegible]ue o[illegible]

1. A balanced force will cause move[illegible]	True	False
2. An unbalanced force means the object has [illegible]orces [illegible]ides	True	False
3. A balanced force is when there is a tie in tug [illegible]	True	False
4. Your pencil resting on your desk has balanced for[illegible] o[illegible]	Tr[illegible]	False
5. Shooting a basketball means it has unbalanced forces acting[illegible]	[illegible]	[illegible]alse

Word Search Find the words in the wordsearch

Balanced	Unbalanced
Force	Object
Acceleration	Equilibrium
Movement	Direction
Push	Pull

N	X	O	Z	K	R	N	F	X	N	K	A	S	M
P	U	S	H	H	N	M	O	V	E	M	E	N	T
D	A	C	C	E	L	E	R	A	T	I	O	N	S
U	N	B	A	L	A	N	C	E	D	P	U	L	L
B	Z	T	I	D	I	R	E	C	T	I	O	N	D
P	I	E	Q	U	I	L	I	B	R	I	U	M	P
A	C	Y	J	A	O	B	A	L	A	N	C	E	D
O	B	J	E	C	T	A	I	P	V	C	H	V	T

Name: ______________________

Curriculum Connection
E3.5

Forces From Different Directions

Forces From Different Directions

Forces can come from all different directions. Just like when we hit a ball with a bat, we can swing up, down, to the left, or to the right.

Up a[illegible]

When [illegible] throw [illegible] n the air, you are applying an upward force. The ball goes up beca[illegible] orce [illegible] sed. But there is also a force that pulls the ball down. That's calle[illegible] vity [illegible] rce that pulls things down.

Left and Right Forces

Think about playing tug-of-war. You [illegible] the rope to your side and your friend pulls to th[illegible] side. You're applying a force to the right, and your friend is applying a force to the left.

From Both Sides

Imagine you have a squishy ball and you squeeze it in your hand. You're applying force from both sides. The ball squishes because of the force from your hand.

From All Directions

Now think about being in a pool. When you're underwater, you can feel the water pushing on you from all directions. This is because the water is applying a force from all around you.

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Curriculum Connection
E3.5

Direction of Force

Which direction is the force moving?

A ball being thrown upwards	Up/Down	Left/Right	Both Ends	All Directions
A book falling off a table	Up/Down	Left/Right	Both Ends	All Directions
A car moving forward	Up/Down	Left/Right	Both Ends	All Directions
Pulling a sled to the left	Up/Down	Left/Right	Both Ends	All Directions
Squeezing [illegible] ball	Up/Down	Left/Right	Both Ends	All Directions
Wate[illegible] diver	Up/Down	Left/Right	Both Ends	All Directions
Pushing [illegible]door [illegible]	Up/Down	Left/Right	Both Ends	All Directions
Pulling open a b[illegible]bs	[illegible]own	Left/Right	Both Ends	All Directions
A game of tug of war	Up/[illegible]	[illegible]eft/Right	Both Ends	All Directions
The air all around you	Up[illegible]	[illegible]ht	Both Ends	All Directions

Questions

Answer the questions below

1) When you throw a ball into the air, how do forc[illegible] the ba[illegible]

____

____

____

2) Write about a force you used today. Describe the direction of the force or forces.

____

____

____

____

Curriculum Connection
E3.5

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________ Mark ☐

Check only the true statements.

Statement	✓
Squeezing a toy ball is using force.	
Water only pushes your legs when you swim.	
Gravity is the force that pushes up.	
Upward force makes a ball rise into the air.	
A ball rolls without needing any push at all.	
Balanced forces can keep an object still.	
A bat can swing in many directions.	
Tug-of-war is a game of pushing.	
Gravity works even when you are underwater.	

Name: ____________ Mark ☐

Check only the true statements.

Statement	✓
Squeezing a toy ball is using force.	
Water only pushes your legs when you swim.	
Gravity is the force that pushes up.	
Upward force makes a ball rise into the air.	
A ball rolls without needing any push at all.	
Balanced forces can keep an object still.	
A bat can swing in many directions.	
Tug-of-war is a game of pushing.	
Gravity works even when you are underwater.	

Name: ____________ Mark ☐

Check only the true statements.

Statement	✓
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A ball rolls without needing any push at all.	
Balanced forces can keep an object still.	
A bat can swing in many directions.	
Tug-of-war is a game of pushing.	
Gravity works even when you are underwater.	

Name: ____________ Mark ☐

Check only the true statements.

Statement	✓
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Water only pushes your legs when you swim.	
Gravity is the force that pushes up.	
Upward force makes a ball rise into the air.	
A ball rolls without needing any push at all.	
Balanced forces can keep an object still.	
A bat can swing in many directions.	
Tug-of-war is a game of pushing.	
Gravity works even when you are underwater.	

Name: ______________________

Curriculum Connection
E3.5

Objects Changing Direction

Changing Directions

When an object is in motion, it is travelling in one direction. We can change the direction of the object in motion by applying a force to it.

In sports, this is common using applied forces.

Examples [illegible]ts

Hock[illegible] [illegible] hockey is an example of the pu[illegible]angin[illegible]. A one-timer is when a teamm[illegible]s the [illegible] one direction to a team[illegible] wh[illegible]ss directly into the net. They don't slow the pass down, they chan[illegible]recti[illegible] pass by aiming it towards the net.

Baseball – When a pitcher throws the ball to [illegible]tter, the ball is changing direction. The pitcher uses [illegible] muscular force to throw the ball as fast as they can [illegible] the hitter.

The hitter swings the bat as hard as they can to change th[illegible] of the ball towards the outfield and hopefully over the fence. Homerun!

Tennis – In tennis, the ball starts with the server hitting it to the returning player. The returning player hits the ball back by changing the direction of the ball. They swing their arm while holding a racquet to strike the ball.

Tennis players use muscular force to swing the racquet. The stronger the player, the more muscular force they can make.

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Curriculum Connection
E3.5

Questions Answer the questions below using evidence from the text

1) How does an object change directions?

____

____

____

2) What is [illegible] example of an object changing direction?

____

____

____

Draw Draw a picture of [illegible] situation where [illegible] object changes direction.
Label the object using arrows [illegible] forces acting on the object.

Making Connections What does this remind you of in your life?

____

____

____

____

Name: ______________________

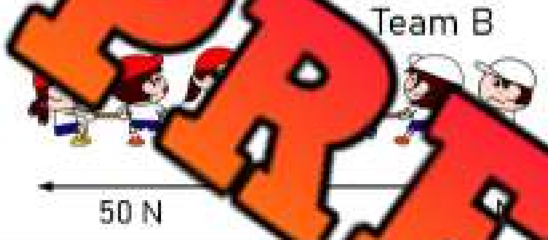
Curriculum Connection
E3.5

Force Diagram - Changing Directions

Force Diagram
A **force diagram** can be drawn to show the forces acting on objects. If the object has unbalanced forces acting on it, the object will move. In a game of tug of war, the rope will move towards the stronger pulling force.

Questions Examine the force diagrams and answer the questions

1)



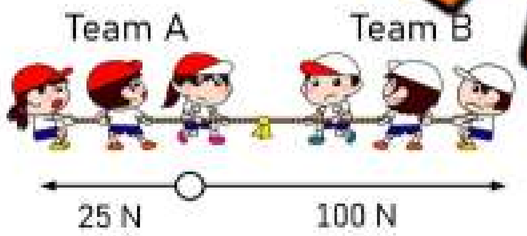
Who will win? Will it be a long/short match?

____

____

____

2)



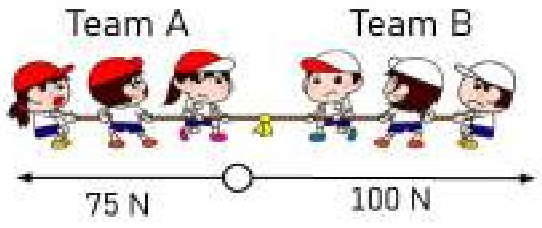
[illegible]? Will it be a long/short match?

____

____

____

3)



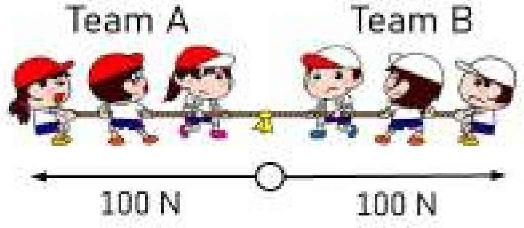
Who will win? Will it [illegible] match?

____

____

____

4)



Who will win? Will it be a long/short match?

____

____

____

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Curriculum Connection
E3.5

Questions Examine the force diagrams and answer the questions

1)

Is the ball moving? What will happen when the cleat hits it?

2)

Is the ball moving? What will happen when the cleat hits it?

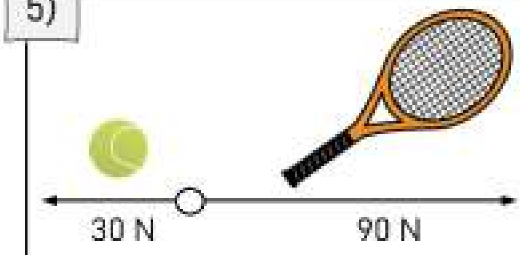
3)

Is th[illegible]hat will happen when the stick hits it?

4)

Is the puck moving? What will hap[illegible]its it?

5)



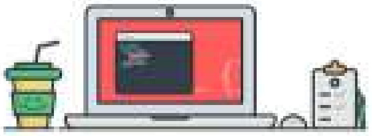
Is the ball moving? What will happen when the racquet hits it?

Name: ______________________________

Curriculum Connection
E3.4

Introduction to If/Then Statements

An if/then statement is a *conditional* that is an action that could occur if something specific happens.
For example – If the bell goes at school, then the students go to class.



Questions Circle which then statement makes the most sense

1)	If [illegible] ed	then	The bike stops	The bike goes faster
2)	If the ba[illegible] the	then	Team gets a goal	Team loses a goal
3)	If the force is stron[illegible]	[illegible]	[illegible]he object won't [illegible]ove much	The object will move a lot
4)	If you pull an object	[illegible]	It [illegible]	It moves further away
5)	If you push an object	then	It ge[illegible]	It [illegible] further away
6)	If the ball is thrown in the air	then	It will keep go[illegible]g up forever	[illegible] it
7)	If you wear safety equipment	then	You'll get hurt less	You'll get hurt more
8)	If an object is not moving and no force acts on it	then	It will not move	It will start moving
9)	If a ball rolls on the ground	then	It will never stop	It will stop because of friction and air resistance
10)	If a strong force squeezes a ball	then	The ball will move inward	The ball will move outward

Name: ______________________

Curriculum Connection
CS.1

Coding - Else Statements

An **else** statement works like an if statement. When an if statement is false, we can have another command, instead of nothing happening.

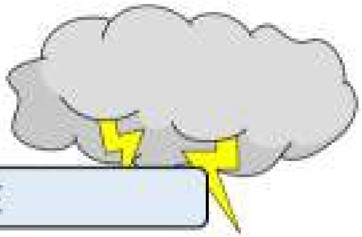
Is there a storm coming?

IF there is a storm coming

HEN stay inside

ELSE

Keep playing wherever



Directions Fill i [illegible] commands below with your own ideas

Is a teammate open in hockey

[illegible] ea [illegible] en

THEN

____

____

____

ELSE

____

____

____

____

Is it too icy on my step?

If it too icy on my step

THEN

____

____

____

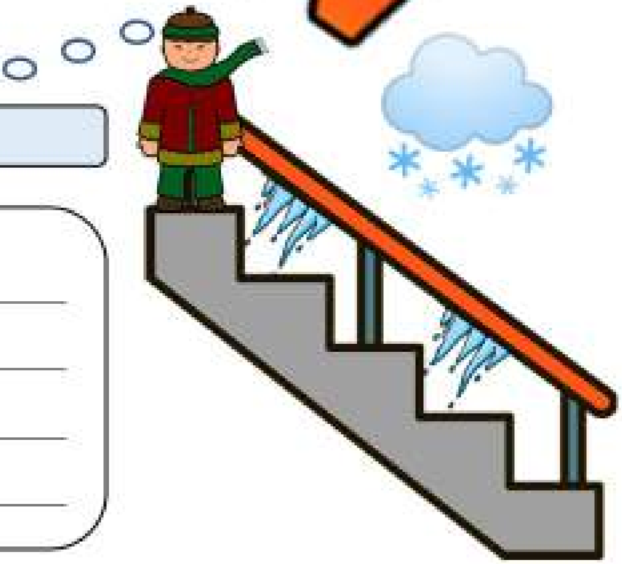
ELSE

____

____

____

____



Name: ______________________________

Curriculum Connection
CS.1

Directions Fill in the ELSE commands below with your own ideas

Is the other team pulling harder than us?

IF the other team pulling harder than us?

THEN

____

____

____

ELSE

____

____

____

____

[illegible] e ba[illegible] trike zone?

IF the baseball in the strike [illegible]

[illegible] E

THEN

____

____

____

____

____

____

____

Could I get hit on the head in th[illegible] me?

IF I get hit on the head in this game?

THEN

____

____

____

ELSE

____

____

____

____

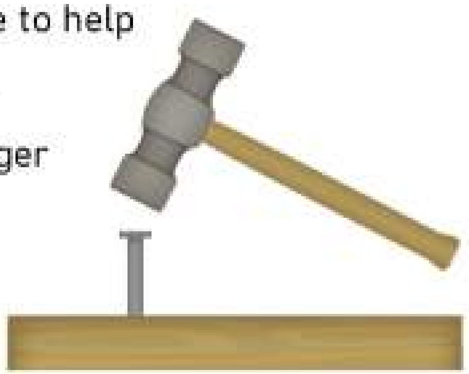
Machines

What is a Machine?

To move an object, we need to use a pulling or pushing force. This means when we lift a box, push a car, stand up out of bed, or jump up in the air, we are using force.

Sometimes our muscles cannot make enough force to push or pull somethin[illegible]en this is the case, we can use a machine to help us. A **ma**[illegible]nything that makes a force stronger.

[illegible] is [illegible]ine because it makes a stronger force on a nai[illegible] fo[illegible] are also machines because they m[illegible] force[illegible] so we can eat our food.



For example, if you t[illegible]ut [illegible] your hands, you would struggle. If you use a knife, the force you make w[illegible] knife [illegible]nger on the steak. When we hit a nail with a hammer, the handle of the h[illegible]er [illegible]es the force you apply. The longer the hammer, the stronger [illegible]ce. [illegible]edge hammers have long handles.

Simple Machines

Simple machines are the basic machines that allow us to make more force. There are 6 types of simple machines:

1) Levers
2) Wheels and axles
3) Pulleys
4) Wedges
5) Screws
6) Inclined planes.

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Curriculum Connection
E3.6

True or False Is the statement true or false?

1) A machine allows us to make more force	True	False
2) There are 6 basic simple machines	True	False
3) An axe uses a wedge	True	False
4) A ramp [illegible] an example of a pulley	True	False
5) A bicy[illegible] a wheel and axle	True	False

Questio[illegible] Ansv[illegible]stions below

1) What is a mach[illegible]y do [illegible]m?

____

____

____

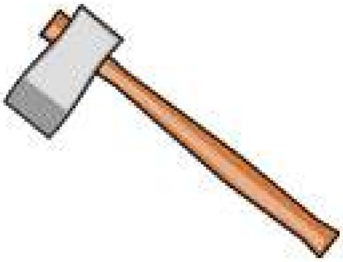
2) When have you used a simple machine?

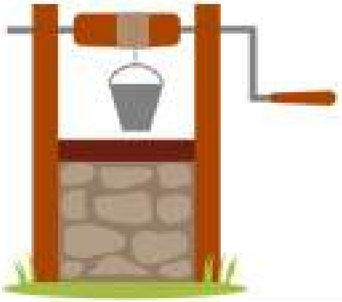
____

____

____

Label Which simple machine is in the picture?





Name: ______________________________

Curriculum Connection
E3.6

Wheel and Axel

Wheel and Axle

The wheel and axle is a simple machine that was invented around 5,500 years ago. It changed the world by making it easier to move objects. Wagons use wheels and axles to pull people and things. It uses a wheel with a rod attached through the middle th[illegible]spin if it is pushed or pulled. This machine can help move loads and also lift [illegible]

[illegible]ycle an[illegible]e examples of machines that use a wheel and axle to move objects[illegible]us[illegible]heel and axle to lift objects. A winch is an example of a wh[illegible] axle[illegible]ft a heavy object.

Example – A Well

A well often uses a wheel and axle to [illegible]er[illegible]f the ground. In this example, turning [illegible] wheel w[illegible] the rope around the rod which lifts the bucket. W[illegible]ly a movement to the crank which lifts the load straig[illegible]

Stronger Force

If we dragged a cart across the ground, the friction would make [illegible] di[illegible]o move anything heavy. **Friction** is a force that makes it hard to slide an object by another material.

Wheels make the friction force weaker. This is because only a small part of the wheel is touching the ground. That is why wheels roll well.

Sliding a cart without wheels would be hard. Pushing a cart on wheels is much easier. This is because there is less friction. A cart with wheels is called a wagon.

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Curriculum Connection
E3.6

True or False | Is the statement true or false?

1) Rolling is easier than sliding	True	False
2) Friction is a force that makes sliding easier	True	False
3) Using a wheel makes less friction	True	False
4) A bicycle uses wheels and axles	True	False
5) The inv[illegible] of the wheel didn't change much	True	False

Questi[illegible] | [illegible]sw[illegible]uestions below

1) What is a w[illegible]te?

____

____

____

2) When have you used a wheel and axle?

____

____

____

Visualizing | Draw what you were picturing while you were reading. Exp[illegible]in the picture

____

____

____

____

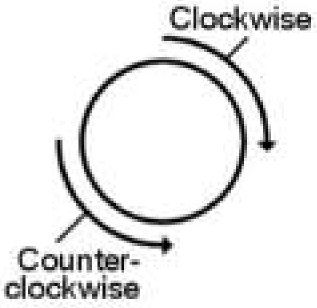
____

Name: ____________________________

Curriculum Connection
E3.6

Wheel and Axle - Clockwise/Counter-Clockwise

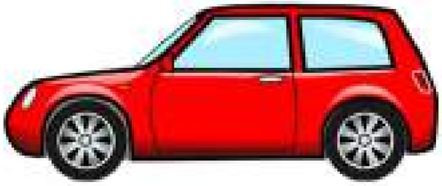
Clockwise and Counter-Clockwise Turns



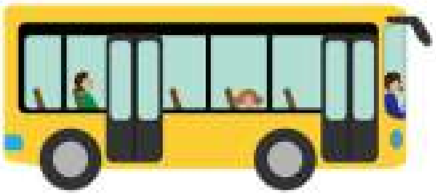
When something moves in a circle, it can move either clockwise or counter-clockwise. **Clockwise** means the object moves in the same direction as the hands on a clock. **Counterclockwise** means th[illegible]ct moves in the opposite direction of a clock.

W[illegible]e turns, it moves either clockwise or counter-clockwise. If you are [illegible] right si[illegible]ar when looking at the front, the wheels will move counter-cloc[illegible]car[illegible] backwards, these wheels will move counter-clockwise.

Questions Which directio[illegible] w[illegible] turn?



1)	If the [illegible] move[illegible]war[illegible]	
2)	If the car moves[illegible]	



3)	If the car moves forwards	
4)	If the car moves backwards	

5)	If the car moves forwards	
6)	If the car moves backwards	

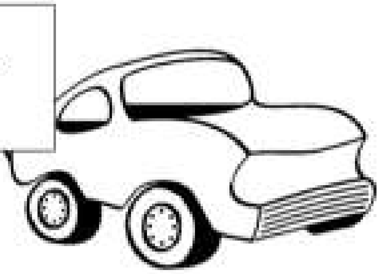
Name: ____________________

Curriculum Connection
E3.6

Wheel and Axle - My Car

Bring a toy car from home or borrow one to take a closer look.

Answer the questions below about the car.



Questions Answer the questions below

1) Draw a [illegible]e of the car from the bottom.

2) Can each wheel spin on [illegible]? Yes No

3) What materials are the wheel an[illegible] made [illegible]

Wheels	
Axles	

4) Draw a picture of the car from the side view.

5) Point the car so it is facing you and you are seeing the front. Then turn the car so you are looking at the left side of the car.

If the car moves forwards, the wheels will spin which direction?	Clockwise	Counter-Clockwise
If the car moves backwards, the wheels will spin which direction?	Clockwise	Counter-Clockwise

Name: ______________________________

Curriculum Connection
E3.6

Activity - Balloon Car

Research Question | What are we learning about?

We will be creating a car that is able to move without us pushing it. To do this, we will use the force of moving air. Our car's wheels will attach to a rotating axle.

Materials | What you will need for the experiment

- ☐ Plast[illegible]
- ☐ F[illegible] with holes po[illegible]rough[illegible] that are large enough[illegible]r t[illegible] through
- ☐ 2 wooden skew[illegible]ng e[illegible] span over the wid[illegible])
- ☐ Balloon
- ☐ Two straws
- ☐ Tape
- ☐ Scissors

Method | How you will complete the experi[illegible]

1) Cut one of the straws in half
2) Tape both pieces of the straw to one side of the water bo[illegible]e
3) Put the wooden skewers through the straws
4) Press each bottle cap onto the ends of the wooden skewers. These w[illegible] the wheels and axles
5) Give your car a push to see if it will roll properly. If it gets stuck or if the wheels don't roll, make sure your axles are parallel to each other.
6) Tape the neck of the balloon around one end of the other straw. Wrap the tape very tightly so the connection is airtight.
7) Cut a small hole in the top of the water bottle so that it is just big enough to push a straw through. Ask your teacher for help on this step!
8) Push the free end of the straw through the hole and out the mouth of the bottle
9) Tape the straw to the bottle so it is secured to the bottle
10) Blow up the balloon by blowing air into the straw. Keep your finger over the end of the straw until you are ready for the car to move!

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Curriculum Connection
E3.6

Diagram Draw a picture of your balloon car. Label the wheels, axles, and power source. Use arrows to show which way the wind is blowing

Results What [illegible]ith [illegible]ur car? Answer the questions below.

1) How did your car [illegible]? E[illegible]

____

____

____

2) How could you improve the design of your car so [illegible] trave[illegible]er? Think about the following in your answer: weight, straw size, [illegible]e of [illegible]n.

____

____

____

3) Newton's third law of motion states that for every action, there is an equal and opposite reaction. Why is this experiment an example of this law?

____

____

____

Name: ______________________________

Curriculum Connection
E3.6

Inclined Plane

Inclined Plane

An inclined plane is a simple machine with no moving parts. It is just a ramp with one end higher than the other. Using an inclined plane allows gravity to pull objects down. It also helps us lift objects up high.

Whe[illegible] need to lift an object upwards, we can carry it or slide it along a ramp. Th[illegible] easier than picking up big objects. The Egyptians used inclined plan[illegible] heav[illegible] when they built the pyramids.

Tradeoff

An inclined plane [illegible] length and a vertical height. **Horizon[illegible]** [illegible] sid[illegible] **Vertical** means up and down.

If we make a shorter horizonta[illegible]gth, the inclined plane will be steeper. This will make the distance we need to push shorter but we need more force to move the object.

If we make the horizontal length longer, we are creating [illegible]at needs less force to push. The problem is that we need to push the o[illegible]urther.

Example

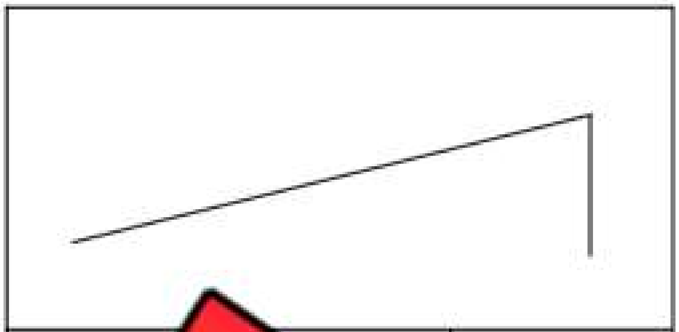
You are standing at the edge of a moving truck that is 2 m tall. You want to move a box up to the opening of the truck. You would only need to lift it 2 m if you lifted it straight up.

If the box is too heavy to lift, you could use an inclined plane. If you make the ramp 4 m long (twice as long as the height), you have made the object twice as light. But, you will need to move twice as far!

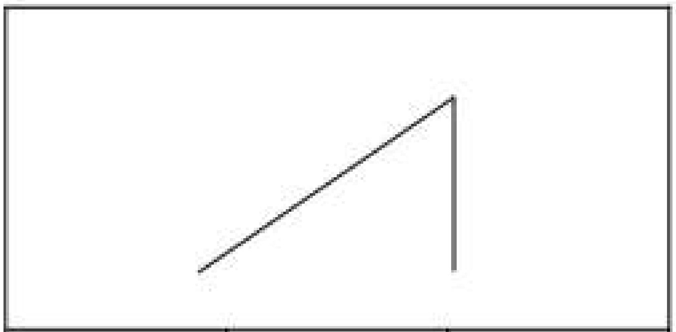
Name: ______________________

Curriculum Connection
E3.6

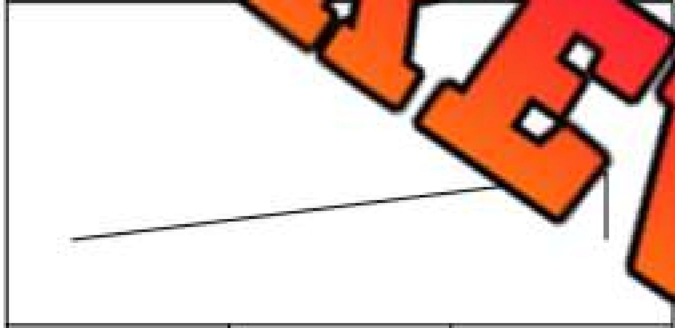
Describe Circle the descriptions of the inclined planes below



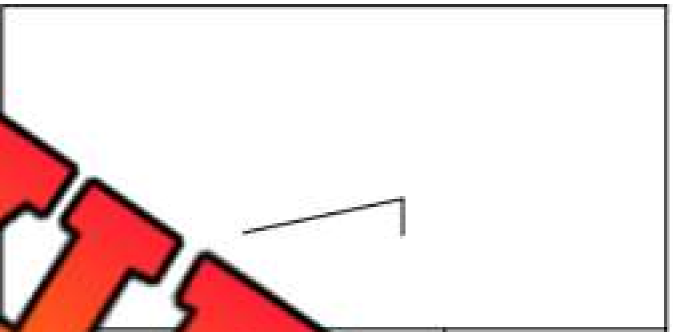
Slope	Steep	Gentle
Effort	[illegible]	Heavy
Distance	[illegible]	Short



Slope	Steep	Gentle
Effort	Light	Heavy
Distance	Far	Short



Slope	Steep	Gentle
Effort	Light	Heavy
Distance	Far	Short



Slope	[illegible]	Gentle
Effort	Light	Heavy
Distance	[illegible]	Short

Multiple Choice Circle the best answer

1) Horizontal means...	Side-to-side	Up-and-Down
2) Vertical means...	Side-to-side	Up-and-Down
3) A ________ ramp makes the load feel lighter	Longer	Shorter
4) Using a longer ramp makes the distance	Closer	Further
5) Using a shorter ramp makes the load feel	Lighter	Heavier

Curriculum Connection
E3.6

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________ Mark ☐

Is the statement true or false?

1) An inclined plane is a ramp with one end higher.	True False
2) Egyptians used inclined planes to lift heavy stones.	True False
3) An inclined plane helps us lift objects up high.	True False
4) A longer horizontal length needs less force to push.	True False
5) Vertical means side-to-side.	True False

Name: ____________ Mark ☐

Is the statement true or false?

1) An inclined plane is a ramp with one end higher.	True False
2) Egyptians used inclined planes to lift heavy stones.	True False
3) An inclined plane helps us lift objects up high.	True False
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Name: ____________ Mark ☐

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Name: ____________ Mark ☐

Is the statement true or false?

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2) Egyptians used inclined planes to lift heavy stones.	True False
3) An inclined plane helps us lift objects up high.	True False
4) A longer horizontal length needs less force to push.	True False
5) Vertical means side-to-side.	True False

Name: ______________________

Curriculum Connection
E3.6

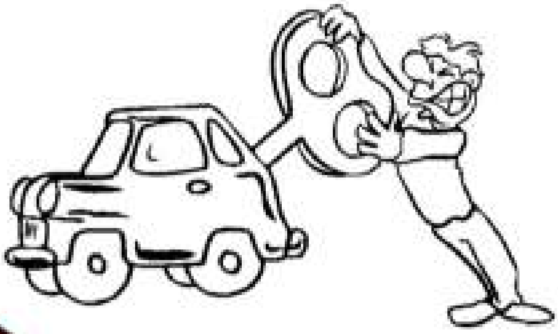
Experiment - Inclined Plane

Research Question What are we learning about?

How does the height and angle of an inclined plane affect the movement of an object at the top coming down?

Materials What you will need for the experiment

1. To[illegible]
2. Cardboard
3. Books
4. Meter stick
5. Tape



Method How you will complete the experiment

1. Stack three books on top of each other. Tape one [illegible] cardboard to the edge of the top book. Tape the bottom edge [illegible] the floor. You should now have an inclined plane that looks like a ramp [illegible]
2. Place the car at the top of the inclined plane and let go.
3. Measure how far the car travels using the meter stick. Record your measurements on this paper.
4. Change the height of the inclined plane by adding a 4th, 5th, and 6th book.
5. Repeat steps 2 and 3 with the different heights of inclined planes.

Curriculum Connection
E3.6

Observations How far did your car do?

Height in Books	Distance in CM
3 Books	
4 Books	
[illegible]oks	
[illegible]	

Results Ans[illegible]stio[illegible]low

1) What happened to [illegible] the [illegible]oved as you made the inclined plane steeper?

____

____

____

2) Does it get easier or harder to move something up a[illegible] ine[illegible]ake it steeper?

____

____

3) Is it easier to move things downhill or uphill?

4) Do you need more or less force to push an object down a hill that is steeper?

Name: ______________________

Curriculum Connection
E3.6

Levers

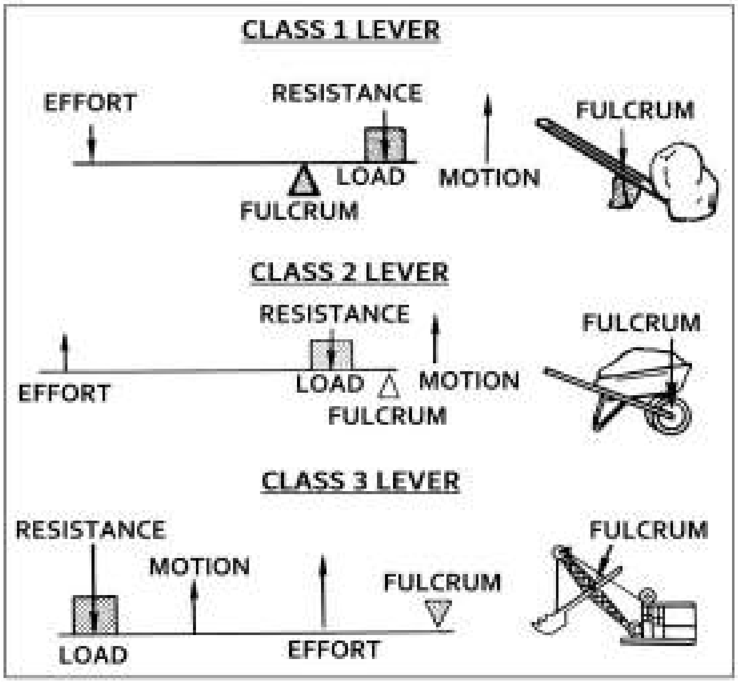
What is a lever?

A lever is a simple machine that is used to make work easier by using leverage which multiplies the force. Let's say you needed to move a box of heavy treats up t[illegible]e top floor of your treehouse. You could ca[illegible]x, but that would be difficult. You c[illegible] thi[illegible] asier by using a lever.

To [illegible]ake a [illegible] ee[illegible] long flat board, a fulcrum, and someone to apply a force. You cou[illegible] arge f[illegible] s a fulcrum and rest the long board over top of it so that the rock [illegible] uld place the box of treats on one end and push down on the oth[illegible] his [illegible] x into the air.

This is an example of a type 1 le[illegible] e f[illegible] is in the middle of the load and the force. Levers not only <u>multipl[illegible]</u> force, [illegible] ey [illegible] <u>e the direction</u> of a force.

Types of Levers



Class 1 Lever	The [illegible] th[illegible] ved and whe[illegible] effort is being app[illegible]d
Class 2 Lever	The load is between the fulcrum and the effort
Class 3 Lever	The effort is between the fulcrum and the load

Name: ______________________ 75

Curriculum Connection
E3.6

Questions Answer the questions below using evidence from the text

1) What is a lever?

____

____

____

2) When h[illegible] used a lever? What class of lever was it?

____

____

____

Examples What type of le[illegible]e e[illegible]wing?

Class of Lever ______

Class of Lever ______

Class of [illegible] ______

Class of Lever ______

Class of Lever ______

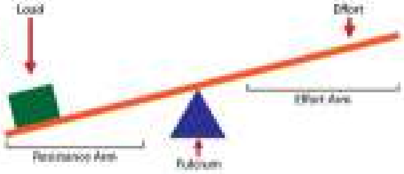
Class of Lever ______

Name: ______________________________

Curriculum Connection
E3.6

Calculating Mechanical Advantage - Lever

Calculating Mechanical Advantage Using a Lever
To calculate the MA of a lever, you will need to know the lengths of the effort arm and the load arm. The formula is:



$$\frac{Effort\ Arm\ (length)}{Resistance\ Arm\ (length)}$$

This will give you the MA, which you can use to find how much force will be made by the lever.

Calculate [illegible] the MA and output force in the examples below

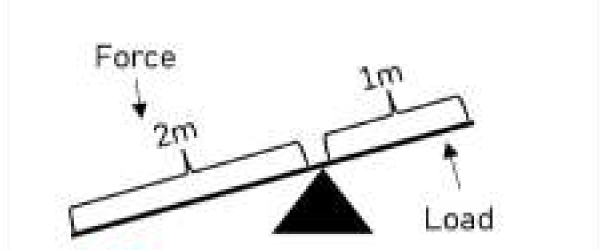
	Effort Arm [illegible]	Load Arm Length	MA	Input Force	Output Force
1)	10 cm	[illegible]	2	10 N	
2)	4 m	[illegible]	[illegible]	5 N	
3)	2 m	1 m	[illegible]	[illegible]	
4)	3 m	3 m	[illegible]	[illegible]	
5)	10 cm	2 cm	5	[illegible]	
6)	30 cm	10 cm		10 N	
7)	6 m	2 m		25 N	
8)	12 m	3 m		100 N	
9)	15 cm	5 cm		20 N	
10)	12 m	6 m		50 N	

Name: ______________________________

Curriculum Connection
E3.6

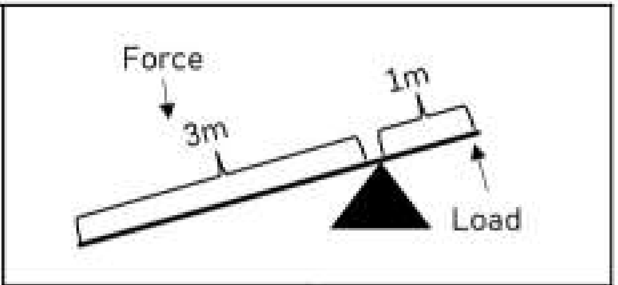
Calculate Calculate the MA and output force in the examples below

1)



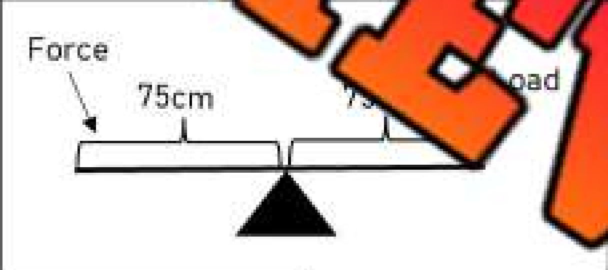
[illegible]	
[illegible]	100 N
Output Force	

2)



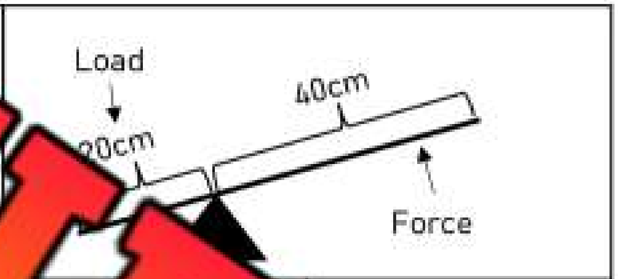
MA	
Input Force	25 N
Output Force	

3)



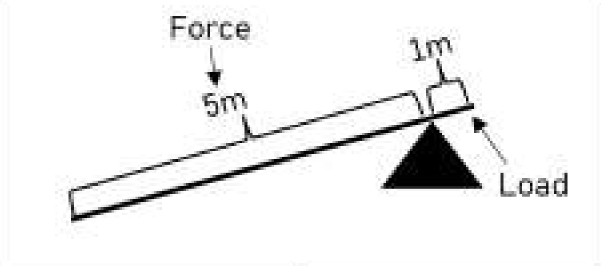
MA	
Input Force	200 N
Output Force	

4)



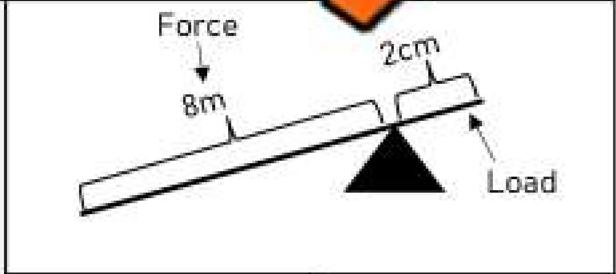
[illegible]	
Input Force	50 N
Output Force	

5)



MA	
Input Force	10 N
Output Force	

6)



MA	
Input Force	20 N
Output Force	

Name: ______________________________

Curriculum Connection
E3.6

Experiment - Testing Different Levers

Research Question What will you be testing?

How does moving the fulcrum affect the force needed to lift a load?

Materials What you will need for the experiment

- ☐ Rule[illegible]
- ☐ T[illegible]
- ☐ Tape
- ☐ Weights – ob[illegible]hat al[illegible]same weight (marbles, paper clips, etc.)
- ☐ Fulcrum – metal bi[illegible]penci[illegible]d together, eraser

Procedure How you will complete th[illegible]men[illegible]

1) Tape the cups to the ends of the ruler.

2) Decide which side will be the load. Put a reasonable amount of weight into the cup that will be the load.

3) Put the fulcrum in the centre of the ruler. Add weights into the cup on the effort side of the lever until the lever is balanced. Record the weight you added (number of marbles/weights).

4) Empty the effort cup but leave the same weight in the resistance cup. Put the fulcrum closer to the effort side of the ruler. Complete the same steps as above and record how much effort was needed to balance the lever.

5) Lastly, empty the effort cup again and repeat the same steps as above, but move the fulcrum closer to the resistance cup. Record your results.

6) Answer the questions on the backside of the page.

Name: ____________________

Curriculum Connection
E3.6

Observations What did you notice as you completed the experiment

Fulcrum Position	Fulcrum Position on Ruler – cm or mm	Weight in Load Cup	Weight in Effort Cup
In the Middle			
Close to Effort Cup			
Close to Resistance Cup			

Diagram [illegible] diagram of the 3 levers you made

In the Middle	
Close to Effort Cup	
Close to Resistance Cup	

Results Answer the questions below

What position allowed the least amount of force to move the load? Explain why this was the case.

____

____

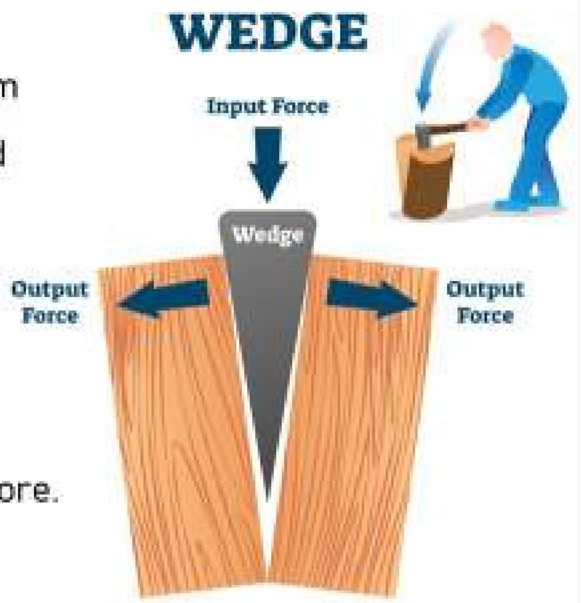
____

Name: ______________________

Curriculum Connection
E3.6

Wedge

Wedge



A wedge is a triangular tool that is often made from metal, wood, plastic, or stone. It is thick on one end and narrow on the other to form a sharp edge.

A we[illegible]s a type of an inclined plane (or two incli[illegible]s) that is often attached to a hand[illegible] used for millions of years to hunt w[illegible]tri[illegible]ees, and much more.

How do they work[illegible]

When we apply a force t[illegible] wi[illegible]e side[illegible]dge, the sharp edge goes further into the object. In the diagram abo[illegible] we d[illegible]e into a piece of wood to split the wood.

When we apply a downward pushing fo[illegible]o the [illegible] the wedge creates a side to side force into the [illegible] it to split. An example of a **single wedge** is a chisel, w[illegible] example of a **double wedge** is an axe.

Tradeoff

When we use a longer and thinner wedge, it is easier to force it into the object. The only issue is that this may not cause enough side to side force. If the wedge is shorter and has a wider angle at the tip (not as sharp), we will need to apply more force to do the work.

Examples of wedges

A wedge can be used in the following different ways: to cut (knife), to split (axe), to tighten, to hold back (door stop), to scrape (blades), and to hold together (nail).

Name: ______________________

Curriculum Connection
E3.6

True or False Circle whether the statement is true or false

1) A chisel is a single wedge	True	False
2) A double sided axe is a single wedge	True	False
3) A downward input force makes outward forces	True	False
4) Longer and thinner wedges are not as sharp	True	False
5) Longer [illegible]ner wedges are sharper allowing it to travel further	True	False

Questi[illegible] [illegible] Answe[illegible]stions below using evidence from the text

1) What is a we[illegible]do the[illegible]

____

____

____

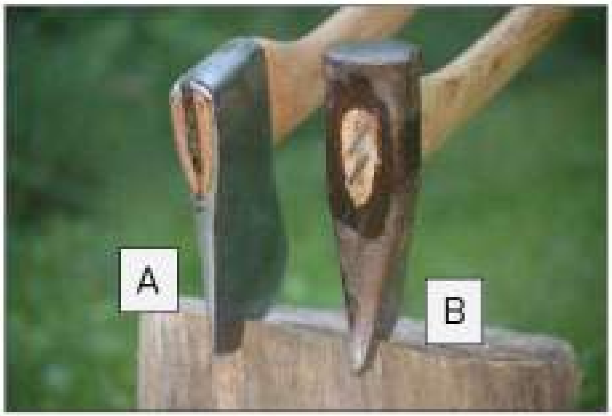
2) When have you ever used a wedge?

____

____

____

Explain Which axe is a wood splitting axe and which is used to cut down trees. Explain



____

____

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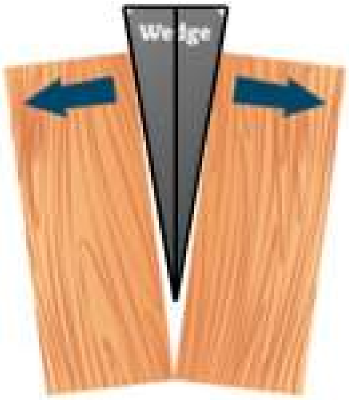
Name: ______________________

Curriculum Connection
E3.6

Experiment - Wedges

Research Question How does a wedge work?



A **wedge** has two inclined planes put together. A wedge is used for many reasons. One of them is to cut things in half. How well does a wedge cut playdou[illegible]

Mater[illegible] [illegible] what [illegible] need for the experiment

- ☐ Playdough
- ☐ Wedge (triangula[illegible] [illegible]n blo[illegible]
- ☐ Plastic knifes (optiona[illegible]

Procedure How you will complete the [illegible]imen[illegible]

1) Take out a ball of playdough
2) First have students try to cut the playdough in half [illegible] of their hand
3) Next have the students use the side of their hand to cut the playdough in half
4) Next have the students use the wedge to cut the playdough in half
5) Lastly, have the students use a plastic knife to cut the playdough in half.
6) Record your observations on the back of the page.

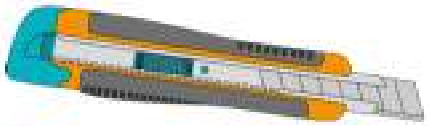
Name: ______________________________

Curriculum Connection
E3.6

Observations What happened when you cut the playdough

Cutting Tool	What Happened? Did It Cut It Well? Did It Cut It Clean?
Palm	
Side of Hand	
[illegible]	
Knife	

Results Answer the questions [illegible]



1) What is a wedge good at doing?

____

____

2) Name 2 wedges that are good at cutting. Draw them.

3) What would life be like without wedges?

____

____

Name: ______________________

Curriculum Connection
E3.7

Indigenous Groups Using Simple Machines

Indigenous Groups Using Simple Machines

First Nations, Métis, and Inuit people have been clever and imaginative for a long time. They have used simple machines, like an antler wedge and a paddle, to help them with their work.

Antler [illegible]

An a[illegible] wedge i[illegible] hat comes from the antler of [illegible] oth[illegible] imal. It has a 'V' shape a[illegible] ery s[illegible] irst Nations, Métis, and Inu[illegible] used [illegible] split things like wood or bo[illegible] ey[illegible] push or hit it into something they w[illegible] split [illegible] aller pieces. It helped them to make homes, tools, and food.

Paddle

A paddle is another simple machine used by the First N[illegible] s, [illegible] people. They used it to move their boats through the water. By [illegible] paddle against the water, they could make their boat move forward. The pa[illegible] made it easier to travel across rivers and lakes.

Using Them Today

These simple machines, the antler wedge and the paddle, are still in use today. They are perfect examples of how simple machines can make work easier. The First Nations, Métis, and Inuit people continue to use these tools, showing us their cleverness and skill.

Name: ____________________

Curriculum Connection
E3.7

True or False Is the statement true or false?

1) Antlers are made from plastic	True	False
2) A paddle is used to move a boat	True	False
3) Using a paddle makes it easier to move a boat	True	False
4) Antlers have a W shape	True	False
5) Antler [illegible]s are used to cut things	True	False

Questi[illegible] [illegible]we[illegible] [illegible]uestions below

1) How is a p[illegible] [illegible]n a [illegible]

____

____

____

2) How is an antler wedge used?

____

____

____

Draw Draw a paddle and an antler wedge

Inuit Scraping Tools: The Ulu

Inuit Scraping Tools: The Ulu

The Inuit people, who live in the cold, snowy regions of Canada, are very smart. They have been using a special tool, called an ulu, for thousands of years.

What is a[illegible]u?

An ulu is[illegible]ng tool. It looks like a knife but has [illegible]d[illegible]andle is usually made of bone [illegible] antle[illegible]e c[illegible] be made of bone, antler, or eve[illegible]

Making an Ulu

1) Find Materials: You need [illegible]ron[illegible] for the handle. You need a strong, flat piece for the blade. [illegible] is bes[illegible] or antler can work too.

2) Shape the Blade: Cut the blade into a h[illegible]cle [illegible] half of a pizza!

3) Make the Handle: Cut the bone or antler into a s[illegible] fits [illegible] It should be easy to hold.

4) Connect the Blade and Handle: Make a hole in the handle and t[illegible]ade. Then, tie them together with strong string or leather.

5) Sharpen the Blade: Use a stone to rub the edge of the blade until it's sharp.

Using an Ulu

The Inuit people use ulus for many things. It's like their super-tool! They use it to scrape animal skins to clean them. This makes the skins soft so they can be used to make clothes and tents. Ulus are also used to cut food like meat and fish.

Name: ____________________

Curriculum Connection
E3.7

Questions Answer the questions below

1) What is an ulu?

2) How is [illegible] made?

Draw Draw an ulu below

Curriculum Connection
E3.7

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ______________________

Mark

2 Truths and a Lie – Can you find the one that's not true?

	The Inuit people use ulus to scrape animal skins to clean them.
	An ulu is a scraping tool. It looks like a knife but has a curved blade.
	An ulu is used mostly to help Inuit people mark important places.

Name: ______________________

Mark

2 Truths and a Lie – Can you find the one that's not true?

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Name: ______________________

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Name: ______________________

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	An ulu is a scraping tool. It looks like a knife but has a curved blade.
	An ulu is used mostly to help Inuit people mark important places.

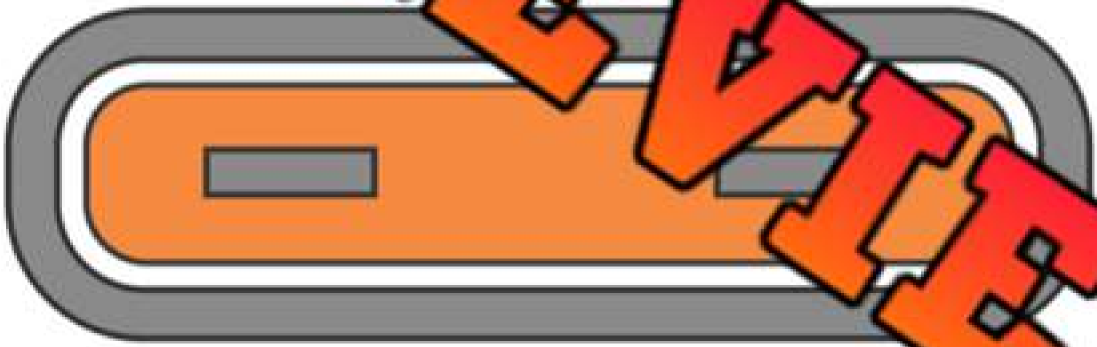
Name: ______________________

Curriculum Connection
CS.1

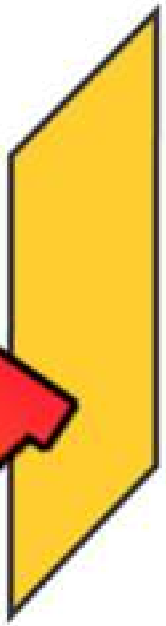
Coding - Making Compound Machines

Directions Follow the code to design an excavator

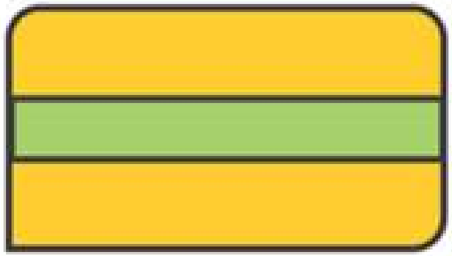
```
run program
    cut out all the shapes
    paste the tracks on the bottom
    paste the window on the front of the tracks
    paste the side panel behind the window
    paste the arm on the front of the window
    paste the bucket on the arm
```



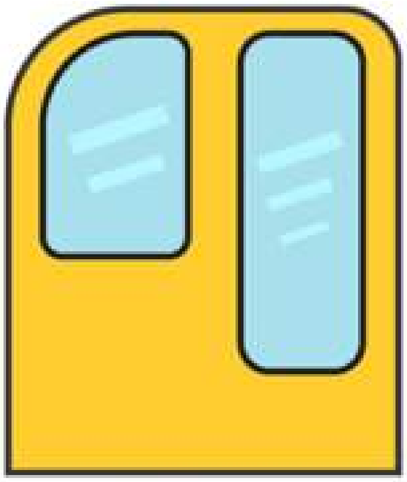
Tracks



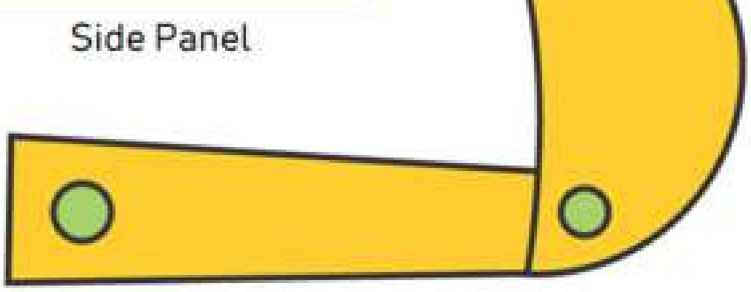
Arm



Side Panel



Window



Bucket

Name: ______________________________

Curriculum Connection
CS.1

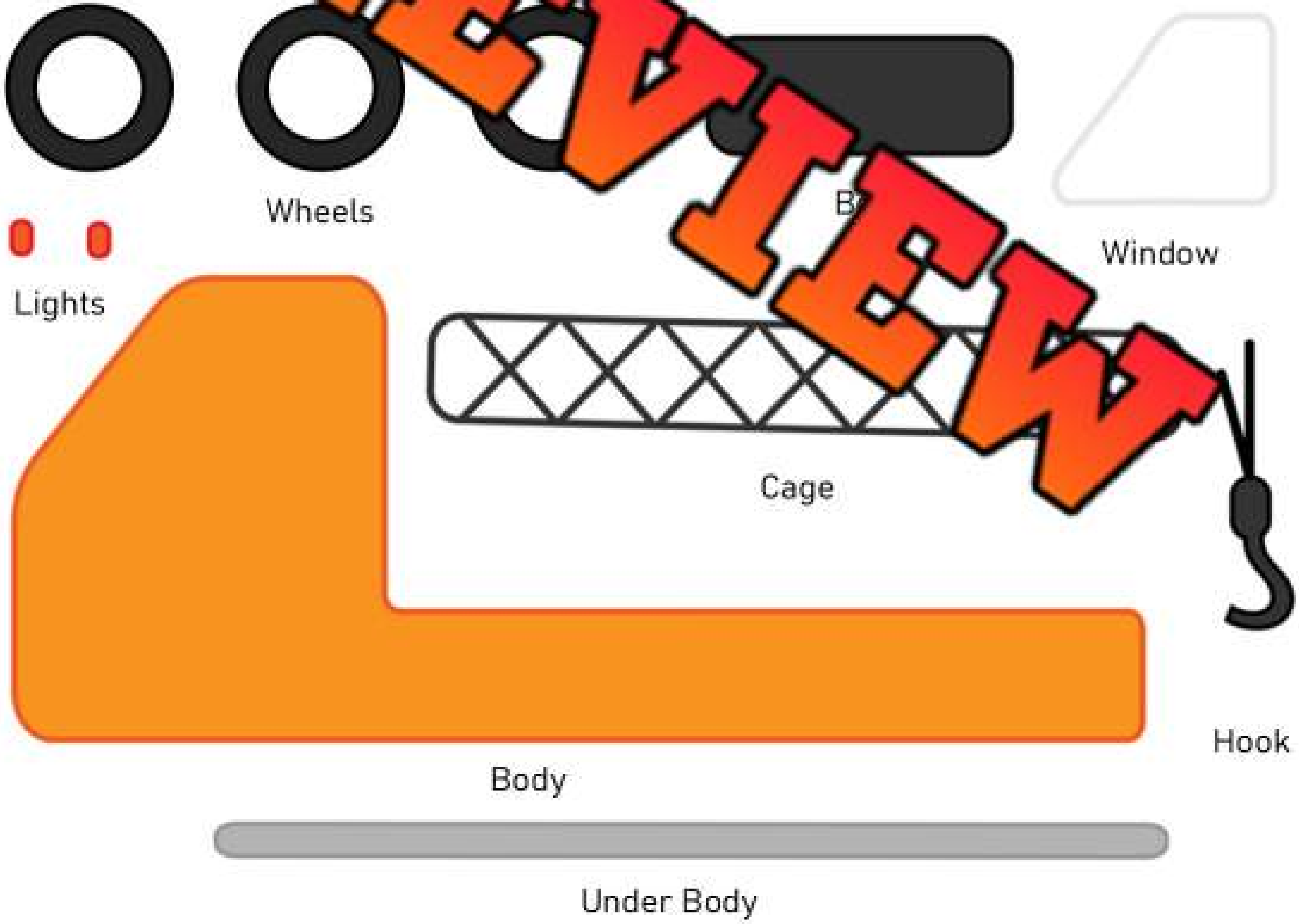
Directions Follow the code and paste the parts to make the excavator

Name: ______________________

Curriculum Connection
CS.1

Directions Follow the code to design a crane truck

```
run program
    cut out all the shapes
    paste the underbody on the bottom of the body
    paste the wheels on the bottom of the body
    paste the lights on the front and back of the body
    paste [illegible] dow on the front of the body
    p[illegible] of the back of the body
    pa[illegible]he ho[illegible]nd of the cage
    paste the [illegible] box
```



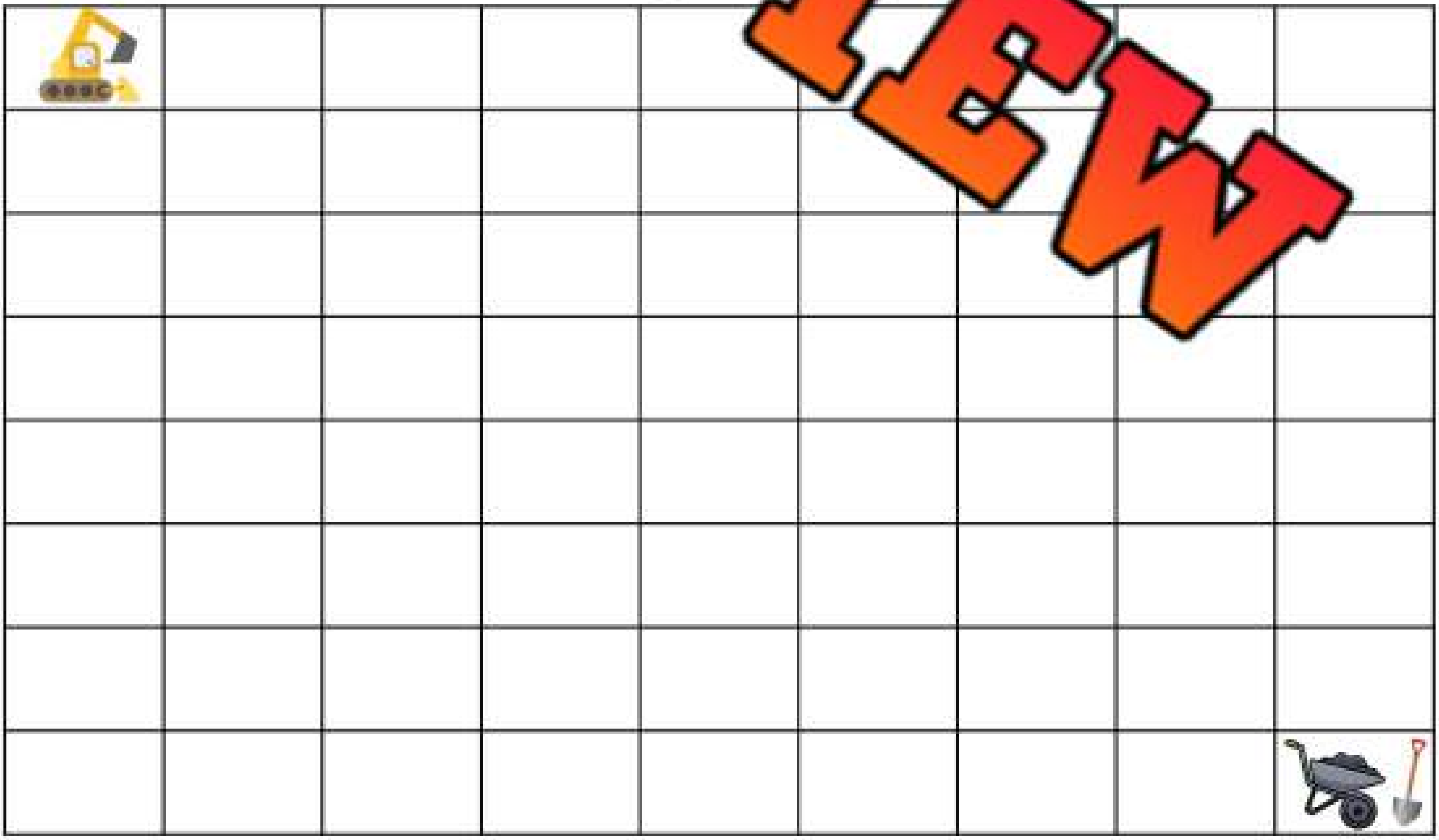
Name: ______________________ 96

Curriculum Connection
CS.1

If Then Conditional Statements - Activity

Directions Follow the if/then statements to move the backhoe to the job site

1)	If a lever has a fulcrum	then	Move ↓ 3 spots
2)	If a wedge is an inclined plane	then	Move → 4 spots
3)	If a ladder is a lever	then	Move ↓ 3 spots
4)	If [illegible]f a jar is a screw	then	Move → 4 spots
5)	[illegible]s [illegible]ge	then	Move ↓ 3 spots
6)	[illegible] puller [illegible]ight feel lighter	then	Move ← 5 spots
7)	If a slid[illegible]ley	then	Move → 4 spots
8)	If a wheelbarr[illegible]r	then	Move ↓ 1 spots
9)	If a gravity is a pushi[illegible]ce	[illegible]en	Move ↑ 3 spots
10)	If throwing a ball is a pushing[illegible]	[illegible]	Move → 5 spots

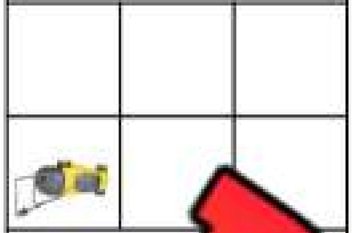


Name: ______________________

Curriculum Connection
CS.1

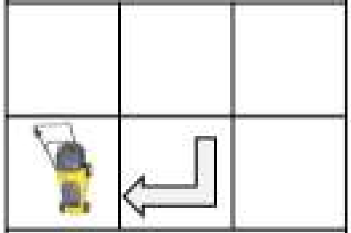
Coding - Robot Lawn Mower

This is a self-driving lawn mower



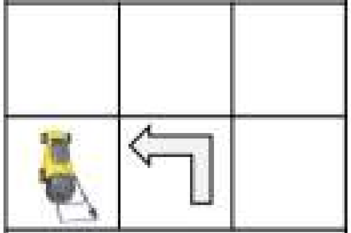
It under[illegible] co[illegible]

Right makes it turn right



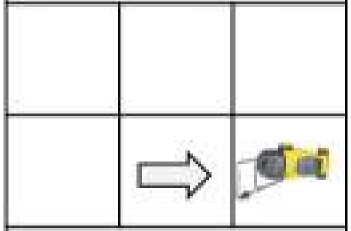
Right

Left makes it turn right



Left

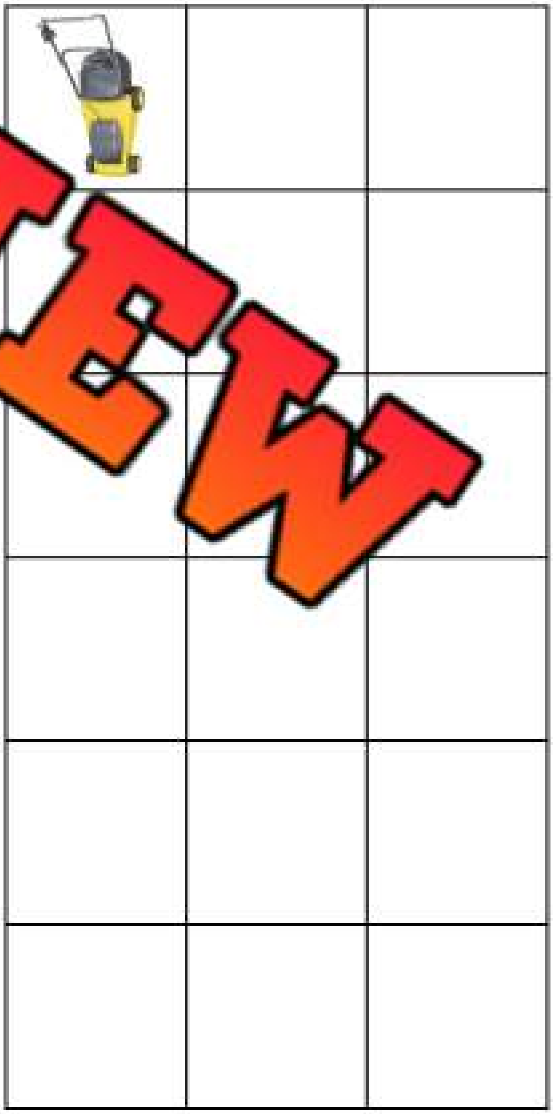
Forward makes the car move forward by the number shown



Forward 2

Directions [illegible] to [illegible] he lawn mower to cut the field of grass

Codes – Forward, [illegible] t, Tu[illegible] ht	
Line 1	
Line 2	
Line 3	
Line 4	
Line 5	
Line 6	
Line 7	
Line 8	
Line 9	



Name: ______________________

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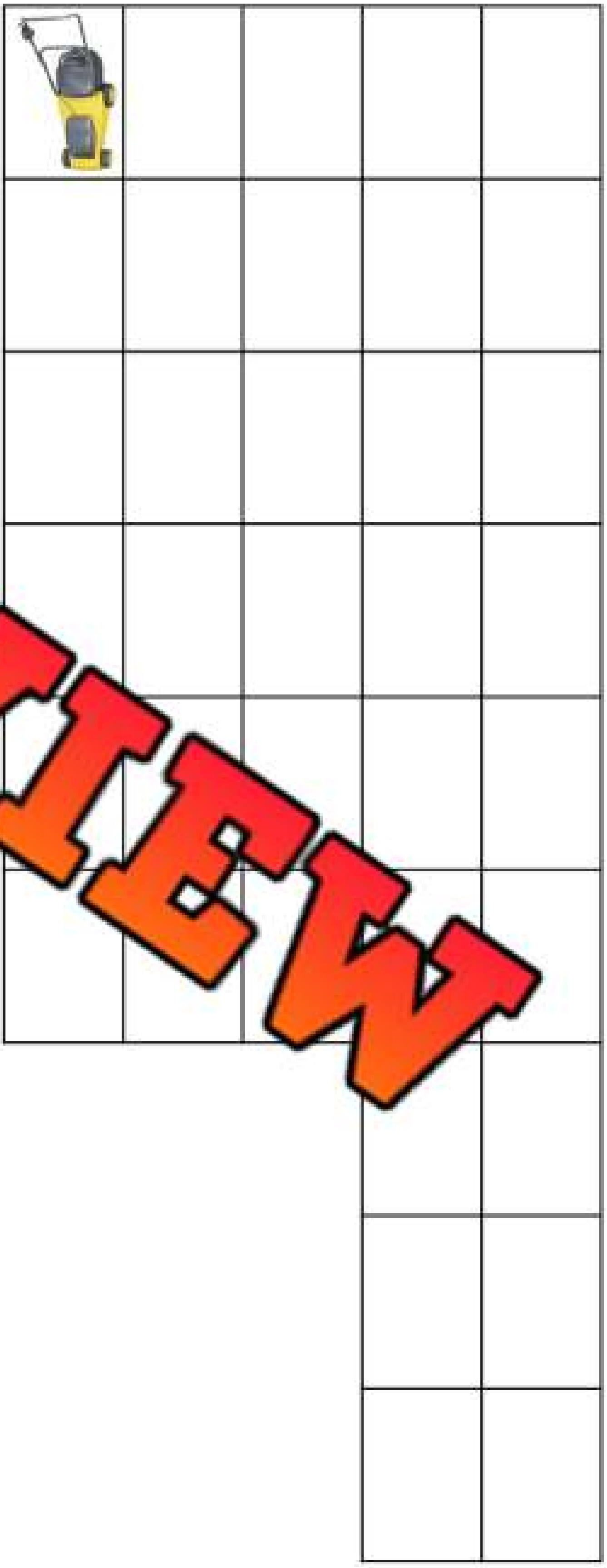
Curriculum Connection
CS.1

Directions Write code to get the lawn mower to cut the field of grass

Codes – Forward, Turn Left, Turn Right	
Line 1	
Line 2	
Line 3	
Line 4	
Line 5	
Line 6	
Line 7	
Line 8	
Line 9	
Line 10	
Line 11	
Line 12	
Line 13	
Line 14	
Line 15	
Line 16	
Line 17	
Line 18	
Line 19	
Line 20	
Line 21	

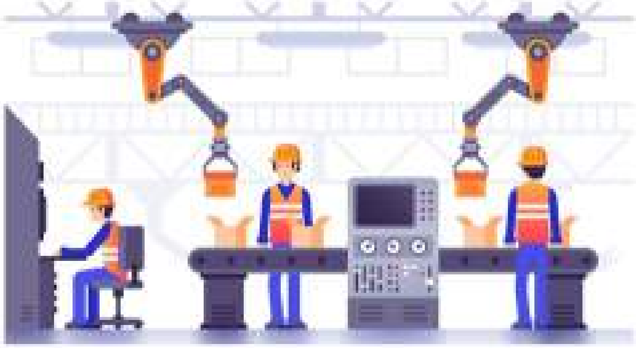


Name: ______________________

Curriculum Connection
CS.1

Coding - Robot Assembly Lines

Today, code is used to program robots to do work. Assembly lines use robots to do boring, unskilled work. Robots are good at:



- ✓ Working hard – they do not get tired
- ✓ Lifting heavy
- ✓ Worki[illegible] day and night
- ✓ Doing [illegible]erous work

We s[illegible] the robots. When a robot breaks, a human fixes the robot. People [illegible]le [illegible]ts to make sure they are working.

Fill in the Blanks [illegible]rds to fill in the blanks

W[illegible]					
night	hurt	cod[illegible]	rob[illegible]	hard	heavy

1) ______________ is written so robo[illegible]w w[illegible]

2) Robots are good at working ______________.

3) Robots can work all day and all ______________

4) Robots don't get ______________ so they can do dangerous w[illegible]

5) Robots can lift ______________ things.

6) We need humans to fix ______________.

Question What would life be like without coding or robots?

____

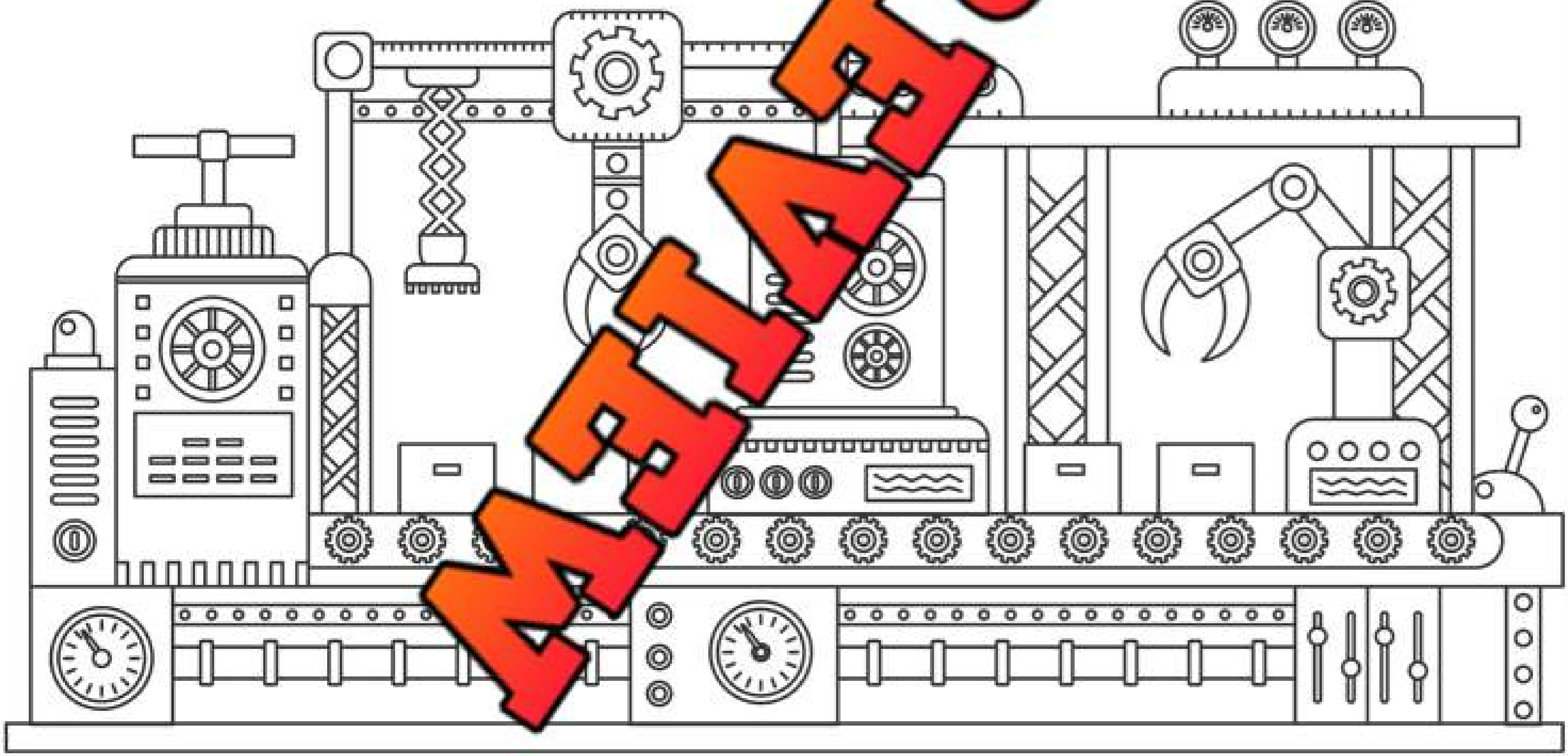
____

____

Curriculum Connection
CS.1

Name: ____________________

Colour | Colour the picture of the assembly line



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Curriculum Connection
CS.1

Questions Answer the questions below

1) What are the robots making?

2) Do you think the robots make cars faster or slower than people?

Faster	Slower

3) What are the humans doing in the diagram? Circle the answers.

Building	Carrying	Selling	Driving
Inspecting	Buying	Painting	Lifting

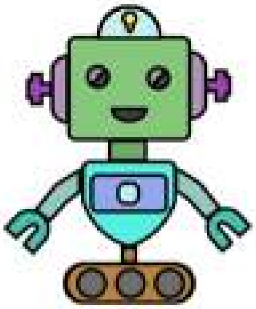
Name: ____________________

Curriculum Connection
CS.1

Robots - Simple Machines

Robots are helping the world in many ways. They are used in factories to make the things we use everyday. Without robots, humans would need to assemble the parts needed to make these things.

Robots use simple machines to get work done. Check out the simple machines used by robots on assembly lines.



- ✓ Wheels and axles for wheels that allow robots to move around
- ✓ Levers [illegible] work as arms for the robot to move things
- ✓ Robots [illegible] tools that are wedges or screws used to do work

Draw Draw a robot [illegible] wheels, levers for arms, and tools for hands

Which simple machines does your robot have?

Name: ______________________   Date: ______________________

Units Test - Forces

Multiple Choice /10

1) A ladder is an example of a...

a) Wheel and Axle

b) Inclined Plane

c) Wedge

d) None of[illegible]ve

2) An example of a pulling force is...

a) Kicking a ball

b) Punching a punching bag

c) Playing tug of war

d) Pushing someone on a swing

3) When [illegible]pads squeeze a bike tire to[illegible]ce in action...

a) Elect[illegible]tic Fo[illegible]

b) Gravity

c) Friction

d) Muscular Force

4) A seesaw is an example of which type of simple machine?

a) Wedge

b) Lever

c) Inclined Plane

[illegible]Wheel and Axle

5) A knife is an example of wh[illegible] of simple machine?

a) Wedge

b) Lever

c) Inclined Plane

d) Wheel and Axle

6) [illegible] is an example of a...

a) W[illegible]nd[illegible]

[illegible]ed Pl[illegible]

c) W[illegible]g[illegible]

d) None o[illegible]e

7) When skating on a rink, it is slippery because there isn't much...

a) Friction

b) Gravity

c) Pulling force

d) Pushing force

8) Which mater[illegible] ma[illegible]don't slip on the ground?

a) Plastic

b) Wood

c) Rubber

d) Glass

9) A slide on a playground is an...

a) Wheel and Axle

b) Inclined Plane

c) Wedge

d) None of the above

10) Using inclined planes makes our life...

a) Harder

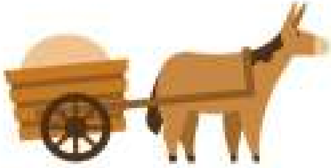
b) Easier

Fill in the Blanks Circle the correct word for the blank

1)	1) A force is always a push or ______________ (throw, pull)
2)	2) Gravity is a ______________ force. (pushing, pulling)
3)	3) When sitting on a chair, the chair has a(n) ______________ force. (balanced, unbalanced)
4)	4) When kicking a soccer ball, the ball has a(n) ______________ force. (bal[illegible]d, unbalanced)
5)	5) I[illegible]ct has balanced forces acting on it, it will ______________. ([illegible])
6)	6) A bull[illegible] a ______________ force. (strong, weak)
7)	7) A wheelb[illegible] is [illegible] ______________. (lever, inclined plane)
8)	8) A ladder is a ______________ [illegible]er, inclined plane)
9)	9) An ulu is a ______________ (wed[illegible]
10)	10) An antler can be used as a ______________ [illegible] lever)

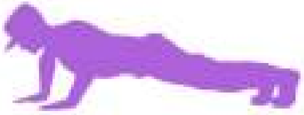
Directions Is the picture a push or pull?

Push Pull



Push Pull

Push Pull



Push Pull

Push Pull

Push Pull

True or False Is the statement true or false?

1) Friction on ice is strong	True	False
2) Tension is when we push a rope together	True	False
3) Tension is when we pull a rope apart	True	False
4) Elastic force happens when we stretch an object	True	False
5) When [illegible] a ball, we use applied force	True	False
6) In [illegible] of [illegible] pulling forces are used	True	False
7) A wheelba[illegible] inclin[illegible]	True	False
8) You can't change the [illegible] of a [illegible] object	True	False
9) Force can be applied in all [illegible]	True	False
10) A bulldozer uses a weak force	True	False

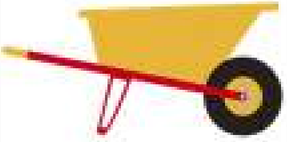
Label Which simple machine is in the picture?

Lever	Wedge	Inclined Plane	W[illegible]

1)

2)

3)



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