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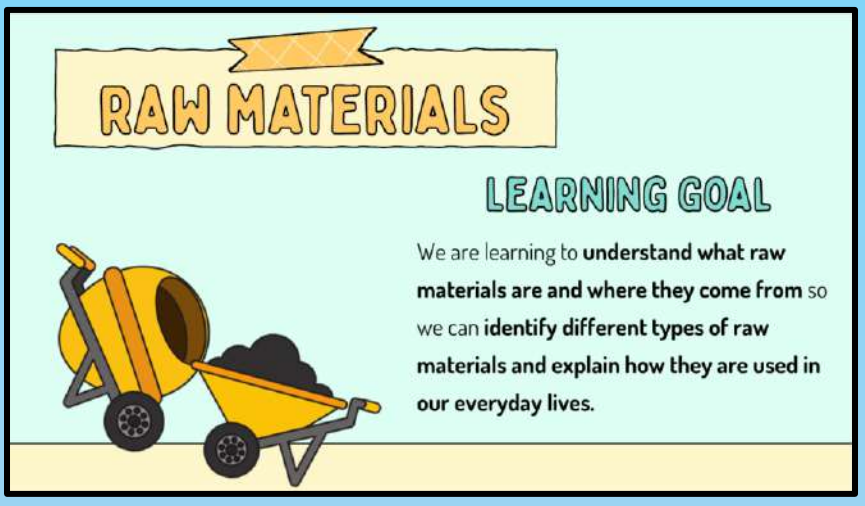
Google Slides Lessons Preview

Alberta Science Curriculum
Matter Unit – Grade 3

3-Part Lesson Format

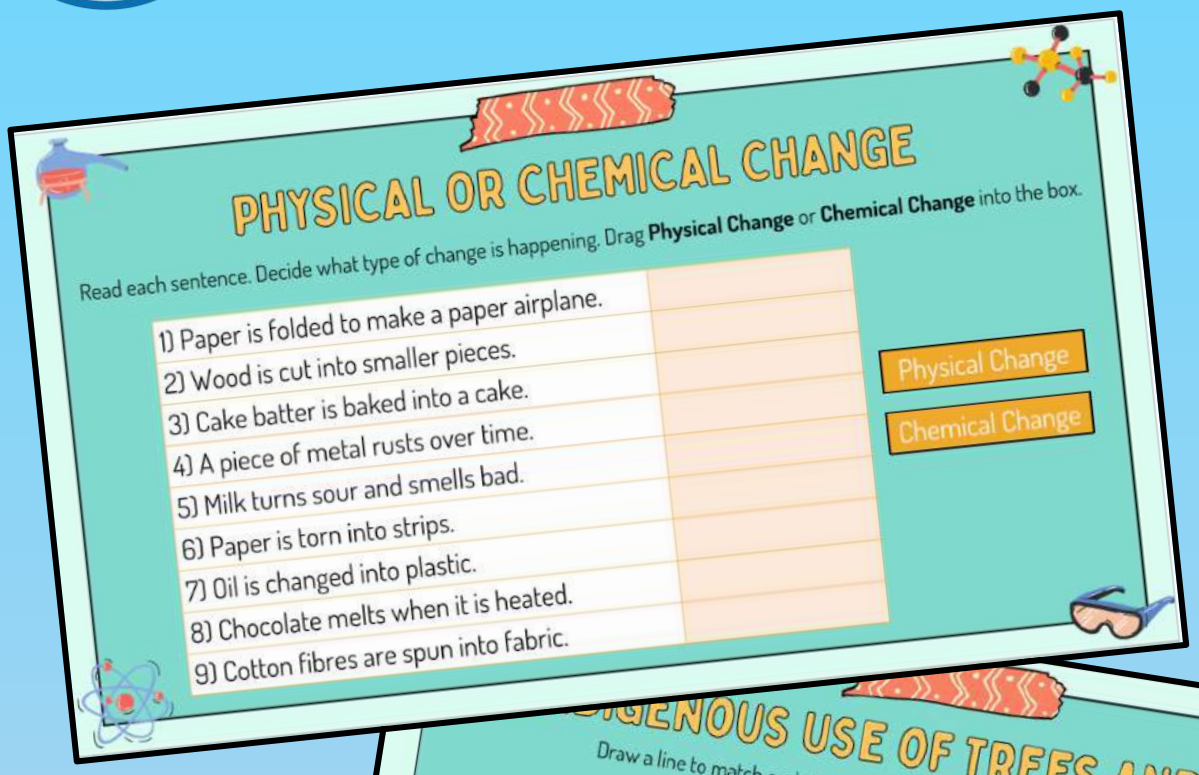
Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!

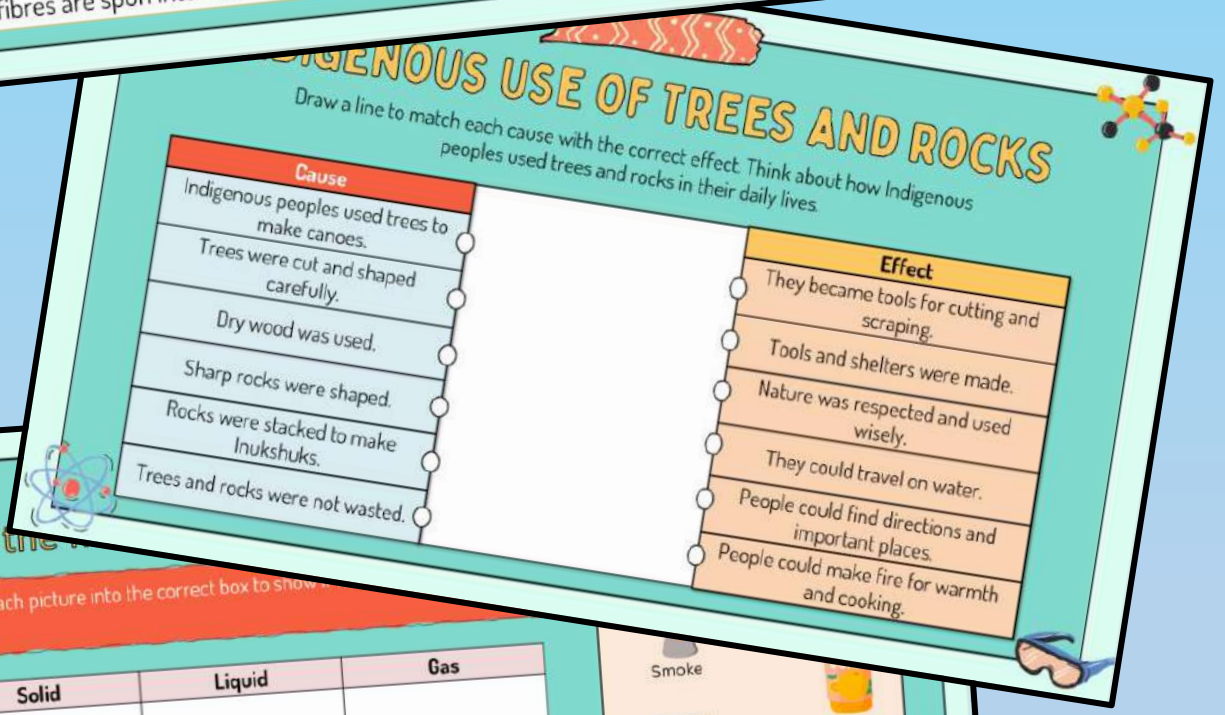


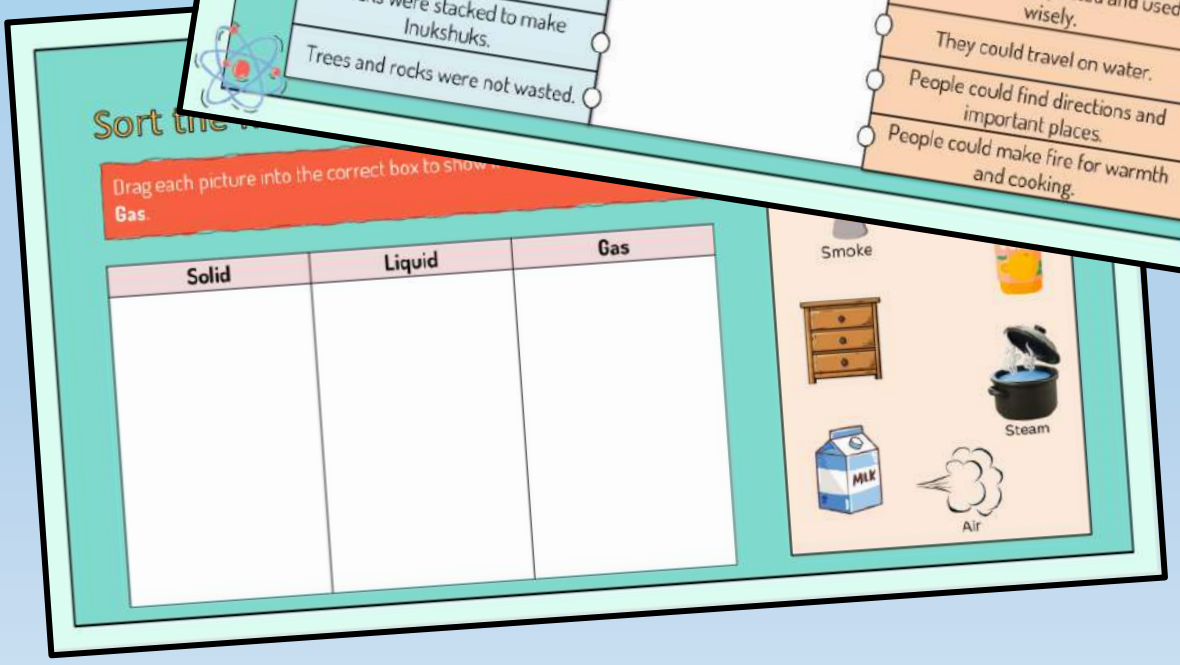
Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

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

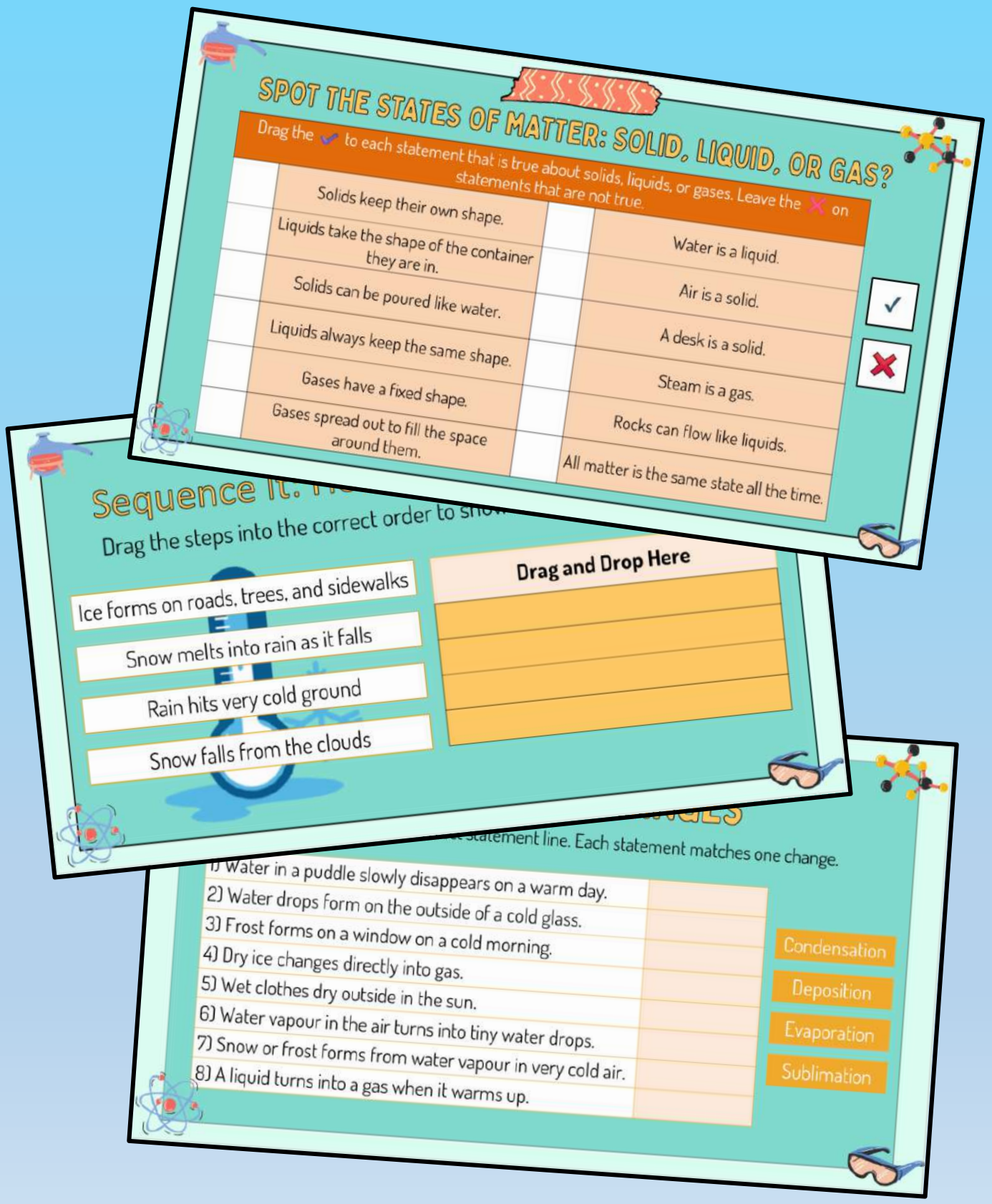
Alberta Science Curriculum Matter Unit – Grade 3







Alberta Science Curriculum
Matter Unit – Grade 3



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

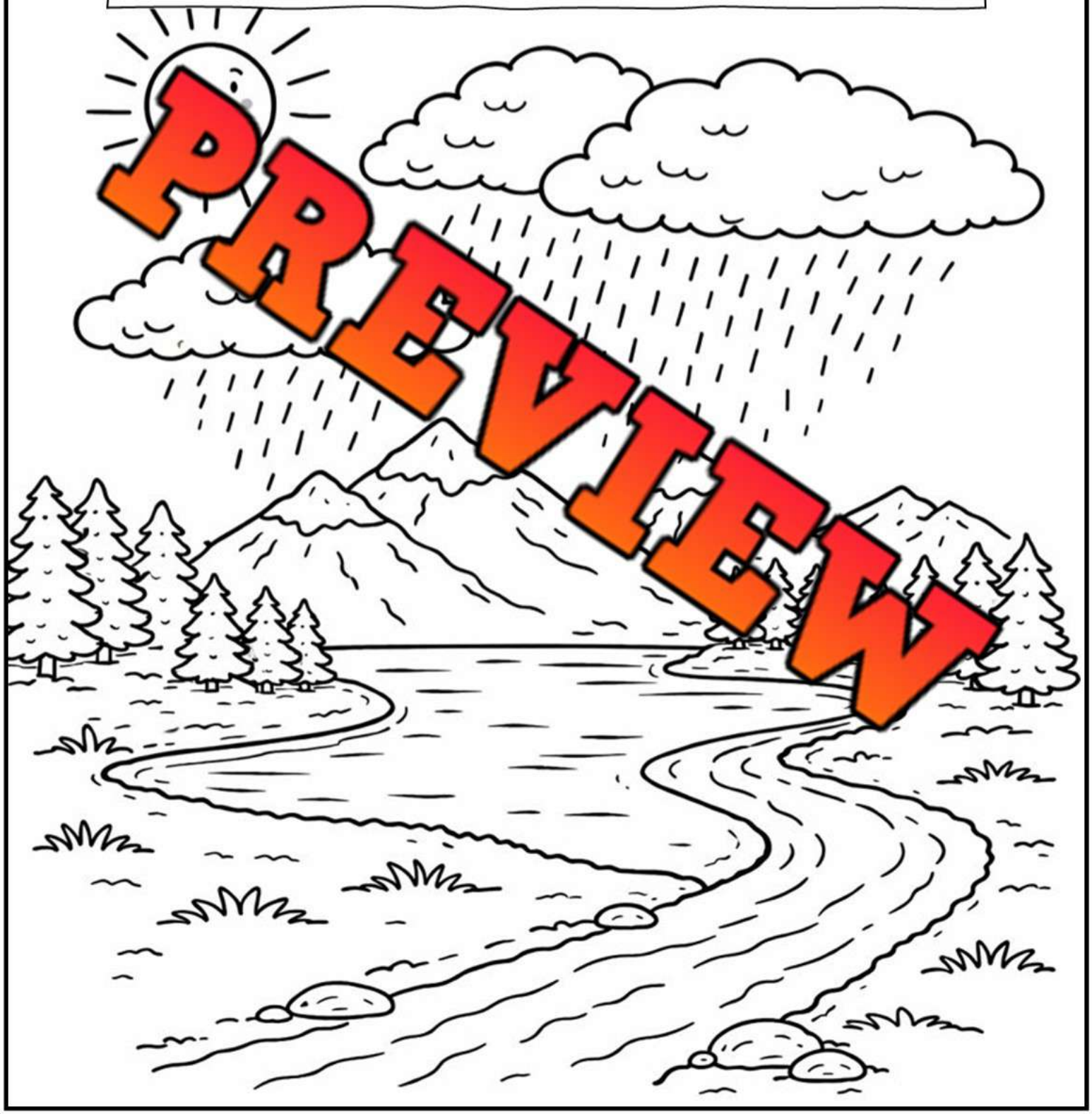
Organizing Idea Matter: Matter: Understandings of the physical world are deepened by investigating matter and energy.

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: _____ 7

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	Animal Raw Materials	Mined Raw Materials
✓ W[illegible]	✓ Milk	✓ Iron ore
✓ C[illegible]	✓ Meat	✓ Metals
✓ Flowers	✓ Furs	✓ Minerals
✓ Fruits and veg[illegible]es	✓ [illegible]er and wool	✓ Oil and coal

Making Connections

Describ[illegible] yo[illegible] of the types of raw materials

Plant Raw Materials	Anima[illegible]aw Mat[illegible]	Mined Raw Materials
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

True or False

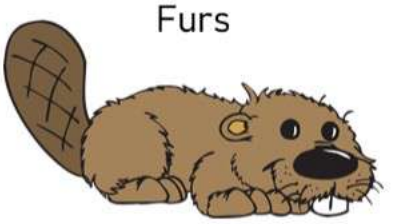
Is the statement true or false?

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

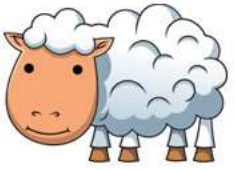
Curriculum Connection
M3.1

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

Iron Ore	Oil	Furs
		
Yes / No	Yes / No	Yes / No

astic	Table	Almonds
		
Yes / No	Yes / No	Yes / No

Paper	Tree - Wo	Flour
		
Yes / No	Yes / No	Yes / No

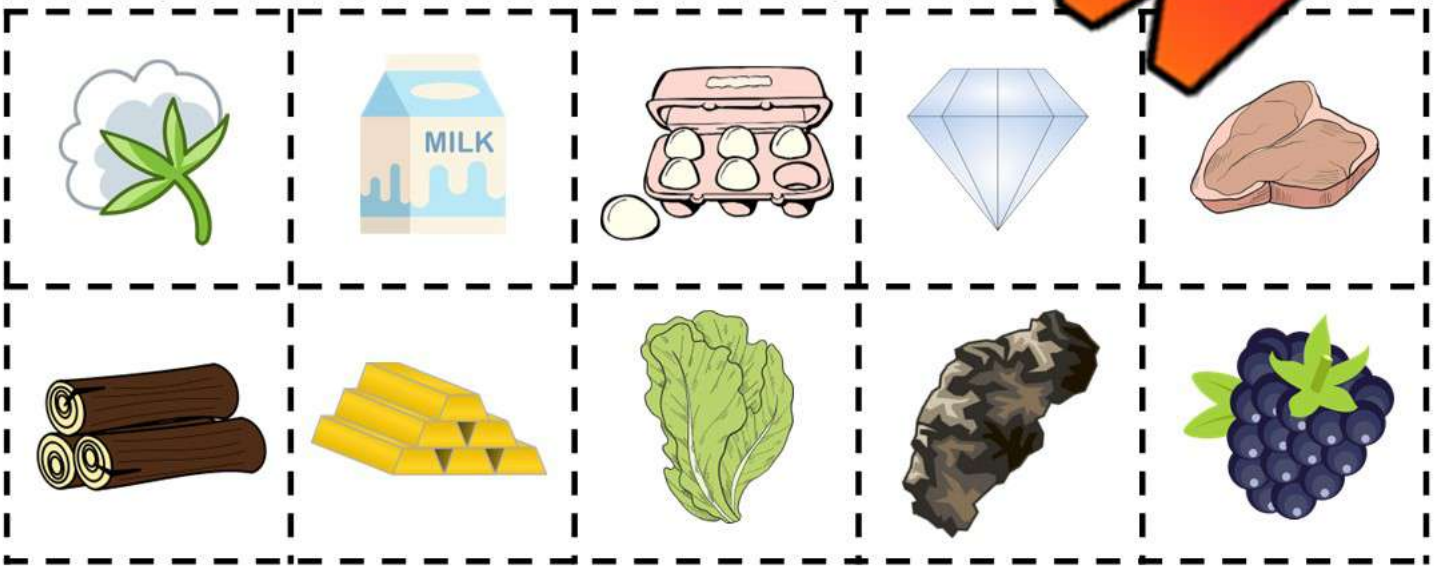
Pickles	Wool	Cotton
		
Yes / No	Yes / No	Yes / No

Name: _____ 9

Curriculum Connection
M3.1

Directions Cut and paste the raw materials into the correct categories

PLANT	ANIMAL	MINED



Name: _____ 10

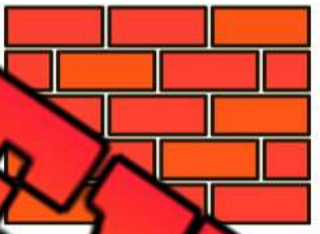
Curriculum Connection
M3.1

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 whether the material is natural or human-made

Natural	Human-Made
Wool	



Natural	Human-Made
[illegible]	

Natural	Human-Made
Steel	

Natural	Human-Made
Clay	

Natural	Human-Made
Wood	

Natural	Human-Made
Leather	

Natural	Human-Made
Stone	

Natural	Human-Made
Glass	

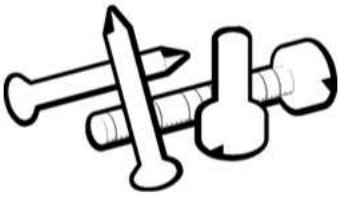
Natural	Human-Made
Plastic	

Name: _____ 13

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 the material has changed. Physical change can be reversed. A **chemical change** is when we change the material so that it is a new material. It cannot be reversed.

Examples of Physical Changes

- ✓ Cutting
- ✓ Warming or
- ✓ Bending a materia
- ✓ Stirring or mixing a ma

Examples of Chemical Changes

- ✓ Cooking a material
- ✓ Burning a material
- ✓ A material rusting
- ✓ A food rotting

Draw Draw examples of materials that have changed physically and chemically

Physical	Chemical

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: _____ 14

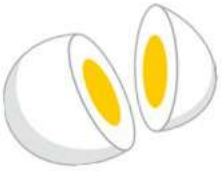
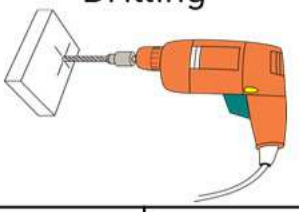
Curriculum Connection
M3.1, M3.7

Activity - Physical or Chemical Change

Directions Is the picture showing a chemical or physical change?

Cutting Hair	Burning	Boiling
		
Physical / Chemical	Physical / Chemical	Physical / Chemical

Chopping	Baking	Freezing
		
Physical / Chemical	Physical / Chemical	Physical / Chemical

Boiled Egg	Drilling	Sewing
		
Physical / Chemical	Physical / Chemical	Physical / Chemical

Rotting Food	Fireworks	Mixing
		
Physical / Chemical	Physical / Chemical	Physical / Chemical

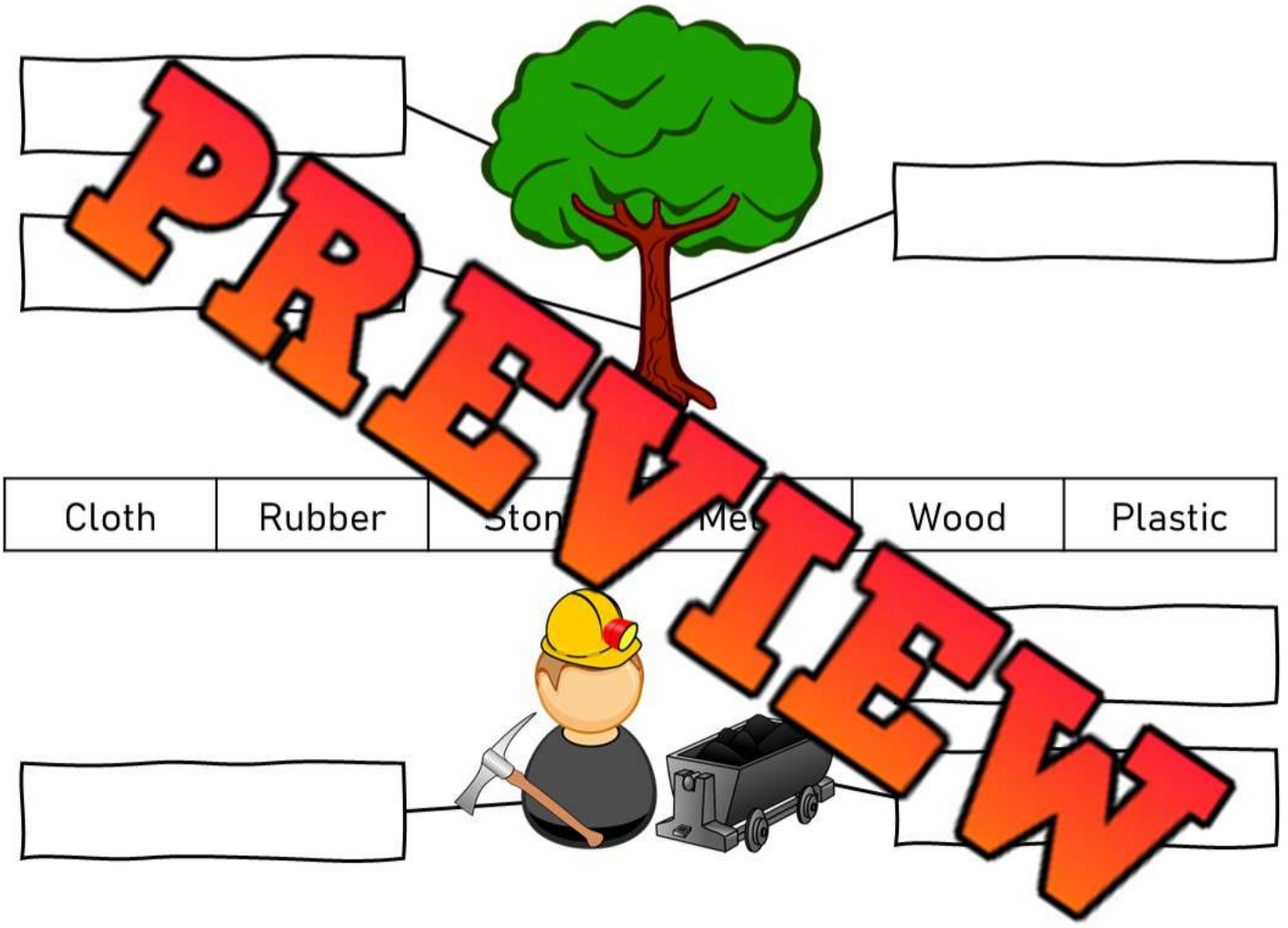
Name: _____ 15

Curriculum Connection
M3.1

Where Materials Come From

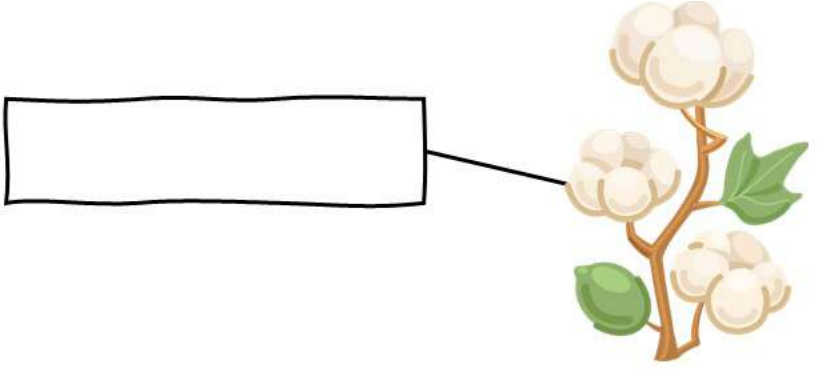
Directions Write the materials that are found from the pictures below

Cloth	Rubber	Stone	Metal	Wood	Paper



Cloth	Rubber	Ston	Met	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, w hemical changes are permanent. In this case, the fabric could be turned back into though it wouldn't look the exact same.

Maki

1) Picking - C d o cotton plant
2) Separating n gin parates the seeds from the cotton fibres
3) Carding – Turning t trands of cotton
4) Spinning – The strands are ke yarn
5) Weaving – The yarn is weaved into f

Visualizing Draw what you were picturing wh were Explain the picture

Question Why is making cotton fabric a physical change?

Name: _____ 17

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 fi[illegible]
- ✓ Steel is cut to size
- ✓ Cutting food for our meals

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

_____

_____

_____

_____

Yes/No Is the answer yes or no?

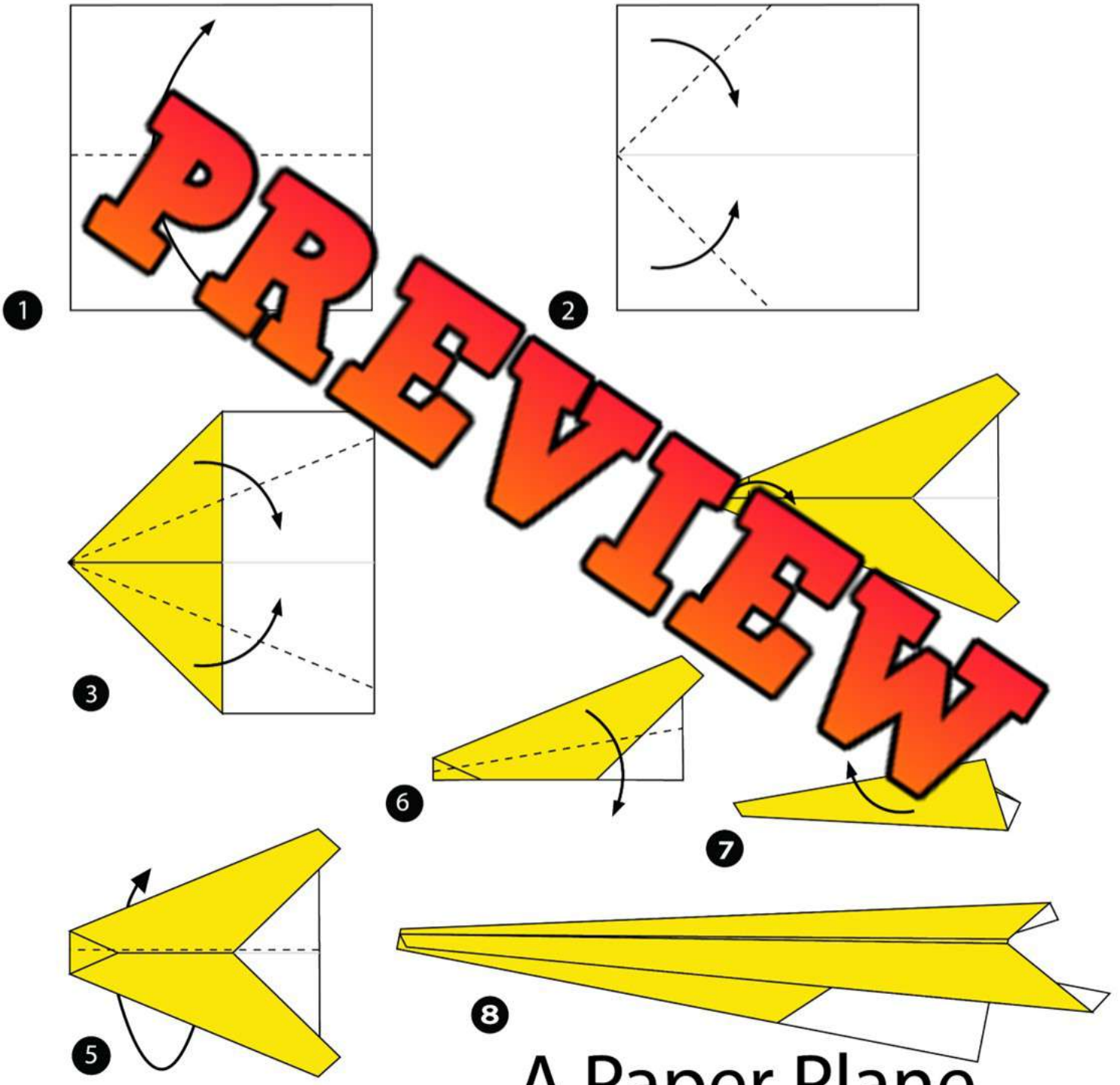
1) When we cut an object, are we making a chemical change?	Yes	No
2) Is cutting the stem off a strawberry a chemical change?	Yes	No
3) Is cutting up wood into tiny pieces for paper a physical change?	Yes	No
4) Is cutting materials important in making the things we need?	Yes	No
5) When you get your haircut,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

Name: _____ 18

Curriculum Connection
M3.1, M3.7

Activity - Physical Change - Bending/Folding

Instructions Bend and fold the paper to make a paper airplane

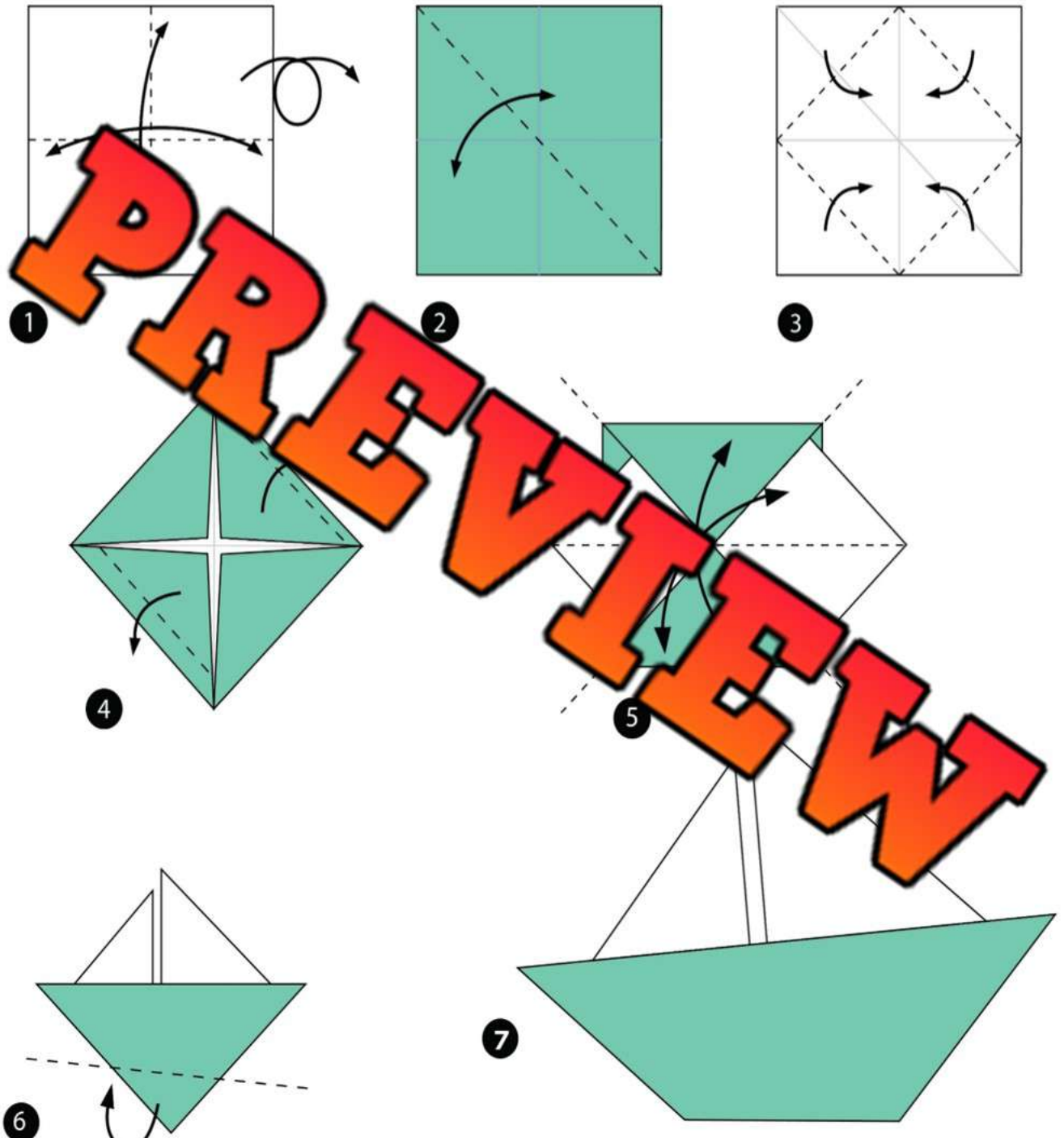


A Paper Plane

Name: _____ 20

Curriculum Connection
M3.1, M3.7

Instructions Bend and fold the paper to make a boat



A Little Boat

Name: _____ 22

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]tting into tiny pieces)	Physical	Chemical
4) Cooki[illegible] 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]	Physical	Chemical
9) Drying the wet pulp	[illegible]sical	Chemical
10) Cutting the dry sheets to size	[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

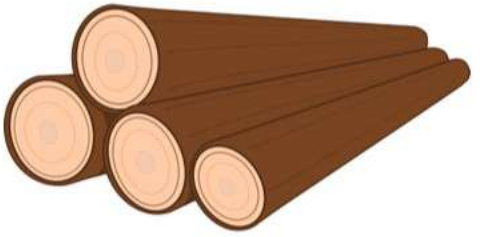
Name: _____ 23

Curriculum Connection
M3.1

Materials - Wood and Paper Products

Directions Fill in the flowchart below by drawing pictures

Trees

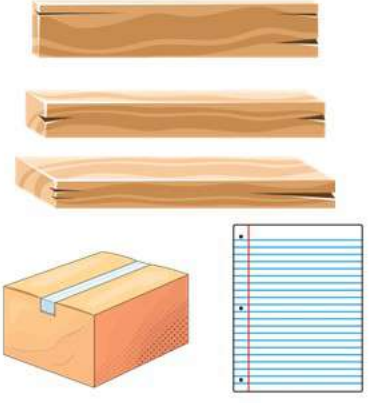


Logs

Firewood

Lumber – 2x

Pulp



Cardboard

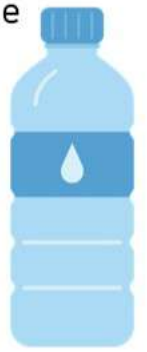
Paper

Name: _____ 24

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]t. It takes the average plastic item between 10 to 1000 years to decom[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]ank					
Food	Oil	Recycle	Water Bott[illegible]	Na[illegible]s	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: _____ 26

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] mixed with naphtha to make plastic
4) The [illegible] is [illegible] a liquid
5) Dyes are [illegible] to change the colour
6) The liquid is [illegible] shapes with the plastic

Questions Answer the ques[illegible]elo[illegible]

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

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: _____ 28

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.

How Natural Rubber is Made

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

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

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

Draw Draw a picture of 3 different things that use rubber

Name: _____ 29

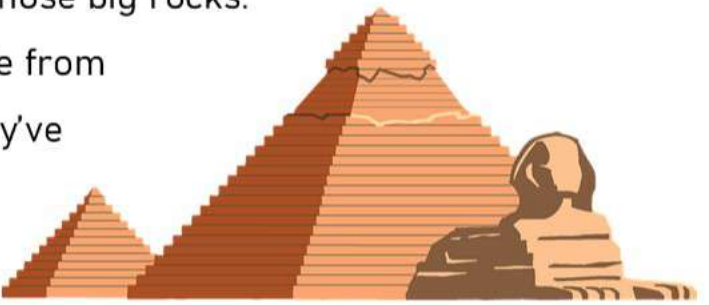
Curriculum Connection
M3.1

Materials Used Now vs Then

Olden Times

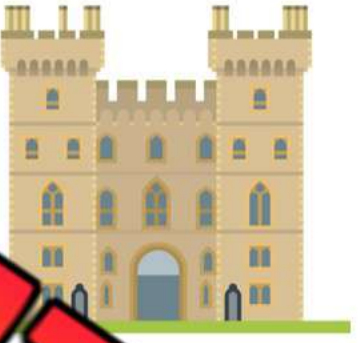
People used natural materials long ago. Stonehenge in England is a circle of big rocks. It's strong, but it was hard to move those big rocks.

The Great Pyramid in Egypt was made from limestone blocks. They were heavy, but they've lasted thousands of years!



Middle Ages

As time passed, people discovered new ways to shape stone and create bricks. Castles started to appear. Windsor Castle in England, which is still standing, was built with sturdy and hardy bricks. Using stone and brick is still done today, but they're expensive and hard to move around.



Materials Used Today

Today, we use many different materials. Small buildings 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!

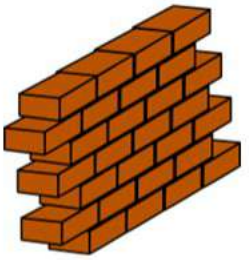
Bridges and Roads

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 w[illegible] go?

_____

_____

_____

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

Roads	
Homes	
Skyscrapers	

3) What are the downsides to the materials below?

Stone	
Brick	

Name: _____ 32

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]s, [illegible] tree trunks and branches.
- Canoe: They [illegible]bar[illegible] to make canoes, a type of boat, to travel on water. They also [illegible]oft-w[illegible]s like cedar to make canoes.
- Tools: The wood fr[illegible]s also be[illegible] tools like bow and arrow for hunting.
- Toys: Kids even made toys [illegible]om t[illegible]
- Fire: Dry wood helped make fire [illegible]eep wa[illegible]nd c[illegible] food.

Using Rocks

Rocks were also very useful to Indigenous communit[illegible]e'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: _____ 33

Curriculum Connection
M3.2

Questions
Answer the questions below using evidence from the text

1) How did Indigenous groups use trees?

2) How di ous groups use rocks?

Visualizing
Draw what you w ctu 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: _____ 34

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: ...er the steps 1-6 beside each instruction

	Instructions
	C...am ...ith birchbark, woven material, or caribou skins
	Bui... earth... ...r for a fire
	Make a co... ...l fra... ...ood poles
	Cover the leaves with ...
	Place tree leaves on the floor t... ...p out ...e
	Make a hole in the roof to let the s...

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: _____ 35

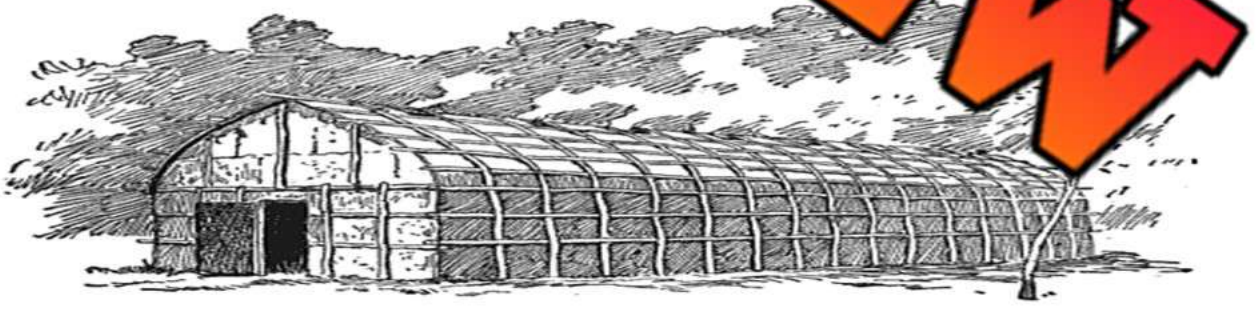
Curriculum Connection
M3.2

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



What are the benefits and drawbacks of a longhouse?

_____

_____

_____

_____

Name: _____ 36

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


Inukshuk

The In sh for three main reasons.

Navigation

Inukshuks are u mark t something important.

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

Communication

Inukshuks are used as a form of communication. They can tell 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: _____ 37

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 w[illegible] cou[illegible] resent?

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] cleaned very well.
3) Aft[illegible] cleani[illegible]t the shells into tiny bead shapes.
4) They mad[illegible]n eac[illegible]ith a special tool.
5) They used a str[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]ys to use ice:

1) Making Igloos: The Inuit made homes called igloo[illegible] ic[illegible]locks 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: _____ 42

Curriculum Connection
M3.2

Questions How is a wampum belt made?

Draw 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: So[illegible]re [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 hom[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: _____ 45

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?

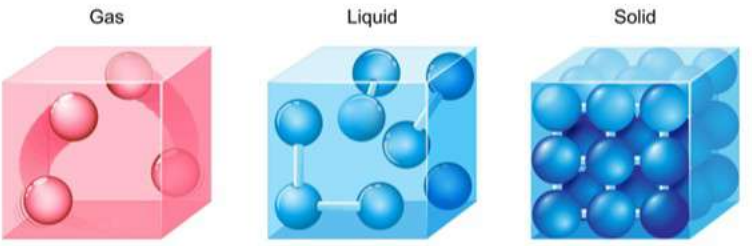
Draw Draw ways that plants and an[illegible]re [illegible]by Indigenous groups

Name: _____ 47

Curriculum Connection
M3.3

What is Matter?

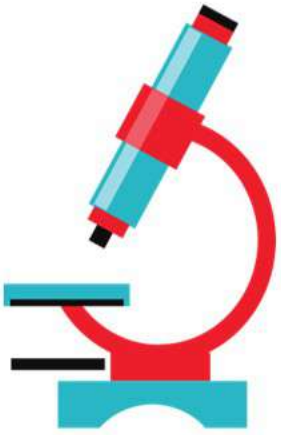
What is Matter?



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 made [illegible]en our bodies are made of matter!

[illegible]er is eve[illegible]hat has mass and occupies volume. Air is matter because air h[illegible]d it[illegible]s up space. We know this because a balloon that is full of air weig[illegible]e tha[illegible]y balloon. Air also takes up space because when we blow up a ba[illegible]e air pus[illegible]s 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]ve say [illegible]upies **volume**.



Particles - Atoms

All matter is made up of t[illegible]s call[illegible]ms. When you look at matter, you can't se[illegible]y [illegible]s. Ev[illegible]with the best light microscope, single atoms [illegible]. But, atoms are there. You are made of 7 billion bil[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: _____ 48

Curriculum Connection
M3.3

Questions
Use information from the text to support your answer

1) What does matter mean?

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

Questioning
Write questions 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	Cereal	Human
		
Yes / No	Yes / No	Yes / No

Love	Time	Idea
		
Yes / No	Yes / No	Yes / No

Flower	Dog	Table
		
Yes / No	Yes / No	Yes / No

Wind	Rainbow	Sunlight
		
Yes / No	Yes / No	Yes / No

Name: _____ 53

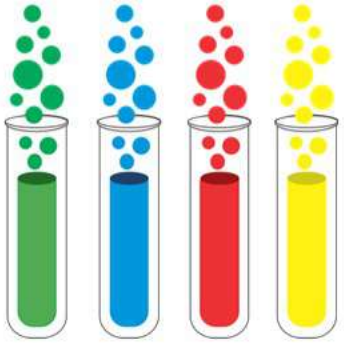
Curriculum Connection
M3.3, M3.4

All About Liquids

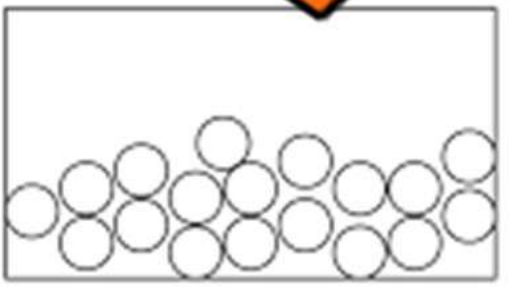
Liquids

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. ur liquids into cups when w The liquid will alway the sh e cup you are using. The on of liquid is water.

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

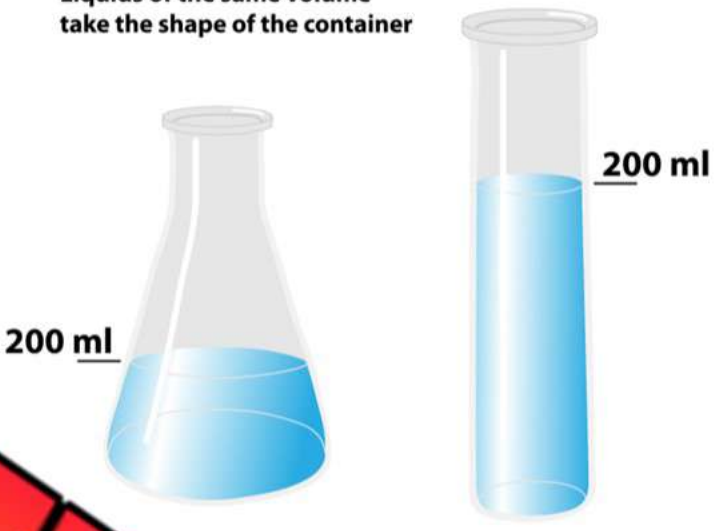


Liquids can chang ir iquids can be made into solids when you co o th eezing points. Liquids can be turned into gases when y eir boiling point. The freezing and boiling po fo liquid is different.



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



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

Word Bank	
Liquids	Shape
Container	Flow
Temperature	Matter
Freezing	Volume

Fill in the Blanks

on the line

1)	Liquids will always take th sha _____.
2)	The most common form of liquid is _____
3)	Liquids can change their states of _____
4)	Liquids will turn into solids when they are _____ eated).
5)	Liquids fill the _____ of their contain

Making Connections

What does this reading remind you of in your life?

Name: _____ 58

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 — What do we need for our experiment?

- Small clear plastic cups
- Small candies
- Various liquids (water, oil, corn syrup, etc.)
- Stopwatch (optional)

Method — How do we complete the experiment?

1. Fill each of the cups full of the different liquids
2. Drop a candy into the first liquid. Use the stopwatch to time how long it takes 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: _____ 59

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]candy flowing through the liquid

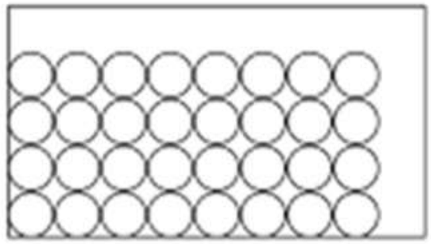
Curriculum Connection
M3.3, M3.4

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 s[illegible]r than one piece. When you break a cook[illegible] will be 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

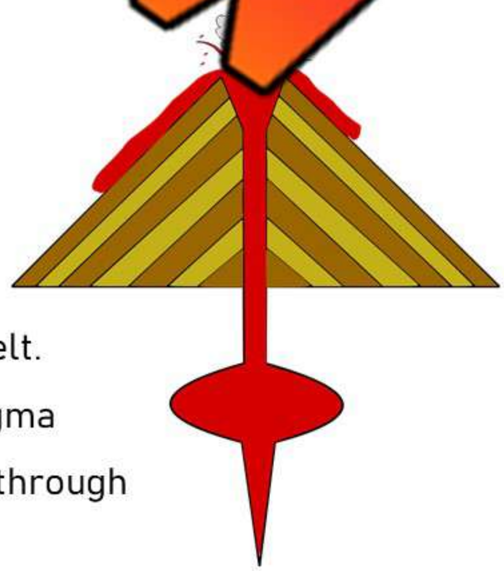
Therefore, solids:

- Can't be poured
- Holds their shape unless an outsi[illegible]e acts [illegible] it (example – cuts it)
- Has a definite shape (do not take the shape [illegible]eir c[illegible]r)
- Is difficult to squeeze as the particles are [illegible]dy [illegible]
- Is dense because there are many particles pack[illegible] tog[illegible]
- Can be described in many ways, including hard, soft, r[illegible]gh, [illegible] [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: _____ 61

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]pictur[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 ____

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: _____ 65

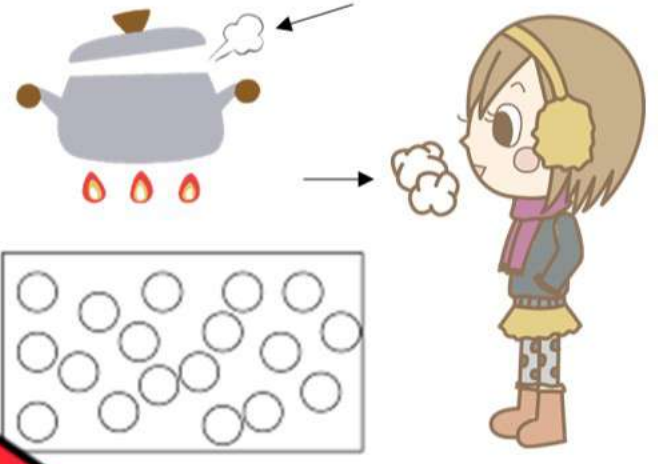
Curriculum Connection
M3.3, M3.4

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] fast[illegible]n liquids
- Gas particles [illegible]r ap[illegible]
- Gases do not hold t[illegible] a[illegible]e

Yes/No Circle the best answer

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

Draw Draw examples of 2 different gases

Name: _____ 66

Curriculum Connection
M3.3, M3.4

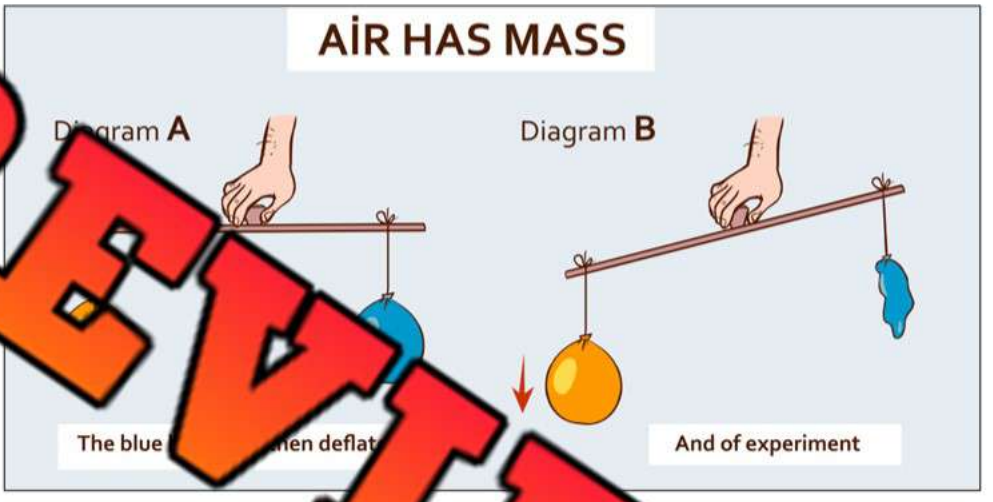
Does Air Have Any Weight

Research Question
What are we testing?

Does air have any weight?

Materials
What do we need for our experiment?

- 2 balloons
- A metre stick
- 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?

Result

Answer the questions below

1) Which balloon weighs more?

The Popped Balloon | The Blown-Up Balloon

2) How do you know one balloon is heavier than the other?

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

Name: _____ 68

Curriculum Connection
M3.3, M3.4

All About Air

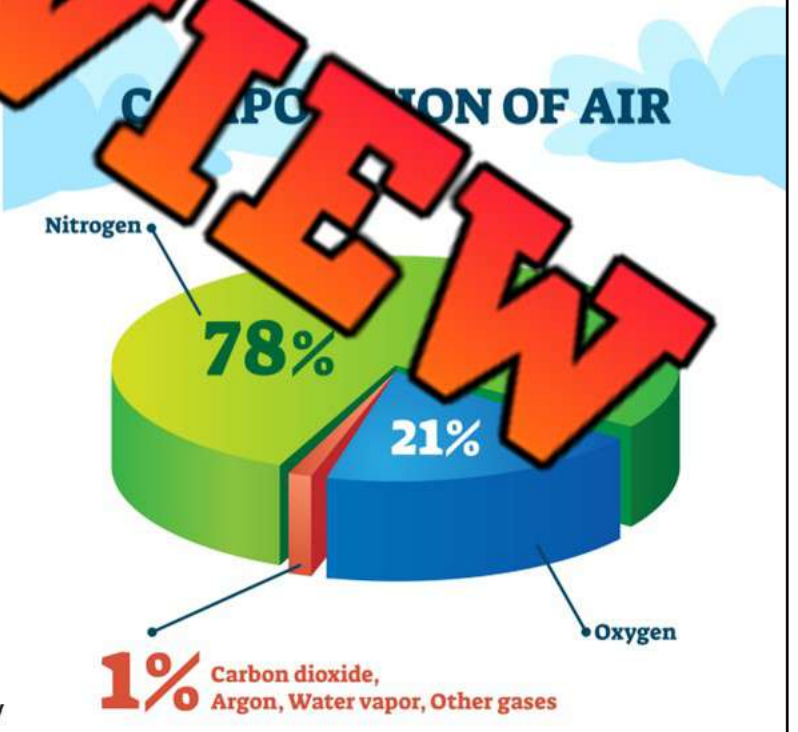
All About Air

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 is matter in the form of a gas. We cannot see air, but it is all around us. Air covers the earth in a layer that is several kilometers deep. This layer is called the earth's **atmosphere**. If you go to outer space, you leave the atmosphere and won't have air there!

Air is made of several different kinds of gases. Air is made of:

- 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: _____ 69

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 can see or smell clean air	True	False

Search & Find

Find the answers to the questions below

1)	What are the states of matter? _____, _____, _____
2)	Name the two main gases in 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? Explain.

Name: _____ 71

Curriculum Connection
M3.3, M3.4

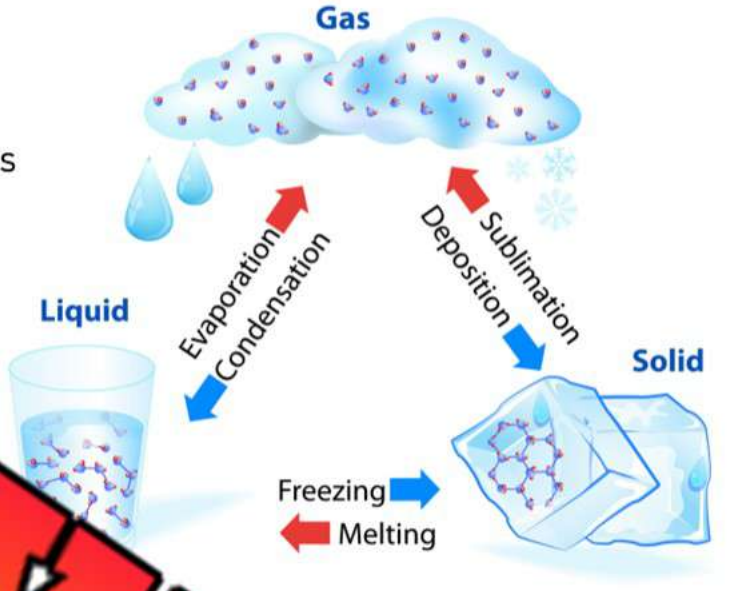
Changes in State - Physical Changes Involving Heat

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 su[illegible]nce is formed. The matter's chemical [illegible] is the exact same.

[illegible]e, [illegible] has the chemica[illegible]makeu[illegible]gen [illegible]nd oxygen (H_2O).

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



Changes in State Involve Heat

When matter changes state, it can be reverse[illegible]ddi[illegible]g heat. When matter absorbs heat, it could undergo t[illegible]s of evaporation, melting (fusion), or sublimation.

When matter releases heat, it could undergo the process 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: _____ 72

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

Answer the questions below using evidence from the text

1) If matter is left in the same environment (no heat 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: _____ 73

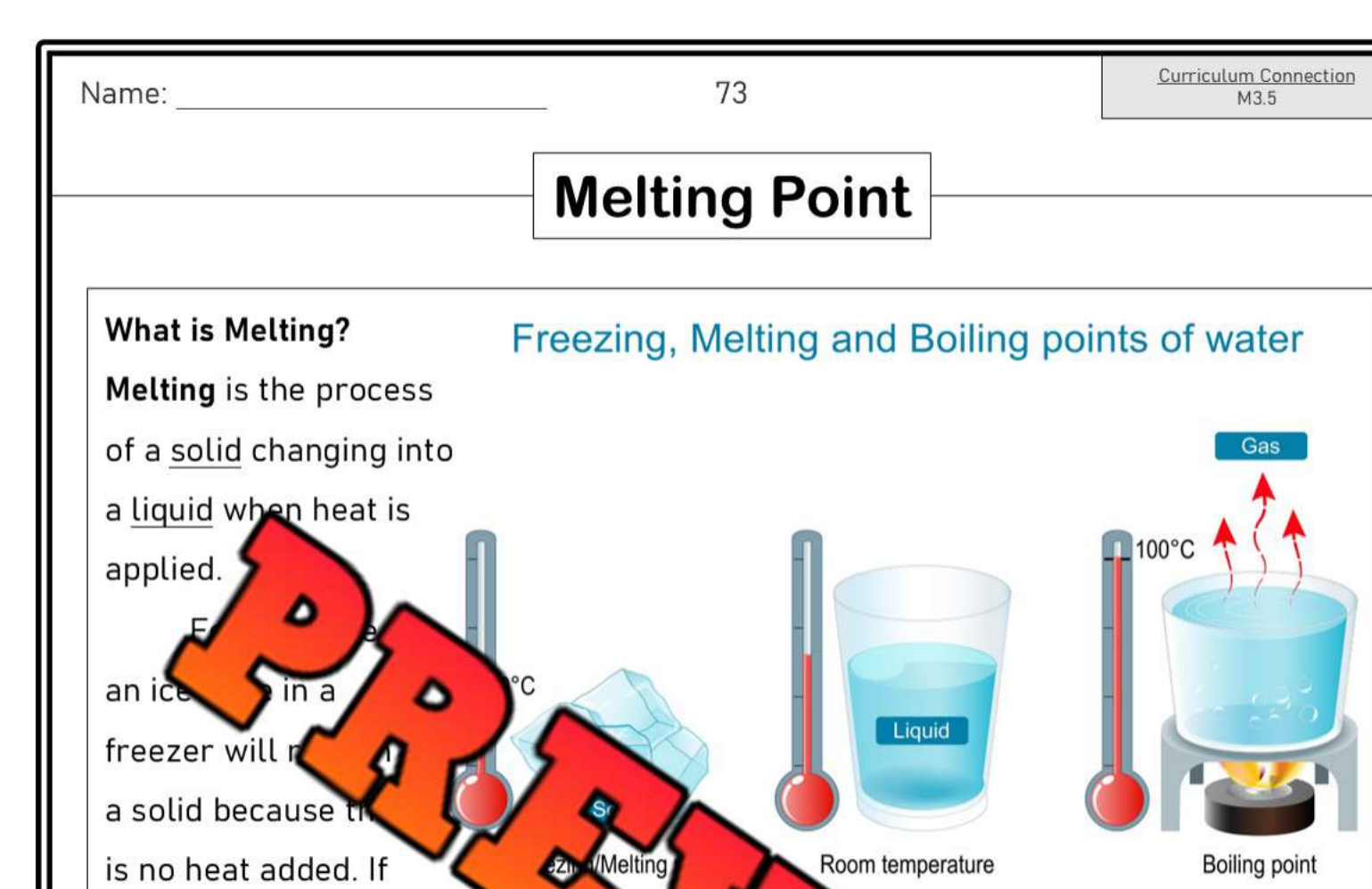
Curriculum Connection
M3.5

Melting Point

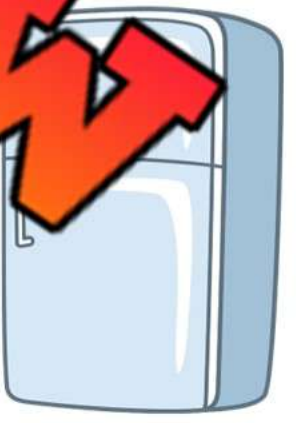
What is Melting?

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

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



The heat will cause the particles inside ... solid t... This will cause the particles to spread out and flow into the botto... ...are held in. If the ice is on a table or on the floor, it will flow and ...



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: _____ 74

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]s when a _____ reaches a temperature warmer than its _____ po[illegible]ning it into a _____. For example, an ice cube melts at a _____ [illegible]mer than 0 degrees Celsius. The melting point is the _____ a[illegible]ezing [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?

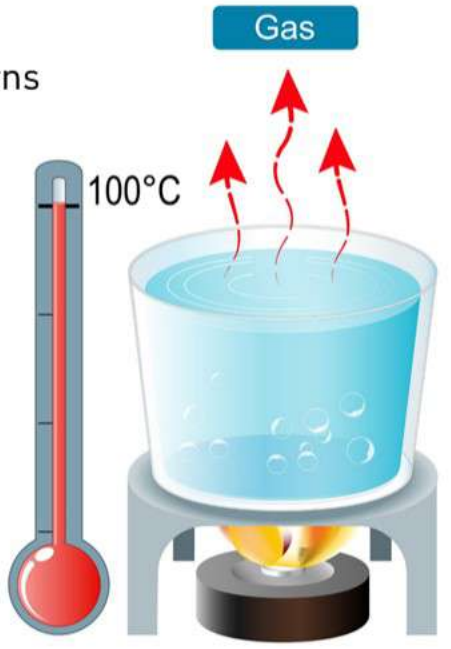
Name: _____ 77

Curriculum Connection
M3.5

Boiling Point

What Does Boiling Point Mean?

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.



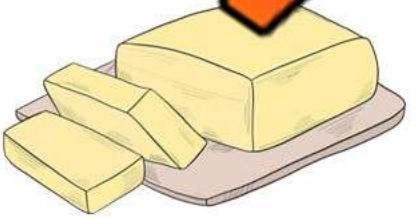
Boiling point

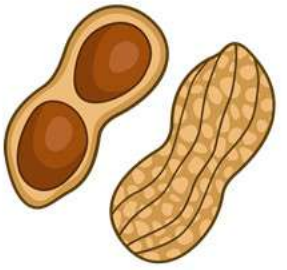
Different liquids have different boiling points. When cooking, it is helpful to use different temperatures depending on what you're making. For example, many foods have different boiling points, meaning you might want to brown some on high.

It is also helpful to know that we can clean dirty water by boiling it. When we boil water, harmful bacteria, viruses, and parasites that may be in the water. This means if you ever need to clean water, you can boil it to kill the living things in your water.

Different Boiling Points of Liquids

Depending on the liquid being heated, it will take longer to reach the boiling point. Ethanol will boil at 78.5 degrees Celsius while canola oil 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: _____ 78

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 the boiling point different in different liquids?

Visualizing

Draw what 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

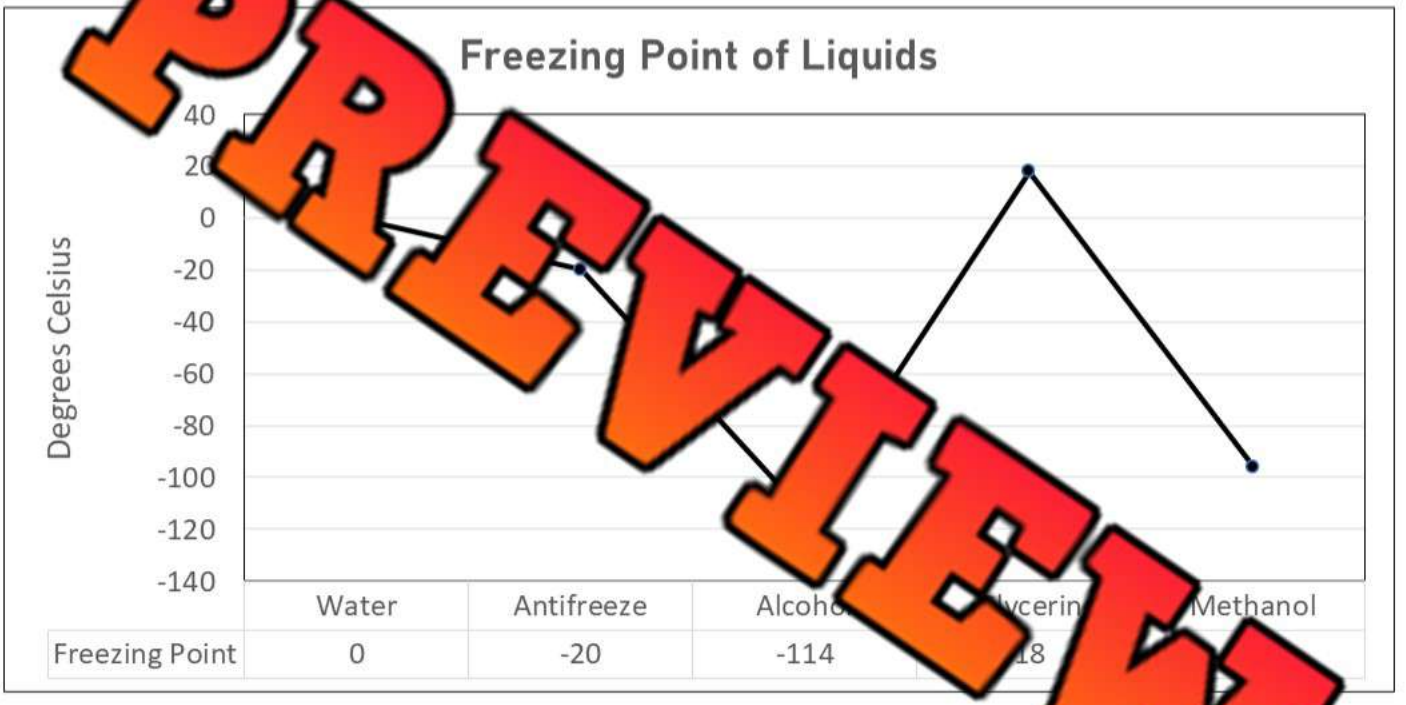
Name: _____ 80

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. Check out the graph below to see other liquid's freezing points.



	Water	Antifreeze	Alcoho	lycerin	Methanol
Freezing Point	0	-20	-114	18	

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!

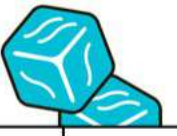
When the weather is below 0, we need to drive very carefully as water on the roads will freeze and turn into slippery ice.

Name: _____ 81

Curriculum Connection
M3.5

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 liquids have different freezing _____.	Points / Places
4)	ing point of _____ degrees Celsius.	-20 / -96
5)	Wh the te s below zero, there could be _____ on the road	Ice / Rain

Questions

Answer th be

1) How does water freeze?

2) How can freezing water be dangerous?

Making Connections

What does this reading remind you of in your life?

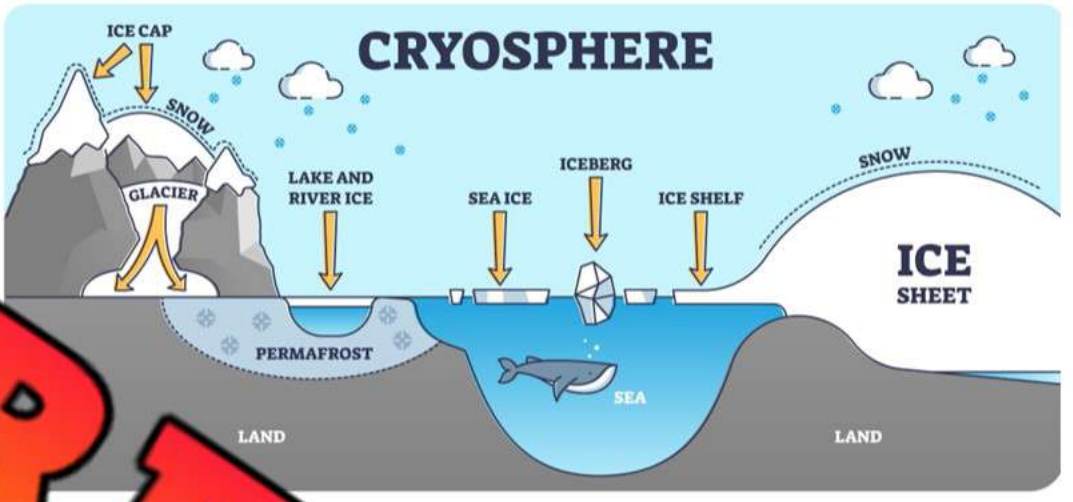
Name: _____ 84

Curriculum Connection
M3.5

Cryosphere - Glaciers

What is the Cryosphere?

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



What a… lacier…

A **glacier** is a … moving, large piec… se t… …n over a long period of time. Most glaciers are made of freshwater … …ed.

- Ice Sheet – Ice sheets are the larg… …r. Ice sheets are the size of continents as they must be bigger … 50,00… …uar… …metres. The only ice sheets on Earth are in Antarctica and Gr… …d.
- Ice Cap – Ice caps are smaller than ice sheets, a… …e les… …50,000 square kilometres. Most ice caps are found near the … …h a… …p… …f the earth. Canada has the Devon Ice Cap on Devon Island in Nu… …at…
- Icebergs – 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.
- Sea Ice – Sea ice is frozen ocean water; therefore, it is made of saltwater. Sea ice floats on the ocean's surface.
- Ice Shelf – 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: _____ 85

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 in order [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: _____ 87

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 **boil**ing the particles throughout the liquid are also changing into a gas. Therefore, boiling req[illegible]e liquid to be exposed to a lot of heat but evaporation can happen even at room t[illegible]e. That is why your wet shirt will "dry" after gym class – yuck!

Fill in th[illegible]anks

Fill in the blanks using words from the word bank

Word Bank				
Liquid	E[illegible]o[illegible]	T[illegible]t	Faster	Disappear
Gas	Warm			

The process of a _____ ch[illegible]nto a [illegible]alled _____. A liquid will turn into a gas as a result of _____ng a[illegible]d by the liquid. A spill will _____ as a result of being evapor[illegible]he st[illegible]/o[illegible]e flowing out of a kettle is a _____. The _____ [illegible]eratu[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.

_____

_____

Name: _____ 88

Curriculum Connection
M3.5

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 dry hours later. This is due to evapora k was sugary, there will be a substan the table.

Evaporation in nunity

In the community, we uring a rainy day, everything is wet and covered in water. Once it s ing, s of evaporation will dry up the puddles. If the sun is out, the eva orat 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: _____ 89

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 of evaporation in the settings below

At Home	
In the Community	
In the Natural Environment	

Name: _____ 90

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]vater after it rains?

_____

_____

2) How does the su[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: _____ 91

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 Location	After 2 Minutes	
	After 5 Minutes	
	After 10 Minutes	
Shady Location	After 2 Minutes	
	After 5 Minutes	
	After 10 Minutes	
Windy Location	After 2 Minutes	
	After 5 Minutes	
	After 10 Minutes	

Results Answer the research questions now that you have completed the experiment

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: _____ 92

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 cause the gas to release heat. When the gas cools, the particles begin to slow down, causing them to be more attracted to each other and form into water droplets.

Condensation on My Drink
Have you ever noticed your cold drink "sweats" on a hot day? Well, your drink doesn't actually sweat. Instead, condensation is occurring. On a hot day, there is a lot of water vapour in the air (because of evaporation). When this warm air makes contact with your cold glass, the water vapour in the air condenses on the side of your glass. This forms water droplets on the cool surface.

Water Cycle – Formation of Clouds
Condensation is very important in the water cycle. As water from lakes, rivers, and oceans evaporate, the water vapour goes up into the atmosphere. It doesn't disappear! Instead, it rises until it comes into contact with a colder surface in our atmosphere, the water vapour commonly clings to dust particles, salt crystals, bacteria, or ash released from volcanoes.

We usually think of clouds only being in the sky, but they can be at ground level too! When we see a cloud near the ground, we call it fog. Walking through fog 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: _____ 93

Curriculum Connection
M3.5

Multiple Choice
Circle the correct answer

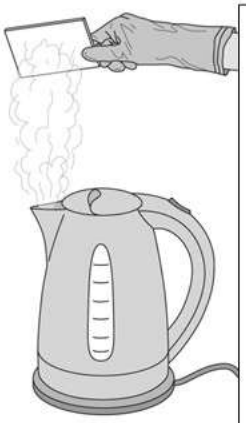
1) Condensation is when...	2) Condensation happens when...
a) vapor/gas turns into a liquid	a) water vapour suddenly freezes
b) liquids turn into a gas	b) water droplets form a liquid
c) a solid melts into a liquid	c) water freezes into ice
d) a gas turns into a solid	d) water heats up into a vapour

Fill in the
Fill in the blanks using words from the word bank

Word Bank				
Condensatio	ds	Condenses	Vapour	Volcanoes
Droplets	Vater	faces	Cold	

Condensation occurs wh _____ is evaporated and _____ into water droplets. _____ from the evaporation collects on a _____ surface. This can be se hen soft drink has water _____ on the can. The process of the rs fo water droplets is called _____. A common example densation formation of _____. Evaporated water from lakes, rivers, and s co der _____ in the air, like dust, salt, bacteria, or even ash _____.

Question
What is happening in the picture?



_____

_____

_____

_____

_____

_____

Name: _____ 97

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 water evaporate and condense on a colder surface? Explain.

2) What will happen with the condensed water droplets?

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: _____ 98

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 [illegible]ed on to	
After the ice [illegible] added to the	

Results

Answer the questions [illegible]hat [illegible]eted the experiment

1) How was this experiment an example [illegible] condens[illegible]?

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

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

Name: _____ 103

Curriculum Connection
M3.6

Water Cycle

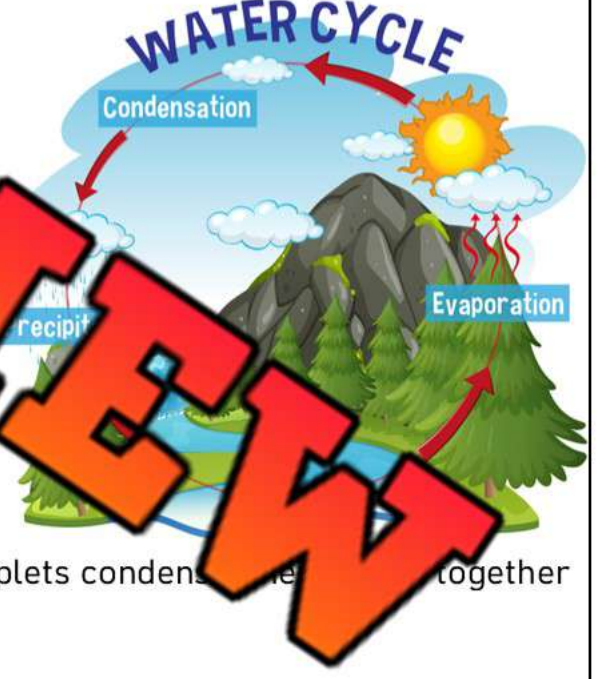
What is the Water Cycle?

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 **water cycle** is the movement of water between the Earth's surface and the air, changing from liquid to gas and gas to liquid.

How Does Water Get Around?

The water in the Water Cycle moves through 4 main stages – *evaporation*, *condensation*, *precipitation*, and *collection*.



Evaporation

Heat from the Sun turns water from oceans, lakes, streams, ponds, and even puddles into water vapour.

The rising water vapour goes up in the sky and cools.

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 condense, they come 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: _____ 104

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 would life be different if water didn't change states in the water cycle?

Multiple Choice

Circle the correct answer

1. When liquid turns into a gas	Condensation	Evaporation
2. When gas turns into a liquid	Condensation	Evaporation
3. When water falls from clouds	Evaporation	Precipitation
4. Precipitation can fall as...	Rain	Rocks
5. Condensation leads to...	Clouds	Puddles

Visualizing

Draw what you were picturing while you were reading in the picture

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 lette[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: _____ 107

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 What do we need?

- ✓ La[illegible] bowl
- ✓ Mug or s[illegible]
- ✓ Plastic wr[illegible]
- ✓ String or larg[illegible]bb[illegible]
- ✓ Hot water – optio[illegible]u 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 up[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: _____ 108

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: _____ 109

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

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

W[illegible]			
models	coding	[illegible]data	weather

1)	A meteorologist is someone who studie[illegible]
2)	Meteorologists can predict the _____
3)	Satellites collect _____ from the in[illegible]e 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: _____ 110

Curriculum Connection
CS.1

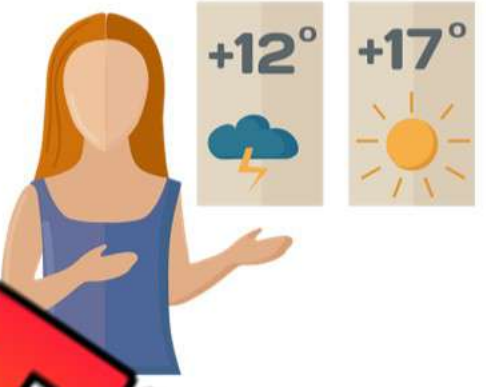
Investigate - Local Weather

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 Find information about your local weather

Weather Conditions	Information
Temperature	
Relative Humidity	
Wind Speed and Direction	
Probability of Precipitation (POP)	
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: _____ 111

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?
- Should they be finding shelter in the case of lightning?
- Should they rent some movies this week?
- Should they water their gardens because there isn't rain anymore?

Writing Write a weather report on the weather in your area in the next 14 days

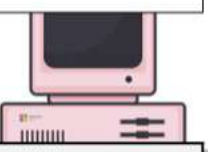
Name: _____ 112

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 is 2° C	The temperature is cool, almost freezing



Coding Write a ... code that goes with the inputted data

Input	Outputs
There are no clouds in th	
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: _____ 113

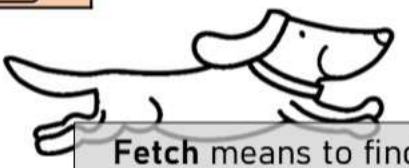
Curriculum Connection
CS.1

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] is more than 50%
Then display "It will probably rain today"
```



Fetch means to find data

Coding Write your code that collects wind, rain, and temperature data and displays it as your message on the screen

1)

2)

3)

Name: _____ 114

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 ground
- **Snow** – starts as snow and stays frozen

Directions Write an if statement that displays which type of weather is coming. Write the Then statements that would follow the If statements.

1) IF the snow melts on the

THEN display, "

2) IF the snow melts and stays melted

3) IF the snow stays frozen

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

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

Name: _____ 118

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	2. Which of the following is an example of a liquid? a) Table b) Peanut Butter c) Wood d) Rock
3. Eve[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]ui[illegible]turns to a gas... a) [illegible]nsati[illegible] b) [illegible]mat[illegible] c) Melti[illegible] d) Evaporati[illegible]
7. When a gas turns into a liquid... a) Condensation b) Sublimation c) Melting (Fusion) d) Evaporation	8. Condensation happ[illegible]w a) water vapour suddenly f[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	Cereal	Human
		
Yes / No	Yes / No	Yes / No

	Time	Idea
		
Yes / No	No	Yes / No

Label the Water Cycle diagram

Evaporation Precipitation Condensation Collection

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

Term	Definition (what does it mean)
Freezing Point	
Mat	

Short Answer Ans – Each question is worth 2 marks

1) What happens to the particle a so heated?

2) Write two examples of evaporation.

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