

Bachelor of Education (Elementary) Unit Plan Template

Unit Title:	What's the Matter?: Solids, Liquids, and Gases	Number of Lessons	8	Time	4 Weeks
Name:	Emma-Lea Marrelli	Subject(s):	Science	Grade(s):	1-3

Rationale

This unit is important for grades 1-3, as it introduces what our whole world is made up of - MATTER! Students learn that everything on Earth is made up of matter, and that there are three different states of matter: solids, liquids, and gases. Students not only get to see how these different states can be found right within their classroom, but they gain a deeper understanding of how they can describe familiar items using scientific language through experimenting and observing. Students also get to witness how matter can even change from state to state, and how mixing different matters can allow us to create useful things.

Overview:

To start off the unit, students in simple terms what matter is. Students identify that matter is anything that takes up space in our world by completing the definition of matter using a worksheet and drawing or writing 3 examples of matter. Next, students learn that there are three states of matter, and will identify various solids and liquids by looking at items around the classroom and writing on a worksheet whether they are solid or liquid. In the third lesson, students will explore the term "Atom" and will learn that atoms are what makes the difference between a solid, a liquid, and a gas. Students will then represent the space between atoms in a solid, liquid, or gas by filling in shapes of a liquid, solid, and gas with cheerios. Following this lesson, students will learn how to identify properties of solids by observing objects and recording what they see and feel using a table. Next, students will be able to identify properties of liquids by observing various liquids with a partner, and colouring/writing their findings on a worksheet. To further student's understanding of states of matter, they will get to predict and observe how snow can change from a solid, to a liquid, and even to a gas. Students will also get to see how mixing matter can create other states of matter by making root beer floats. Lastly, students will be able to demonstrate that mixing matter together can help create useful things by crushing solids (blueberries) into a liquid, and adding other liquids and solids to create homemade paint.

CORE COMPETENCIES

Communication	Thinking	Personal & Social
<ul style="list-style-type: none"> ● Students communicate as a means of sharing their predictions and observations of various experiments. 	<ul style="list-style-type: none"> ● Students are often asked to think about why they think something is the way it is before learning about it to help engage their prior knowledge or 	<ul style="list-style-type: none"> ● Students work on using science materials respectfully and responsibly in the classroom. ● Students are often asked to work respectfully with different

<ul style="list-style-type: none"> ● Students have the opportunity to share their learning through oral communication, worksheets, and exit slips. 	<p>any other questions that they might have.</p> <ul style="list-style-type: none"> ● Students use creative thinking to think about concepts that might not be able to be seen with the human eye. ● Students use critical thinking to develop their own predictions. 	<p>partners in the classroom to help build their presence in the classroom community.</p> <ul style="list-style-type: none"> ● Students are given the opportunity to check their work, and it is up to them to ensure they do so that they hand in their work correctly.
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BIG IDEA

Science 1
Matter is useful because of its properties.
Science 2
Materials can be changed through physical and chemical processes.
Science 3
All matter is made of particles.

LEARNING STANDARDS

Curricular Competencies	Content
<ul style="list-style-type: none"> ● Science G1 CC - Demonstrate curiosity and a sense of wonder about the world. ● Science G1 CC - Make and record observations. ● Science G1 CC - Safely manipulate materials to test ideas and predictions. ● Science G1 CC - Compare observations with predictions through discussion. ● Science G1 CC - Communicate observations and ideas using oral or written language, drawing, or role-play. ● Science G2 CC - Demonstrate curiosity and a sense of wonder about the world. ● Science G2 CC - Make and record observations. ● Science G2 CC - Safely manipulate materials to test ideas and predictions. 	<ul style="list-style-type: none"> ● Science G1 C - Specific properties: solids keep shape; liquids and gases flow. ● Science G1 C - The knowledge of First Peoples: local First Peoples knowledge of the local landscape, plants and animals. ● Science G2 C - Physical: <ul style="list-style-type: none"> → physical ways of changing materials: warming, cooling, cutting, bending, stirring, mixing → materials may be combined or physically changed to be used in different ways (e.g., plants can be ground up and combined with other materials to make dyes) ● Science G2 C - First Peoples use of their knowledge.

<ul style="list-style-type: none"> ● Science G2 CC - Compare observations with predictions through discussion. ● Science G2 CC - Communicate observations and ideas using oral or written language, drawing, or role-play. ● Science G3 CC - Demonstrate curiosity about the natural world. ● Science G3 CC - Make predictions based on prior knowledge. ● Science G3 CC - Consider ethical responsibilities when deciding how to conduct an experiment. ● Science G3 CC - Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate. ● Science G3 CC - Compare results with predictions, suggesting possible reasons for findings. ● Science G3 CC - Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate. 	<ul style="list-style-type: none"> ● Science G3 C - Matter is anything that has mass and takes up space. ● Science G3 C - Atoms are building blocks of matter.
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Prerequisite Concepts and Skills:

<ul style="list-style-type: none"> ● Students should be able to sound out/write basic vocabulary words. ● Students should be able to read short sentences.
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Teacher Preparation Required:

Lesson #	Teacher Preparation Required
Lesson 1	<ul style="list-style-type: none"> ● Prepare coloured water and have rock on hand prior to class. ● Have the video set up and ready to play prior to class. ● Have balloons on hand. ● Print copies of the “Matter” worksheet prior to class.
Lesson 2	<ul style="list-style-type: none"> ● Print a copy of the Matter of Earth diagram. ● Print the mini-posters on solids, liquids, and gases. ● Have the rock and water from the last class on hand. ● Prepare the mystery bag prior to class. ● Print copies of the “Solids and Liquids” worksheet.
Lesson 3	<ul style="list-style-type: none"> ● Print “Atoms” poster prior to class. ● Print the atoms in solids, liquids, and gases posters prior to class. ● Have a computer and the online image ready to use (no sound needed).

	<ul style="list-style-type: none"> ● Print Cheerio Atoms worksheet prior to class.
Lesson 4	<ul style="list-style-type: none"> ● Have various solid objects ready to use. ● Cut strips of paper prior to class. ● Print Solids Properties Table worksheet prior to class.
Lesson 5	<ul style="list-style-type: none"> ● Make a jar of coloured water prior to class/have empty containers ready. ● Make sure to have a copy of last days' chart paper on properties available to review. ● Have student's observation cups ready prior to class (i.e., glue, juice, chocolate sauce, hand lotion or shampoo) ● Print Liquid Cups Observation worksheet prior to class.
Lesson 6	<ul style="list-style-type: none"> ● Have read aloud ready to read. ● MAKE SNOW VIDEO AT HOME PRIOR TO LESSON!!! ● Print Snow Prediction worksheet sheet prior to class. ● Computer/screen
Lesson 7	<ul style="list-style-type: none"> ● Talk to parents about allowing students to have a treat or not. ● Have all materials ready to use prior to class. ● Print exit slips prior to class.
Lesson 8	<ul style="list-style-type: none"> ● Create/print instructions sheet prior to class. ● Have ingredients and materials ready to use - this lesson requires a lot of materials, MAKE SURE you have them before teaching.

Cross-Curricular Connections:

ELA - Reading/writing practice.
Art - Using natural materials to create art.

Indigenous Connections / First Peoples Principles of Learning:

One of the First People's Principles of Learning is that learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). This unit helps students understand that everything on this Earth is created of matter - even people! Showing that we are part of one big world.

Universal Design for Learning (UDL):

MULTIPLE MEANS OF REPRESENTATION:

- Books.
- Videos.
- Hands-on material exploring.
- Connecting learning to familiar items.
- Showing action in real-life through experiments.

MULTIPLE MEANS OF ACTION AND EXPRESSION:

- Students use worksheets.
- Frequent pair work and sharing.
- Exit slips.
- Opportunity for students to check their work before handing it in.

MULTIPLE MEANS OF ENGAGEMENT:

- Relating lessons to everyday items to help learning connect - i.e., balloons, objects around the class.
- Use of fun things like making root beer floats, making paint, and seeing how we can change snow.
- Frequent pair-sharing to keep students actively engaged in their own learning.
- Activating different senses including sight, smell, and touch.

Differentiate Instruction (DI):

- V can receive help from the teacher or EA during pouring and cutting activities.
- Varying examples will be required on the Matter Examples worksheet - students fill in the blanks and draw or write examples of matter on their sheet (Grade 1s write 3 examples, Grade 2s write 4 examples, Grade 3s write 5 examples).
- Exit Slip - if students are still working on their printing and cannot write out their thoughts, they may share their answer with the teacher orally, who can script it on the slip for them.
- Finding solids properties - Students record at least three of the properties listed for 3-5 of the solid objects (grade 1s do 3, grade 2s do 4, grade 3s do 5).

Overview of Lessons:

Lesson 1

Name & Time:	What is Matter? (35 mins) - Small Groups
Learning Standards: Curricular Competencies	Science G1 CC - Demonstrate curiosity and a sense of wonder about the world. Science G2 CC - Demonstrate curiosity and a sense of wonder about the world. Science G3 CC - Demonstrate curiosity about the natural world.
Learning Standards: Content	Science G3 C - Matter is anything that has mass and takes up space.
Instructional Objectives	Student will be able to identify that matter is anything that takes up space in our world by completing the definition of matter using a worksheet and drawing or writing 3 examples of matter.

Assessment:	What: “Matter is...” Worksheet How: Teacher Mark out of 4
Teaching Strategies:	Question, physical demonstration, video, balloon blowing, worksheet.
Materials:	<ul style="list-style-type: none"> ● 1 rock ● Coloured water in a clear jar ● Empty balloons - 1 x each student ● Air & Space Video - https://kids.britannica.com/kids/article/matter/353444 ● “Matter is...” Worksheet - 1 x each student + extras
Lesson Activities:	
Introduction/Hook:	What is Matter? - Gather students and ask students if anyone has heard of the word “matter” before. Do they know anything about it? Are there more than one meanings for it? Explain to students that when we talk about the world's matter in Science, we are talking about anything that takes up space. Ask students what kinds of things take up space?
Body:	<p>Showing Matter: Hold up a rock and ask the students if the rock takes up space? (They should say yes) So it’s matter! Then show students the coloured water. Ask students if the coloured water takes up space? (They should say yes) So it’s matter! Then ask students if they think the air around us that we can’t see takes up space? (They will likely say no). Explain to students that even though we can’t see air, it can take up space and we are going to watch a video to show us!</p> <p>Air & Space Video - Play video https://kids.britannica.com/kids/article/matter/353444</p> <p>Balloon Activity - After watching the video about how air can take up space, give each student a balloon to blow up so they can see how air really does take up space - meaning even air is matter too!</p> <p>Review - Ask students, why is the rock, the water, and the air inside the balloon considered matter? (Because they take up SPACE!)</p> <p>Matter Worksheet - Provide students with a worksheet that says “Matter is anything that takes up _____.” Have students fill in the blanks and draw or write examples of matter on their sheet. (Grade 1s write 3 examples, Grade 2s write 4 examples, Grade 3s write 5 examples)</p>
Closure:	Closure: Have students put their worksheet in their Science duotang and tell them that we are going to look at matter in more detail next lesson.

Lesson 2

Name & Time:	Introduction to Solids, Liquids, and Gases (45 Mins) - Small Groups
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Learning Standards: Curricular Competencies	<p>Science G1 CC - Demonstrate curiosity and a sense of wonder about the world. Science G2 CC - Demonstrate curiosity and a sense of wonder about the world. Science G3 CC - Demonstrate curiosity about the natural world.</p> <p>Science G1 CC - Observe objects and events in familiar contexts. Science G2 CC - Observe objects and events in familiar contexts. Science G3 CC - Observe objects and events in familiar contexts.</p> <p>Science G1 CC - Ask questions about familiar objects and events. Science G2 CC - Ask questions about familiar objects and events. Science G3 CC - Identify questions about familiar objects and events that can be investigated scientifically.</p> <p>Science G1 CC - Sort and classify information using drawings, pictographs and provided tables. Science G2 CC - Sort and classify information using drawings, pictographs and provided tables. Science G3 CC - Sort and classify information using drawings or provided tables.</p>
Learning Standards: Content	<p>Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G3 C - Matter is anything that has mass and takes up space.</p>
Instructional Objectives	<p>Student will be able to identify various solids and liquids by looking at items around the classroom and writing on a worksheet whether they are solid or liquid.</p>
Assessment:	<p>What: Solids and Liquids Worksheet How: Teacher Mark out of 6</p>
Teaching Strategies:	<p>Review, pictures/discussion, guessing game, classroom search/worksheet, review search.</p>
Materials:	<ul style="list-style-type: none"> ● 2 rocks ● 1 coloured water in a clear container ● Solid, Liquid, Gases posters ● 1 Mystery bag ● Mystery bag items - block, glue stick, crayon, tin foil piece, ketchup pack, hand sanitizer, juice box, yogurt tube, etc. - enough for 1 each student. ● Liquids/Solids Search worksheet
Lesson Activities:	
Introduction/Hook:	<p>Review: Ask students if anyone can help remind the class what matter is? (anything that takes up space!) Remind students how last day we talked about how things like rocks, water, and even air is matter.</p> <p>Matter on Earth Picture: Show students the picture of matter shown on Earth, and how it is divided into 3 different states (or kinds) of matter: solids (like rocks), liquids (like water), and gases (like air).</p>

<p>Body:</p>	<p>What We Can See Descriptions: After students make some guesses, discuss each state using mini posters and showing examples of one solid and one liquid (the rock and the water from last lesson):</p> <ol style="list-style-type: none"> 1. Solids - Hold their shape. 2. Liquids - Take the shape of their container (whatever is holding it). 3. Gases - Are difficult to see or touch. <p>Mystery Box: Explain to students that today we are going to decide whether something is a SOLID or a LIQUID. Introduce a mystery box that contains various liquids and solids (i.e., a block, glue stick, crayon, piece of tin foil, ketchup packet, hand sanitizer, juice box, snack-size tube of yogurt, liquid-filled stress ball). Invite students to take turns pulling items out of the box. As each item is pulled out of the mystery box, ask: “Is this a liquid, a solid, or a mystery (we aren’t sure)?” Have students pass each item around and examine it as they discuss the question. Remind students <u>not to taste</u> any of the items. Explain why each item is a solid or a liquid.</p> <p>Classroom Liquids/Solids Search: Provide students with a worksheet that has two columns (one for liquids and one for solids), and have them walk around the class and try to find and record at least 3 liquids and 3 solids, or as many more that they can find during the time.</p>
<p>Closure:</p>	<p>What Did you Find?: Gather students around the carpet with their worksheets and ask them what they found, and whether it’s a solid or a liquid.</p>

Lesson 3

<p>Name & Time:</p>	<p>Atoms: Solids, Liquid, and Gases (40 mins) - Small Groups</p>
<p>Learning Standards: Curricular Competencies</p>	<p>Science G1 CC - Ask questions about familiar objects and events. Science G2 CC - Ask questions about familiar objects and events. Science G3 CC - Identify questions about familiar objects and events that can be investigated scientifically.</p> <p>Science G1 CC - Communicate observations and ideas using oral or written language, drawing, or role-play. Science G2 CC - Communicate observations and ideas using oral or written language, drawing, or role-play. Science G3 CC - Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate.</p>
<p>Learning Standards: Content</p>	<p>Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G3 C - Atoms are building blocks of matter.</p>
<p>Instructional Objectives</p>	<p>Student will be able to represent the space between atoms in a solid, liquid, or gas by filling in shapes with cheerios.</p>
<p>Assessment:</p>	<p>What: Cheerio Atom worksheet How: Self-assessment/teacher mark</p>

Teaching Strategies:	Review, poster teaching, online visual, cheerio worksheet.
Materials:	<ul style="list-style-type: none"> ● Atom definition poster ● Atoms comparison poster (solid, liquid, gas) ● Computer/screen ● Online visual: https://kids.britannica.com/kids/article/matter/353444 ● Cheerios ● Cheerio Atoms worksheet - 1 x each student ● Ipad or school device to take photos with
Lesson Activities:	
Introduction/Hook:	Intro: Remind students that last lesson we talked about what we can see that's different about solids, liquids, and gases. There's also something different about them that we can't see by just looking at them, and today we are going to learn about that!
Body:	<p>Atoms: Using an atoms poster, go over the word "Atoms". So what are atoms? Atoms are the smallest parts of any kind of matter (show how in the picture of the apple there are little circles, each is an atom).</p> <p>Descriptions/Particles: After students make some guesses, discuss each state using mini posters showing the organization of atoms in solids, liquids, and gases:</p> <ol style="list-style-type: none"> 1. Solids - Hold their shape and the atoms are tight together. 2. Liquids - Take the shape of their container and the atoms are more loose. 3. Gases - Are difficult to see or touch and the atoms are very spread out. <p>Atoms Visual: Using a computer/screen (no sound needed), show studying the action visual of the difference between the atoms in solids, liquids, and gases https://kids.britannica.com/kids/article/matter/353444</p> <p>Cheerio Atoms: Next, provide students with a worksheet that has a solid shape, a liquid shape, and a gas shape (apple, glass, balloon) and a bowl of cheerios. Explain to the students that it's their job to use the cheerios to represent atoms and show what the atoms would look like inside of each shape (i.e., solid=close together, liquid=somewhat spread out, gas=very spread out).</p> <p>Check Your Work: Once students are done, have them check their work by looking at the examples of the atom posters to see if their cheerio worksheets match up correctly.</p>
Closure:	Picture Time!: Once students have their sheet correct, ask the teacher to take a picture of their sheet using an ipad or school device.

Lesson 4

Name & Time:	How to Describe Solids (35 Mins) - Small Groups
Learning Standards: Curricular Competencies	<p>Science G1 CC - Observe objects and events in familiar contexts. Science G2 CC - Observe objects and events in familiar contexts. Science G3 CC - Observe objects and events in familiar contexts.</p> <p>Science G1 CC - Record observations. Science G2 CC - Record observations. Science G3 CC - Safely use appropriate tools to make observations.</p> <p>Science G1 CC - Sort and classify information using drawings, pictographs and provided tables. Science G2 CC - Sort and classify information using drawings, pictographs and provided tables. Science G3 CC - Sort and classify information using drawings or provided tables.</p>
Learning Standards: Content	<p>Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G3 C - Matter is anything that has mass and takes up space.</p>
Instructional Objectives	<p>Student will be able to identify properties of solids by observing objects and recording what they see and feel using a table.</p>
Assessment:	<p>What: Properties Table How: Teacher Mark</p>
Teaching Strategies:	<p>Passing objects, class observations, sharing and sorting, pair work activity.</p>
Materials:	<ul style="list-style-type: none"> ● Various solid objects for passing around (approx 10) (i.e. ruler, pipe cleaners, marshmallow, tinfoil, small ball, pompom, block, apple, stuffed animal, etc.) ● Strips of paper to write on ● Chart paper/marker ● Word Wall words ● Various solids for completing worksheet (at least 3 per pair) ● Properties Table Worksheet
Lesson Activities:	
Introduction/Hook:	<p>Exploring Solids: Have students pass around various solid objects. Tell them to take a look at it and feel it, and then pass it around. Collect all the items back once everyone has had a chance to feel and look at each item.</p>
Body:	<p>Describing Solids: Hold each of the items up one at a time, asking students what the object looks like and what it felt like? Using strips of paper, write down any words students use that describe properties (i.e., orange, round, small, hard, bendy, light, etc.).</p> <p>Sorting Properties: Once you've gone through all the items, spread the word strips on a table or the floor and ask students how they might sort or group</p>

	<p>them (i.e., colours, shape, size, texture, hardness, flexibility, weight). Write each of the categories on chart paper or explain the different properties if necessary (texture, hardness, flexibility, and weight might be new words to them). Explain that these categories are properties, or ways to describe how something feels or looks. By describing an object's properties, we can tell someone else about the object even if we don't know what it is. Add the words "properties" "texture," "flexibility," and "weight" to the Word Wall.</p> <p>Pair Properties Work: Have students get into pairs and give each pair a small collection of various solids (i.e., foil, sheet of paper, plastic baggie, crayon, block of wood, eraser, a straw, modelling clay, gummy bear). Students can manipulate each solid and observe its colour, shape, size, texture, hardness, and flexibility. Have each pair choose three of the items and write out their matching properties on a properties table that has columns for colour, shape, size, texture, weight, and flexibility. Students then record at least three of the properties listed for 3-5 of the solid objects (grade 1s do 3, grade 2s do 4, grade 3s do 5).</p>
Closure:	Have students store their completed table in their Science duotang.

Lesson 5

Name & Time:	How to Describe Liquids (45 mins) - Small Groups
Learning Standards: Curricular Competencies	<p>Science G1 CC - Record observations. Science G2 CC - Record observations. Science G3 CC - Safely use appropriate tools to make observations.</p> <p>Science G1 CC - Observe objects and events in familiar contexts. Science G2 CC - Observe objects and events in familiar contexts. Science G3 CC - Observe objects and events in familiar contexts.</p> <p>Science G1 CC - Compare observations with those of others. Science G2 CC - Compare observations with those of others. Science G3 CC - Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate.</p>
Learning Standards: Content	<p>Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G3 C - Matter is anything that has mass and takes up space.</p>
Instructional Objectives	Student will be able to identify properties of four different liquids by observing with a partner, and colouring/writing their findings on a worksheet.
Assessment:	<p>What: Liquid Observation Worksheet How: Complete/Incomplete</p>
Teaching Strategies:	Demonstration, discussion, observing liquids/worksheet, pair sharing.

Materials:	<ul style="list-style-type: none"> ● Different clear plastic containers ● Cup of coloured water ● Chart paper from last lesson including properties of solids/marker ● Small clear cups - 4 x each pair of students ● 4 different liquids - glue, milk, vinegar, juice, oil, chocolate sauce, lotion, shampoo, etc.) ● Liquids (Empty Cups) Observation Worksheet - 1 x each student ● Various clear containers
Lesson Activities:	
Introduction/Hook:	<p>Observing Liquids: Display several clear plastic containers in a variety of shapes and sizes, and have a clear jar full of coloured water. Have a volunteer come and pour the coloured water into one of the empty containers. Ask students if they think there is now less water, more water, or the same amount? If students don't say "the same", explain to them that we didn't add or take away any of the liquid, we just put it in a different container. Ask another student to come up and pour the liquid from that container into another different sized container and ask the same question: Is there less water, more water, or is it the same amount? (Students should answer "the same!"). Next, ask students what happened to the shape of the liquid when it went from one container to another? (it changed shape!) How is this different from how the solid behaved? (a solid holds its shape!) Reiterate to students that liquids change to take the shape of the container they are in, but solids do not.</p>
Body:	<p>Properties of Liquids: Remind students about how during our last lesson we talked about some of the properties of solids - ask students if anyone remembers some of the properties we talked about? (i.e., colours, shape, size, texture, hardness, flexibility, weight). Refer back to the chart paper where we wrote these properties down and go through each one, asking if we could look at the same property when observing liquids. (Some, like colour and texture). Write out "Liquids" in a bubble on either the same chart paper or a new sheet, and add the following properties. Explain that there are other properties of liquids that we can look at to help us describe them! In addition to colour and possibly texture, we can observe its smell and it's behaviour (how does it move?) - it's a thick liquid (flows slowly) or thin liquid (flows quickly).</p> <p>Observing Liquids in Pairs: In pairs, provide each pair with four small clear plastic cups containing samples of different liquids (i.e., glue, milk, vinegar, juice, cooking oil, chocolate sauce, hand lotion, shampoo). Provide each student with a worksheet that has 4 empty cups on it, have them label each of the cups with the liquid that they're looking at, colour it in if it has a colour, and write what it smells like and if it flows slow or fast. Have each pair investigate and communicate about their liquids by observing colour, smell, and behaviour by pouring each liquid carefully into other containers and observe how it flows.</p>
Closure:	<p>Share Observations: Have pairs join up with another pair and discuss their observations to see if they were similar. Once done, have students put their worksheet in their Science duotang.</p>

Lesson 6

Name & Time:	From Snow, to Water, to Gas: Changing Properties of Matter - Small Groups or Whole Class
Learning Standards: Curricular Competencies	<p>Science G1 CC - Observe objects and events in familiar contexts. Science G2 CC - Observe objects and events in familiar contexts. Science G3 CC - Observe objects and events in familiar contexts.</p> <p>Science G1 CC - Make simple predictions about familiar objects and events. Science G2 CC - Make simple predictions about familiar objects and events. Science G3 CC - Make predictions based on prior knowledge.</p> <p>Science G1 CC - Compare observations with predictions through discussion. Science G2 CC - Compare observations with predictions through discussion. Science G3 CC - Compare results with predictions, suggesting possible reasons for findings.</p> <p>Science G1 CC - Communicate observations and ideas using oral or written language.</p>
Learning Standards: Content	<p>Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G2 C - Physical ways of changing materials; materials may be combined or physically changed to be used in different ways. Science G3 C - Atoms are building blocks of matter.</p>
Instructional Objectives	Student will be able to show the order in which snow can change from one state to another using a worksheet.
Assessment:	<p>What: Snow Changing Matter Worksheet How: Complete/Incomplete (student has opportunity to check their work)</p>
Teaching Strategies:	Question/review, read aloud, predicting worksheet, experiment video, review.
Materials:	<ul style="list-style-type: none"> ● Read Aloud: <i>Perfect Snow</i> by Barbara Reid ● Homemade Video (snow to water to steam) ● Computer/screen to watch ● Snow Changing Matter Prediction Worksheet - 1 x each student
Lesson Activities:	
Introduction/Hook:	<p>Question: Ask if someone can remind the class of the 3 states of matter that we have been talking and learning about? (Solids, liquids, gases). Ask students who can share one example of a solid? An example of a liquid? And an example of a gas? After this, ask students if they think matter can change from one state to another? (i.e., Do you think a solid can become a liquid?) The answer is yes, and today we are going to look at an example of that. Before we do, we are going to read a story!</p>

<p>Body:</p>	<p>Read Aloud: <i>Perfect Snow</i> by Barbara Reid - After the read aloud, ask students why they think the snow into mush at the end of the story? (Because it rained!) So when it rained, the snow mixed with the rain and it became slushy. Next ask, what do you think would happen to that slush if the sun came out and it was really warm out? (The slush would melt into water!) This means that states of matter can change!</p> <p>Predict: Explain to students that while you were at home, you recorded an experiment for them, but before they watch it, they need to predict what is going to happen in the experiment. Explain to them that you used snow from outside and put it inside of a hot pot on the stove. So you used HEAT the whole time. Provide them each with a Snow Changing Matter Prediction sheet and ask them to label the descriptions on the sheet in the order that they think they will happen during the experiment (solid, liquid, gas).</p> <p>Experiment/Observe: Have students watch the video of you putting snow into a pot, turning on the oven and melting the snow into a liquid, and then waiting until the liquid turns into steam (a gas).</p>
<p>Closure:</p>	<p>Review Video/Sheet with Students: Ask students how our snow changed states throughout the video. What state was it at first? (Solid!) And then we added HEAT which turned it into a what? (Liquid!) And after a while of being heated, what happened to our liquid? (It evaporated as a gas!). Again, ask students if matter can change states? (Yes it can!) Have students look at their worksheet and make sure that they have the correct order of events and then put it in their Science duotang.</p>

Lesson 7

<p>Name & Time:</p>	<p>Root Beer Floats: Solid, Liquids, Gas (40 Mins) - Whole Class</p>
<p>Learning Standards: Curricular Competencies</p>	<p>Science G1 CC - Observe objects and events in familiar contexts. Science G2 CC - Observe objects and events in familiar contexts. Science G3 CC - Observe objects and events in familiar contexts.</p> <p>Science G1 CC - Make simple predictions about familiar objects and events. Science G2 CC - Make simple predictions about familiar objects and events. Science G3 CC - Make predictions based on prior knowledge.</p> <p>Science G1 CC - Compare observations with predictions through discussion. Science G2 CC - Compare observations with predictions through discussion. Science G3 CC - Compare results with predictions, suggesting possible reasons for findings.</p> <p>Science G1 CC - Communicate observations and ideas using oral or written language. Science G2 CC - Communicate observations and ideas using oral or written language. Science G3 CC - Communicate ideas and findings in a variety of ways.</p>

Learning Standards: Content	Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G2 C - Physical ways of changing materials; materials may be combined or physically changed to be used in different ways. Science G3 C - Atoms are building blocks of matter.
Instructional Objectives	Student will be able to contribute their thoughts about participating in an observation experiment by sharing something they learned or what they found interesting on an exit slip.
Assessment:	What: Participation in Activity How: Exit Slip
Teaching Strategies:	Root beer float talk, discussion, predicting/pair sharing, observing, exit slip.
Materials:	<ul style="list-style-type: none"> ● 5-ounce plastic cups - 1 x each student ● Root beer ● Vanilla ice cream ● Ice cream scoop ● Spoons - 1 x each student ● Napkins or wet wipes ● Food handling gloves ● Hand sanitizer ● Straws ● Exit slips
Lesson Activities:	
Introduction/Hook:	Root Beer Floats Talk: Ask the students to raise their hand if they've ever had a root beer float before. Next, ask if someone knows and can share what you need to make a root beer float (a cup, root beer, and ice cream!)
Body:	<p>Identify our materials: Without giving them each their materials yet, explain to students what we are going to be using today during an experiment. Root beer and ice cream! Ask the students what state of matter they think the ice cream is (solid) and what state of matter the rootbeer is (liquid).</p> <p>Pair Predictions: Explain to students that today we are going to be mixing our solid and liquid together. Ask students to talk with a partner to share what they think will happen when we add the solid (ice cream) into the liquid (rootbeer). If students aren't sure, prompt questions such as: Do you think the ice cream will sink or float? Will anything else happen once we mix the two states of matter together?</p> <p>Observe and Discuss: Provide each student with one small scoop of ice cream in the clear up and another cup with $\frac{3}{4}$ cup of liquid in it. Next, have each student pour the $\frac{3}{4}$ cup of root beer into their ice cream cup. Observe and discuss: Can you still identify the solid (ice cream) and the liquid (root beer)? Is there anything else happening inside the cup? The bubbles! Ask students if they know what state of matter the bubbles are? Gas! Why? Because as the</p>

	ice cream melts in the liquid, the mixture of the two is creating trapped gas, (known as carbonation). So the bubbles we see are gas created by adding the solid to the liquid!
Closure:	<p>Exit Slip: Provide students with an exit slip that asks them to write down one thing they learned or saw during our experiment - if students are still working on their printing, they may share their answer with the teacher orally, who can script it on the slip for them.</p> <p>** (Optional) Treat Time: If parents have approved and you've ensured there are no dairy allergies (or an alternative dairy option has been approved for applicable students), students may wash their hands and drink their root beer floats!</p>

Lesson 8

Name & Time:	Mixing Matter (45 mins) - Small Groups or Whole Class
Learning Standards: Curricular Competencies	<p>Science 1 CC - Transfer and apply learning to new situations. Science 2 CC - Transfer and apply learning to new situations. Science 3 CC - Transfer and apply learning to new situations.</p> <p>Science 1 CC - Safely manipulate materials to test ideas and predictions. Science 2 CC - Safely manipulate materials to test ideas and predictions.</p>
Learning Standards: Content	<p>Science G1 C - Specific properties: solids keep shape; liquids and gases flow. Science G2 C - Physical ways of changing materials; materials may be combined or physically changed to be used in different ways. Science G3 C - Atoms are building blocks of matter.</p> <p>Science G1 C - The knowledge of First Peoples: local First Peoples knowledge of the local landscape, plants and animals. Science G2 C - First Peoples use of their knowledge.</p>
Instructional Objectives	Student will be able to demonstrate that mixing matter together can help create useful things by crushing solids (blueberries) into a liquid, and adding other liquids and solids to create homemade paint.
Assessment:	<p>What: Student Painting How: Complete/Incomplete</p>
Teaching Strategies:	Discussion, question, directions, paint-making activity, paint testing, sharing.
Materials:	<ul style="list-style-type: none"> ● 1/3 Cup Thawed Frozen Blueberries (purple) - per student (or microwave 30 seconds) ● Vinegar 1/2 teaspoon - per student ● Salt 1/2 - per student ● Guar Gum 1/4 tsp - per student ● Measuring spoons (1 set)

	<ul style="list-style-type: none"> ● Small mixing bowls - 1 per each student ● Cups - 1 per each student ● Forks - 1 per each student ● Mini whisks - 1 per student ● Mini strainer - 1 per student ● Paint brushes - 1 per each student ● Paint paper - 1 per student ● Instruction sheet
Lesson Activities:	
Introduction/Hook:	<p>Mixing Matter? - Remind students that last lesson we looked at how when we added a solid to liquid, it added gas and it created a yummy rootbeer float. So we know that we can add different states of matter together to create others. But today, we are going to look at how we can use different ways to change the state of matter and mix it with other matter to create something new and useful!</p>
Body:	<p>Indigenous Connection: Explain to students that the Okanagan Peoples and many other Indigenous communities in British Columbia (and across Canada) have used materials found in nature to make the things they want and need. One popular thing that Indigenous people have made great use out of is berries! Ask students if anyone can name a type of berry? (i.e., blueberry, raspberry, blackberry, huckleberry, saskatoon berry, etc.) Tell students that today we are going to be using blueberries to make paint!</p> <p>Material Overview: Using an instructions sheet, go over the ingredients we will be using today and identify if they are a solid or a liquid (blueberries, vinegar, salt, guar gum). Next review the materials we will need (small bowl, mini whisk, mini strainer, forks, cups, paint brushes, paper).</p> <p>Directions Overview: Provide each student with a directions sheet, and go over the directions with the students before they start the activity:</p> <ol style="list-style-type: none"> 1. Come grab material - 1 small bowl, 1 fork, 1 mini whisk, 1 mini strainer (may need to share strainers) and bring them back to your workspace. 2. Next, bring your bowl up to the front and the teacher will provide you with 1/3 cup blueberries in your bowl - take them back to your desk and use your fork to mash up the blueberries until there is a good amount of liquid. Show the teacher when you think yours is all mashed up. 3. Next, strain your mashed blueberries over the top of a cup. 4. Come back to the teacher to give you 1/2 teaspoon vinegar and 1/2 tsp of salt - take it back to your desk and MIX with your whisk! 5. Come back to the teacher to give you 1/4 tsp of guar gum - take it back to your desk and MIX well! 6. Test it out! Once you've mixed it all together, grab a paintbrush and a piece of paper. Please write your name on the paper and create a piece of art with your paint!

	<p>Making Plant Paints: Students work away on creating their paint, using their directions and asking the teacher for help as needed.</p> <p>Product Testing (painting): Students test out their paint using a paintbrush and paper.</p>
Closure:	Share Results: Once everyone has had time to try using their paint, ask students to walk around and take a look at everyone's art!

Resources:

Books:

- *Perfect Snow* by Barbara Reid (Lesson 6)

Videos/Online Resources:

- Video - <https://kids.britannica.com/kids/article/matter/353444> (Lesson 1)
- Online visual - <https://kids.britannica.com/kids/article/matter/353444> (Lesson 3)
- Snow Video - **MAKE SNOW VIDEO AT HOME PRIOR TO LESSON!!!** (Lesson 6)

Worksheets:

- "Matter" worksheet (Lesson 1)
- Matter of Earth diagram (Lesson 2)
- Mini-posters on solids, liquids, and gases (Lesson 2)
- "Solids and Liquids" worksheet (Lesson 2)
- "Atoms" poster (Lesson 3)
- Atoms in solids, liquids, and gases posters (Lesson 3)
- Cheerio Atoms worksheet (Lesson 3)
- Solids Properties Table worksheet (Lesson 4)
- Liquid Cups Observation worksheet (Lesson 5)
- Snow Prediction worksheet (Lesson 6)
- Exit slips (Lesson 7)

Teacher Resource:

- Website: <https://www.scholastic.ca/education/nlscience/pdfs/grade2/unit2-liquidsolid/grade2-liquids-and-solids-tg.pdf>
- YouTube Video (to watch prior to lesson if you want!)
<https://www.youtube.com/watch?v=DBYtFGhfkME> (Prior to Lesson 7)

Extensions to Unit:

This unit could be extended by having students learn about chemical ways of changing matter, such as cooking, burning, etc. and further learning about how the properties change during these processes.