

Mystery Science Alignment with British Columbia Science Standards



Mystery Science is a hands-on curriculum that aligns with the British Columbia Content Learning Standards.

Mystery Science's units of study contain:

- Hands-on, easy-prep activities with EVERY lesson
- Engaging, real-world investigative phenomena
- Thoughtful discussions to build background knowledge
- Lesson & unit assessments to evaluate comprehension
- Curated, cross-curricular extensions

Mystery Science also offers the Anchor Layer, which enriches the unit with an anchor phenomenon, incorporates anchor connections after each lesson, & concludes the unit with a performance task.

Kindergarten

Life Science	Page 3
Animal Needs	
Plant Needs	
Earth & Space Science	Page 5
Severe Weather	
Weather Patterns	
Physical Science	Page 7
Pushes & Pulls	
Material Properties	

1st Grade

Life Science	Page 8
Animal Traits & Survival	
Plant Traits & Survival	
Plant Growth & Interactions	
Earth & Space Science	Page 11
Day Patterns	
Night Patterns	
Physical Science	Page 13
Material Properties	
Light, Sound, & Communication	

2nd Grade

Life Science	Page 14
Animal Traits & Survival	
Plant Traits & Survival	
Life Cycles	
Earth & Space Science	Page 16
Erosion & Earth's Surface	
Weather & Climate	
Physical Science	Page 17
Material Properties	
States of Matter	
Forces, Motion, & Magnets	

3rd Grade

Life Science	Page 20
Animal Biodiversity & Habitats	
Fossils & Changing Environments	
Heredity, Survival, & Selection	
Ecosystems & The Food Web	
Earth & Space Science	Page 25
Erosion & Earth's Surface	
Physical Science	Page 27
Sunlight & Warmth	
Chemical Reactions & Properties of Matter	

4th Grade

Life Science	Page 29
Human Body, Vision, & The Brain	
Animal & Plant Adaptations	
Earth & Space Science	Page 31
Weather & Climate	
Earth & Space Patterns	
Physical Science	Page 33
Sound, Waves, & Communication	
Electricity, Light, & Heat	

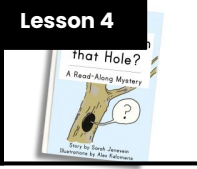
5th Grade

Life Science	Page 35
Human Body, Vision, & The Brain	
Earth & Space Science	Page 36
Earth's Features & Processes	
Water Cycle & Earth's Systems	
Physical Science	Page 38
Energy & Energy Transfer	
Chemical Reactions & Properties of Matter	

6th Grade

Earth & Space Science	Page 40
Stars & Planets	

Animal Needs (Animal Secrets)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Animal Needs: Food Why do woodpeckers peck wood?	Students obtain information through virtual observations of different animal behaviors. They use this evidence to explain that one of the basic needs of animals is food.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>
Lesson 2 	Animal Needs: Shelter Read-Along Where do animals live?	Students obtain information through media about how different animal homes are built. They use this evidence to explain that animals need shelter.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>
Lesson 3 	Animal Needs: Safety How can you find animals in the woods?	Students obtain information through virtual observations of different animal behaviors. They use this evidence to explain that one of the basic needs of animals is shelter.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>
Lesson 4 	Animals & Changing the Environment Read-Along How do animals make their homes in the forest?	Students take a nature walk to look for evidence of animal homes.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>

Plant Needs (Plant Secrets)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Living & Nonliving Are plants alive?	Students make observations of plants in order to identify their needs and that they are, in fact, living things.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>
Lesson 2 	Plant Needs: Water & Light How do plants and trees grow?	Students investigate to determine the basic needs of plants. They observe to identify ways young plants resemble the parent plant and how the plant changes as it proceeds through its life cycle.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>
Lesson 3 	Human Impacts on the Environment Read-Along Why would you want an old log in your backyard?	Students obtain evidence of living organisms by virtually keeping watch of a log and the living things that visit it.	Kindergarten. Plants and animals have observable features.. Students are expected to know <i>basic needs of plants and animals.</i>

Severe Weather (Wild Weather)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Severe Weather & Preparation Read-Along How can you get ready for a big storm?	Students obtain information of different types of severe weather to observe and describe how the weather changes during these events and what students can do to prepare and stay safe.	Kindergarten. Daily and seasonal changes affect all living things. Students are expected to know <i>weather changes</i> .
Lesson 2 	Wind & Storms Have you ever watched a storm?	Students create a simple tool that allows them to observe how hard the wind is blowing. They use this tool to observe weather changes and describe the pattern of faster wind speeds right before a storm.	Kindergarten. Daily and seasonal changes affect all living things. Students are expected to know <i>weather changes</i> .
Lesson 3 	Weather Conditions How many different kinds of weather are there?	Students obtain information through observations of the weather. They communicate the information by acting as weather watchers and creating drawings of the weather conditions.	Kindergarten. Daily and seasonal changes affect all living things. Students are expected to know <i>weather changes</i> .

Weather Patterns (Circle of Seasons)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Daily Weather Patterns Read-Along How do you know what to wear for the weather?	Students track the weather daily and analyze the data by collecting, recording, and sharing their observations to observe patterns of weather changing throughout the day and from day-to-day.	Kindergarten. Daily and seasonal changes affect all living things. Students are expected to know <i>weather changes</i> .
Lesson 2 	Seasonal Weather Patterns What will the weather be like on your birthday?	Students evaluate information in a series of unnamed drawings of each season. They use these clues to identify characteristics of each season and describe the yearly cyclical pattern.	Kindergarten. Daily and seasonal changes affect all living things. Students are expected to know <i>seasonal changes</i> .
Lesson 3 	Animals Changing Their Environment Why do birds lay eggs in the spring?	Students identify the reasons why birds lay eggs in the spring. Then, they develop a bird nest model and use this model as evidence for how animals can change the environment to meet their needs.	Kindergarten. Daily and seasonal changes affect all living things. Students are expected to know <i>living things make changes to accommodate daily and seasonal changes</i> .

Mini-lesson


Hibernation

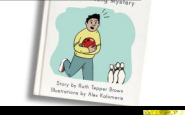
 Why do bears hibernate?

Mini-lesson


Migration

 Why do animals come back after going to warm places in the winter?

Pushes & Pulls (Force Olympics)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Pushes & Pulls What's the biggest excavator?	Students observe different machines and use those observations as evidence for why machines make work easier.	Kindergarten. The motion of objects depend on their properties. Students are expected to know effects of pushes/pulls on movement .
Lesson 2 	Pushes, Pulls, & "Work Words" Read-Along Why do builders need so many big machines?	Students observe construction equipment being used in different ways to move objects.	Kindergarten. The motion of objects depend on their properties. Students are expected to know effects of pushes/pulls on movement .
Lesson 3 	★ Strength of Pushes & Pulls How can you knock down a heavy wall?	Students carry out an investigation to determine the strength of a model wrecking ball's push needed to knock down a wall, but not the houses behind it.	Kindergarten. The motion of objects depend on their properties. Students are expected to know effects of size, shape, and materials on movement .
Lesson 4 	Speed & Direction of Force Read-Along How can you knock down the most bowling pins?	Students play a game of bumper bowling to observe the way that objects can move in straight lines, zigzags, and back and forth.	Kindergarten. The motion of objects depend on their properties. Students are expected to know effects of size, shape, and materials on movement .
Lesson 5 	Direction of Motion & Engineering How can we protect a mountain town from falling rocks?	Students conduct an investigation of how to protect a town from a falling boulder. They design a solution to safely guide the direction of the boulder away from the town.	Kindergarten. The motion of objects depend on their properties. Students are expected to know effects of size, shape, and materials on movement .
Lesson 6 	Forces & Engineering Read-Along How could you invent a trap?	Students define a problem they would like to solve and then design a solution using what they know about the locations of objects and how they can move.	Kindergarten. The motion of objects depend on their properties. Students are expected to know effects of size, shape, and materials on movement .

★ New lesson

See all [Curriculum Updates](#)

Material Properties (Material Magic)

This unit is found under 2nd grade on our site, but we recommend teaching this lesson in Kindergarten if you are following British Columbia Standards.

	Material Properties & Engineering Why do we wear clothes?	Students investigate different material properties, such as flexibility and absorbency, and use those properties to design and build a hat that protects them from the sun.	Kindergarten. Humans interact with matter every day through familiar materials. Students are expected to know properties of familiar materials .
---	---	---	--

Animal Traits & Survival (Animal Superpowers)

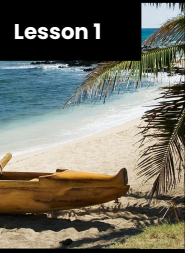
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Parent & Offspring Traits How can you help a lost baby animal find its parents?	Students observe the traits of adult and baby animals in order to construct an explanation that most young animals are like, but not exactly like, their parents.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.
We recommend teaching this in 2nd Grade if following British Columbia Standards.			
Lesson 2 	Offspring Trait Variation Can you predict what an animal's babies will look like?	Students observe the traits of parent and baby animals to construct an explanation that offspring look similar to their parents, but can also vary in many ways. They predict what a puppy might look like based on the traits of the parent dogs.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.
We recommend teaching this in 2nd Grade if following British Columbia Standards.			
Lesson 3 	★ Parent & Offspring Behavior Why are baby birds so loud?	Students make observations to obtain information about the behaviors of animal parents and their offspring. They identify patterns in animal behaviors that help offspring survive.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.
We recommend teaching this in 2nd Grade if following British Columbia Standards.			
Lesson 4 	Animal Structures & Survival Why do birds have beaks?	Students investigate how different bird beaks are well suited for eating different kinds of food. They explain which beak would help a particular bird survive in a particular environment.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.
Lesson 5 	Camouflage & Animal Survival Why are polar bears white?	Students use observations of animal parents and their offspring to construct an explanation about young plants and animals being similar, but not identical, to their parents.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.

Plant Traits & Survival (Plant Superpowers)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Plant Traits & Offspring What will a baby plant look like when it grows up?	Students observe seedlings and adult plants and use their observations to identify the pattern that young plants are similar to their parent plants.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.
We recommend teaching this in 2nd Grade if following British Columbia Standards.			
Lesson 2 	Plant Survival & Engineering Why don't trees blow down in the wind?	Students learn how plants respond to light. They conduct an investigation to compare how the parts of a plant respond to light.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.
Lesson 3 	Plant Movement & Survival Read-Along What do sunflowers do when you're not looking?	Students learn how plants respond to light. They conduct an investigation to compare how the parts of a plant respond to light.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know behavioural adaptations of animals in the local environment.

Plant Growth & Interactions (Plant Adventures)

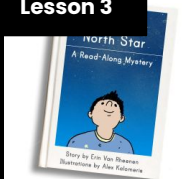
This unit is found under 2nd Grade on our site, but we recommend teaching all lessons in 1st grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Seed Dispersal How did a tree travel halfway around the world?	Students develop physical models of seed structures. They observe how structure affects the seed's function in dispersing away from the tree.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.
Lesson 2 	Animal Seed Dispersal Why do seeds have so many different shapes?	Students develop a model of a furry animal and then use it to test how far seed models with different structures can travel.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.
Lesson 3 	★ Pollination Why do you find flowers and bees together?	Students develop a model of a flower and a model of a fuzzy bee. They use these models to demonstrate how animals help pollinate plants.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.
Lesson 4 	Water, Sunlight, & Plant Growth Could a plant survive without light?	Students conduct an investigation to determine that plants need water and light to grow.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.
Lesson 5 	Plant Needs & Habitats How much water should you give a plant?	Students plan and conduct a series of virtual experiments in order to determine how much water and sunlight a set of mystery plants need in order to stay healthy and survive.	Grade 1. Living things have features and behaviors that help them survive in their environment. Students are expected to know structural features of living things in the local environment.

Day Patterns (Sun & Shadows)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Sun, Shadows, & Daily Patterns Could a statue's shadow move?	Students observe how shadows change as time passes, or as the Sun moves across the sky. They analyze how to move a light source to change the shape and direction of shadows, constructing an explanation of what causes a shadow to move.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.
Lesson 2 	Sun, Shadows, & Daily Patterns Read-Along What does your shadow do when you're not looking?	Students conduct an investigation to gather information about how their shadow changes throughout the day.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.
Lesson 3 	Sun & Daily Patterns How can the Sun help you if you're lost?	Students develop a Sun Finder, a model of the Sun's movement across the sky. They use this model to reason about how the Sun can help guide them during the day.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.
Lesson 4 	Daylight & Seasonal Patterns Read-Along Why do you have to go to bed early in the summer?	Students obtain information about the seasonal patterns of sunrise and sunset.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.

Night Patterns (Moon & Stars)

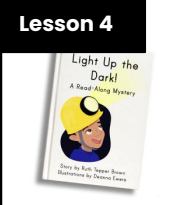
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Moon Phases & Patterns When can you see the full moon?	Students record observations of the Moon's shape using a series of photos collected over the course of four weeks. Using this information, students discover that the Moon follows a cyclical pattern, which they can use to predict when a full moon will appear.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.
Lesson 2 	Stars & Daily Patterns Why do stars come out at night?	Students develop and use a model of the Big Dipper in the night sky. After conducting a simple investigation, students construct an explanation for why stars are only visible in the night sky.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.
Lesson 3 	Stars & Seasonal Patterns Read-Along How can stars help you if you get lost?	Students observe that groups of stars in the sky form a pattern: constellations. Even though the Big Dipper changes its spot in the sky in different seasons, it always points to the North Star.	Grade 1. Observable patterns and cycles occur in the local sky and landscape. Students are expected to know local patterns that occur on Earth and in the sky.

Material Properties (Material Magic)

This unit is found under 2nd grade on our site, but we recommend teaching this lesson in 1st grade if you are following British Columbia Standards.

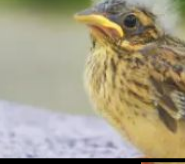
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Soil Properties How do you build a city out of mud?	Students conduct an investigation where they examine three different soil models. They use this information to determine which type of soil has the properties that will result in the best mud that can be used to build a house.	Grade 1. Matter is useful because of its properties. Students are expected to know specific properties of materials allow us to use them in different ways.

Light, Sound, & Communication (Lights & Sounds)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Sounds & Vibrations How do they make silly sounds in cartoons?	Students explore how to make different sounds with everyday objects. They construct an explanation that objects vibrate when they make a sound, and if the vibration stops, the sound stops.	Grade 1. Light and sound can be produced and their properties can be changed.. Students are expected to know natural and artificial sources of light and sound.
Lesson 2 	Sounds & Vibrations Read-Along Where do sounds come from?	Students create three different sound makers and construct an explanation about where the vibrations are happening in each sound experiment.	Grade 1. Light and sound can be produced and their properties can be changed.. Students are expected to know natural and artificial sources of light and sound.
Lesson 3 	Light, Materials, Transparent & Opaque What if there were no windows?	Students investigate the properties of different materials that they can and cannot see through. Then they create a stained glass window using tissue paper to explore how materials interact with light.	Grade 1. Light and sound can be produced and their properties can be changed.. Students are expected to know natural and artificial sources of light and sound.
Lesson 4 	Light & Illumination Read-Along Can you see in the dark?	Students look inside a completely dark box to determine if they can see the shape of the object inside. They allow more light into the box to illuminate the object and allow them to see it. Students use their observations explain that objects need light to be seen.	Grade 1. Light and sound can be produced and their properties can be changed.. Students are expected to know natural and artificial sources of light and sound.
Lesson 5 	Light, Communication, & Engineering How could you send a secret message to someone far away?	Students are presented with the problem that they need to send a message at night, without using noise. They design a solution to create a color-coded message system and communicate with light signals.	Grade 1. Light and sound can be produced and their properties can be changed.. Students are expected to know natural and artificial sources of light and sound.
Lesson 6 	Lights, Sounds, & Communication Read-Along How do boats find their way in the fog?	Students obtain information about light and sound signals. They analyze different sounds with eyes closed to determine which type of sound they hear.	Grade 1. Light and sound can be produced and their properties can be changed.. Students are expected to know natural and artificial sources of light and sound.

Animal Traits & Survival (Animal Superpowers)

This unit is found under 1st Grade on our site, but we recommend teaching all lessons in 2nd grade if you are following British Columbia Standards.

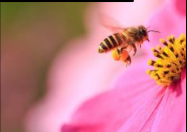
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Parent & Offspring Traits How can you help a lost baby animal find its parents?	Students observe the traits of adult and baby animals in order to construct an explanation that most young animals are like, but not exactly like, their parents.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.
Lesson 2 	Offspring Trait Variation Can you predict what an animal's babies will look like?	Students observe the traits of parent and baby animals to construct an explanation that offspring look similar to their parents, but can also vary in many ways. They predict what a puppy might look like based on the traits of the parent dogs.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.
Lesson 3 	★ Parent & Offspring Behavior Why are baby birds so loud?	Students make observations to obtain information about the behaviors of animal parents and their offspring. They identify patterns in animal behaviors that help offspring survive.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.

Plant Traits & Survival (Plant Superpowers)

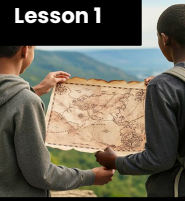
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Plant Traits & Offspring What will a baby plant look like when it grows up?	Students observe seedlings and adult plants and use their observations to identify the pattern that young plants are similar to their parent plants.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know similarities and differences between offspring and parent.

Life Cycles (Circle of Life)

This unit is found under 3rd Grade on our site, but we recommend teaching all lessons in 2nd grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Science Standards of Learning
Lesson 1 	Animal Life Cycles How is your life like an alligator's life?	Students create models of several different animal life cycles and compare them to one another. They use these models to discover the pattern that all animals are born, grow, can have babies, and eventually die.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know metamorphic and non-metamorphic life cycles of different organisms.
Lesson 2 	Environmental Change & Engineering What's the best way to get rid of mosquitoes?	Students obtain and evaluate information about mosquitoes from different sources. They analyze and interpret information about the mosquito life cycle to reduce the number of mosquitoes that live in a certain area.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know metamorphic and non-metamorphic life cycles of different organisms.
Lesson 3 	Pollination & Plant Reproduction Why do plants grow flowers?	Students model the structure and function of flower parts that are responsible for creating seeds.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know metamorphic and non-metamorphic life cycles of different organisms.
Lesson 4 	Fruit, Seeds, & Plant Reproduction Why do plants give us fruit?	Students explore the function of fruits in plants and practice classification.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know metamorphic and non-metamorphic life cycles of different organisms.
Lesson 5 	Plant Life Cycles Why are there so many different kinds of flowers?	Students play a game that models the stages of the plant life cycle. After playing the game students use the model to show how changes to one part of the life cycle affect all other stages.	Grade 2. Living things have life cycles adapted to their environment.. Students are expected to know metamorphic and non-metamorphic life cycles of different organisms.

Erosion & Earth's Surface (Work of Water)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Mapping Landforms & Bodies of Water Where's the best place to hide a treasure?	Students develop a model (a map) of different landforms and bodies of water in a given location based on the shape of each feature.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know water sources including local watersheds.
Lesson 2 	Mapping: Mountains & Rivers If you floated down a river, where would you end up?	Students develop a model of the Earth's surface and use it to discover an important principle about how rivers work: rivers flow downhill, from high places to low places.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know water sources including local watersheds.

Weather & Climate (Stormy Skies)

This unit is found under 3rd grade on our site, but we recommend teaching lessons in 2nd grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Water Cycle & States of Matter Where do clouds come from?	Students obtain and combine information that water can change from liquid to gas, but that it is always made of tiny drops. Clouds are made of water that has evaporated.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know the water cycle.
Lesson 2 	Local Weather Patterns & Weather Prediction How can we predict when it's going to storm?	Students make observations of clouds and develop a tool to make predictions about what kind of weather might happen next.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know the water cycle.

Material Properties (Material Magic)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Material Properties & Engineering Why do we wear clothes?	<i>Students investigate different material properties, such as flexibility and absorbency, and use those properties to design and build a hat that protects</i>	Kindergarten. Humans interact with matter every day through familiar materials. Students are expected to know properties of familiar materials .
We recommend teaching this in Kindergarten if following British Columbia Standards.			
Lesson 2 	Classify Materials: Insulators & Conductors Can you really fry an egg on a hot sidewalk?	Students conduct an investigation of conductors and insulators in order to determine which are best suited for allowing people to handle hot items.	Grade 2. Materials can be changed through physical and chemical processes. Students are expected to know physical ways of changing materials .
Lesson 3 	Material Building Blocks & Engineering Could you build a house out of paper?	Students construct an evidence-based account of how a structure built of paper can be disassembled and rebuilt in new ways.	Grade 2. Materials can be changed through physical and chemical processes. Students are expected to know physical ways of changing materials .
Lesson 4 	Soil & Properties How do you build a city out of mud?	<i>Students conduct an investigation where they examine three different soil models. They use this information to determine which type of soil has the properties that will result in the best mud that can be</i>	Grade 1. Matter is useful because of its properties. Students are expected to know specific properties of materials allow us to use them in different ways .
We recommend teaching this in 1st Grade if following British Columbia Standards.			

States of Matter (States of Matter)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Liquid Water & Solid Ice Where do animals find the water they need?	Students obtain information about the liquid water and solid ice that different animals utilize for their survival in the Arctic.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know water sources including local watersheds.
Lesson 2 	Reversible & Irreversible Changes How is an ice cube like a crayon?	Students observe the properties of different materials after being heated up and then cooled down. They use these observations to support the explanation that some changes are reversible and others are not.	Grade 2. Materials can be changed through physical and chemical processes. Students are expected to know physical ways of changing materials.
Lesson 3 	Heating, Cooling, & States of Matter Why are so many toys made out of plastic?	Student conduct an investigation of different materials in order to determine which are most and least easily melted.	Grade 2. Materials can be changed through physical and chemical processes. Students are expected to know physical ways of changing materials.

Forces, Motion, & Magnets (Invisible Forces)

This unit is found under 3rd Grade on our site, but we recommend teaching all lessons in 2nd grade if you are following British Columbia Standards.

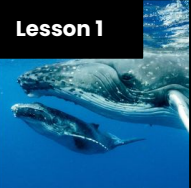
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Balanced & Unbalanced Forces How could you win a tug-of-war against a bunch of adults?	Students develop a mental model of the nature of forces and motion and use that model to explain the behavior of an elastic jumper.	Grade 2. Forces influence the motion of an object. Students are expected to know types of forces.
Lesson 2 	Balanced Forces & Engineering What makes bridges so strong?	Students develop and design a bridge to be as strong as possible while working with limited materials.	Grade 2. Forces influence the motion of an object. Students are expected to know types of forces.
Lesson 3 	Pattern of Motion, Gravity, & Friction How high can you swing on a flying trapeze?	Students make observations and measurements of a trapeze model. Then, using that information they predict the motion of a real trapeze.	Grade 2. Forces influence the motion of an object. Students are expected to know types of forces.
Lesson 4 	Magnets & Forces What can magnets do?	Students investigate the properties of magnets and the fact that they exert forces that act at a distance.	Grade 2. Forces influence the motion of an object. Students are expected to know types of forces.
Lesson 5 	Magnets & Engineering How can you unlock a door using a magnet?	Students investigate magnetic attraction and repulsion, and design a magnetic lock in the hands-on activity.	Grade 2. Forces influence the motion of an object. Students are expected to know types of forces.

Animal Biodiversity & Habitats (Animal Adventures)

This unit is found under 2nd Grade on our site, but we recommend teaching all lessons in 3rd grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Biodiversity & Classification How many different kinds of animals are there?	Students observe the traits of different animals and use that information to organize them into groups based on their characteristics.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 2 	Habitat Diversity Why would a wild animal visit a playground?	Students observe animals, plants, and the physical characteristics of two different habitats. They collect and analyze data to compare the biodiversity between the two habitats.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 3 	Biodiversity, Habitats, & Species Why do frogs say “ribbit”?	Students identify frogs based on their unique calls and use that information to determine the level of frog species diversity within multiple habitats.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 4 	Biodiversity & Engineering How could you get more birds to visit a bird feeder?	Students investigate which kinds of birds are likely to visit a bird feeder based on what they eat and design and build a prototype bird feeder that attracts a specific type of bird.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.

Fossils & Changing Environments (Animals Through Time)

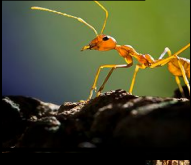
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Habitats, Fossils, & Environments Over Time Where can you find whales in a desert?	Students explore the idea that the rock under our feet sometimes contains fossils, and investigate how these fossils reveal changes in habitats through time.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .
Lesson 2 	Fossil Evidence & Dinosaurs How do we know what dinosaurs looked like?	Students learn how we can infer what the outside of an animal looked like by using clues about their skeleton.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .
Lesson 3 	Trace Fossil Evidence & Animal Movement Can you outrun a dinosaur?	Students learn how fossilized animal tracks can tell us a great deal about the animals that left them.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .

Heredity, Survival, & Selection (Fates of Traits)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Traits & Inheritance How do you identify a mysterious fruit?	Students examine plant traits and use that information as evidence to help them identify an unknown fruit. They look for similarities and differences in the leaves, flowers, and fruits of plants to sort them into groups and identify patterns of inheritance.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .
Lesson 2 	Trait Variation, Inheritance, & Artificial Selection What do dogs and pigeons have in common?	Students analyze trait similarities and differences among parent, offspring, and sibling pigeons. They interpret this data to discover that the variation and inheritance of traits creates a pattern that explains why we see such extreme traits in artificially selected animal breeds.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .
Lesson 3 	Trait Variation, Survival, & Natural Selection How could a lizard's toes help it survive?	Students compare the structures of lizards that live on an island. They simulate multiple generations of these lizards, and analyze and interpret the data to understand how these structures aid in their survival.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .
Lesson 4 	★ Animal Groups & Survival Why do some animals live in groups?	Students observe animals that live in groups in order to obtain, evaluate, and communicate information about animal social behavior. Students use these observations as evidence that animals form groups to help them survive.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .
Lesson 5 	Traits & Environmental Variation How long can people (and animals) survive in outer space?	Students measure and compare their own physical traits (arm strength, balance, and height) and analyze the information to construct an explanation for how the environment can influence traits.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment .

Ecosystems & The Food Web (Web of Life) • Page 1 of 2

This unit is found under 5th Grade on our site, but we recommend teaching all lessons in 3rd grade if you are following British Columbia Standards.

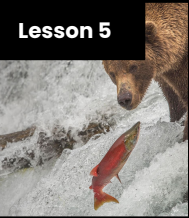
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Food Chains & Matter Flow What if all the ants disappeared?	Students construct models of food chains by linking cards discovering that different interrelationships exist between organisms.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 2 	Plant Growth & Matter How does a tiny seed become one of the heaviest trees on Earth?	Students gather evidence through a series of virtual experiments that plants use mostly air and water as the materials for their growth.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 3 	Decomposers & Matter Flow Where do fallen leaves go?	Students conduct an investigation to gain an understanding of the important role that decomposers play in recycling matter from dead leaves back into the environment.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 4 	Decomposers & Soil Nutrients Do worms really eat dirt?	Students make observations of worms to realize that worms act as decomposers to eat dead matter in an ecosystem and cycle nutrients into the soil.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.

Continued on next page

This unit was developed for 5th grade NGSS.
Aspects of this unit may be challenging for 3rd grade BC.

Ecosystems & The Food Web (Web of Life) • Page 2 of 2

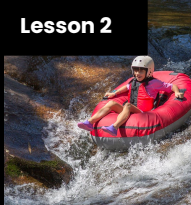
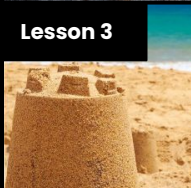
This unit is found under 5th Grade on our site, but we recommend teaching all lessons in 3rd grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 5 	★ Ecosystems & Matter Cycle How could a fish feed a forest?	Students develop a model of a forest ecosystem with producers, consumers, and decomposers. They trace the journey of matter through this ecosystem to discover that matter continuously cycles between non-living and living parts of the environment.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 6 	Protecting Environments How can we protect Earth's environments?	In this lesson, students learn about what happens in unbalanced ecosystems and how that can lead to an overabundance of algae and harmful algal blooms. In the activity, Bloom Busters, students play a game in which they obtain and combine science ideas in order to help a community respond to and prevent harmful algal blooms.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.
Lesson 7 	Food Webs & Flow of Energy Why did the dinosaurs go extinct?	Students develop a model of a dinosaur food web. Students realize that blocking the sun's energy would have disastrous effects on the organisms that rely on this energy in the food web and cause the extinction of some entire species.	Grade 3. Living things are diverse, can be grouped, and interact in their ecosystems. Students are expected to know biodiversity in the local environment.

This unit was developed for 5th grade.
Aspects of this unit may be challenging for 3rd grade BC.

Erosion & Earth's Surface (Work of Water) • Page 1 of 2

This unit is found under 2nd Grade on our site, but we recommend teaching some lessons in 3rd grade if you are following British Columbia Standards.

Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1  Mapping Landforms & Bodies of Water Where's the best place to hide a treasure?	Students develop a model (a map) of different landforms and bodies of water in a given location based on the shape of each feature.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know water sources including local watersheds.
We recommend teaching this in 2nd Grade if following British Columbia Standards.		
Lesson 2  Mapping & Earth's Surface Features If you floated down a river, where would you end up?	Students develop a model of the Earth's surface and use it to discover an important principle about how rivers work: rivers flow downhill, from high places to low places.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know water sources including local watersheds.
We recommend teaching this in 2nd Grade if following British Columbia Standards.		
Lesson 3  Rocks, Sand, & Erosion Why is there sand at the beach?	Students investigate the effects of rocks tumbling in a river. Based on their observations, they construct an explanation for why rocks on the top of mountains are much bigger than the sand at the beach.	Grade 3. Wind, water, and ice change the shape of the land. Students are expected to know observable changes in the local environment caused by erosion and deposition by wind, water, and ice.
Lesson 4  Mapping & Severe Weather Where do flash floods happen?	Students use a model (i.e. a map) to examine the different factors, including the shapes and kinds of land, that contribute to flash floods. They use this to predict where flash floods are most likely to happen.	Grade 3. Wind, water, and ice change the shape of the land. Students are expected to know major local landforms.
Lesson 5  Erosion, Earth's Surface, & Landforms What's strong enough to make a canyon?	Students create a model landform and investigate how some Earth events can occur quickly, while others occur slowly.	Grade 3. Wind, water, and ice change the shape of the land. Students are expected to know observable changes in the local environment caused by erosion and deposition by wind, water, and ice.

Continued on next page

Erosion & Earth’s Surface (Work of Water) • Page 2 of 2

This unit is found under 2nd Grade on our site, but we recommend teaching some lessons in 3rd grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 6 	Erosion & Engineering How can you stop a landslide?	Students compare multiple solutions for preventing erosion.	Grade 3. Wind, water, and ice change the shape of the land. Students are expected to know observable changes in the local environment caused by erosion and deposition by wind, water, and ice.

Sunlight & Warmth (Sunny Skies)

This unit is found under Kindergarten on our site, but we recommend teaching lessons in 3rd grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Sunlight, Heat, & Earth's Surface Read-Along How could you walk barefoot across hot pavement without burning your feet?	Students make observations of the pavement heating up after being warmed by the Sun. Then, they design a solution to build a shade structure that can reduce the warming effect of sunlight.	Grade 3. Thermal energy can be produced and transferred. Students are expected to know <i>sources of thermal energy.</i>
Lesson 2 	Sunlight, Warming, & Engineering How could you warm up a frozen playground?	Students carry out an investigation to test which materials can redirect the light and heat of sunlight. (*This lesson has students increase the warming effect of sunlight on an area.)	Grade 3. Thermal energy can be produced and transferred. Students are expected to know <i>sources of thermal energy.</i>
Lesson 3 	Sunlight & Warmth Why does it get cold in winter?	Students construct an explanation for why marshmallows melt in one car and not in another car. Then, they conduct a virtual investigation to determine that the warmth of the Sun is the cause of the melted marshmallows.	Grade 3. Thermal energy can be produced and transferred. Students are expected to know <i>sources of thermal energy.</i>

★ Chemical Reactions & Properties of Matter (Chemical Magic)

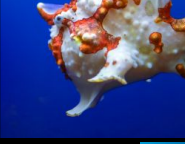
This unit is found under 5th Grade on our site, but we recommend teaching lessons in 3rd grade if you are following British Columbia Standards.

Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	★ Properties of Matter Can you identify a mysterious ingredient? Students conduct a series of tests on four unknown ingredients. Based on their observations, students identify each ingredient based on its unique properties.	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility.
We recommend teaching this in 5th Grade if following British Columbia Standards.		
Lesson 2 	★ Particle Models Why can you smell things you can't see? Students investigate the phenomenon of a mysterious sweet smell. They develop and use particle model to understand how particles too small to be seen explain why we smell things we can't see.	Grade 3. All matter is made of particles. Students are expected to know matter is anything that has mass and takes up space.
Lesson 3 	★ Properties of Matter: Acids How can you tell if acids are hiding in your fridge? Students explore acidity as a property of matter. They conduct an investigation using baking soda as an acid indicator to identify if any household ingredients are actually acidic.	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility.
We recommend teaching this in 5th Grade if following British Columbia Standards.		
Lesson 4 	★ Chemical Reactions & Fair Tests Why do some things explode? Students investigate explosions and chemical reactions. They conduct a fair test to determine which two substances combine to form a new	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility.
We recommend teaching this in 5th Grade if following British Columbia Standards.		
Lesson 5 	Chemical Reactions What do fireworks, rubber, and Silly Putty Students investigate chemical reactions. They conduct an investigation to determine which two substances results in a new substance—ooh!	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility.
We recommend teaching this in 5th Grade if following British Columbia Standards.		

Human Body, Vision, & The Brain (Human Machine)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Muscles & Skeleton Why do your biceps bulge?	Students construct a model of the human hand to explain how muscles pull on bones to create movement.	Grade 5. Multicellular organisms have organ systems that enable them to survive and interact with their environment. Students are expected to know basic structures and functions of body systems: digestive, musculo-skeletal, respiratory, circulatory.
We recommend teaching this in 5th Grade if following British Columbia Standards.			
Lesson 2 	Light, Eyes, & Vision What do people who are blind see?	Students develop a working model of an eye. They use the model to reason about how light reflects off an object and into the eye, helping an organism process information from the environment.	Grade 4. All living things sense and respond to their environment. Students are expected to know sensing and responding: humans.
Lesson 3 	Structure & Function of Eyes How can some animals see in the dark?	Students use their eye model to discover that the pupil controls the amount of light let into the eye. In the dark, pupils get larger to let in more light.	Grade 4. All living things sense and respond to their environment. Students are expected to know sensing and responding: humans, animals.
Lesson 4 	Brain, Nerves, & Information Processing How does your brain control your body?	Students investigate how their own brain works by testing their reflexes. They discover that the brain receives information from the senses, processes the information, and sends signals to the muscles to enable movement.	Grade 4. All living things sense and respond to their environment. Students are expected to know sensing and responding: humans.

Animal & Plant Adaptations (Animal & Plant Adaptations)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Animal Adaptations Why do some sea creatures look so strange?	Students make observations of underwater animals in order to collect evidence that external structures serve specific functions. They use their observations to construct an argument that an animal's structures work together as part of a system to support their growth and survival.	Grade 4. All living things sense and respond to their environment. Students are expected to know sensing and responding: animals.
Lesson 2 	Learned Behavior & Instinct Why would a sea turtle eat a plastic bag?	Students use models to understand how an animal's senses, brain, and memories all work together as a system to influence their behavior and support their survival.	Grade 4. All living things sense and respond to their environment. Students are expected to know sensing and responding: animals.
Lesson 3 	Plant Adaptations Why don't the same trees grow everywhere?	Students use models of roots and branches to explore their functions and then construct an argument about how these structures must work together in order to support the survival of trees in the unique environment of the frozen taiga.	Grade 4. All living things sense and respond to their environment. Students are expected to know sensing and responding: plants.

Weather & Climate (Stormy Skies)

This unit is found under 3rd Grade on our site, but we recommend teaching lessons in 4th grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Water Cycle & Phases of Matter Where do clouds come from?	Students obtain and combine information that water can change from liquid to gas, but that it is always made of tiny drops. Clouds are made of water that has evaporated.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know the water cycle .
	We recommend teaching this in 2nd Grade if following British Columbia Standards.		
Lesson 2 	Local Weather Patterns & Weather Prediction How can we predict when it's going to storm?	Students make observations of clouds and develop a tool to make predictions about what kind of weather might happen next.	Grade 2. Water is essential to all living things, and it cycles through the environment. Students are expected to know the water cycle .
	We recommend teaching this in 2nd Grade if following British Columbia Standards.		
Lesson 3 	Seasonal Weather Patterns Where's the best place to build a snow fort?	Students gather winter temperature data from three different towns. They represent the data in a table to compare the weather and decide which town is the best candidate to host a snow fort festival in future years.	Grade 4. Matter has mass, takes up space, and can change phase. Students are expected to know phases of matter and the effect of temperature .
Lesson 4 	Climate & Global Weather Patterns Why are some places always hot?	Students obtain and combine information to describe the different climate regions of the world.	Grade 4. All living things sense and respond to their environment. Students are expected to know biomes as large regions with similar environmental features .
Lesson 5 	Natural Hazards & Engineering How can you keep a house from blowing away in a windstorm?	Students design and build solutions that reduce the hazards associated with strong winds that could damage buildings.	*Grade 4. All living things sense and respond to their environment. Students are expected to know biomes as large regions with similar environmental features . *This lesson is included here for completion of the unit, but is loosely aligned to BC Standards.

Earth & Space Patterns (Spaceship Earth)

This unit is found under 5th Grade on our site, but we recommend teaching lessons in 4th grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Day, Night, & Earth's Rotation How fast does the Earth spin?	Students model the rotation of the Earth and investigate why the Sun looks like it's moving across the sky. Using evidence they gathered in the investigation, students build a model that explains how the Earth's rotation around its own axis causes the Sun to appear to rise and set.	Grade 4. The motions of Earth and the moon cause observable patterns that affect living and non-living systems. Students are expected to know local changes caused by Earth's axis, rotation, and orbit.
Lesson 2 	Earth's Rotation & Daily Shadow Patterns Who set the first clock?	Students make a shadow clock (sundial) and investigate how the direction and length of shadows change with the position of the light shining on the sundial. Students realize that the Sun's position in the sky can be used to tell the time of day.	Grade 4. The motions of Earth and the moon cause observable patterns that affect living and non-living systems. Students are expected to know local changes caused by Earth's axis, rotation, and orbit.
Lesson 3 	Seasonal Changes & Shadow Length How can the Sun tell you the season?	Students examine photos taken at different times of year and figure out the time of year that each photo was taken. Students discover that the Sun's path changes with the seasons, as does the time of sunrise and sunset. The Sun is always highest in the sky at noon, but that height changes with the season.	Grade 4. The motions of Earth and the moon cause observable patterns that affect living and non-living systems. Students are expected to know local changes caused by Earth's axis, rotation, and orbit.
Lesson 4 	Seasonal Patterns & Earth's Orbit Why do the stars change with the seasons?	Students build a model of the universe and use it to explain why different stars are visible at different times of year. Using evidence from this model, students make an argument that supports the claim that the Earth orbits the Sun.	Grade 4. The motions of Earth and the moon cause observable patterns that affect living and non-living systems. Students are expected to know local changes caused by Earth's axis, rotation, and orbit.
Lesson 5 	Moon Phases, Lunar Cycle Why does the Moon change shape?	Students use a physical model of the Sun and Moon to investigate how the Moon's phase relates to its position relative to the Sun. Students notice that the Moon's phases repeat in a predictable pattern.	Grade 4. The motions of Earth and the moon cause observable patterns that affect living and non-living systems. Students are expected to know local changes caused by Earth's axis, rotation, and orbit.

Sound, Waves, & Communication (Waves of Sound)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Pattern Transfer & Technology How do you send a secret code?	Students explore how digital devices encode complex information. Students generate their own codes in order to transfer information across the classroom. Then, they compare their codes and evaluate which worked best given the criteria and constraints.	Grade 4. Energy can be transformed. Students are expected to know energy has various forms.
Lesson 2 	Sound, Vibration, & Engineering How far can a whisper travel?	Students investigate sound energy using paper cup telephones. Students figure out that sound is a vibration that can travel through a medium.	Grade 4. Energy can be transformed. Students are expected to know energy has various forms.
Lesson 3 	Sound & Vibrations What would happen if you screamed in outer space?	Students construct a model of sound vibrations to explain how air is a medium that sound vibrations travel through.	Grade 4. Energy can be transformed. Students are expected to know energy has various forms.
Lesson 4 	Sound Waves & Wavelength Why are some sounds high and some sounds low?	Students make observations of vibrations and sound waves to discover that high pitch sounds vibrate faster and have short wavelengths and low pitch sounds vibrate slower and have long wavelengths.	Grade 4. Energy can be transformed. Students are expected to know energy has various forms.

Electricity, Light, & Heat (Electricity, Light & Heat)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Renewable Energy & Natural Resources What's the best way to light up a city?	Students evaluate the advantages and disadvantages of wind, water, and solar energy to power a town. Students obtain and evaluate information about the needs of each source of energy and analyze and interpret data about the town's resources.	Grade 4. Energy can be transformed. Students are expected to know devices that transform energy.
Lesson 2 	Electrical Energy What if there were no electricity?	Students design a flashlight with an on/off switch, using batteries, flights, and tin foil. Students figure out that electricity can be transformed to other forms of energy, such as movement, light, and heat.	Grade 4. Energy can be transformed. Students are expected to know devices that transform energy.
Lesson 3 	Heat Energy & Energy Transfer How long did it take to travel across the country before cars and planes?	Students build a paper spinner and conduct an investigation to explain how heat makes things move. Students realize that heat energy can be transformed into motion energy using a turbine.	Grade 4. Energy can be transformed. Students are expected to know devices that transform energy.

Human Body, Vision, & The Brain (Human Machine)

This unit is found under 4th Grade on our site, but we recommend teaching lessons in 5th grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Muscles & Skeleton Why do your biceps bulge?	Students construct a model of the human hand to explain how muscles pull on bones to create movement.	Grade 5. Multicellular organisms have organ systems that enable them to survive and interact with their environment. Students are expected to know basic structures and functions of body systems: digestive, musculo-skeletal, respiratory, circulatory.

Mini-lesson


Why does our skeleton have so many bones?

Mini-lesson


Why does the heart pump blood?

Mini-lesson


What would happen if you didn't have a skull?

Earth's Features & Processes (The Birth of Rocks)

This unit is found under 4th Grade on our site, but we recommend teaching lessons in 5th grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Volcanoes & Patterns of Earth's Features Could a volcano pop up where you live?	Students use coordinates to develop a map of volcanoes to discover a pattern of where volcanoes exist on Earth. Students identify the pattern of volcanoes in the "Ring of Fire."	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know local types of earth materials.
Lesson 2 	Volcanoes & Rock Cycle Why do some volcanoes explode?	Students investigate the properties of thin and thick lava by attempting to create air bubbles. Students realize that thick lava will cause a volcano to explode, while thin lava will not.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know local types of earth materials.
Lesson 3 	Weathering & Erosion Will a mountain last forever?	Students make observations of the effects of weathering to discover that rocks will become rounded and break into small pieces when they tumble down a mountain.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know the rock cycle.
Lesson 4 	Sedimentary Rock & Fossils What did your town look like 100 million years ago?	Students create a model canyon and use the pattern of fossils found in each rock layer to support the explanation that the landscape has changed many times over millions of years.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know the rock cycle.
Lesson 5 	★ Earthquakes & Engineering Can you design a building that survives an earthquake?	Students generate multiple possible solutions to protect model buildings from earthquake damage. They compare their designs and evaluate their effectiveness given specified criteria for success and constraints of available materials.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know the rock cycle.

Water Cycle & Earth's Systems (Watery Planet)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Hydrosphere & Water Distribution How much water is in the world?	Students analyze and interpret data from world maps to determine the relative amounts of fresh, salt, and frozen water. Students figure out that while the Earth has a lot of water, most of Earth's water is not fresh or accessible.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know concepts of interconnectedness in the environment; ; the nature of sustainable practices around BC's resources.
Lesson 2 	Mixtures & Solutions How much salt is in the ocean?	Students create a model ocean to observe how salt seems to completely vanish when dissolved in water. Students measure and graph quantities to provide evidence that the salt is still in the solution, even though we can't see it.	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility.
Lesson 3 	Groundwater as a Natural Resource When you turn on the faucet, where does the water come from?	Students learn most people get fresh water from underground sources. Students determine the best place to settle a town by considering features of the landscape & the characteristics of the plants that thrive there.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know concepts of interconnectedness in the environment; ; the nature of sustainable practices around BC's resources.
Lesson 4 	Water Cycle Can we make it rain?	Students create a model of the ocean and sky to investigate how temperature influences evaporation and condensation. Students figure out that higher ocean temperatures lead to more evaporation, thus leading to more rain.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know concepts of interconnectedness in the environment; ; the nature of sustainable practices around BC's resources.
Lesson 5 	Natural Disasters & Engineering How can you save a town from a hurricane?	Students define the problem that a town needs protection from flooding. They design solutions using different types of flood protection. They realize flooding is caused by severe rainfall generated by hurricanes. Hurricanes are created where ocean temperatures are warm.	Grade 5. Earth materials change as they move through the rock cycle and can be used as natural resources. Students are expected to know concepts of interconnectedness in the environment; ; the nature of sustainable practices around BC's resources.

Energy & Energy Transfer (Energizing Everything)

This unit is found under 4th Grade on our site, but we recommend teaching lessons in 5th grade if you are following British Columbia Standards.

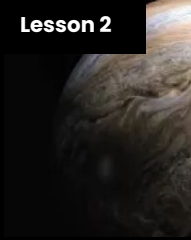
	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Speed & Energy How is your body similar to a car?	Students learn about stored energy and about the relationship between motion and energy. Students build models of an amusement park ride and discover how energy can be stored in materials. Stored energy can be converted to speed.	Grade 5. Machines are devices that transfer force and energy. Students are expected to know properties of simple machines and their force effects.
Lesson 2 	Gravitational Energy, Speed, & Collisions What makes roller coasters go so fast?	Students build a model of a roller coaster and carry out an investigation using marbles. Students learn that lifting an object up stores energy in the object. When the object falls, that stored energy is released. They realize that energy is transferred when objects collide.	Grade 5. Machines are devices that transfer force and energy. Students are expected to know properties of simple machines and their force effects.
Lesson 3 	Collisions & Energy Transfer How can marbles save the world?	Students investigate how energy transfers when objects collide. In the activity, Bumper Jumper, students ask questions and make predictions about how far a marble will launch over a jump after colliding with other objects.	Grade 5. Machines are devices that transfer force and energy. Students are expected to know properties of simple machines and their force effects.
Lesson 4 	Energy Transfer & Engineering Could you knock down a building using only dominoes?	Students experiment with ways to store and release energy, creating the beginning of a chain reaction machine with a lever and a ramp. Students figure out that a domino standing on end is storing energy, only requiring a small amount of energy (a tiny push) to release the stored energy.	Grade 5. Machines are devices that transfer force and energy. Students are expected to know properties of simple machines and their force effects.
Lesson 5 	Energy Transfer & Engineering Can you build a chain reaction machine?	Students continue to build a chain reaction machine — identifying a goal, brainstorming and testing multiple ideas, and determining an optimal solution. The chain reaction machine uses multiple components to transfer energy from one part to the next.	Grade 5. Machines are devices that transfer force and energy. Students are expected to know properties of simple machines and their force effects.

★ **Chemical Reactions & Properties of Matter** (Chemical Magic)

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	★ Properties of Matter Can you identify a mysterious ingredient?	Students conduct a series of tests on four unknown ingredients. Based on their observations, students identify each ingredient based on its unique properties.	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility .
Lesson 2 	★ Particle Models Why can you smell things you can't see? We recommend teaching this in 3rd Grade if following British Columbia Standards.	Students investigate the phenomenon of a mysterious sweet smell. They develop and use particle model to understand how particles move.	Grade 3. All matter is made of particles. Students are expected to know matter is anything that has mass and takes up space .
Lesson 3 	★ Properties of Matter: Acids How can you tell if acids are hiding in your fridge?	Students explore acidity as a property of matter. They conduct an investigation using baking soda as an acid indicator to identify if any household ingredients are actually acidic.	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility .
Lesson 4 	★ Chemical Reactions & Fair Tests Why do some things explode?	<i>Students investigate explosions and chemical reactions. They conduct a fair test to determine which two substances combine to form a new substance. The new substance formed is a gas, which causes a small explosion!</i>	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility .
Lesson 5 	Chemical Reactions What do fireworks, rubber, and Silly Putty have in common?	<i>Students investigate chemical reactions. They conduct an investigation to determine which two substances results in a new substance—goo!</i>	Grade 5. Solutions are homogeneous. Students are expected to know solutions and solubility .

Stars & Planets (Stars & Planets)

This unit is found under 5th Grade on our site, but we recommend teaching lessons in 6th grade if you are following British Columbia Standards.

	Topic & Guiding Question	Student Objectives	British Columbia Content Learning Standard
Lesson 1 	Solar System & Sun Brightness How can the Sun help us explore other planets?	Students gather evidence to support an argument that the apparent brightness of the Sun is dependent upon an observer's distance from the Sun. They construct a model of the solar system and gather observations of the Sun's apparent brightness from each planet within their model.	Grade 6. The solar system is part of the Milky Way, which is one of billions of galaxies. Students are expected to know the position, motion, and components of our solar system in our galaxy.
Lesson 2 	Gravity Why is gravity different on other planets?	Using mathematics and computational thinking, students calculate how high they could jump on planets and moons that have stronger or weaker gravity than Earth. Students analyze and interpret this data to construct an explanation for why the amount of gravity is different on other planets.	Grade 6. Newton's three laws of motion describe the relationship between force and motion. Students are expected to know the force of gravity. Grade 6. The solar system is part of the Milky Way, which is one of billions of galaxies. Students are expected to know the position, motion, and components of our solar system in our galaxy.
Lesson 3 	Star Brightness & Habitable Planets Could there be life on other planets?	Sun with the right amount of light and heat for life to exist. Students evaluate other solar systems, comparing their stars to our Sun. Based on their analysis, students plan a space mission to a planet with conditions similar to those on Earth.	Grade 6. The solar system is part of the Milky Way, which is one of billions of galaxies. Students are expected to know the overall scale, structure, and age of the universe.