



GRADE 1 SCIENCE LEARNING OUTCOMES AND UNIT GUIDE

Unit	Learning Outcomes	Performance Indicators
Who We Are	Physical Science : Energy in our Lives (EL)	
	Demonstrate an understanding that the sun is the principal source of energy for the earth.	Demonstrate an understanding that the sun, as the earth’s principal source of energy, warms the air, land, and water; is a source of light for the earth; and makes it possible to grow food.
		Identify food as a source of energy for themselves and other living things.
		Investigate growth of living things (plants) based on their exposure to the sun.
Where We Are in Place and Time	Earth & Space Science: Daily and Seasonal Changes (DS)	
	Compare and represent daily and seasonal changes of natural phenomena through observing, measuring, sequencing, and recording.	Examine ways in which various cultures, represent daily and seasonal changes through oral traditions and artistic works.
		Use a variety of tools (e.g., rain gauge, thermometer, and wind vane) and techniques (e.g., chart, diagram, and table) to record changes in weather conditions (e.g., temperature, humidity, wind direction and strength, and amount and type of precipitation) that occur in daily and weekly cycles.
		Document the visibility and position of objects (e.g., sun, moon, planets, and stars) in the sky at different times of the day and year.
		Record observations of the shape and position of the moon throughout a month.
		Create visual or physical representations of differences in natural phenomena at different times of the day and/or year.
Earth and Space Systems: Water in the Environment (AW)		
Investigate properties water (in all three states of matter) within their environment.	Observe, using all of their senses, physical properties of water (e.g., assumes shape of container, clear, tasteless, and odourless).	
	Select appropriate tools (e.g., thermometer, wind sock, rain gauge, garden hose, fan, oar, propeller, and vacuum) and materials to carry out safely their own explorations of water in their environment through processes such as collecting dew and rainfall.	
	Measure amounts of water using non-standard measurements (e.g., dropper, spoonful, container, pop bottle, garbage can, aquarium, straw, and zip-lock bag).	
	Collaboratively design and construct a device that is powered by water and that meets a student-identified purpose.	
	Classify or sequence materials according to attributes such as how quickly they absorb water, how much water they absorb, and whether they are waterproof or water repellent.	
Communicate procedures and results of observations of the physical properties of water, using drawings, demonstrations, and written and oral descriptions.		
How We Express Ourselves	Physical Science: Light and Sound	
	Sound can make matter vibrate, and vibrating matter can make sound. Objects can be seen if light is available to illuminate them or if they give off their own light.	Plan and conduct investigations to provide evidence that vibrating materials can make sound (e.g. tuning forks, plucking a stretched string), and that sound can make materials vibrate. (e.g. holding a piece of paper or cup or water near a speaker making sound)
		Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
		Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
		Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.
		Recognize how simple tests can be designed to gather evidence to support or refute student ideas about causes.
		Determine if objects can be seen if light is available to illuminate them or if they give off their own light.
Understand how people depend on various technologies in their lives; human life would be very different without technology.		



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Unit

Learning Outcomes



Performance Indicators

Physical Science : Material, Objects, and Everyday Structures (OM)

Investigate observable characteristics and uses of natural and constructed objects and materials in their environment.

- Pose questions about characteristics and uses of common materials.
- Distinguish between objects and materials found in nature and those constructed by humans.
- Compare the properties (e.g., texture, color, smell, hardness, and lustre) of materials that appear in familiar natural (e.g., tree, lawn, rock, and creek) and constructed (e.g., clothing, toys, electronics, furniture, and buildings) objects.
- Distinguish between the materials used to construct an object and the object itself.
- Predict the characteristics (e.g., hardness, insulating ability, water resistance, absorbency, and flexibility) of common materials and carry out a procedure to test those predictions.
- Evaluate the suitability of materials for a specific function.
- Suggest alternative uses for common objects and materials.
- Generate conclusions about the properties and uses of materials based on personal observations and investigations.

Examine methods of altering and combining materials to create objects that meet student- and/or teacher-specified criteria.

- Select and use materials to carry out explorations of altering materials to change their appearance, texture, sound, smell, or taste (e.g., sanding, painting, or waxing a piece of wood, mixing two or more paints to obtain a particular shade or color, popping popcorn, shaping clay, drying meat, tuning an instrument, and cooking food at different temperatures) to change the way they are used.
- Assess how altering the smell, taste, appearance, texture, and/or sound of materials may change the way they may be used.
- Examine methods (e.g., gluing, stapling, taping, and buttoning) of joining materials of the same and different types.
- Use appropriate tools (e.g., glue, scissors, and stapler) correctly and safely for manipulating and observing materials and when constructing useful objects.
- Follow a simple procedure to make a useful object from recyclable materials (e.g., picture frame from old puzzles, holiday ornament from juice can lid, and musical instrument from tissue rolls).
- Design and construct a useful object that meets a student specified function by selecting, combining, joining, and/or altering materials.

How the World Works



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Unit	Learning Outcomes	Performance Indicators	
How We Organize Ourselves	Differentiate between living things according to observable characteristics, including appearance and behavior.	Life Systems: Needs and Characteristics of Living Things (LT)	
		Use a variety of sources of information and ideas (e.g., picture books including non-fiction texts, Elders, naturalists, videos, Internet sites, and personal observations) to learn about observable characteristics of living things.	
		Make and record observations and measurements about the observable characteristics of plants and animals using written language, pictures, and charts.	
		Group representations of plants and animals according to various student-developed criteria.	
		Describe characteristics common to humans (e.g., eyes, ears, hair, and numbers of limbs and teeth) and identify variations (e.g., eye color, hair color, skin color, and height) that make each human unique.	
		Compare observable characteristics (e.g., leaf, root, stem, flower, fruit, and seed) of plants of various types and sizes that live in different habitats.	
		Describe the appearance and behavior (e.g., method of movement, social grouping, diet, body covering, habitat, and nocturnal vs. diurnal orientation) of familiar animals (e.g., bumblebee, worm, dog, cat, snake, owl, fish, ant, beaver, rabbit, and horse).	
		Compare characteristics of plants and animals at different stages of their lives (e.g., compare an adult dog with a pup, compare a young tree with an older established tree, and compare a baby bird with a fully grown bird).	
		Communicate knowledge (e.g., share a story, describe an experience, or draw a picture) about the observable characteristics of a favourite plant or animal.	
		Analyze different ways in which plants, animals, and humans interact with various natural and constructed environments to meet their basic needs.	Identify the physical needs, (i.e., food, water, air, and shelter) that plants, animals, and humans require for survival.
			Pose questions about ways in which plants interact with their environments to meet their basic needs (e.g., How long does it take a seed to start to grow? How does the growth of a plant change if the seed is planted in soil, sand, or rocks? How tall will a bean plant grow?).
			Pose questions about ways in which animals interact with their environments to meet their basic needs (e.g., How does a bird move from one tree to another? Where do animals go at night or during the day? How do animals escape from predators?).
			Investigate homes and habitats of local plants and animals to determine how they meet their basic needs.
			Compare ways in which plants and animals that live within the local environment, and plants and animals that live in other environments, meet their needs for food, water, and shelter.
Compare the kinds of food that different animals eat, their methods of eating (e.g., cracking, tearing, strangling, chewing, or swallowing whole), and the structures that they have for eating.			
Predict and model how certain animals will move (e.g., fly, run, swim, slither, walk, and swing) to meet their needs for food, shelter, and protection in their environment, based on personal observations, pictures, or videos.			
Explore how people demonstrate respect for living things by caring for domestic plants and animals (e.g., growing a plant, hatching eggs, and keeping a pet).			
Sharing the Planet	Assess uses of energy at home, at school, and in the community, and suggest ways to use less energy.	Physical Science : Energy in our Lives (EL)	
		Describe their own and their family's uses of energy (e.g., to operate lights, video games, cars, computers); identify ways in which these uses are efficient or wasteful, taking different points of view into consideration (e.g., the point of view of a parent, a sibling, a member of their extended family); suggest ways to reduce personal energy consumption; and explain why it is important for people to make these choices.	
Describe how the everyday lives of different people and other living things would be affected if electrical energy were no longer available (e.g., families, farmers, businesses and stores, a company that offers alternative energy sources such as solar-powered devices, the plants in a hydroponic greenhouse, the animals in a zoo).			