AT A GLANCE

General Outcomes
1.1 Bring focus to investigative activities, based on their own questions and those of others. Students will ask questions that lead to exploration and predict what they think will happen or what they might find.
1.2 Describe materials and objects that have been observed and manipulated, and identify what was done and found out. Students will identify materials used, describe steps followed and observe the results of their activities and the activities of others.
1.3 Construct, with guidance, an object that achieves a given purpose, using materials that are provided. Students will identify a problem or task, attempt to complete the task and engage in all parts of the task, identify processes by which an object was made and identify or show how a product might be used.
Attitudes
1.4 Demonstrate positive attitudes to the study of science and to the application of science. Students will show growth in acquiring and applying curiosity, inventiveness, perseverance, appreciation of the value of experience and observation, a willingness to work with others, a sense of responsibility for actions taken and respect for living things and environments with a commitment for their care.
Topic A: Creating Colour
1.5 Identify and evaluate methods for creating colour and for applying colours to different materials. Students will identify colours in natural and manufactured objects, compare and contrast colours using terms such as lighter, darker, more blue, brighter than, arrange and order a group of coloured objects based on a given colour criterion, predict and describe colour changes when mixing a primary colour with white or black, distinguish between colours that are transparent and opaque, compare the effects of thickness on paint, recognize how a thick layer of paint can be partly transparent, compare how paint adheres to different surfaces, demonstrate how a colour can be extracted from certain materials and applied to others and demonstrate at least one way to separate sunlight into component colours.
Topic B: Seasonal Changes
1.6 Describe seasonal changes and interpret the effects of season changes on living things. Students will describe changes in the seasonal cycle using changes in sunlight and weather, identify examples of plant and animal changes that occur on a seasonal basis involving form, appearance, location or movement of habitats and changes in activity, identify human preparations for seasonal change, identify activities done on a seasonal basis and record observable seasonal changes over a period of time.
Topic C: Building Things
1.7 Construct objects and models of objects, using a variety of different materials. Students will select appropriate materials based on what they will construct – model buildings, objects, toys, wind or water related artifacts and identify the overall purpose for each model and artifact constructed.
1.8 Identify the purpose of different components in a personally constructed object or model, and identify corresponding components in a related object or model. Students will identify component parts of constructed objects and describe the purpose of the parts, compare objects that have been constructed for the same purpose, identify similarities and differences between parts and recognize that products are often developed for specific purposes.

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Topic D: Senses
1.9 Use the senses to make general and specific observations, and communicate observations orally and by producing captioned pictures. Students will identify the human senses and choose what senses to use to describe objects, materials, living things and environments.
1.10 Describe the role of the human senses and the senses of others living things, in enabling perception. Students will identify how we use the senses to interpret the world for our safety and quality of life, recognize the limitations of our senses, recognize that other living things have senses, identify how animals use their senses, describe how people adapt to limited or loss of sensory abilities and describe ways to take care of our sensory organs.
Topic E: Needs of Animal and Plants
1.11 Describe some of the common living things, and identify needs of those living things. Students will contrast living and non-living things, observe, describe, compare and classify living things based on visible characteristics, identify ways in which living things are valued, identify examples of plants and animals normally considered under human care (domesticated) and independent of human care (wild), identify requirements to main life for animals and for plants, identify ways plants depend on soil, recognize how some plants and animals adapted to extreme conditions to meet their basic needs and give examples of ways in which animals depend on plants and ways in which plants depend on animals.

Taken from the Alberta Education Grade 1 Science Curriculum.

TABLE OF CONTENTS

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THE HEAT OF THE SUN

Learning Intention:

Students will learn about heat from the sun that happens throughout the day and the seasons.

Success Criteria:

- identify the benefits of the sun
- determine temperature readings and make connections to appropriate clothing
- recognize differences in the sun's heat throughout the day
- identify ways to keep comfortable at different temperatures
- make connections to their daily lives

Materials Needed:

- a copy of ***Help From the Sun*** Worksheet 1 for each student
- a copy of ***Feel the Heat*** Worksheets 2 and 3 for each student
- a copy of ***Taking a Reading*** Worksheets 4 and 5 for each student
- a copy of ***What to Wear?*** Worksheet 6 for each student
- a copy of ***What's the Temperature?*** Worksheets 7, 8, 9, 10 for each student
- a copy of ***Get Comfortable!*** Worksheet 11 for each student
- a warm sunny day, **students are to wear sunscreen, hat, and sunglasses**
- a large thermometer (teaching thermometer)
- outdoor thermometers (one for each student or pair of students)
- chart paper, markers, rulers
- pencils

Procedure:

***This lesson can be done as one long lesson, or be divided into four or five shorter lessons.**

1. Discuss with students the idea that the sun is the Earth's main source of heat and light.Divide students into pairs and give them Worksheet 1. They will work with a partner to **think, pair, | share** an answer to the question. A next step would be to encourage students to share their responses to the large group. This would lead to some rich discussion about the impact that the sun has on our lives.
2. On a warm sunny day, take students out for a walk. (Ensure they wear sunscreen, hat, and sunglasses). Give them Worksheets 2 and 3, a clipboard, and a pencil. It may be beneficial to discuss what **'describe'** and **'predict'** mean before starting this activity. Inform students that they are to make some observations about how the sun feels on their skin. Once the observation is completed, an option would be to return to the classroom and discuss their findings.
3. Using a large (teaching) thermometer, teach students how to read the temperature on a thermometer. Ensure students are able to relate a certain temperature to a type of weather, and determine what clothing to wear. Give students Worksheets 4, 5, and 6 to complete.
4. Brainstorm with the students a list of words to describe temperature and the outside air. Some examples are hot, warm, humid, mild, cool, cold, chilly, freezing, etc. They will need to refer to this vocabulary each day as they take temperature readings on Worksheets 7, 8, 9, and 10. *Daily times for readings can be adjusted, depending on the schedule of your school day.

   Extended teaching option:
   - revisit Activity #4 in the procedure section, using Worksheets 7, 8, 9, and 10 at a **different time of year** in order to compare the seasonal results of the sun's heat.

5. Have a discussion with students about the features of buildings that keep people sheltered and comfortable throughout daily and seasonal changes. This discussion may lead to other ideas about our **creature comforts** that keep us comfortable in different temperatures. Some sample answers may be fireplaces, air conditioners, fans, windows, pools, access to beaches, hot or cold beverages. Give students Worksheet 11 to complete individually or with a partner.

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Differentiation:

Slower learners may benefit by:

- completing only pictures in order to provide answers on Worksheet 1
- working with a peer to complete the observational notes on Worksheets 2 and 3
- working in a small group with teacher direction to ensure they obtain accurate temperature readings for Worksheets 4, 7, 8, and 9
- completing Worksheet 10 together as a small group, with teacher direction, to reduce the amount of written output required from these learners

For enrichment, faster learners could choose one day of the week from Activity #4 in the procedure section, and make a bar graph to represent the temperature differences throughout the day. An option would be to have these learners create a bar graph for each of the 5 days that they took temperature readings.

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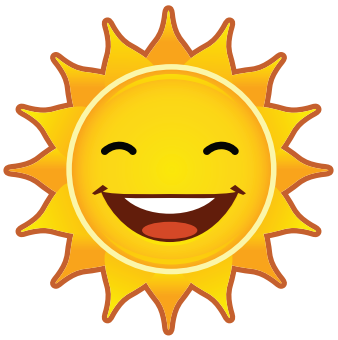
Worksheet 1

Name: _____

Help From the Sun



Think, Pair, Share

With a partner, do some thinking and sharing of ideas about the question below.

Use pictures and words when recording your ideas in the chart.

"How does the sun help us?"

My Thinking

_____

_____

_____

_____

_____

_____

My Partner's Thinking

_____

_____

_____

_____

_____

_____

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Worksheet 2

Name: _____

Feel the Heat

Take a walk in the sun on a warm sunny day.

Observe how the sun feels on your skin.

Come on, let's go!

Describe how your skin feels after a few minutes in the sun.

_____

_____

_____

_____

When you stay in the sun for a long time on a **hot** day, what happens to your body?

_____

_____

_____

_____

_____

_____

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Worksheet 3

Name: _____

Let's Predict

Predict how you will feel if you go into the shade.

_____

_____

_____

Let's Observe

Now find a place in the shade.

Observe how your skin feels.

Describe how your skin feels after a few minutes in the shade.

_____

_____

_____

_____

Let's Conclude

What can you conclude about the heat of the sun?

_____

_____

_____

_____

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