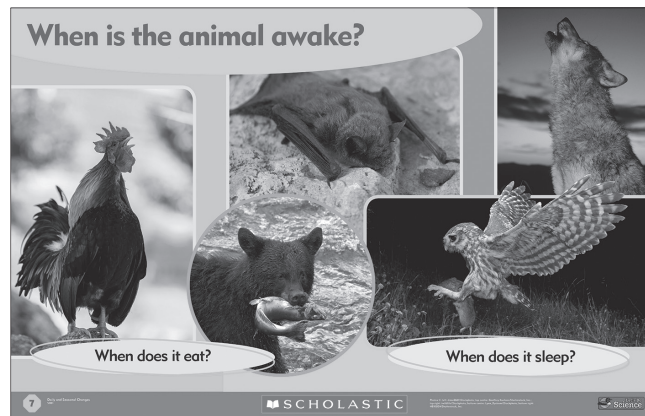


Do Animals and Plants Have Daily Cycles?



Focus: Students will investigate and describe daily changes in the characteristics, behaviours, and locations of animals and plants.

Specific Curriculum Outcomes

Students will be expected to:

- 11.0 explore how changes in sunlight affect living things [GCO 1/3]
- 12.0 investigate daily changes in the characteristics, behaviours, and location of living things [GCO 1/3]

Performance Indicators

Students who achieve these outcomes will be able to:

- identify daytime and nighttime activities of some animals and plants
- investigate and communicate the daily activities of a pet

NOTES:

Attitude Outcome Statements

Encourage students to:

- show interest in and curiosity about objects and events within the immediate environment [GCO 4]
- willingly observe, question, and explore [GCO 4]

Cross-Curricular Connections

English Language Arts

Students will be expected to:

- communicate information and ideas effectively and clearly, and to respond personally and critically [GCO 2]
- interpret, select, and combine information using a variety of strategies, resources, and technologies [GCO 5]
- using writing and other forms of representations to explore, clarify, and reflect on their thoughts, feelings, experiences, and learnings; and to use their imaginations [GCO 8]

Getting Organized

Program Components	Materials	Before You Begin	Vocabulary
• Science Card 5 (optional) • Science Card 7 • IWB Activity 9 • <i>What Is the Inquiry Process?</i> poster • BLM <i>My Pet's Day</i> Literacy Place: • <i>Daytime, Nighttime</i> (Shared Reading—Changes Inquiry Unit)	• time-lapse video of a morning glory or sunflower seedlings • reference materials related to diurnal and nocturnal animals	• Prepare a KWHL chart.	• daytime • living thing • nighttime • moon

Science Background

- The scientific group of *Anamalia* (animals) includes mammals, reptiles, birds, fish, and insects, among others.
- Plants and animals that are active during the day have diurnal cycles. Those that are active at night have nocturnal cycles.
- Some plants have flowers that bloom only at night, such as the Angel's trumpet, moonflower (a relative of the morning glory), and night phlox.
- Nocturnal animals that are local to Newfoundland and Labrador include: river otters, beavers, snowshoe hares, Canadian lynx, pine martens, little brown bats, great horned owls, and coyotes.

- Hamsters, cats, and rabbits are naturally nocturnal. As pets, they adapt to some degree to household routines. Cats and rabbits are usually most active at dawn and dusk.
- Not all nocturnal animals have good night vision. Owls have extremely good night vision and can hunt in complete darkness. Cats see equally well in darkness or light. Bats do not have good night vision, depending instead on echolocation to locate prey at night.

Possible Misconceptions

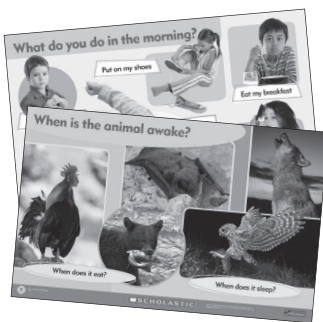
Students may believe that all animals eat and sleep at the same times of day that they do. They are likely to think that plants do not change throughout the day. Address these misconceptions by showing live webcam images of plants and animals that are active during the night.

ACTIVATE

A Day in the Life

Prompt student's recall of their daily cycles. (You may choose to show Science Card 5 again.) Then ask:

- **What other things do you do at about the same time every day?**
- **When do you get hungry?**
- **When do you get sleepy?**
- **Do you think animals do some things at about the same time every day, too?**



IWB Activity:

- Students can use
- IWB Activity 9: *When is it awake?* to sort
- the animals who are
- active in the daytime
- and those who are
- active in the nighttime
- (see the Teacher's
- Website).



Show students Science Card 7. Invite students to tell you what each animal is doing. Create a chart with the headings *Animal*, *Day*, and *Night*, and list the animals on Science Card 7 on the chart: rooster, bat, bear, wolf, owl. Divide the class into groups and assign one animal per group. Tell the class that each group is to discuss what their animal is doing and when their animal is doing that activity. When discussions are complete, have each group choose one member to report their answer to the class. Record answers in the chart and review them with the class. You may want to share these answers: roosters crow in the morning, bears feed during the day, owls are active during the night, wolves howl at night, bats sleep during the day.

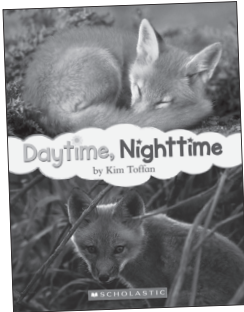
Daily Cycles and Plants

Begin a class discussion by asking:

- **Do you think a plant can do something every day?**
- **Do you think that a plant can sleep?**

After students have shared their ideas, share an online time-lapse video of a morning glory. Explain that these flowers are called morning glories because they open in the morning when they are in the sun, and then close back

up again when the sun goes down. Students might also view a time-lapse video of sunflowers following the sun throughout the day. (See Additional Resources on pages 74–75 for links to videos.)

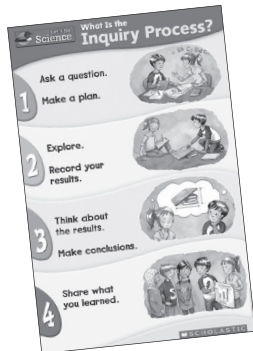
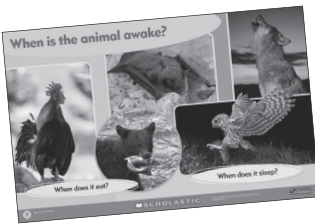


Literacy Place Connection:

Revisit or read *Daytime, Nighttime* by Kim Toffan with the students. Discuss the daytime and nighttime activities of the poppy flower and the various diurnal and nocturnal animals. Ask:

- What does [this plant or animal] do in the day that it doesn't do at night?
- Are all of the animals active at the same time of day?
- What do you do in the day that you don't do at night?
- Why are your activities different in daytime and at nighttime?

CONNECT



Animal Activities

Continue students' exploration of the animal activities shown on Science Card 7. Choose one of the animals (or hold a vote so the class can choose) and start a KWHL chart about its daily cycle by asking for answers to the questions: *When is the animal awake? When does it eat? When does it sleep?* Record students' ideas and any other questions they have, noting them in the chart. As a class, have the students choose one question from the Wonder column that they would like to explore. Students may work as a class or in groups. Review the steps on the *What Is the Inquiry Process?* poster. Support students in exploring the chosen question as independently as readiness allows. Encourage students to make predictions and plans for exploring the question they chose to investigate. Ask:

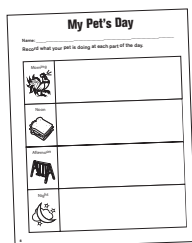
- Does the animal do this because the sun is out/not out?
- How could we find out?

Provide websites and printed resources related to diurnal and nocturnal animals as needed.

Tracking Weather

Complete the weather chart again over the day. You might have a volunteer help you and make a weather report to the class. Choose a different volunteer for each time on the chart. Have the class compare the new data to the observations of previous days. Ask:

- What do you notice? Is anything the same? Is anything different?



Point out or guide students to notice that when the sun is absent, there is less light and heat outside. For example, if it is overcast, ask students:

- **Where is the sun? Is it brighter or darker when we can see the sun? Is it cooler or warmer?**

When the chart has two days of weather data, assist students to notice any patterns, such as cooler temperatures in the morning. For example, you could ask:

- **What was the weather like today in the morning? Was it like that in the morning yesterday?**
- **Do you think the weather will be the same or different tomorrow? Why do you think that?**

What Does My Pet Do?

Ask students what they know about the daily activities of a pet (the class pet or their own). Inform the class that they are going to find out what things the pet does every day and when it does them—the daily cycle of the pet. Read aloud the steps on the *What Is the Inquiry Process?* poster and remind students that the inquiry process helps us to find out answers to our questions. Tell them the question they are going to investigate is *What is the daily cycle of my pet?* Prompt thinking by asking:

- **Does the pet sleep when you do?**
- **Does it get hungry when you do?**
- **When does it like to play the most?**

Encourage students to communicate their experiences and ideas about the pet's daily behaviour. Then, inform them that they will be exploring what the pet does and where it goes at different times during the day. Have students devise a way to test their ideas and record what they find out. Alternatively, hand out copies of BLM *My Pet's Day* for students to use.

Students should make observations over several days. If you have a class pet or a pet of your own, you might make a video of its nighttime activities to share with the class. Students might also enjoy viewing a webcam of an animal online.

As an alternative or extension, have students ask their own questions about activities that might be part of the daily cycle of their pet and to plan how to make and record observations. As they work, refer to the *What Is the Inquiry Process?* poster and ask questions such as:

- **What step are you doing now? What comes next? How will you do that?**

Each day, review students' observations as a class. Encourage students to connect their pet's activities to their own daily cycles and with the presence or absence of sunlight. Ask:

- **What did your pet do at the same time as you do? What things did it do differently?**
- **What things does it do at sunrise? when the sun is out? at sunset?**
- **What new questions do you have about your pet's daily cycle?**

CONSOLIDATE

Up All Night

Working in groups, have students brainstorm what would be different if their pet was awake only at night. Have students communicate their ideas by drawing a picture or telling a story.

EXPLORE MORE

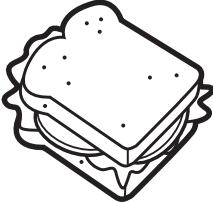
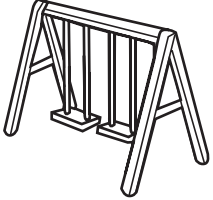
Explore a Local Animal

Provide videos, books, websites, or pictures of local nocturnal and/or diurnal animals. Invite students to follow the inquiry process to find out something they are curious about regarding the daily activities of one animal. Students could communicate their results by making a drawing, a poster, a bulletin board display, or by acting out the animal's activities.

My Pet's Day

Name: _____

Record what your pet is doing at each part of the day.

Morning 	
Noon 	
Afternoon 	
Night 	