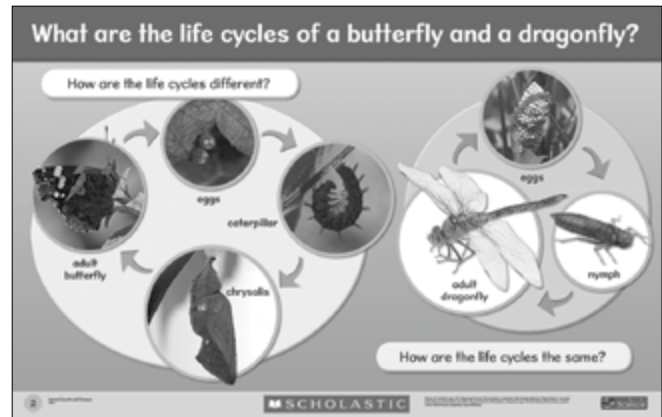


What Is a Life Cycle?



Focus: Teachers and students begin to pose questions related to the growth, changes, and life cycles of humans and other animals, and identify ways to answer those questions. Teachers begin to model scientific vocabulary relating to growth, changes, and life cycles of humans and other animals.

Specific Curriculum Outcomes

Students will be expected to:

- 1.0 pose questions that lead to exploration and investigation [GCO 2]
- 2.0 communicate using scientific terminology [GCO 2]
- 30.0 identify and use a variety of sources of science information and ideas [GCO 2]

Performance Indicators

Students who achieve these outcomes will be able to:

- generate reasonable questions based on innate curiosity and personal experiences
- use correct vocabulary appropriately when communicating about animal life cycles

NOTES:

Attitude Outcome Statements

Encourage students to:

- recognize the role and contribution of science in their understanding of the world [GCO 4]

Cross-Curricular Connections

Social Studies

Students will be expected to:

- describe how people's interactions with their environment have changed over time [2.4.2]

Math

It is expected that students will:

- measure length to the nearest non-standard unit by using multiple copies of a unit or by using a single copy of a unit [2SS4]

English Language Arts

Students will be expected to:

- select, read, and view with understanding a range of literature, information, media, and visual text [GCO 4]
- interpret, select, and combine information using a variety of strategies, resources, and technologies [GCO 5]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Science Card 1 • Anchor Video: <i>Animal Growth and Changes</i> • Science Card 2 • IWB Activity 1 • BLM <i>My Life Cycle Question</i>	• large sheets of paper • interlocking cubes • index cards • recipe boxes • students' Science Folders	• Gather books and artifacts relating to animal life cycles for the Curiosity Centre. • Arrange for an Elder or an Indigenous Knowledge Keeper to visit the classroom. Note: You may wish to order the animals you plan to study in this unit from a science supply company. (See the Science Background section of <i>How Can We Observe a Life Cycle?</i> on page 18 for factors to consider when choosing an animal.)	• life cycle • egg • caterpillar • pupa • chrysalis • nymph • butterfly • dragonfly • tadpole • frog

Science Background

- All living things pass through a series of stages from the beginning of their life until their death. For any particular animal, these stages are known as that animal's life cycle.

- The life cycles of animals are incredibly diverse, and although generalizations can be made about similarities within animal classes, there are always exceptions. For example, nearly all mammals give birth to live young; the two exceptions are the duck-billed platypus and the echidna. Only a small percentage of all animal species give birth to live young—most animals lay eggs.

Possible Misconceptions

- Students may not think of humans as animals. Tell students that the two most familiar kingdoms of living things are plants and animals, and that we are part of the animal kingdom. Be sure to include humans as examples when discussing animals, and point out the similarities between human life cycles and the life cycles of other mammals as opportunities arise throughout the unit.
- It may be surprising for students to learn that caterpillars and butterflies are the same animal. Even students who know that caterpillars become butterflies may not realize that caterpillars come from eggs. Students may also be surprised about the variety of animals that lay eggs. Expose students to as many life cycles as possible throughout the unit so that students develop an appreciation for both the variety and the recurring patterns among animal life cycles.

ACTIVATE



Life Cycle Stages

Show students Science Card 1 and ask:

- Which person shown in the picture is the youngest? How do you know?
- Which person shown in the picture is the oldest? How do you know?
- How can you describe the different animals you see in this picture?
- Which animals in this picture lay eggs?
- What happens when the eggs hatch?
- What questions do you have about the people and animals in the picture?



Record any questions students may have on the I Wonder Wall. Begin to model the use of scientific vocabulary relating to life cycles. Add terms such as “egg,” “caterpillar,” and “pupa” to the Word Wall. You may choose to begin a class KWLM chart about how animals grow and change which can be updated throughout the unit as students revise their thinking about the topic.

An Elder's Perspective

Invite an Elder or an Indigenous Knowledge Keeper to visit the classroom and talk about how the life cycles of plants and animals affect or influence their traditional way of life. As well, the person could share how the life cycles of plants and animals are incorporated into traditional stories and songs. Elders could give the names of some local animals in their traditional language.



Anchor Video

Play the Anchor Video: *Animal Growth and Changes* which is located on the Teacher's Website. Set a focus for viewing by asking students to think about how animals, including humans, change as they grow from babies to adults. Invite students to give examples of how they have changed since they were babies. You may choose to pause the video to allow students to answer questions or to discuss any questions which students may have.

Curiosity Centre

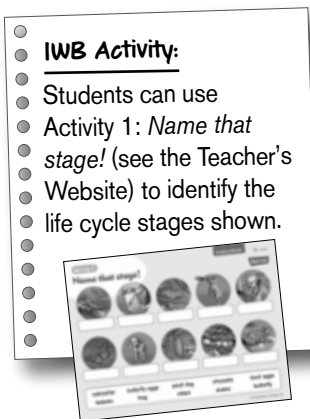
Collect intriguing books, pictures, and artifacts that relate to animal life cycles and add them to the Curiosity Centre. Introduce Science Card 2, which shows details of the life cycles of the butterfly and dragonfly, then place this card at the Curiosity Centre. Invite students to examine the card to see what they notice about life cycles. Allow students time for exploration. You may provide index cards or sticky notes at the Curiosity Centre for students to record questions that arise as they explore. Questions can later be added to the I Wonder Wall.

CONNECT

Brainstorming Session

As a class, brainstorm sources of science information about life cycles from both inside and outside the classroom. Record these on a research anchor chart. Sources could include the following:

- the Internet
- books
- science magazines
- pet stores
- veterinarians or animal hospitals
- aquariums
- insectariums
- nature parks
- museums
- farms
- discussion with family members
- discussion with Elders or Indigenous Knowledge Keepers
- observation of animals in nature
- observation of people and pets at home



My Growth and Development

Students can practise the skill of measuring by determining and recording one another's height. One way to do this is to have students trace one another's outlines lying straight on a large sheet of paper, and then measure the outline from top to bottom. They can also measure and record foot length. Students may use interlocking cubes or other appropriate materials to take their measurements. In addition, have students take digital pictures of one another.

They will have the opportunity to revisit these measurements and records later in the unit. If possible, it is a good idea to take these records and measurements at the beginning of the year.

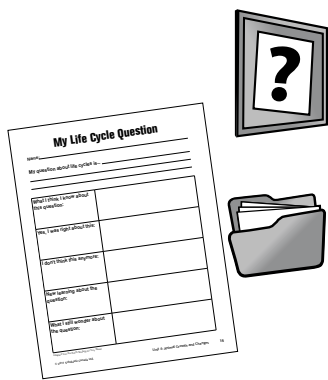
Life Cycle Poems and Songs

Continue to introduce and model scientific vocabulary by teaching life cycle poems and songs that students can recite and sing. There are many of these to be found by searching the Internet. (See *Additional Resources* on pages 81–83 for suggestions.)

A Life Cycle Word Box

Provide students with index cards and recipe boxes. As new terms arise, students can record them on the index cards (one term per card) using pictures and/or words to record their meanings. Alternatively, you could punch holes in the cards and connect them with shower curtain rings.

CONSOLIDATE



Researching to Answer a Question

Have students choose a question about animal life cycles from the I Wonder Wall to investigate. Copy and distribute BLM *My Life Cycle Question*. The BLM uses the RAN strategy to help students organize their thinking and record what they find out. Remind students to store their completed BLMs in their Science Folders.

Indigenous Names for Local Animals

Have students choose a local animal and research the name it is given by Mi'kmaq, Inuit, or Innu people, or by another local Indigenous group. Caribou, wolf, bear, lynx, fox, eagle, and moose are some examples of animals students could research.

EXPLORE MORE

Collecting Sources

Have students look for photographs (magazine photos or family photos), books, artifacts, and other items that they can bring in to share with the class that relate to human or other animal life cycles.

My Life Cycle Question

Name: _____

My question about life cycles is... _____

What I think I know about this question:	
Yes, I was right about this:	
I don't think this anymore:	
New learning about the question:	
What I still wonder about the question:	

Adapted from the R.A.N. Strategy by Tony Stead