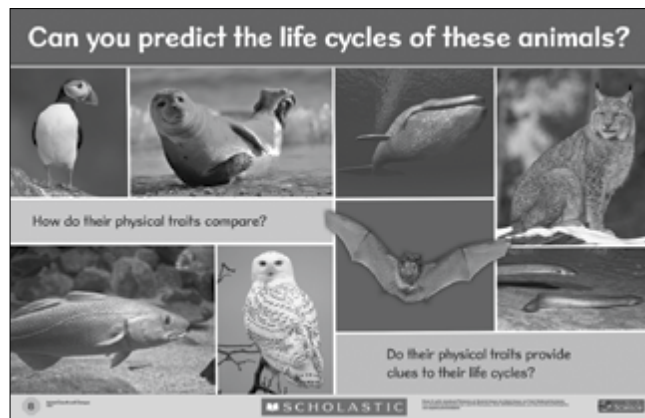


How Do Different Life Cycles Compare?



Focus: Students group and sort animals based on the similarities and differences between their life cycles.

Specific Curriculum Outcomes

Students will be expected to:

- 10.0 sequence or group materials and objects [GCO 2]
- 44.0 group animals according to the similarities and differences of their life cycles [GCO 1/3]

Performance Indicators

Students who achieve these outcomes will be able to:

- accurately group and sequence animal life cycles using various characteristics

NOTES:

Attitude Outcome Statements

Encourage students to:

- consider their observations and their own ideas when drawing a conclusion [GCO 4]

Cross-Curricular Connections

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]
- respond personally to a range of texts [GCO 6]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Science Card 8 • IWB Activity 6 • BLM <i>Life Cycle Trivia Cards</i> Literacy Place: • <i>Flying Acrobats</i> (Guided Reading, Level M)	• images of a variety of animals • small toys representing animals • students' Science Journals • paper plates • drawing materials	• Collect small toys representing a variety of animals. • Collect and cut out images of different animals.	• exoskeleton

Science Background

- The more life cycles students are exposed to, the more they will notice the similarities among classes of animals. The previous Teaching Plan described common features of the life cycles of birds, mammals, reptiles, etc. Within classes, there is a great deal of variation, including in the length of time it takes for each stage of a life cycle and the overall lifespan of an animal. Questions about characteristics of life cycles make great questions for research. For example:

Question	Answer
Which animal has the longest lifespan?	The bowhead whale, also known as the Arctic whale, has the longest lifespan. These whales have an average lifespan of 200 years!
Which animal has the shortest lifespan?	Many sources report mayflies as having the shortest lifespan, although this only takes the adult (imago) stage of their life cycle into account. Mayflies live only one day. Some members of the mayfly family live only a few hours or even a few minutes.
How do the sizes of mammal mothers and their babies compare?	Human mothers weigh about 22 times as much as their babies. An Orca mother weighs about 50 times as much as its baby. A giant panda weighs 900 times as much as its baby!

Possible Misconceptions

- Students may use clues such as where an animal lives or whether or not it has wings to make inferences about their life cycles. For example, they may believe a bat lays eggs like a bird because it has wings. They may believe a whale lays eggs like a fish because it lives in the water. Allow students plenty of time for investigation and exploration of materials describing different life cycles to help them dispel such misconceptions. Reinforce the learning of the previous Teaching Plan and model the grouping of animals based on class (mammals, birds, fish, insects, amphibians, and reptiles) rather than individual characteristics (such as wings) or habitat. The Life Cycle Trivia game on pages 41–42 can help dispel some of these possible misconceptions.

ACTIVATE



Grouping Animals

Science Card 8 provides images of a variety of animals from three classes of animal: mammals (lynx, little brown bat, blue whale, seal), fish (American eel, cod), and birds (puffin, snowy owl). Show students the Science Card and ask:

- What are some ways to group these animals?
- How can you group them based on their body coverings? The way they move? Their environment? The things they eat? The number of legs they have?
- Do all animals with wings lay eggs?
- Do all animals that live in the water lay eggs?
- Do all animals with fur give birth to live young?
- Which animals are mammals? Birds? Fish? How do you know?
- Can you predict the life cycle of an animal by looking at its physical characteristics?



Record students' questions about grouping and life cycles on the I Wonder Wall.

Sequencing Life Cycle Stages

Gather images of animals in 3 or 4 stages of their life cycles. Ensure there will be one image per student. Pass out the images to students. They must first find the students with the other stages for their animal, and then sequence themselves based on the life cycle stages. Examples could be:

- honeybee: egg, larva, pupa, adult honeybee
- dragonfly: egg, nymph, dragonfly
- dog: puppy, adolescent, adult dog
- frog: egg, tadpole, froglet, frog
- chicken: egg, chick, chicken (hen or rooster)
- darkling beetle: egg, mealworm, pupa, darkling beetle

After the activity, invite students to display the images with appropriate labels.

CONNECT



IWB Activity:

- Challenge students to use Activity 6: *What animal am I?* (see the Teacher's Website) to predict the animals according to details about their life cycles.



Life Cycle Trivia Cards			
1. little brown bat	2. lice	3. monarch	4. ladybug
5. chicken	6. Atlantic salmon	7. darkling beetle	8. seagull
9. rainbow trout	10. human	11. walrus	12. hamster
13. green frog	14. grasshopper	15. woodpecker	16. dragonfly
17. sea turtle	18. dog	19. red Admiral butterfly	20. honeybee

Sorting Animals

Provide small groups of students with images or small toys representing different animals. Refer to *What Are the Life Cycles of Different Animals?* (see pages 32–37) for ideas about which animals to use. Have students work together to sort the animals based on their physical characteristics. Have students record their work by taking digital photos or by making lists or simple charts in their Science Journals.

Body Coverings

Ask students:

- Do animals that look similar always have the same kind of life cycle?

Record students' predictions. Provide paper plates and drawing materials. Tell students they will be creating sorting circles. Students should label each plate with four different types of body coverings (e.g., fur, feathers, scales, exoskeleton/shell). Introduce the term "exoskeleton" and add it to the Word Wall. Insects have hard body coverings called exoskeletons. Some of these are also called "shells."

Provide students with images or toys representing various animals, or a mixture of the two, and have them sort the animals into the sorting circles. Once sorting is complete, have students revisit the question asked at the beginning of the activity by comparing the life cycles of animals within the circles. You may repeat the activity with different characteristics of an animal such as its size, ability to fly, and habitat.

Life Cycle Trivia

Reproduce and cut out BLM *Life Cycle Trivia Cards*. Give each student a card. (Play the game with small groups if your class is large, or make extra cards.)

To begin, each student stands up in the order of the number on their card and introduces themselves as their animal. E.g., "I am a walrus!" "I am a rainbow trout!" All of the students should be standing up at the end of the introductions. During play, all students for whom the statement is not true should sit down and stay seated for the rest of the game. For example, the student with "human" should sit down after the first question because humans typically live longer than 30 years. After each question is asked, check in with each student who sat down and ask why they sat down.

Trivia Questions

- My life cycle is usually less than 30 years. (Human and walrus sits down.)
- My life cycle is usually less than 15 years. (Sea turtle sits down.)
- I begin life in an egg. (Little brown bat, hamster, and dog sit down.)
- I have wings. (Lice, Atlantic salmon, rainbow trout, and green frog sit down. Note that darkling beetles are flightless but do have wings.)
- I do not come out of my egg with wings but develop them later. (Chicken, seagull, and woodpecker sit down.)



6. I form a pupa (chrysalis) during my life cycle. (Grasshopper and dragonfly sit down.)
7. In my larva stage, the only food I eat is milkweed. (Mosquito, ladybug, darkling beetle, and honeybee sit down.)

The red admiral butterfly is the last animal standing.

After the game, have students glue their card in their Science Journals. Have them find answers to the following questions about their animal:

- **How long is a typical life cycle for my animal?**
- **What are the stages of a life cycle for my animal?**
- **What interesting thing did I find out about my animal's life cycle?**
- **What else would I like to know about my animal's life cycle?**

CONSOLIDATE

Comparing Life Cycles

Tell students they will be playing a comparing game. Work with small groups and ask them questions comparing one life cycle with another. Have students justify their responses by describing the life cycles in the question and explaining why one is more like another. Sample questions:

- **Is a blue whale life cycle more like the life cycle of a dog or a salmon?**
- **Is a butterfly life cycle more like the life cycle of an eel or a little brown bat?**
- **Is a ladybug life cycle more like the life cycle of a dragonfly or butterfly?**

Have students ask one another similar questions.



Literacy Place Connection:

Flying Acrobats (Guided Reading, Level M) tells of a boy's experience with the hummingbirds in his neighbour's garden. Invite students to help you diagram the hummingbirds life cycle. Discuss which life cycles of other animals are similar to the hummingbird.

EXPLORE MORE

Jellyfish Life Cycle

Jellyfish have interesting and unusual life cycles. Challenge students to use books or the Internet to find out about the life cycle of a jellyfish and produce a poster to show what they have learned.

Lobster Life Cycle

Have students investigate and compare the life cycle of a lobster with the life cycles of a dragonfly and Atlantic salmon. Have them orally describe the similarities and differences in each case.

Life Cycle Trivia Cards

1. little brown bat	2. lice	3. mosquito	4. ladybug
5. chicken	6. Atlantic salmon	7. darkling beetle	8. seagull
9. rainbow trout	10. human	11. walrus	12. hamster
13. green frog	14. grasshopper	15. woodpecker	16. dragonfly
17. sea turtle	18. dog	19. red admiral butterfly	20. honeybee