Comparing Life Cycles

Habitat lab Field Journal Activity Lesson Plans & Resources

Online Lesson Plans & Resources available on the Alabama Wildlife Federation website

Students will compare their life cycle (the life cycle of a human) with the life cycle of an animal that they find in the habitat lab.

Materials: Copies of the "Comparing Life Cycles" Field Journal Activity Page, Clipboards, & Pencils *Optional: binoculars & magnifying glasses*

Duration: Intro Discussion – 40 min. Outdoor Exploration – 20 min. Indoor Research & Review – 30 min.

STEP 1: Engage through Discussion

The background information and questions below can be used to help introduce the topic, engage the students, and build a foundation to discuss the topic:

Background Information (online as a PDF)

All **organisms**, or living things, on earth have one thing in common – a **life cycle** that starts with some type of "birth" and then continues with growth and/or **metamorphosis** (change) into an adult until the cycle starts over with **reproduction** (make offspring) unless the organism dies. During the stages of **development** (growth or change), these organisms display different inherited **traits** (or characteristics) and use different **strategies** (or plans) for survival all with the goal of allowing some of the population to reach adulthood so that they can reproduce and start a new generation. Some organisms at birth closely resemble the adult of that species except for size, while other organisms go through very unusual changes, or metamorphosis, during their life cycle stages. The changes that different species go through during their life cycles can take different amounts of time. For instance, we grow from a baby to an adult over a span of 15-19 years while some butterflies go through complete metamorphosis from an egg to a

caterpillar to a butterfly in a few weeks. Each species of animal has a different **life span** (its typical age at death) as well.

Example Discussion Questions & Answers (online as a PowerPoint or PDF)

Q: Do all organisms have a life cycle? First, what is an organism?

A: *An organism is a living thing. An organism could be a plant like a wildflower, bush or tree, or it could be an animal like a human, salamander or spider.*

Q: Do all organisms have a life cycle? Second, what is a life cycle?

A: *Hint: A cycle is a series of events that repeat in the same order. A life cycle is the physical changes an animal or plant goes through during its life. Yes, ALL organisms have a life cycle.*

Q: What do all organisms' life cycles have in common? How does a life cycle start? What happens next?

A: *Birth - All plants and animals are produced by their parents. Growth – Plants and animals grow or change from "babies" to adults. Reproduction – Adult plants and animals can produce new babies. Death – All plants and animals eventually die.*

Q: Are all animals born the same way as we are? How are humans born? Do we hatch from an egg?

A: *No. Humans have live births from their mothers just like dogs, bats, manatee, raccoons and other mammals. Some animals do hatch from eggs like birds, butterflies, snakes and fish.*

Q: Do humans experience the same type of "growth" from a baby to an adult as other animals do?

A: *Some animals (like humans) do not physically change very much. They are born with all of the same body parts as the adults have. They just grow larger.*

Q: Do ALL animals experience the same type of "growth" from a baby to an adult as other animals do?

A: *No. Although some animals change little as they grow larger, others go through a complete metamorphosis (change) as they "grow" into adults. For instance, the common buckeye butterfly lays its eggs on leaves. Then, the caterpillar emerges from the egg and eats as it grows. The caterpillar then forms a chrysalis, and after a period of days the adult butterfly emerges with wings. Another example of metamorphosis is the southern leopard frog that lays its eggs in a pond or stream. Tadpoles emerge from the eggs without legs or lungs using gills to breathe in the water. Tadpoles grow legs, and as they lose their tails they emerge from the water with legs and lungs.*

Q: Do other animals take 15-20 years to grow to maturity or adulthood before they stop growing like we do?

A: *No. Most animals reach their maximum growth in just a few weeks or months. Most caterpillars transform from an egg to a caterpillar and then to a butterfly in just a few weeks, and some tadpoles can morph into adult frogs in just four months. Eastern cottontail rabbits reach maturity (adulthood) in three months, while eastern box turtles reach maturity at 4-5 years.*

Q: Do all animals complete their life cycles in the same amount of time? Do they have the same "lifespan"?

A: *No, most humans live to be 70-80 years old, while an Eastern box turtle's life span is 30-40 years, an Eastern bluebird can live up to 6-10 years, and a common buckeye butterfly only lives for approximately 4-5 weeks from the time the egg is laid to its death.*

Q: What happens if the adult animals die before they can reproduce?

A: *For the life cycle to continue, adult animals must reproduce and "babies" must be born to grow into adults and continue the cycle. Without reproduction, there are no births. Without births, there are no animals growing into adults to reproduce.*

Q: What animals do you think we can find living in our habitat lab? Which part of their life cycle could we find?

A: *Insects like ants or butterflies, birds like bluejays or northern cardinals, reptiles like lizards, amphibians like frogs, mammals like squirrels, and other "bugs" like spiders.*

STEP 2: Explore with Literature

These books can be used to further explore the topic with your students:

- *Caterpillar to Butterfly* (National Geographic Kids) by Laura Marsh (ISBN: 978-1426315787)
- *Frogs* by Gail Gibbons (ISBN: 978-0823411344)
- *Monarch Butterfly* by Gail Gibbons (ISBN: 978-0823409099)

STEP 3: Explain using Technology

These videos can be used to further explain the topic to your students:

- Metamorphosis: Change of Plans by PBS (4:45 min) https://www.pbslearningmedia.org/resource/tdc02.sci.life.cyc.metamorph/metamorphosis-change-of-plans
- Life Cycle Video by MakeMeGenius.com (4:26 min) https://www.youtube.com/watch?v=-pHav-3QZkI

STEP 4: Elaborate with a Field Investigation in the Habitat lab 

The Habitat lab Field Journal Activity Observation Page(s) allow students to apply what they have learned as they investigate and record their real-world observations in their field journals. Before you go outside, don't forget to review the activity instructions and your Habitat lab Rules:

- **Activity Tip:** Conduct this activity in the warm months of spring or fall to increase the possibility of finding not only adult animals but also their offspring, so that your students can observe the full life cycle of the wildlife in your habitat lab. Animals that you may be able to view at different stages of development include birds and their chicks in a nesting box, caterpillars and adult butterflies in your butterfly or pollinator habitat, or a frog/toad and its tadpoles in a pond.
- **Activity Page Instructions:** Explore your habitat lab to find an animal. Draw a picture of it and record your observations about it. Use a field identification guide like the *National Audubon's Field Guide to the Southeastern States* or Outdoor Alabama's Watchable Wildlife webpages to identify the animal and to research its life cycle. Then, record observations about you and a human's life cycle. Compare the animal's life cycle stages to your own life cycle. *Optional: Use an IPad, smart Phone or camera to take a photo of the animal found in the habitat lab.*
- **Example Habitat lab Rules**: The habitat lab provides habitat (a home) for local wildlife. It is not a playground, so do not run and do not climb on anything. Do not step on the rocks or garden pavers. Do not pick up wildlife, plants, flowers or rocks because we don't want to damage the habitat. Do not feed the wildlife. Please be respectful. Remember - the quieter you are, the greater your chance of seeing wildlife!

STEP 5: Review and Assess

Review and assess the students' observations and answers on their observation pages. Another extension might be to have student research and draw the different stages of the life cycle of an organism not observed in the habitat lab. You can also use one of the Activity Pages online to review and assess your students' level of understanding.

Alabama Course of Study Standards for Third Grade

Language Arts (2016)

10) Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. [RI.3.1]

12) Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause and effect. [RI.3.3]

14) Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently. [RI.3.5]

16) Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). [RI.3.7]

19) By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the Grades 2-3 text complexity band independently and proficiently. [RI.3.10]

28) Conduct short research projects that build knowledge about a topic. [W.3.7]

Science (2015)

6) Create representations to explain the unique and diverse life cycles of organisms other than humans (e.g., flowering plants, frogs, butterflies), including commonalities such as birth, growth, reproduction, and death.