



North American LifeLines Curriculum Guide

Materials: TimeLine Scroll
North American LifeLine Card Set
TimeScale Card Set

Prerequisite(s): Students should have good understanding of the concept of time and time notation. Ideally, students should be familiar with the BC/AD timeline presentation.

Overview: The North American LifeLine Card set was developed to further student's understanding and exploration of life cycles, stages of development and life-spans of different living beings within the context of a specific continent. This allows students to explore differences and similarities that exist between plants and animals, from very simple to more complex. The LifeLine Card set includes individual life forms from a plant, tree, mammal (non-human), reptile, bird, amphibian, insect, and fish.

*Note**Clocca Concepts recommends using these cards with the TimeScale Card Set. The TimeScale Card set allows students to "figure" out which scale to use for individual life forms and for comparisons between life forms. There is not a scale that comes with the card set for use. If you do not have the TimeScale Card set, then it is recommended that you create scale cards based on units, tens, and hundreds, so as to reflect the broad scale of possibilities (days, weeks, months, years, decades, etc...).*

*When children come into contact with nature, they reveal
their strength.*

~ Maria Montessori

Presentation 1:

1. Gather materials together: TimeLine Scroll, TimeScale Cards (or your own time scale cards), North American LifeLine Cards.
2. Discussion:

What is a life cycle?

A life cycle is the stages that occur in a plant or animals lifetime. A life cycle is a circle that has no end, one life ends and one always begins.

A Life Cycle Story:

“Let’s discuss a life cycle story you should be familiar with briefly.”

Frogs lay thousands of jelly-covered eggs that do not have shells. This jelly protects the eggs from being eaten by creatures in the water. Frogs lay their eggs in water or wet places so that the eggs don't dry up or die. The floating clump of eggs is called a frog spawn.

The embryos develop in the eggs and grow until they look like small tadpoles, or frog babies. The tadpoles grow until they are big enough to break free. This can take from three days to three weeks. Tadpoles have a head, tail and body. They breathe by getting air from the water through their gills. They eat algae as they swim. As tadpoles grow, their gills shrink and a flap of skin grows over them. They also develop tiny teeth and a jaw.

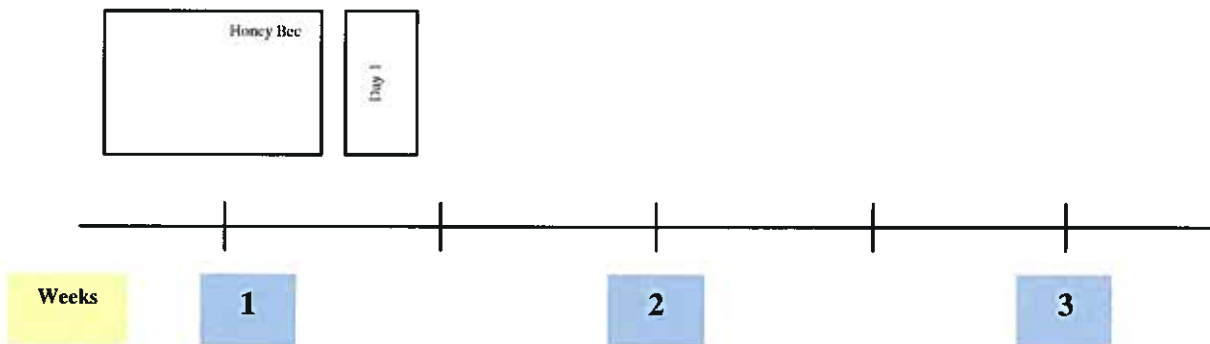
After the tadpoles are one month old, a bulge appears at the base of their tail. This is where their hind legs are going to grow. They also grow lungs for breathing.

After the tadpoles are three months old, they have front legs and their tails are almost gone. They have shed their tadpole skin and lips and have mouths like frogs.

The tadpoles are now small frogs. They can climb out of the water and eat insects and worms.

“This is but one life cycle of a frog. All animals have a life cycle with different developmental stages. Let’s explore some different life cycles of animals in North America on the Time Line.”

3. Choose a North American LifeLine card set (American Toad, Honey Bee, American Alligator, Bald Eagle, Salmon, Grizzly Bear, Saguaro Cactus, and/or Redwood Tree). Discuss TimeScale options (days, weeks, months, years, etc...) so as to best layout the necessary duration of time to complete a life form’s life cycle.
4. Once a TimeScale has been chosen and laid out to scale on the TimeLine Scroll, have student match up Lifecycle cards to Time Pointer Cards (in the following format):



Presentation 2: Comparison/Contrast

1. Gather materials together: TimeLine Scroll, TimeScale Cards (or your own time scale cards), North American LifeLine Cards.
2. Choose multiple North American LifeLine Card Sets to compare and contrast life cycles (American Toad, Honey Bee, American Alligator, Bald Eagle, Salmon, Grizzly Bear, Saguaro Cactus, and/or Redwood Tree).
3. Discuss TimeScale options (days, weeks, months, years, etc...) so as to best layout the necessary duration of time to complete multiple life form’s life cycles.
4. Once a TimeScale has been chosen and laid out to scale on the TimeLine Scroll, have student match up Lifecycle cards to Time Pointer Cards.
5. Have student complete the LifeLine Comparison Chart (included).
6. Have students return TimeLine Scroll, North American LifeLine Card Sets, & TimeScale cards to appropriate place on shelf.

Supplemental Activities:

1. Clocca has designed an Animal Research booklet to accompany the lesson. This can be used to prompt further exploration and understanding of the life forms outlined in North America LifeLine's Card set. This is included in the Curriculum Guide. If you require additional, please download for FREE at www.cloccaconcepts.com under Curriculum Guide link.

2. A Closer Look at an Egg Activity

Obtain one hard-boiled egg and one uncooked chicken egg. The hard-boiled egg should not have developed a crack while cooking. Open the uncooked egg carefully (don't break yolk) and place it in a Petri dish.

Procedure:

A. Carefully crack the shell of a hard-boiled egg. Peel the egg. Notice the dent at the end. Between this dent and the shell was an air space.

1. Use a hand lens to examine the shell and its lining.
2. Use a plastic knife to cut the hard-boiled egg open and observe the inside of the egg. Notice the white and yolk of the egg.
3. Observe the uncooked egg in the Petri dish.
4. Find the twisted strands of egg white.
5. Find the white spot on the yolk. The white spot is the part that may grow to be a chicken.
6. Draw a picture of your findings and label the parts of an egg.