OXBOW "I See, I Wonder" Teacher Notes

The Cycle of Life

Grade	Standard / Element
2	S2L1. Obtain, evaluate, and communicate information about the life cycles of different living organisms.
5	S5L1a - Develop a model that illustrates how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal) using data from multiple sources.

Main ideas:

- There are three main types of development: viviparous, oviparous, and ovoviviparous.
- Some animals develop from direct development where the young resemble the adult, and some animals like amphibians and insects transform their bodies over their life cycle in a process called metamorphosis

Misconceptions:

- Only mammals give birth to live young.
- Animal offspring or young always look like the parent, or adult form.
- All reptiles, including all snakes hatch from eggs.

What You Need to Know:

- Animals are born and develop in different ways, depending on their type of embryonic development.
    - Viviparous animals develop inside the parent's body and give birth to live offspring, which includes the majority of mammals and some sharks, among others.
    - Oviparous animals produce and lay eggs where the young further develop outside of the parent's body, such as sea turtles, most lizards, and birds, among others.
    - Ovoviviparous animals produce eggs that hatch within the body of the parent, such as in some snakes including boas and vipers, and rattlesnakes!
- Reptiles, fish, mammals, and birds go through a process called direct development, where the young resemble the adult form but may have some marking or color differentiation and size differentiation from the adult but do not change the overall structure of their body.
- Most insects go through metamorphosis, or a transformational change of their bodies over their lifetime. There are several types of metamorphosis -- complete metamorphosis with four stages, which includes a larva and pupal stage such as a butterfly, incomplete metamorphosis where a nymph emerges from the egg and transitions into the adult form such as a dragonfly or praying mantis, and no metamorphosis such as a silverfish.
- Amphibians usually lay their eggs in or near water where tadpoles will emerge as the second stage of life of toads and frogs. Amphibians hatch from eggs and frogs and toads hatch with no legs and a long tail, and over time will grow larger as they grow back legs, then front legs, and tail will disappear before becoming a terrestrial animal. Amphibian translates from Latin to "two lives," as they begin their lives in the water and end their lives on or near land.