

Turtle Shells

Grade Level: First Grade- Level 1 inquiry

Science Concept: Anatomy of the turtle shell

Relationship to California Science Standards:

Life science-

1.Plants and animals meet their needs in different ways.

Learning objective:

1) Students will complete a worksheet labeling the anatomy of a turtle shell.

Evaluation Ideas:

1) Formative- Listen to the groups speak and listen for the vocabulary they are using when speaking about the question provided and their predictions.

2) Summative- Individual worksheet testing their final knowledge of the anatomy of the turtle's shell.

Conceptual Background:

A turtle's shell structure consists of two separate pieces—an upper shell and a bottom shell—joined at the sides by a bony bridge. The upper shell, called the carapace, may be highly domed, low and rounded, or flattish on top with steep sides. The bottom shell, or plastron, is flat or slightly concave. In most turtles the two shells are each composed of an inner layer of bone fused to the ribs and other bony structures of the animal's body, and an outer layer of horn. Both layers are made up of sections that fit together like pieces of a mosaic. However, the sections of the two layers do not coincide. One species of sea turtle has a leathery covering of skin instead of horn over the bony layer.

Most kinds of turtles can pull their head, legs, and tail into their shell, which serves as a suit of armor. Few other animals with a backbone have such natural protection.

The shell covering the back of a box turtle is round. This makes a box turtle look a little like a stocky lizard carrying an upside-down salad bowl on its back. The box turtle's shell is covered in horny plates that fit together in a geometric pattern something like a quilt.

Box turtles are different from many other turtles because they have a hinge on the bottom of their shell. They can pull their legs, head, and tail into their shell and then use this hinge to close up and “box” themselves inside.

<http://sciencera.com/biology/marine-biology/turtle-anatomy/#ixzz1ZsLrACbl>

Lesson Implementation Plan: Engage students through a story. Students will explain their prediction through drawing in their science journal. The objective will be elaborated through a small craft that will encourage them to physically understand the formation of a shell. Evaluate through group discussion of their

predictions and finally assets through a labeling of the diagram. (diagram worksheet #1)

Engage- Ask – Tell a short story about a turtle thinking about trading his shell for a new one. Example of a story could sound like this: There once was a turtle, named Mickey, and he loved his shell so much because it was his protection from predators. He loved the way it looked and even the way it felt. One day at school Mickey noticed another shell and he thought maybe I will trade this shell in for a new one. “Can a turtle go in and out of his or her shell?” Hmmm....

Explore-

Break the class up into groups and give each group materials to explore. Fun materials could be numerous pictures of turtle shells and the anatomy of a turtle shell, real turtle shells, skeleton of a turtles, and a few books that show pictures of turtles. Let children make predictions. Help them further their predictions by asking questions and not giving answers.

Explain- Once children have come to their final predictions after careful observation of material have them take the time to draw a picture in their science journal of a turtle shell. They may use labels or different colors when making distinction of the parts of the shell.

Elaborate- Time to let their creative minds explore, the students will make a small craft in which they will create a turtle shell. Provide two plates per person and let them decide the structure of their shell. They may color or paint the shell.

Ask:

- 1) What are the parts of the turtle shell?
- 2) Is the carapace or the plastron interchangeable?
- 3) Why do turtles need their shell?

Evaluate-

- a. Summative- Listen to the groups speak and listen for the vocabulary they are using when speaking about the questions provided.
- b. Formative- Individual worksheet testing their final knowledge of the anatomy of the turtle’s shell.

List of Materials (per group):

- ✓ Science journal or piece of paper per child
- ✓ Two plates per child
- ✓ Green or brown paint or coloring objects
- ✓ Turtle books
- ✓ Turtle Pictures and there needs to be at least 3 per group

Suggested materials

- ✓ Real turtle for observation
 - ✓ Turtle models (skeletons)
- (Both of these items are available to check out through SERC.)

Differentiation Plans:

Behavioral for student A-

Cognitive for student B- Word wall for science terms

Cognitive for student C- Give them an extra fun sheet to do about turtles

Affective for Student D-

Language demands for students E, F, G- Should do pair share during class discussion.