

Form and Function

Science Grade-Level Expectations

This instructional task addresses content related to the following science grade-level expectation:

LS-E-A3 Compare structures (parts of the body) in a variety of animals (e.g., fish, mammals, reptiles, amphibians, birds, insects) (GLE 35)

Contents

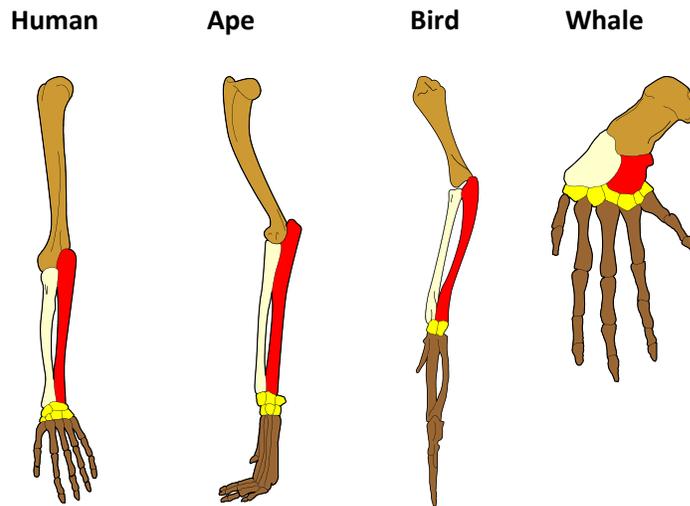
Teachers may choose to use or modify the tasks as part of an instructional lesson or as a formative or summative assessment.

	Objectives
Task	<ul style="list-style-type: none">- Analyze form and function of structures- Determine best structure for given scenario
Sample Exemplar Student Response	

Task – Part A

View the video, [Drone Catches Video Of Stampeding Dolphins, Whale Calf](#). While watching, observe the structure and motion of the animals.

Examine the images below of arm structures (forelimbs) of different animals.



Explain why the structure of the whale forearm is better adapted to swimming than the other animals. When writing the explanation, you may identify structures as red bone, yellow bone, white bone, upper bone, or finger bones.

Task – Part B

Read about Winter, a dolphin with a prosthetic tail at <https://www.highlightskids.com/audio-story/winters-tail> then watch her swim through live webcam: <http://www.seewinter.com/animals-exhibits/meet-animals/live-web-cams-0>.

When creating the prosthetic tail for Winter, what did the doctor have to know about the form and function of a dolphin tail?

Sample Exemplar Student Response:

Part A:

The whale forelimb is better adapted for swimming because the finger bones are spread apart and angled back. The arm can fold back so the animal can glide through the water better (less resistance). It is also better adapted for swimming because the yellow and red (wrist) bones are angled back, shorter, and thicker. Since they are short and wide, they help the whale turn and stop.

Part B:

The scientist needed to know how the dolphin's tail helped her swim. They needed something that would bend up and down and be strong enough so the dolphin could push against the water. It also needed to be thin and flat to help push the dolphin forward.