

Name: _____ Period: _____

6.1 Adaptations: You Are Where You Live & What You Do

Living things have bodies that are adapted for the places they live and the things they do. Fish have gills so that they can remove oxygen that is dissolved in water. Most plants have green leaves which contain chlorophyll so that they can make food. Jellyfish have stinging cells to capture prey. Birds have hollow spongy bones so that they will be light enough to fly. Arctic animals have layers of fat and thick coats of fur to keep warm in the frigid Arctic climate. There are hundreds of examples of ways that organisms are adapted for a successful lifestyle.

Humans, too, are adapted for the things they do. One of our adaptations is our hand. Humans, as well as monkeys, gorillas, and other primates, have a hand that can grasp objects. In this lab exercise, you will perform several common actions. Then you will change your hand so that it resembles that of a non-primate animal. You will determine whether or not you can successfully perform the same actions. This will demonstrate how the human hand is adapted for the actions it performs. You will work with a partner to do this exercise.

Procedure:

1. Do each of the following activities and have your partner time how long it takes you to do each one. Record the times in the data table. Determine the average between your and your partner's times.
 - A. Tie a knot in a piece of string.
 - B. Pull apart to Lego pieces (six pieces total: three pairs of Legos)
 - C. Unscrew a jar lid.
 - D. Pick up five toothpicks with tweezers.
 - F. Write your name on a piece of paper.
 - G. Fold the piece of paper with your name on it into fourths.
2. For the second round, tightly hold your thumb into your palm so it is "unusable".
3. Repeat all the activities above again, timing how long it takes you to do each one. Record the times in the data table. Determine the average between your and your partner's times. If an activity is not completed in two minutes, record the trial as "unsuccessful".

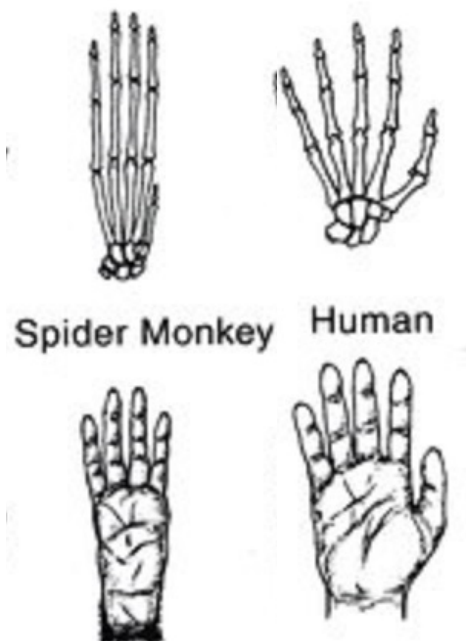
Data Table:

	Tie a Knot (seconds)		Separate Legos (seconds)		Unscrew Jar Lid (seconds)		Pick Up Toothpicks (seconds)		Write Your Name (seconds)		Fold Paper Into Fourths (Seconds)	
	With Thumb	W/out Thumb	With Thumb	W/out Thumb	With Thumb	W/out Thumb	With Thumb	W/out Thumb	With Thumb	W/out Thumb	With Thumb	W/out Thumb
Partner #1												
Partner #2												
Average Time												

****Answer analysis questions on the back!****

Analysis Questions: Answer the following questions in complete sentences!

1. Explain why dog and cat paws are not adapted for doing the six actions you tested.
2. What are cat and dog paws adapted for?
3. Describe how your hand is adapted for doing the actions you tested.
4. You have an opposable thumb. Explain what you think this means.
5. Why do you feel that human hand adaptations have helped to make humans such a successful species on earth?
6. Below are the hands of a human and a spider monkey. (Note the very small thumb but long fingers and palm of the spider monkey). Compare and contrast the hand structures and their known abilities. What can both humans and spider monkeys do with their hands? What can each do that is unique? How are these hands built to do these unique activities?



Jars with lids:

Piece of string

Six legos

Five toothpicks

Tweezers

Pencil with scrap paper