

# FOCUS

# Wild Arizona

## Key Words:

**Ectothermic:** cold-blooded; animals that use the environment to control their body temperature

**Endothermic:** warm-blooded; animals that can control their body temperatures without the help of the outside temperatures

**Simulation:** something that copies the real world

Why do we often see lizards resting on rocks in the early morning?

You are probably aware already that reptiles such as lizards are cold-blooded. But, what does that mean? Is their blood really cold? The answer is, “No.”

Cold-blooded is a term used to describe what scientists call **ectothermic**. This simply means the animal must use its environment to control its body temperature. This is very different from mammals and other warm-blooded animals — take us, for example. Human beings are **ectothermic**. We are capable of controlling our body temperature, usually by getting energy and heat from the

food we eat. Our body temperature does not change with the outside temperature. It remains relatively constant.

What is the normal body temperature of a person? \_\_\_\_\_.

Reptiles cannot use food to control their body temperatures. If a lizard is cold, it needs to move to a warmer location. This is often on a rock in the sun. But how much can the sun affect a lizard’s body temperature? Does it matter if the lizard lies on a rock or the grass if they are both in the sun?

## Do the Science:

These are good questions to answer with a science experiment. Since we don’t want to harm animals (or ourselves) in the experiment, we are going to do a **simulation**. We will pretend containers of water are lizards! We will be placing three water containers at different locations around your house or school and comparing the temperature change from morning to afternoon.

## Materials:

- 3 plastic water containers with lids (all three should be the same)
- Thermometer
- Measuring cup
- Water
- Pen or pencil
- Research journal





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### Procedures:

1. Take a walk around your home or school and select three locations for your containers. Two should be in the sun but on different surfaces, such as grass and rocks. The other one should be in the shade.
2. Make predictions. Which location would a lizard choose as a good place to warm up? Which location would a lizard choose for cooling down? Write these predictions in your research journal.
3. Back inside, label your three containers with the names of each of the locations.
4. Use the measuring cup to pour the same amount of water in each container.
5. Use the thermometer to measure the temperature of the water. Record this in your research journal.
6. Put the lids on the containers and place them in their selected locations. It is best to place them outside in the morning.
7. After a few hours, measure the temperature of the water inside each container. Record these numbers in your research journal.

### Research Journal:

Your name: \_\_\_\_\_

Date: \_\_\_\_\_

#### Before experiment:

Describe the three locations where you will place the containers.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Which location do you predict a lizard would use to warm up?

\_\_\_\_\_

Which location do you predict a lizard would use to cool down?

\_\_\_\_\_

#### During the experiment:

Time you started: \_\_\_\_\_

What was the water temperature at the beginning? (the temperature should be the same in all three containers)

\_\_\_\_\_

Time you ended: \_\_\_\_\_

What was the water temperature in each container at the end?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### After experiment:

Which location had the highest temperature?

\_\_\_\_\_

Which location had the lowest temperature?

\_\_\_\_\_

Were these results what you expected?

\_\_\_\_\_

Why do you think we do not see as many lizards outside during the hottest parts of the day?

Based on your results, what new questions do you have about cold-blooded reptiles?

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