Cold-Blooded Animals

In addition to classifying animals as vertebrates and invertebrates or mammals, fish, birds, reptiles, or amphibians, scientists sometimes classify animals as warm-blooded or cold-blooded.

The body temperature of a warm-blooded animal stays pretty much the same regardless of the temperature of its surroundings. The body temperature of a cold-blooded animal changes according to the temperature around it. Mammals and birds are warm-blooded vertebrates. The other vertebrate classes are cold-blooded. Insects are cold blooded, as well.

Body temperature is important because it affects how the body functions. Bodies need heat to turn food into energy. This experiment will show us how important heat is to cold blooded animals.

Are insects warm blooded or cold blooded? (Cold blooded.) An insect’s body temperature changes depending on the temperature around them.

We will need this bottle that has a fly (or cricket) in it that was captured earlier today. Also in the bottle is a thermometer. And we will need a paper on which to record our experiment. (The record page is the last page of this activity handout.) We will follow the steps of the Scientific Method for this experiment.

Step 1 is Ask a Question.

Sometimes you will create your own question for an experiment. Today I am going to give you the question. “How does temperature affect a housefly?” Have children write the question in the box.

Step 2 is Research.

If we took a glass of warm water and a glass of cold water and poured a little sugar or salt into both, do you know which water will dissolve the sugar or salt more quickly? (You could do this demonstration quickly or just tell the children that warm water dissolves it more quickly.)

When an animal’s internal temperature is warmer, it has more energy because the food it has eaten is being dissolved faster to send around the body. (This is a very abbreviated explanation of metabolizing food that is sufficient for this activity.)

What could we write in the box next to “Research?” (Minerals, sugars, etc., dissolve faster in when they are warm.)

Step 3 is Form a Hypothesis/Guess.

How do you think temperature will affect the housefly? Remember, warmer internal body temperatures help dissolve food more quickly, giving energy to the animal; cooler
body temperatures are much slower to dissolve food. (Warmer temperature will make the fly more active, cooler temperature will make it less active, etc.)

Write your hypothesis about how temperature might affect the housefly.

Step 4 is Experiment.

Experiment

1. Place the jar in a tub or bowl that can hold water at least half way up the jar.

2. Look at the thermometer in the jar.
   What is the temperature of the air in the jar right now? Record that in the first box of the Observation Chart at the bottom of the page. Now let’s watch the fly.
   What do you notice?
   Write what you notice about the fly’s behavior in the box next to the temperature.

3. Now we will fill the bowl/tub with ice.
   What will the ice do to the air in the jar? (Make it cooler.) We will wait a few minutes and then read the temperature again, record it, and watch the fly’s behavior. Wait until the temperature has dropped several degrees below the initial temperature before recording observations.

4. Now we will dump the ice out of the container and fill it with hot water from the tap.
   What will the hot water do to the air in the jar? (Make it warmer.) We will wait a couple of minutes and then read the temperature again, record it, and watch the fly’s behavior. Wait until the temperature has risen several degrees above the initial temperature before recording observations.
   In the box next to “Experiment” on your handout, let’s briefly record what we did. (We changed the air temperature around the fly and observed the activity of the fly during the changes, or something similar.)

Step 5 is Analyze the Data and Form a Conclusion/Think.

What happened?

Did the fly behavior change like you expected?

What can you conclude from the experiment? (The colder temperature slowed down the fly’s movement.)

Step 6 is Communicate Your Results.

Tell each other what you did, and prepare to share your experience with someone else.
Based on our research, why do you think cold-blooded animals need to live in warm environments? (They need external heat to warm their bodies so they can metabolize foods to stay alive.)
### Insect Observation

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### Observations:

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