

Animal Needs

Investigation Data Sheet



Fruit Fly Response To Environmental Changes

All animals depend heavily on their environment for survival — even the tiny fruit fly. Fruit flies are cold-blooded animals. Their body temperature matches the temperature of the surrounding habitat.

Objective

Examine how fruit flies respond to changes in their environment.

Materials

- 4 vials, each containing several fruit flies
- a container of iced water
- black construction paper
- masking tape
- a timer

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure

Part 1: Response to changes in temperature

1. Label two vials with the numbers 1 and 2. Vial 1 will serve as the control vial. Place this vial off to the side for observation later.
2. Place vial 2 into the container of iced water and start the timer. After about two minutes, remove the vial from the water. Observe the behavior of the fruit flies. Is the behavior noticeably different between the two vials? Sketch and write your observations of the two vials in the space below.

Vial 1	Vial 2

Part 2: Response to changes in light

1. Take the remaining two vials and label them with the numbers 3 and 4. Vial 3 will serve as the control vial. Place it in a lighted area for later comparison.
2. Cover half of vial 4 with a strip of black construction paper. Place it in an area where it can be left undisturbed. After about an hour, return to this vial and count the number of fruit flies that are in the light as well as the number of fruit flies that are in the area covered by the black construction paper. Compare the position of the fruit flies in vial 4 to those in vial 3. Do you see any difference? Sketch and write your observations of the two vials in the space below.

Vial 3	Vial 4

Conclusions

- Use your sketches and observations to explain what type of environment is most beneficial to the needs of the fruit fly.

- Explain how the fruit fly adjusts to rapid changes in the environment. How can these responses be explained by their needs?

