

# All About Animal Adaptations

Investigation Data Sheet



## Defensive Adaptations of Animals

The Madagascar cockroach is a large, wingless member of the cockroach family, native to the island of Madagascar, off the eastern coast of Africa. The Madagascar cockroach has a very unusual defensive adaptation — one that you have to hear to believe. For the cockroach, hissing is a defensive adaptation that helps ensure its safety under different circumstances. The hiss is generated as the cockroach forces air out of small breathing pores on the outside of its body.

### Objective

Determine which circumstances cause the Madagascar cockroach to hiss.

### Materials

- 2 moistened sponges
- a kitchen baster
- 2 terrariums (medium-sized plastic tanks)
- leaves and twigs
- diced fruits and vegetables
- 3–4 Madagascar cockroaches (You can get these through a biological supply company.)

**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

1. Set up the terrariums by filling them with leaves and twigs. Add a moistened sponge to each one as well as diced fruits and vegetables for the cockroaches to munch on. Place one cockroach in a terrarium by itself. You will be observing this cockroach to see what causes it to hiss. Place the other cockroaches together in the second terrarium. Use the space at the bottom of this page to sketch one of the roaches.
2. Using the kitchen baster, pump a puff of air onto the cockroach. Record how it reacts in the space below. Did the cockroach hiss? If so, how long did it take to hiss?

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3. Try picking up the cockroach to hold it in your hands. (Don't worry — these creatures are harmless and won't bite.) Record how it reacts in the space below.

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4. Now, place the cockroach in the second terrarium with the other roaches. Again, pick up the cockroach. How does the cockroach react? How do the other cockroaches react as well? Record your observations.

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### Conclusions

- When there is more than one roach, the group will often hiss together. Why do they do this?

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- What are some other adaptations that the Madagascar cockroach might have for defending itself?

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