

Demonstrations and Activities for Teaching Animal Locomotion

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Animal Locomotion is a very interactive topic in biology, requiring kids to get up and move around in order to understand how and why animals move the way they do. This makes it a topic that is filled with many different activities that can be done. Below are a couple of activities and demonstrations that might be helpful in teaching animal locomotion. Note that this guide is geared to an elementary and middle school audience.

Demonstrations:

These demonstrations are shorter than the activities and usually only require a couple of volunteers from the class. Some of the ones mentioned can be extended into full class activities, but are not designed for such. Overall, they are meant to keep kids engaged in the material while showing an important concept. This helps to break monotony and get kids excited about participating. Try to keep these demonstrations under 3 minutes.

1. **Bug Movement:** Before doing this demonstration, make sure you have introduced the fact that some animals (bugs, in this case) have more than four legs. No other prior knowledge is necessary, as this demonstration is meant to show what the kids need to know. After telling them that bugs have more than four legs, ask for three volunteers to come up to the front of the room. Have one person stand in the front, one person stand behind the first person and hold onto their shoulders, and the third person hold onto the shoulders of the second person (like a conga line). Depending on the age of the group will determine what is done next. If the group is older, have them try to move around without tripping over each other or breaking the line. Afterwards, have them alternate which foot moves when (left-right-left, then right-left-right) so that it mimics the way an insect walks. If the group is younger, just skip to telling them how to walk like an insect. If you want, you can have the line lift up their left legs to see how hard it is to balance, then have them switch to a tripod shape and show them that balancing is easier (this depends on the amount of information you want to convey). If there is enough room and the group is a bit older, you can have the class form groups of three (after the demonstration) and have them all walk around and try it. After everyone sits back down, ask them how an insect moves to make sure they got the concept.
2. **Gaits:** Before doing this, make sure you've explained that some animals walk on their toes, some walk on the flats of their feet (digitigrades and plantigrade for older groups), and some just jump. This is usually good when transitioning from one type of gait to another. Call up three volunteers to the front of the room (try to make sure they are all relatively the same size for ease of demonstration, or just use one volunteer three times). Have one student take two big steps, as big as they can make it, but they are only allowed to walk from heel-to-toe. Mark with an object on the floor how far they made it. Have another student (or the same student) start in the same spot and make them take two big steps. This time, however, they can only walk on their toes. Mark how far they made it on the floor. Have the third student (or the same student) start in the same spot and jump as far as they can twice. Mark where they land on the floor. Then ask the class these questions: Which one made it further? Which one made the most noise? Which one looked the hardest to do? If it is an older group, why might it be that people always walk heel-to-toe, but can run toe-to-heel?

Activities:

In general, these are longer than the demonstrations and are meant to involve the entire class/group. These should take anywhere between 10 to 20 minutes, depending on the size of

the group. These are usually better if the presenter plans on meeting the group multiple times or is presenting for a longer period of time. Some might also require a lot of space.

1. **Mice and Foxes:**

- a. **The Setup:** This is a longer activity that is better played outside than indoors but can be modified for indoor play. No prior knowledge is necessary for the kids. Split the class into three small groups. The smallest group will be the foxes, which should only have 3-5 students (smaller depending on class size). The other students will be the mice and should be split into equally sized groups. Designate a couple of location as “nests” for the mice (the number will largely depend on the size of the class, but about half the number of students should be good). These locations can be trees if you’re outside or desks if you’re indoors. Make sure you have a bunch of “food tokens” on hand (these can be anything: cards, pennies, paper clips, etc. Just make sure there are far more food tokens than children).
- b. **The Rules:** The point of the game is for each person to collect as many food tokens as they can. The mice have to collect food tokens directly from the “plant,” which will be the teacher (it will help if there are multiple “plants” scattered about). The plant cannot move, so the mice must run around and get a food token from the plant directly. The fox can only collect food tokens from the mice by tagging them. When a fox catches a mouse, the mouse must give all their food tokens to the fox and go to an empty nest or wait for the person to leave before they can come back. The nests are safe zones for the mice. The foxes cannot take their food tokens if they are touching a nest. However, only one mouse can be touching a nest at a time. The catch is that each group must move like the animals they are supposed to be. The foxes must move by moving one front leg and the opposite back leg (front left and back right move at the same time, then back left and front right). One group of mice will be told that they are jumping mice. They move by putting their back legs in front of them, then pushing off the ground to move their front legs forward. The other group will be standard mice. They must move both left legs at the same time and both right legs at the same time (NOTE: This is NOT how actual mice walk, but it’s meant to show the different gaits. You can make this clear afterwards).
- c. **The Rest:** Start the game and have it run for 10 to 20 minutes. If there seem to be problems, you can add new rules to prevent these (the foxes just stand around the plants, no one ever leaves the nests, etc). When the time is up, tell everyone to count their food coins. See which animals tended to get the most. See which mouse group got the most: the jumping mice or the regular mice. Was it better to be a jumping mouse or a regular mouse? Did the foxes tend to do better than the mice? Who had the easiest time moving around? Why might an animal move like a fox? Like a jumping mouse? Like a regular mouse? If there is time and the group is older, show which animals move in each of the different ways (cats and dogs move like foxes, deer and giraffes move like the regular mice, bunnies and kangaroos move like the jumping mice). Since there is no “right way” for this activity to go (the regular mice might get the most food tokens, the coyotes might not get any, etc.), be prepared to talk about ALL options and have it be open-ended. If this is not possible, ask what it would be like if the activity had gone differently and work in the concepts from there.
Note: This activity can also be used for teaching ecology, food webs, adaptations, evolution, or combining any one of these.

2. **Footprint Detective:**

This one is more of a HW assignment, but will be modified here as an in-class activity. No prior knowledge is required. Split the kids into small groups of 4 or 5. Give each group a sheet with many different types of animal footprints in black and white (can be found readily online. A good example of one is below as the first picture). Tell them that they are animal investigators and they are trying to find out what they can about each of the animals that made each footprint. For 5 minutes, let them explore and have them write down what they find out about each footprint. Give them no additional instructions. After 5 minutes, talk for another 2 or 3 to see what each group came up with. Once the discussion is done, give each group a set of pictures that shows the bottom of each animal's foot (the group of colored pictures below). Tell to try to match each foot with each footprint. Have them draw what they think each animal looks like based off of the footprint and pictures given to them. Have them do this for five minutes. The drawing can be done as a group or individually. When the time has run out, bring them all back together for discussion. What did each group think each animal looked like? Does anyone think they can name what animal created each footprint? Did anyone notice the way each animal walked (for the example below, tracks are given as well as just the footprints)? What else did people notice about the footprints? Tell them which animals made which footprints (Dog/wolf/fox, squirrel, cat, frog, raccoon). Did anyone's animal look like the ones listed? Make sure to emphasize that these are all animals that can be seen around their homes and their footprints can be seen if they look hard enough. As a HW assignment based off of this, you can either give them another sheet of black and white prints to see if they can do it on their own, or you can tell them to go outside and look for some of their own footprints. If the footprints given are too easy for the given age group, a large picture of alternative footprints to use will be at the very bottom.



Dog



Squirrel



Cat



Frog



Raccoon



Images used in this demonstrations and activities guide are the property of:

<http://www.sciencecastle.com/sc/index.php/experiments/view/277> (first picture)

http://susanpolgar.blogspot.com/2008_10_05_archive.html (last picture)

<http://www.cbc.ca/quirks/episode/2008/06/07/the-vitamin-d-miracle-cure-wolverine-frog-the-first-mom-clothes-make-the-bird/> (frog foot)

<http://en.wikipedia.org/wiki/Raccoon> (raccoon foot)

[http://commons.wikimedia.org/wiki/File:Cat_paw_\(cloudzilla\).jpg](http://commons.wikimedia.org/wiki/File:Cat_paw_(cloudzilla).jpg) (cat foot)

<http://www.qualitytaxidermysupply.com/SquirrelTaxidermy.html> (squirrel foot)

<http://www.thedogexpress.com/2012/11/how-to-treat-a-dogs-sore-paws-the-natural-way/> (dog foot)