



## Bioblitz Skillbuilders: Learning and Applying the Skills of a Naturalist

# Skillbuilder 4: Modeling Classification

## Key Question

How can we use classification to differentiate between so many organisms?

## Objectives

- Students will **classify** themselves into different groups based on observable characteristics of what they are wearing or accessories.
- Students will **practice observation skills** by looking for similarities and differences of each group.
- Students will **apply their understanding** of classification to organisms.

Grades: 6-8

Time: 15-20 minutes

Location: Classroom

## Materials

- Whiteboard + markers

## Recommended Reading

Organisms are organized into different groups based on shared characteristics - both observable and genetic. We are able to classify organisms into a hierarchical system called taxonomy based on these characteristics. Worms have a certain set of shared characteristics, while sponges have another, as do all other groups of organisms. Visit the following EOL pages to learn more about animal diversity and taxonomy:

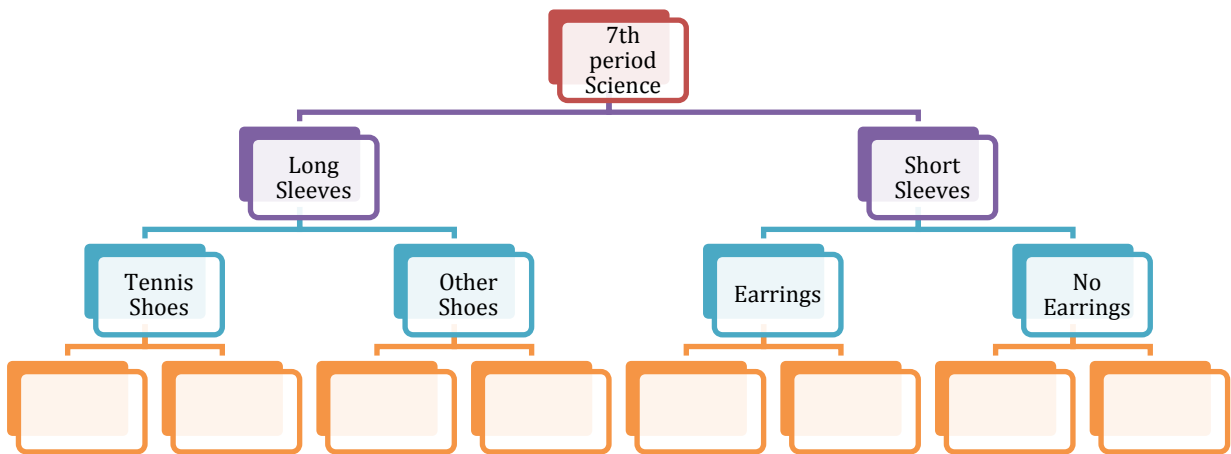
- [Biodiversity Articles](#)
- [What is Biological Classification?](#)
- [What is Biodiversity?](#)
- [What is a Species?](#)
- [Biodiversity Educational Resources](#)

## Directions

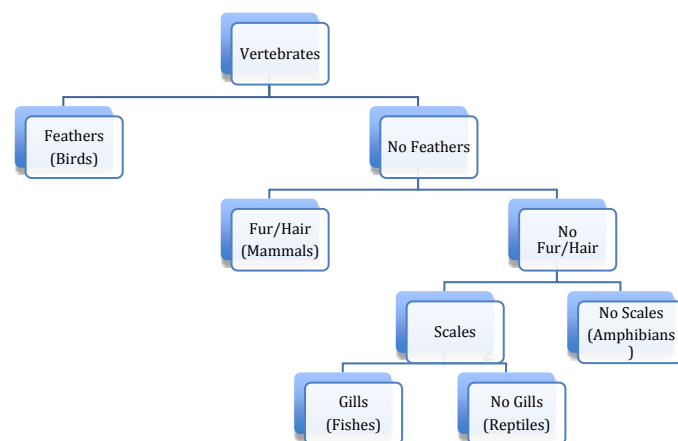
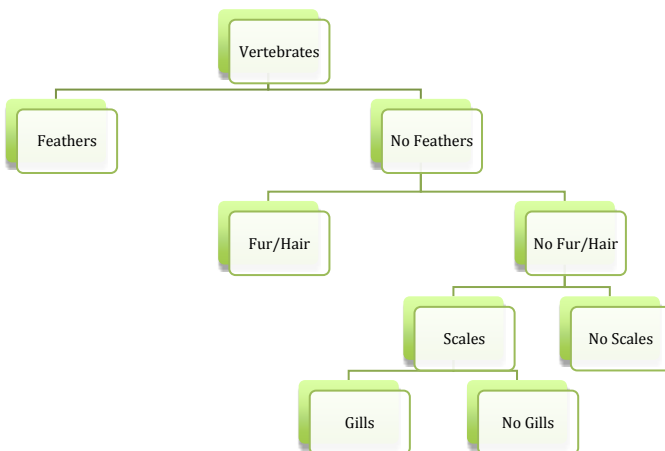
- **Engage:** Arrange students in a circle. Today we will be talking about classification. Ask if anyone can define what it means to *classify* something. Classification is a way to organize things based on their characteristics or traits.
  - Ask students for examples of things they classify in everyday life. Here are a few examples: vehicles (cars, trucks, minivans, sedans, etc.); foods (fruits, vegetables, meats, dairy, etc.)
  - Ask students why we classify things? Why is it important to recognize the differences in the world around us?
  - Explain that in this activity, we will be classifying ourselves into groups based on our

clothing and accessories. We will then learn how biologists use a similar system to organize living things into different groups called taxonomy.

- **Explore:**
  - Observe students and separate them into two groups based on something very obvious (long and short-sleeves, tennis shoes vs. no tennis shoes, etc) - but do not tell them. Have the two groups separate and face each other. Ask if anyone can observe the difference between the two groups. They may be able to identify more than one defining characteristic.
  - Now, instruct each group to brainstorm for 30 seconds and separate again into smaller groups based on a different characteristic.
  - Have each team guess what the other used to classify themselves.
  - Repeat several more times. Students can make classifications more challenging each time. The groups will grow smaller and smaller.
- **Explain:** On the board, write the name of your class. Ask students, what was the first characteristic that we used to separate groups? Draw two lines from the name of your class in different directions and write the different characteristics. Continue reviewing different characteristics and adding to the diagram. You can also have student volunteers come up and make classifications. Your diagram should look something like this:



- **Elaborate:** This is the same system that has been used to classify different organisms. Can you think of some specific examples of observable characteristics or traits that we use to differentiate organisms? Here is one example. Let's practice:



- **Evaluate:** Ask students again why they think it is important to classify things. Thinking back to Skillbuilder 3, Ask students why they think biological classification and taxonomy is so important to biologists.
- **Extend:** Move on to the next Skillbuilder, ID using a dichotomous key, to practice this concept more

## Next Generation Science Standards

### Performance Expectations

MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

### Connections to Nature of Science

*Scientific Knowledge Assumes an Order and Consistency in Natural Systems:* Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-LS4-1),(MS-LS4-2)

### Science and Engineering Practices

- Asking Questions and Defining Problems
- Developing and Using Models



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