

# Kingdoms on the Farm

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## **Standards of Learning**

Science 5.5

Math 5.15

## **Objective**

Students will:

- Classify pictures of organisms into the correct kingdom based on characteristics
- Create a bar graph

## **Materials**

- Five kingdoms review sheet, attached
- Pictures of organisms, attached (you may choose to print as many as you want, so that each student has at least one)
- Farm poster (see sample)
- poster tack
- paper plates, one per student

## **Background Knowledge**

Living things can be classified into five kingdoms: monerans, protists, fungi, plants, and animals. The plant kingdom is divided into vascular and nonvascular plants. Vascular plants have special tissues to transport food and water around the plant. The majority of plants fit in this category. Nonvascular plants do not have special tissues to transport food and water around the plant. The animal kingdom is divided into vertebrates and invertebrates. Vertebrates have a backbone. Invertebrates are cold-blooded and do not have a backbone.

Examples of each of the five kingdoms are readily available on the farm. This lesson includes bacteria, which are microscopic monerans found all over the place. In fact, 1000 bacteria can fit into 1 millimeter. Next are examples of protists – algae may be found on the pond, while amoebas can live in the soil and break down animal waste. Examples of fungi are mushrooms as well as molds or mildew. Crops are susceptible to many diseases caused by fungi. One example is apple scab, which is the most prevalent apple disease for apples on the east coast. The farmer may prevent this disease by treating his orchard with a fungicide. Examples of plants and animals on the farm are plentiful. This lesson uses apple trees and corn as well as pigs, cattle, and a farmer.

## **Procedure**

1. As a review, ask the students to list each of the five kingdoms and then give the characteristics of organisms belonging to each kingdom.
2. After having discussed the first kingdom, put up the review sheet on the overhead and continue with this until all five kingdoms have been discussed.
3. Place the farm poster on the board with all of the pictures attached.
4. Have each student take turns pulling down one of the pictures.
5. When students return to their desks have them stick their picture to one side of a white paper plate. On the other side have them write the kingdom of their organism as well as any other characteristics they can think of.



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6. Taking their plates with them, have students line up with the other members of their kingdoms. The lines should run parallel, next to each other.
7. Call on students to identify their organism and tell why they are standing in their particular row. Example: I have bacteria. Bacteria are a moneran because they have a single cell with no nucleus.
8. After you have checked that students are standing in the correct rows, have them place their plates on the ground and step away to form a circle.
9. Point out that they have now created a bar graph with their plates.
10. Ask students to summarize the results of their graph.

### **Extension**

Have students choose a different ecosystem, such as their backyards, the woods, or the schoolyard. Have students draw a picture of their ecosystem including examples of each of the five kingdoms.



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# Understanding the Five Kingdoms



## Kingdom: Monerans

- Microscopic living things
- Made of a single cell
  - No nucleus



## Kingdom: Protists

- Microscopic living things
- Made of a single cell
  - Have a nucleus



## Kingdom: Fungi

- Multiple cells
- Cells have a nucleus
- Get energy from living things that are in a state of decomposition



## Kingdom: Plants

- Multiple cells
- Cells have a nucleus
- Trap light energy from the sun to make its own food through photosynthesis



## Kingdom: Animals

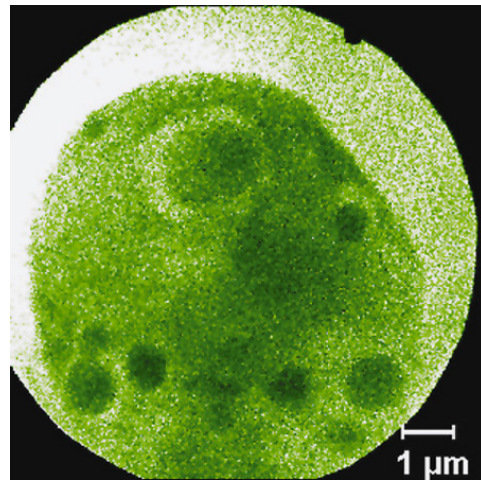
- Multiple cells
- Cells have a nucleus
- Get energy by eating or ingesting other living things



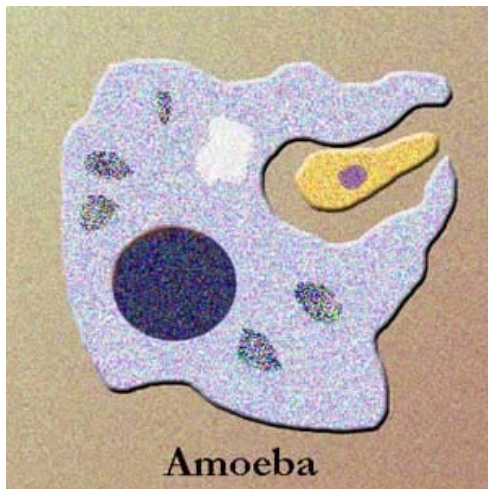
## Five Kingdoms on the Farm



**Bacteria (moneran)**



**Algae (protist)**

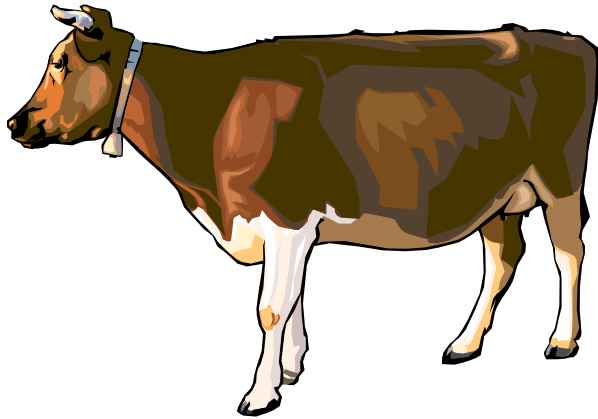


**(protist)**

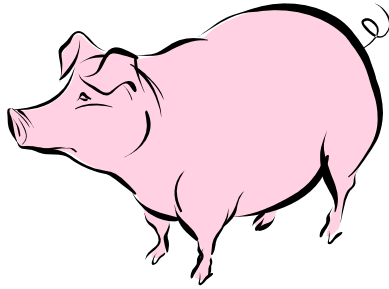


**Mushrooms (fungi)**





cow (animal)



pig (animal)



corn (plant)

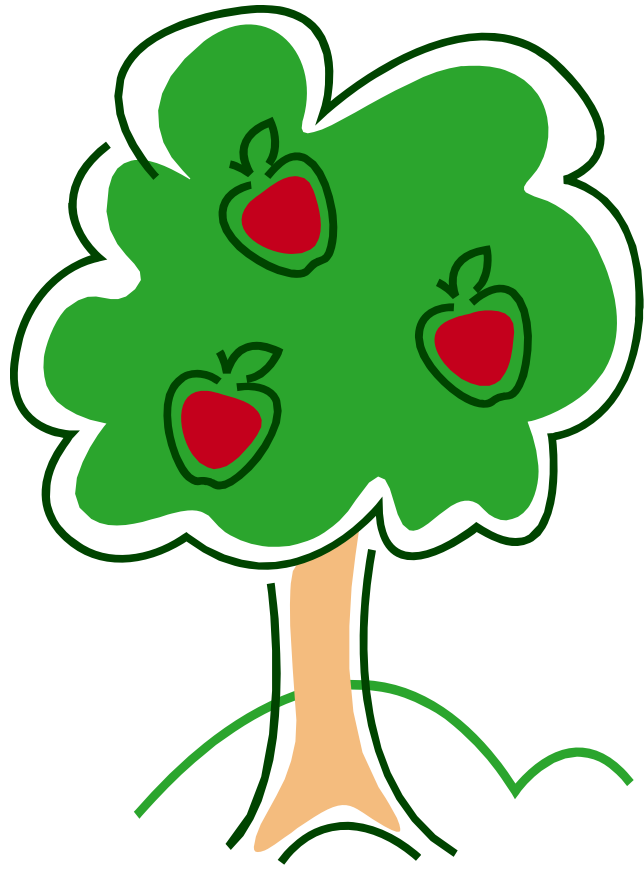


apple scab (fungus)





farmer (animal)



apple tree (plant)



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