

CAN A SINGLE APPLE SLICE FEED THE WORLD?



By 2050, our world's population will be over **nine billion people**. How will farmers produce enough food with limited resources?

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If this apple were the **earth**, this tiny slice would be all the farmland available to **feed the world**.

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THE BIG APPLE ACTIVITY

TIP FROM THE FIELD TEST

This activity uses an apple as a model of Earth. Students discuss the various ways people use land and make predictions about what percentage of Earth's land is needed to grow our food. After discussing the ways in which land is used (Step 2), you may consider having the students create their own pie charts where they predict the percentages associated with different land uses, especially farming. Later, their predictions can be compared with the actual values revealed by the apple demonstration.

MATERIALS

For the class: 1 apple  1 knife 

1. Explain to the class that this activity is concerned with how we as a society use land. The amount of land on Earth stays the same, so as the world's population gets larger, it becomes even more important that we make wise decisions about how it is used.

Students should:

Identify and describe positive and negative examples of human interventions that have an impact on ecological succession or the makeup of ecosystems. Examples: positive - protecting habitats, reintroducing species; negative – preventing natural fires, introducing non-indigenous species, draining wetlands for agriculture or housing.

2. Explain that land is used for many different reasons. Ask, “What are some of the most important uses for land?” Write students’ responses on the board or an overhead transparency.

Students’ responses may include the following:

- Farming
- Homes
- Industries or places where we work.
- Pastures or land for livestock.
- Wildlife habitat (wetlands, mountain ranges, forests, deserts, beaches, and tundra)

3. Call attention to the apple and the knife. Explain that the apple represents Earth. Ask, “How much of the total Earth’s surface do you think is devoted to farming?”

Students’ responses will vary. Some may remember that about 70 percent of the surface is water.

4. Use the knife to cut the apple into 4 equal parts. Set 3 parts aside and hold up 1 part. Explain that the surface of the world is about 70 percent water, so this 1 piece represents that part of the surface that is land.

Remind students of the many different uses for this relatively small amount of land.

5. Use the knife to cut the $\frac{1}{4}$ piece of apple in half 3 more times, each time discarding $\frac{1}{2}$. Finally, hold up 1 of the smallest pieces and explain that it represents $\frac{1}{32}$ of the surface of Earth or $\frac{1}{8}$ the land where we live. This is the amount of land available for farming. Point out that the skin on this small piece of apple represents the tiny layer of topsoil that we depend on to grow food.

6. Explain that because we put land to so many different uses, the amount devoted to farming has hardly changed during the past 50 years. Scientists are worried about how we will feed the world’s growing population in the next 50 years.