

5) THE WORLD AS AN APPLE

This is an educational demonstration that shows how much land there is on earth to use for agriculture. One of the most important natural resources that covers much of the earth's land surface is soil. All living things depend on it as a source of food, either directly or indirectly. Our food-producing land remains the same and yet the world population continues to grow. Consequently, each person's food portion becomes smaller and smaller. It is the responsibility of each generation to use the soil wisely and think about the future. The following demonstration will show how little of the earth's surface is actually used for food production as compared to growing populations.

Number of participants: 1 - 30

Duration: 15 minutes

Materials:

- 2 apples
- cutting knife

How to play/conduct the activity?

In the beginning, facilitator poses next questions:

- What are some of the things all living things (or people/humans) need to survive? (air, water, food, shelter)
- Can these things we need be dirty or polluted? (conclusion: we need clean air, water, and food.)
- What do we need in order to grow food? If I wanted to grow an apple tree, what would I need? (seed, soil, sun, and water)
- Clean soil is especially important for the growing of any food source (directly and indirectly).
- So how much of the earth's surface is made up of land? (a little over 1/4) So let us pretend our apple is the earth.

Show an apple to the participants and explain to them that the apple presents our planet. We will find out what part of the earth depends on our survival.

** You can use the same activity for other resources as well (e.g. forests, water, etc).*

Procedure:

1. Cut the apple into four equal parts. Three parts represent the oceans of the world. The fourth part represents the land area. Place the three "ocean" parts on blue paper and the one "land" part on brown paper.
2. Cut the land section in half lengthwise. Now you have two one-eighth pieces. Ask students: Can we (man) live anywhere on land on the earth's surface? Is there anywhere that just would not be suitable for us to build a house and live? Explain that one section represents land such as deserts, swamps, Antarctic, Arctic, and mountain regions where people cannot live. The other one-eighth section represents land where people can live but may not grow food.

3. Slice this one-eighth section crosswise into four equal parts. Now you have four thirty-second pieces. Ask students: Can we grow crops for food or graze cows for meat and milk here around our school? In your neighborhood? Explain that three of these one thirtysecond sections represent the areas of the world that are too rocky, too wet, too hot, or where soils are too poor for production, as well as areas developed by man. Only one section is suitable for production.
4. Carefully peel the last one thirty-second section. So what is left? $\frac{1}{32}$ of the apple! Peel the remaining part of the apple ($\frac{1}{32}$) carefully. This apple skin represents the thin earth's crust that we depend on. This upper layer is 1.5 m deep. Due to erosion and human exploitation, we lose 25 billion tons of soil annually. Explain that soil is only on the very top layer of the earth's surface so this small bit of peeling represents the soil of our earth on which mankind depends for food production! Take the other whole apple and put the small peel next to it so students can see the very small part of the earth where soils are suitable for food production.
5. Discuss the fact that the world's population continues to grow so it is even more important that we take good care of the land we have!

Competences:

- Environmental Awareness and Responsibility
- Critical Thinking and Problem-Solving
- System thinking
- Communication and Collaboration
- Civic and social responsibility
- Practical Understanding of Scientific Concepts
- Decision making and prioritizing