

APPLE OCEAN

Summary: Using an apple as a globe, students learn about the relatively small proportion of drinkable water on land, the limited productive areas in the ocean and that Puget Sound is one of those areas.

Key Concept: Only a small region of the ocean supports most of the life in the ocean.

Time frame: 30 minutes.

Materials: One apple for every two students; Dull, plastic knives (one per two students)

Vocabulary: Photic zone, photosynthesis.

Background: Though the ocean appears uniform to us as we look at it, all regions are not the same. The most productive areas of the ocean tend to be along the edges of coastlines above the continental slopes. Out in the open ocean, there may be vast areas of very little productivity. Where currents meet along the equator, waters are high in nutrients and support most of the important fishing industries of the world.

The greatest productivity in the ocean lies within the top 100 meters of the surface, the depth to which light can penetrate. This area, the photic zone, is the area where photosynthesis can take place. Yet even within this zone, light drops off dramatically; at 100 meters the amount of light is only 1% of what it is at the surface. Since most marine life depends in some way on photosynthesizing plants, especially phytoplankton, most ocean life is concentrated in this narrow photic zone.

Procedures:

Looking at the **land** part of our earth:

Cut your apple into four equal pieces from top to bottom and have students follow along. Set three of these pieces aside for later use. These represent the three quarters of the earth that are covered with ocean. Mark them "OCEAN." The remaining quarter represents the land, or area not covered by ocean.

Cut the land quarter into two equal pieces. One piece represents all the land that is too dry, too wet, too cold, or too hot for people. This is uninhabitable land-mountains, river basins, deserts, icebergs. The other piece, one-eighth of the earth's surface, is the land that is habitable by people.

Cut this one-eighth piece into four pieces. Set aside three of these pieces. The remaining piece represents the portion of the habitable land in which we are able to grow food.

Take this 1/32 piece and cut off a thin slice. This tiny slice represents 3/100 of 1% of the earth's surface. All of our drinkable water comes from this area. Discuss the small size of this portion of the land, and why we must protect it - we depend on drinking water for our survival.