






ACTIVITY 1



Cut Up the World

Cut an  into quarters. 



Put aside three of the quarters. What do these represent? The oceans of our world, the Blue Planet.

The fraction left is $\frac{1}{4}$ . Slice it in half . Set aside one of the halves. This is the part that people can't live or work on. The poles, deserts, swamps, high mountains, etc.

What's left? $\frac{1}{8}$ . This is where the humans live, but not necessarily where they grow their food.

Slice your $\frac{1}{8}$ th piece into four sections . Put aside three of them. What's left? $\frac{1}{32}$ .

The three pieces you set aside represent the places where the soil is too poor to farm—where it's too rocky, wet, cold or steep to produce food. They also represent the cities, houses, highways, shopping malls, schools, parks, factories, parking lots and miniature golf courses where people live, play and work—but do not grow any food.

Take your $\frac{1}{32}$ piece  that's left. Carefully peel it. Look at this scrap of apple peel . It represents the farmable surface topsoil of the planet, the thin skin of the thin skin of the Earth's crust upon which humankind totally depends. It is less than 5 feet deep and it is quite a fixed amount of food-producing land.

You may now eat the rest of the apple, but carefully save this tiny piece of apple skin. Treat it as if your life depends on it.

CUT UP THE WORLD

Apple Cutting Activity

Part II: WATER

$\frac{3}{4}$ - Water

$\frac{1}{8}$ - Food-Producing Areas

$\frac{3}{32}$ - Coastal Areas

$\frac{1}{32}$ - N. American Pacific Coastline: world's most productive ocean region

$\frac{1}{32}$ Peel - Photic Zone: top 100 meters, habitat of most marine life

Sliver of Peel - Freshwater: only .003% of all Earth's water

1. Return to the $\frac{3}{4}$ of the original apple that represents ocean.
"Some of our food comes from the sea-fish provide about 16% of animal-protein consumed by humans, and a little over 5% of our total protein intake. (2) But despite its vastness and seeming uniformity, many regions of the ocean are unproductive due to a lack of life-supporting nutrients. Its capacity to produce food is therefore finite.
2. Set aside $\frac{2}{4}$. Cut the remaining $\frac{1}{4}$ in half. Set $\frac{1}{8}$ aside and hold out the other $\frac{1}{8}$.
"This $\frac{1}{8}$ represents the productive zones of the ocean along the equator and the western margins of continents. Currents cause upwelling which brings nutrients to the surface. These nutrients support large numbers of marine plants and animals.
3. Slice the $\frac{1}{8}$ lengthwise four equal pieces ($\frac{4}{32}$) and hold them all up.
" $\frac{3}{32}$ represent coastal areas around the world where fishermen earn their livelihoods. The last $\frac{1}{32}$ represents the most productive area along the Pacific Coast of North America, historically one of the richest ocean regions in the world."
4. Peel the skin from the last $\frac{1}{32}$.
"This peel represent the photic zone, the top 100 meters (330 feet) of the ocean which light can penetrate, supporting photosynthesis. Since the marine food chain depends on photosynthesizing plants, especially phytoplankton and algae, almost all ocean life is concentrated in this narrow photic zone. 100 meters down, the amount of light is only 1% of what it is at the surface." (3)
5. Cut a very small wedge from the apple skin. Hold it out.
"Fresh water is another precious and finite resource that is essential to all life on this planet, including human life. Although $\frac{3}{4}$ of the Earth is covered by water, only a tiny portion of it is readily available for human use. It is what we drink, cook with, bathe in, and water crops with when rain doesn't provide enough moisture. Freshwater is supplied by groundwater, rivers, lakes, and streams. Although this sliver isn't exactly to scale, it represents the $\frac{3}{100}$ of 1% of the Earth's water that is fresh."