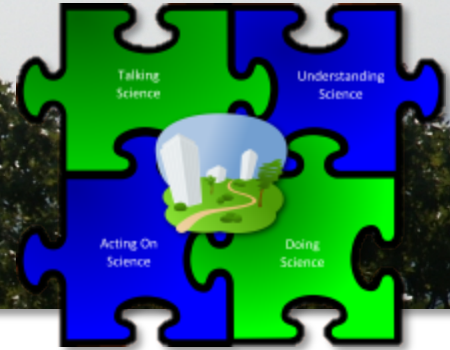


Urban EcoLab Curriculum

<http://www.urbanecolabcurriculum.com>



Food Choices and Energy

- *Why does choosing to eat certain foods contribute more to Climate Change?*

Module 3, Lesson 6



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Typical Food Costs

■ Chicken	\$3.00/lb
■ Zucchini	\$0.99/lb
■ Steak	\$4.99/lb
■ Potatoes	\$0.39/lb
■ Ham	\$3.99/lb
■ Carrots	\$0.69/lb

What do you notice about these prices?

The Categories

Producers vs. Consumers

■ Producers

- ❑ Make their own food using the sun
- ❑ Plants

■ Consumers

- ❑ Eat other organisms as food
 - ❑ Animals
 - Primary consumers eat plants
 - Secondary consumers eat animals that ate plants
-

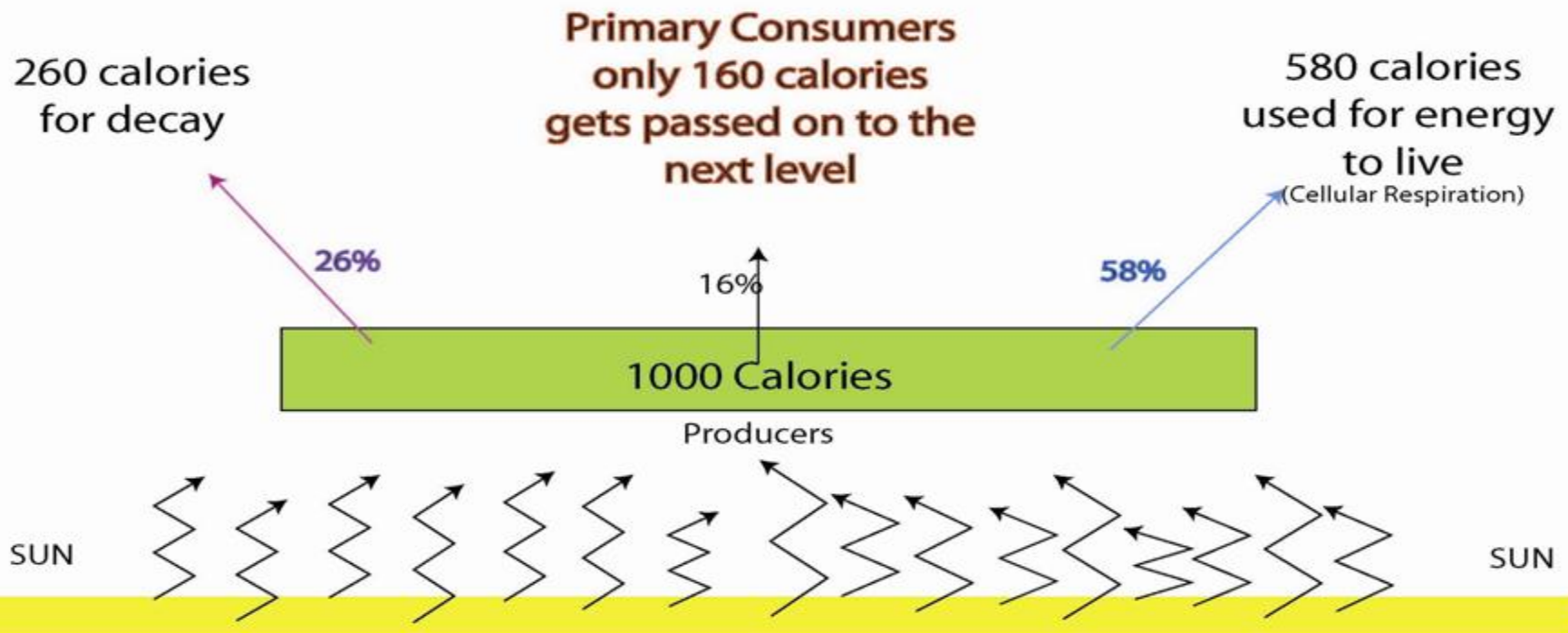
Simplified Food Chain



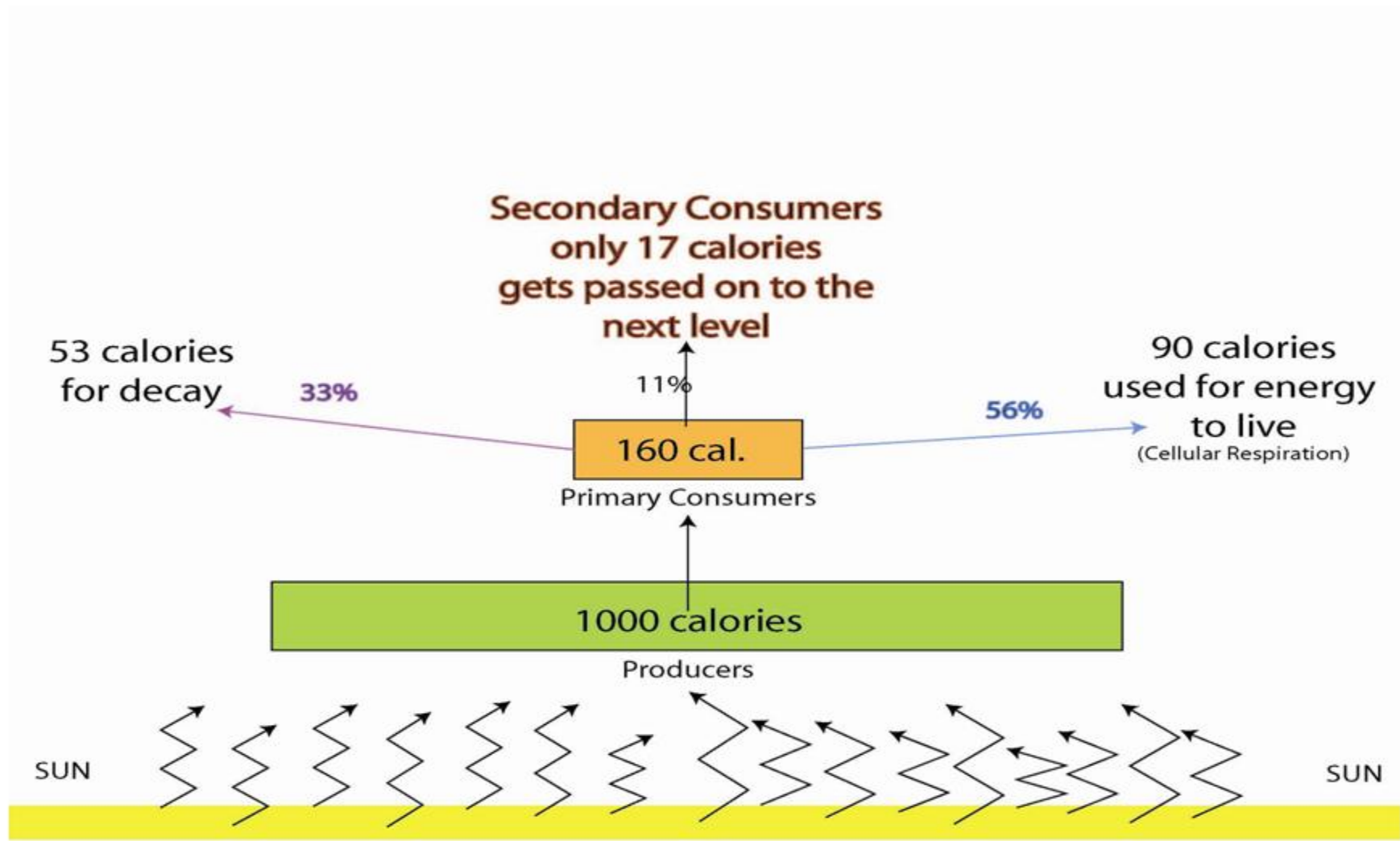
Energy Movement Through the Chain

- All of the energy acquired from food by an organism is not fully passed on to the next level on the chain.
 - Organisms use food for
 - Energy to function (cellular respiration)
 - To build tissues
 - Because much of the energy transformed during cellular respiration is released as heat, that energy is lost.
-

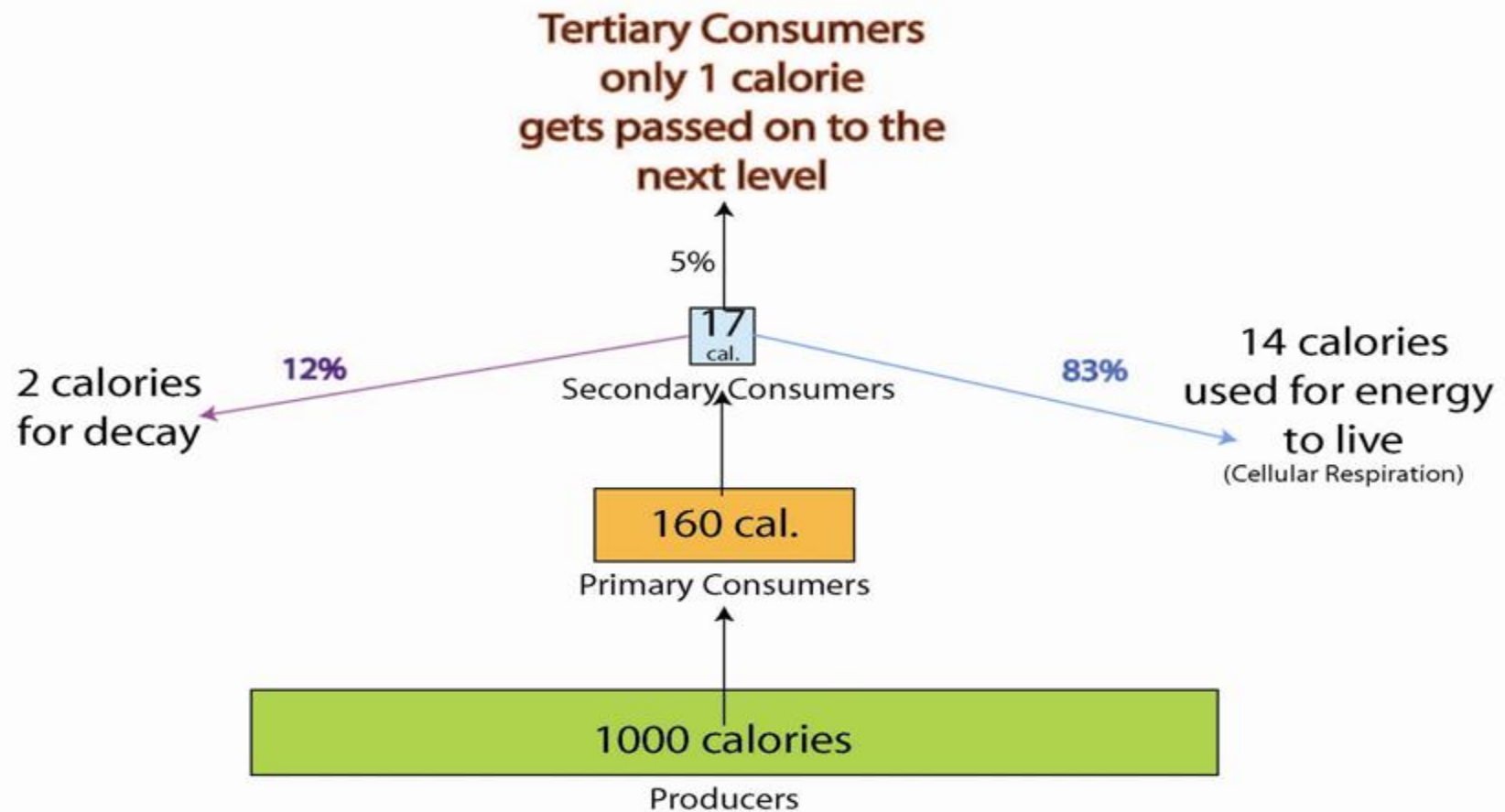
Plants get energy from the sun, but not all of that energy gets passed on to primary consumers.



Further energy is lost as it moves onto the next level.

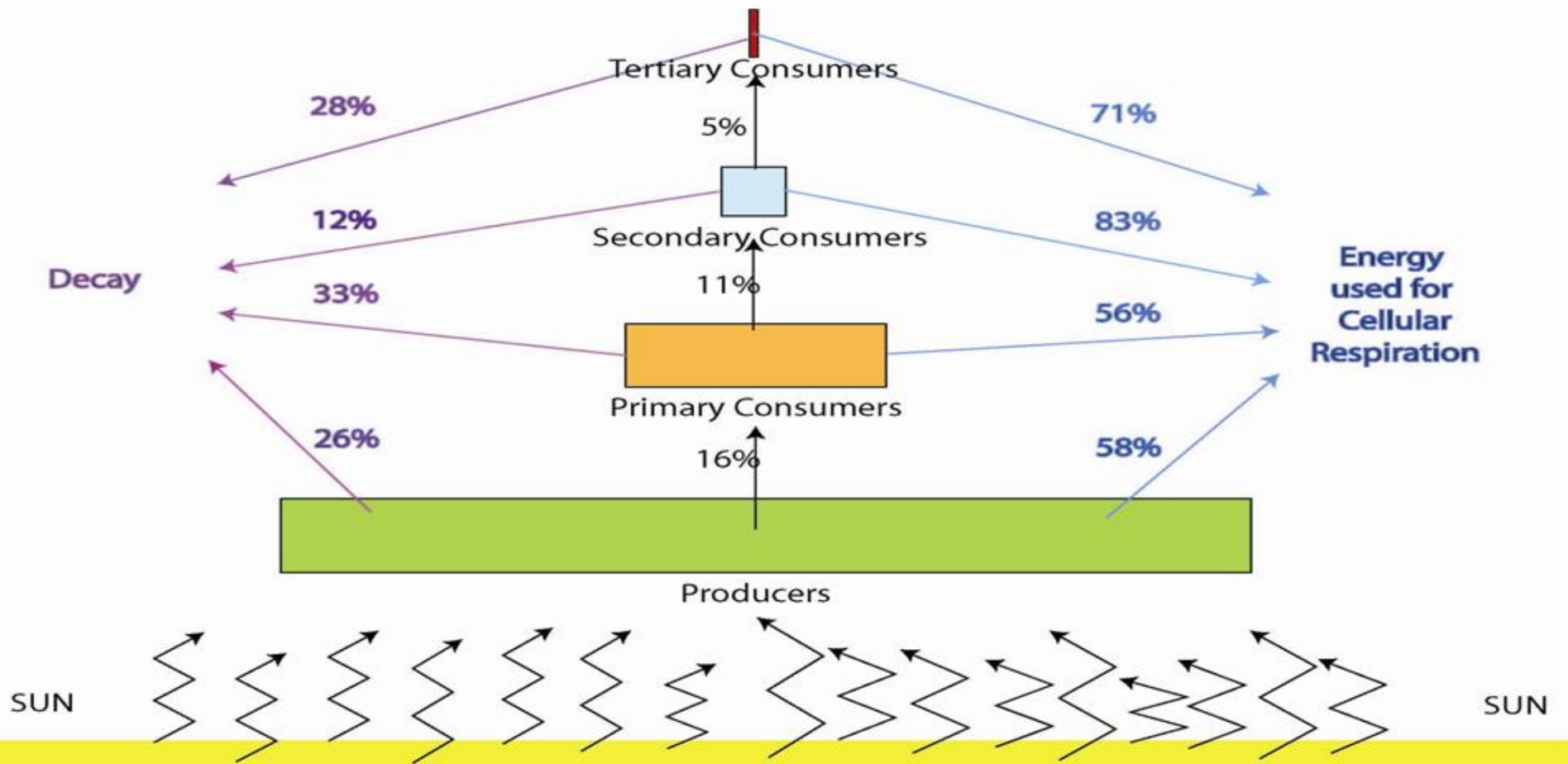


Only 1 calorie out of 1000 makes it to the tertiary consumer.



Where does most of the energy go?

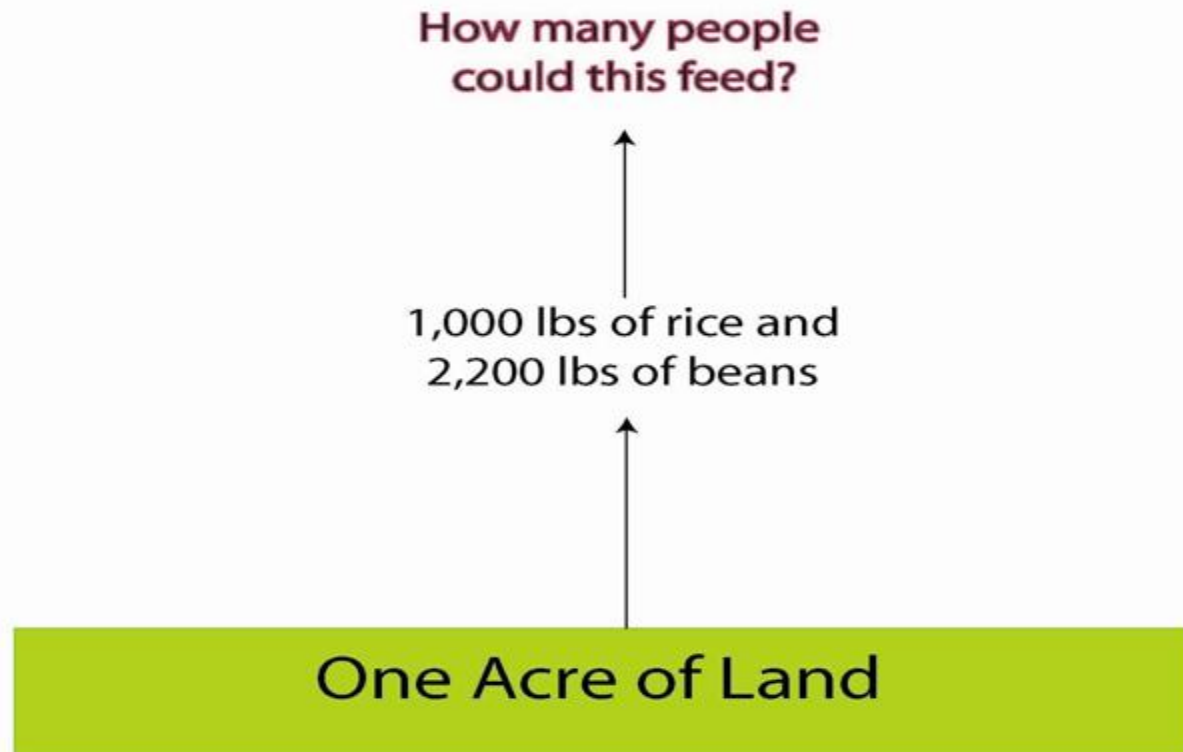
Energy Pyramid



One Cow requires One acre of Land



One Acre of Land and Vegetable Production



So What Does This Mean?

- A pound of beef does not equal a pound of grain when looking at energy input.
 - A cow must eat 20 pounds of grain to make 1 pound of beef.

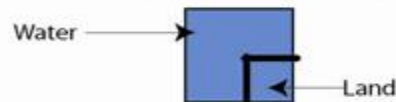
If agricultural land is limited, why might this be a problem?

How much land on Earth can be used for Food?

Let's say the box below is the Earth



Because $\frac{3}{4}$ of the Earth is covered in water, $\frac{1}{4}$ is land



Humans only inhabit $\frac{1}{8}$ of the Earth, this includes cities



Only $\frac{1}{4}$ of this piece represents land that can be used for agriculture, the other land is too steep, cold or wet to grow food or makes up cities and towns that people live in.



So, only $\frac{1}{32}$ of the Earth can be used to grow food (and not all of it is used for that purpose).

Importance of Food Choices

- Land is limited
 - To feed the most people on earth it is more efficient to increase the grains and vegetables in our diets

ALSO

- Agriculture contributes to Greenhouse Gas emissions into the atmosphere

Agriculture and Food: Production Greenhouse Gas Emissions

- ❑ burning of fossil fuels used in harvesting methods
- ❑ release of greenhouse gases by fertilizers
- ❑ release of methane by animals
- ❑ replacement of forest with agricultural land
- ❑ transportation of food great distances

What's for lunch?

- How many miles do you think the food in your lunch traveled to get to you?