

# Trophic Tower

## STEM Sims

### Lesson 1: Calculating the Spilled Water

Similar to a person carrying a water-filled bucket with a hole in it uphill, the energy in a food chain dissipates as it gets higher up the food chain. The higher up the bucket goes, the less water there is, just like how higher consumers in the food chain have less available energy than those at lower levels. Can you find how much water is lost to the journey to the top?

### Doing the Science

1. Start the Trophic Towers Simulation by clicking on the “Sim” tab.
2. Read the instructions provided on the screen.
3. Record the number of liters of water in the bucket in “Producers” in Table 1 below.
4. Click on the “Climb” button to start the animation.
5. Click on the play button, then pause at each level. Record the liters of water at each stage.
6. Calculate the “Percent in Bucket” by dividing the “Liters of Water” at each level by the “Liters of Water” at the Producers level, then multiply by 100.
7. Reset the simulation and repeat steps 3-6 for Trial 2.

**Table 1.**

Level	Trial 1		Trial 2	
	Liters of Water	Percent in Bucket	Liters of Water	Percent in Bucket
<b>Producer</b>				
<b>Consumers 1</b>				
<b>Consumers 2</b>				
<b>Consumers 3</b>				
<b>Consumers 4</b>				

### Do You Understand?

1. At the Consumer 4 level, about what percentage of the water from the original amount is still in the bucket?
  
2. In looking at your percentage change data, is the change relatively steady or unpredictable?