

5.3b Ecosystem Posters Handout

Follow the steps below on your poster to trace matter and energy through an ecosystem.

Step 1: Design and draw your ecosystem

Draw an ecosystem (**either a rainforest, tundra, city park, or swine farm operation**) onto your group's poster. Add in plants and animals that would live in your ecosystem. Be sure to include the plants and animals needed to make it an ecosystem.

You can use the following resources to find out about plants and animals that live in your ecosystem.

Rainforest:

<http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/what.html>

Tundra: <http://www.ucmp.berkeley.edu/glossary/gloss5/biome/tundra.html>

City Park: <https://parks.cityofboise.org/vo-learn-teer/boise-parks-community-education/nature-guide-for-boises-parks/>

Swine Operation: <http://www2.kenyon.edu/projects/farmschool/nature/ecosys.htm>

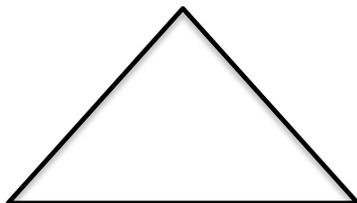
Step 2: Label your Carbon Pools

Where is the carbon in your ecosystem?

1. Label any inorganic carbon pools that are in your ecosystem on your poster.
2. Label the organic carbon pools (producers, herbivores, etc.) in your ecosystem on your poster.

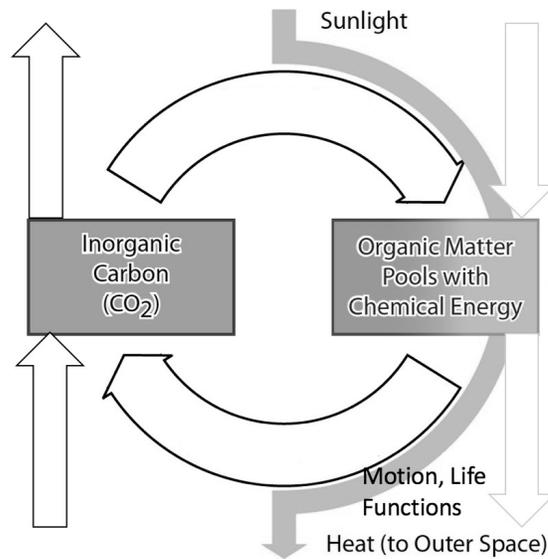
Step 3: Make an Organic Matter Pyramid

Draw, divide up, and label a pyramid like the one below to show how much organic matter should be contained in each of the organic carbon pools that you named in Step 2.



Step 4: Create a Carbon Cycling Diagram for your ecosystem

Below is a carbon cycling diagram for an open ecosystem. Draw the diagram on your poster and add labels to the white arrows to show the processes that move carbon from one pool to another and in and out of your ecosystem. Note: Fill out the gray arrows (in/out of the organic carbon pool) only if they apply to your ecosystem.



Step 5: Trace Energy through your ecosystem

Think about how energy flows through your ecosystem. Where does the energy initially come from? Where does it go? How does it leave the ecosystem? What different forms does the energy take?

1. Draw a line on your ecosystem poster that represents **ONE** path energy may take into, through, and out of your ecosystem.
2. Label **3** different forms of energy along your line.

Step 6: Create a disturbance

Somewhere on the planet, a volcano erupts and darkens the sky, cutting off your ecosystem from sunlight energy. This affects the photosynthesis flux, but not the other processes in the ecosystem. Answer the following questions on your poster.

1. How does the disturbance change the major carbon fluxes in your ecosystem? (Hint: Think about the sizes of the arrows in your carbon cycling diagram).
2. How does this affect the size of the inorganic and organic carbon pools in your ecosystem?
3. If the disturbance continues for weeks or for months, what do you think will eventually happen to the carbon pools in your ecosystem? Where will all of the carbon go?

Step 7: Explore Ecosystem Services

Quickly sketch a person in your ecosystem, if you do not already have one. List two specific ecosystem services that your ecosystem might provide for that person on your poster.

On your poster, describe one way that humans could manage your ecosystem so that it can continue functioning effectively into the future. What is an ecosystem service tradeoff for that management?