Station J

Words in RED are important-make sure you know them!

What you do:

1) There are many interactions among organisms that live within the same community. Some interactions may involve only occasional or indirect contact or they may involve a close association between species. **Symbiosis** is a term that refers to a relationship in nature where two organisms live very closely together.
   a) Review the forms of symbiosis by sorting the **J-1a** card set. Each group will consist of a label card and examples.
   b) After completing the card sort, each group member will make a petal foldable® from the **J-1b** bag. Follow the directions on the page to complete the foldable® and glue it into your notebook.
   c) Use Mat **J-1c** the **J-1c** card set to explore the predator-prey relationship. Complete the simulation, graph, and discussion questions. Glue the recording sheet from the **J-1c** bag into your notebook.

2) Predator-prey relationships are evidence that matter and energy flow through organisms in a community. Use the **J-2** card set for the following activity:
   a) Use at least four of the cards to form an energy (food) chain. Record your chain using words or pictures making sure each arrow points toward the organism that is receiving the energy.
   b) Where does the Sun fit into the energy chain? Where do decomposers fit into the chain? What would happen if there were no decomposers?
   c) Look at the **J-2c** example of a marine food web.
      - Identify the producer/consumer and predator/prey relationships in the food web diagram
      - Name a parasite/host relationship that might be part of a marine food web.
      - What would happen if the aquatic plants died out because of pollution?
      - What would happen if the Tiger shark population doubled?
      - What would happen if the sea urchins were to die out due to a disease?
   d) Explain how biodiversity helps to sustain an ecosystem.

3) Ecological pyramids are another way to show feeding relationships in an ecosystem.
   a) Use the **J-3 Mat** and **J-3** card sets to beat the clock in *Energy Pyramid Play*.
      - You will have 30 seconds to place the blue cards in the sections of the pyramid.
      - When the time is up, use a different colored set and reset the time.
      - Repeat until all card sets are used.
   b) Explain why only about 10% of the energy available at one level is transferred to the next level.
   c) What kind is energy is transferred to the environment at each level?
   d) What kind of energy is transferred from one organism to the next?
   e) Explain the differences between food chains, food webs and ecological pyramids.

4) Bacteria play a vital role in ecosystems. They can be beneficial as well as harmful to both organisms and ecosystems. Review this topic using the **J-4** card set. Sort the cards using the labels and examples. Name ways bacterial growth can be controlled and how the immune system can fight off virus attacks.

5) Decomposers such as bacteria are the recyclers of the limited nutrient resources on Earth. They take stored nutrients like carbon and nitrogen and put them back into the ecosystem to be used again.
   a) Carbon is an essential part of all organic life. Go to [http://tinyurl.com/jrw5acz](http://tinyurl.com/jrw5acz). After watching the video name several places where CO₂ is stored and how human activities have created an imbalance in the atmosphere.
   b) Nitrogen is important because it is part of DNA and is needed to make proteins. Review this cycle at [http://tinyurl.com/93wyyv4](http://tinyurl.com/93wyyv4). Summarize the main points and any human impacts on the cycle by making alphabet soup using the page in the **J-5** bag.

6) Tidy and reorganize all the station materials for the next group using them.