Ecosystems

Chapter 2, section 1

Bell Work page 94

- Title the page “Chapter 2” really big at the top
- BW and Date-

  What is the difference between a food web and a food chain? (Take a guess.)

Energy Flow in Ecosystems

spiral p. 95

- Individually- no partner
- Read the Lab Zone box on TB page 42, and answer questions 1, 2 AND “Think It Over” on page 95 in your spiral.

Reading Preview-

- Read the 3 Key Concepts TB page 42
- Read and guess what the key terms mean (TB p 42)

Ecosystem Review

- On page 96 in your spiral, answer the following questions. Re-state the question in your answer.
- What is an ecosystem?
- What are some things you know about an ecosystem?

Energy Roles

- Read page 42-43.
- complete Notes worksheet on page 86 and the first question on page 87 in your spiral while you read.
  - Do NOT skim just to find answers while reading the material the first time.

Types of Energy Roles, sp p. 97

- **ALL living things fall into one of these categories! (copy the notes below)**

  - Producers (plants)
  - Decomposers (bacteria, mushrooms, worms)
  - Consumers (animals)
    - Scavengers (animals that eat already dead organisms)

Types of Consumers (con't sp p. 97)

- ALL consumer fall into ONE of these categories! Write the 3 categories and tell what it eats (to get energy.)

1. Herbivore-
2. Carnivore-
3. Omnivore-

Carnivorous Plants and Insects

(Nothing to write.)

- Kids always love talking about the famous “Venus Flytrap” plant. The plant the “eats” bugs! Click on the link to take you to a website about this and other carnivorous plants and insects. (No writing necessary.)
- http://www.vtaide.com/png/carnivores.htm
- Just scroll your mouse over the different pictures when you open the link.

Self Monitoring

- Are you on task right now????

Energy Roles

- Spiral page 98
- Ecosystem roles are based primarily on the way organisms obtain (get) energy.
- Look at Figure 1, page 43. (read the caption)

1. What organisms in this ecosystem would you find in each role?

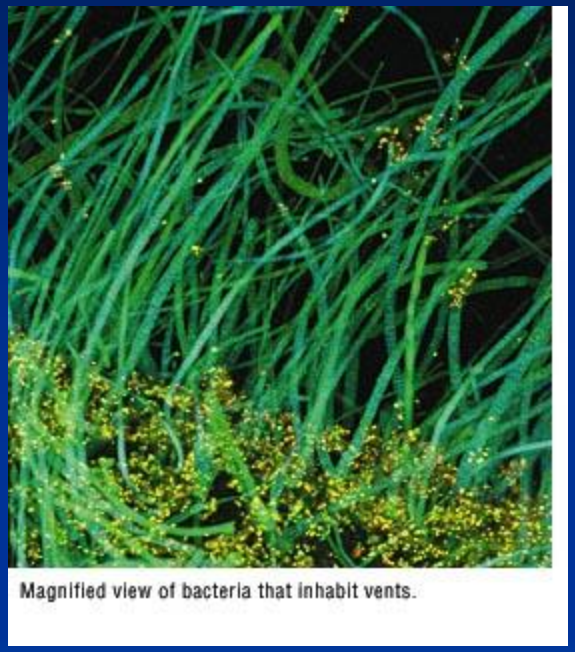
2. Think about your backyard or the school grounds. What are the producers, consumers, and decomposers in this ecosystem?

   - Name 2 of each.

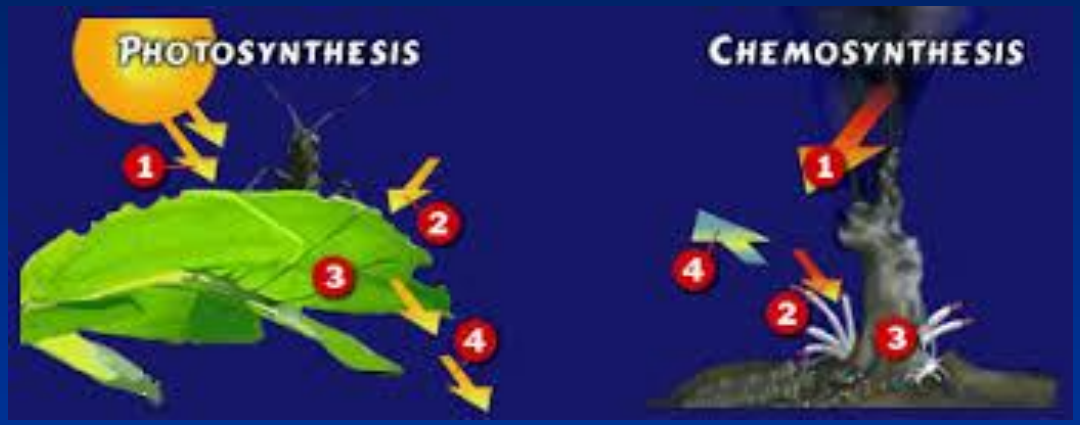
Fun Facts

- Not all ecosystems require sunlight.
- Some surrounding deep-sea hydrothermal vents are too far below the water surface to receive sunlight.
- Bacteria living near the vents make food by obtaining (getting) energy from chemicals **(instead of sunlight)** in the water. This is called chemosynthesis.

Picture of Chemosynthesis



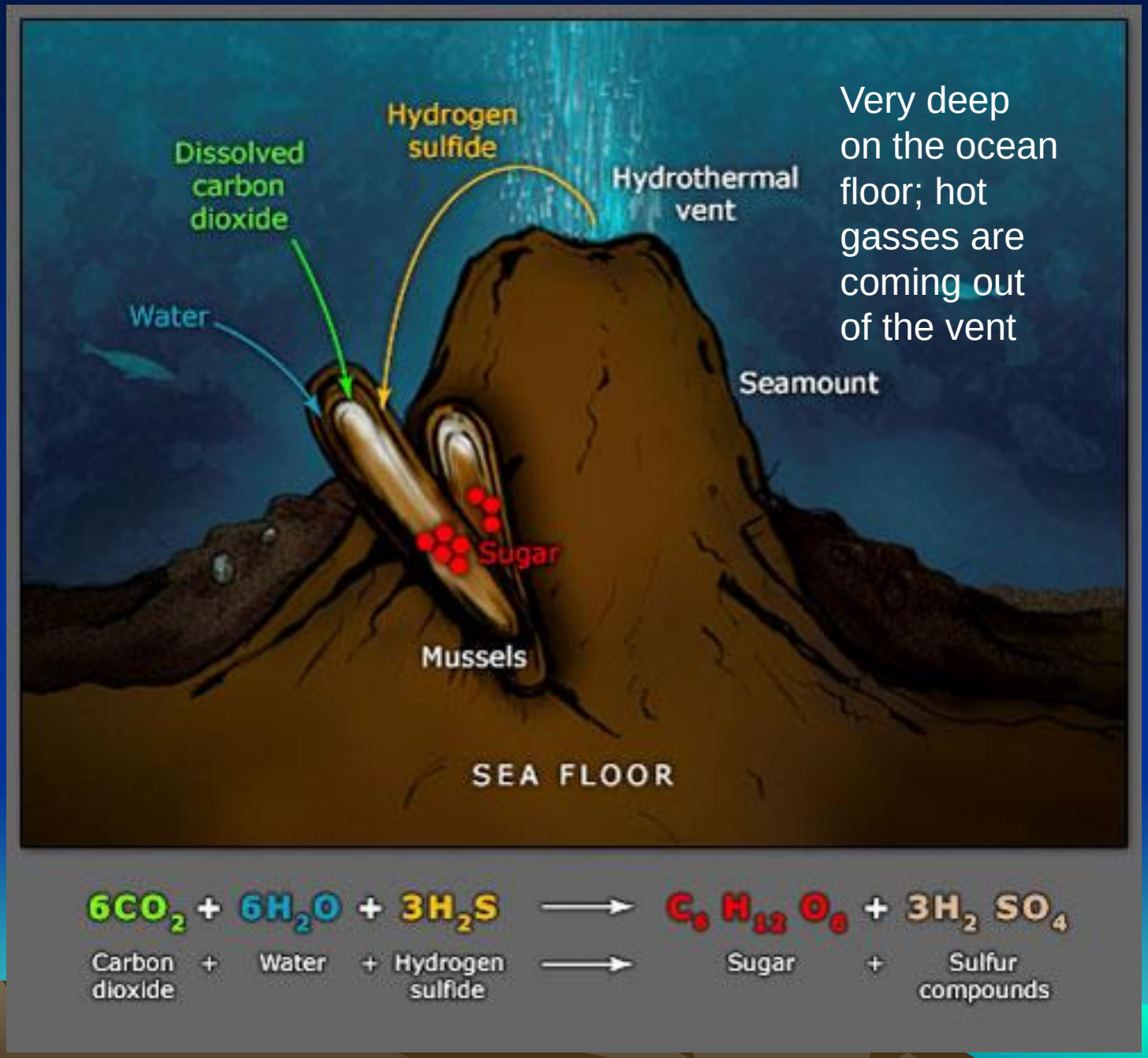
Magnified view of bacteria that inhabit vents.



Comparing the difference between the two ways an organism (producer) can make its own food.

Tube Worm

These are found deep down in the ocean where chemosynthesis takes place.



Very deep on the ocean floor; hot gasses are coming out of the vent

Chemosynthesis, sp page 99

- Title the page "Chemosynthesis"
- Go back to the last slide of the picture of the under water volcano that is producing food using the process of chemosynthesis
- 1. From the diagram, list the 3 things needed for mussels to produce their own food (sugar)?
- 2. Where does this take place?
- 3. What are the conditions around like?

Spiral page 99 continued

Compare photosynthesis and chemosynthesis using a Venn diagram.

Food Chains and Food Webs

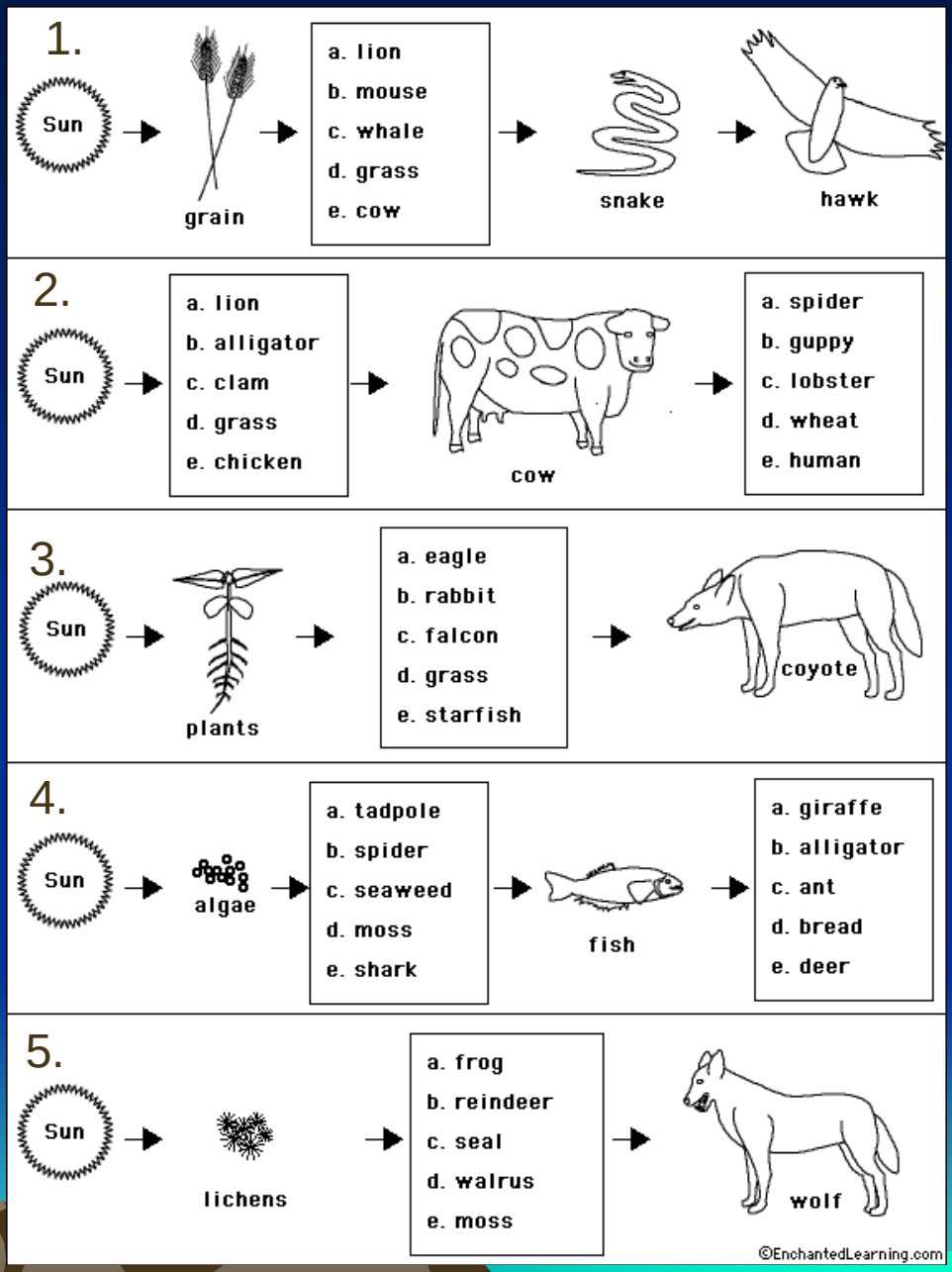
- Read pages 44-45
- Complete your notes on page 87, #’s 10-13.

Title sp. page 100 Food Webs

Answer the multiple choice questions on the right. Set you spiral page up like this:

1.
2.
3.
4.
5.

(Note, #2 and 4 will have two answers.)



Answers to Previous slide

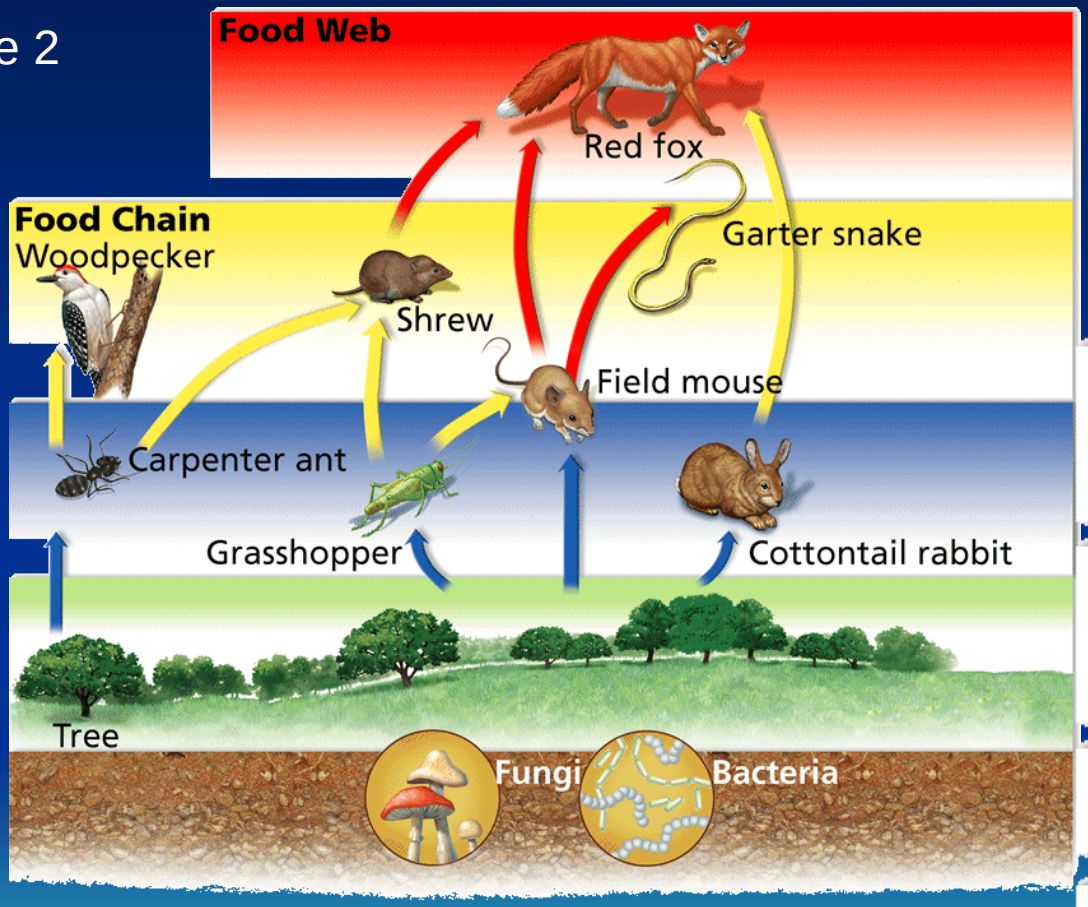
- 1. B
- 2. D, E
- 3. B
- 4. A, B
- 5. A
- These are the **best** answer choices. Some of the choices did not live in the same habitat.

Food Chains sp 101

- Draw a food chain from a Prairie Dog ecosystem. (No more than 3-4 organisms.)
- Arrows need to point to the organism that is getting the energy, the one that is eating. (Think about Pac-Man's mouth going towards the food.)

- Energy Flow in Ecosystems
- Textbook pages 44-45----Just Read and understand!

Figure 2



Red arrows show energy moving from second-level consumers to third-level consumers.

Yellow arrows show energy moving from first-level consumers to second-level consumers.

Blue arrows show the movement of energy from producers to first-level consumers.

Producers form the base of the food web.

Decomposers consume the wastes and remains of other organisms.

A Food Web spiral page 102

- Observe Figure 2- (the previous slide)
- 1. Which organisms in the food web on page 45 are acting as herbivores?
  - 2. Which are carnivores?
  - 3. Name a type of consumer and explain how it is classified.
  - (continued on next slide)

Continued spiral page 102

- 4. What are the third-level consumers?
- 5. How can the mouse be both a first- and second-level consumer?
- 6. How do decomposers gain energy?

Ocean Food Webs

- Read about organisms that live in the ocean and roles they play in a food web.
- You will need to know this to make your own ocean food web on the next slide.

Make an Ocean Food Web online

- Make an ocean food web online. You will need to click on the bottom left where it says [Create an Ocean Food Web]. Be sure to put organisms in the appropriate level of the web—producer, primary consumer (level 1), secondary consumer (level 2), etc. Put the phytoplankton near the surface, draw the sun above the water, and show bacteria, dead organisms, and nutrients on the ocean floor.

BW- date page 103

- Draw a food web. You may draw pictures but label your drawings or just use words.
- Include 8 living organisms including plants, animals, scavengers, YOU, fungi, bacteria and decomposers.
- Be sure the arrows are pointing the correct direction.
- Identify the producers (P) and **type** of consumer (O mnivore or C arnivore or H erbivore) for each organism.

Self Quiz

- Test out your new knowledge and take this online quiz!

Food Chain Website

Here you will read and observe a few different food chains. After reading the first food chain and what type of habitat it comes from, click SWITCH and a new habitat and food chain will appear. There are about 8 different habitats. READ each one.

Click here for the website.

Interactive Energy Pyramid

- Interactive Energy Pyramid- this explains more about what an energy pyramid is.

Energy Pyramids

- Read pages 46-47 in textbook and take the rest of your notes in spiral.

Energy Pyramids sp p. 104

- Look at Figure 3 on page 46.
  - 1. How are the levels grouped?
  - 2. What does each level look like?
  - This energy pyramid shows how much energy each group has.
  - Start observing at the bottom of the pyramid, where there is the most energy and then move up. Each level you lose more energy.
  - 3. Why start at the bottom of the pyramid where the plants are?

Webs and Energy Pyramids sp. p 104

- A food web includes *several* food chains.
- Observe **figure 2, page 45** (go back a page).
- 1. With only one top consumer, the fox, how many food chains are in the web?
- 2. What are the producers in this food web?
- 3. What are the first-level consumers?
- 4. The second-level consumers?

Energy Pyramids (sp. p 104)

- Look at the pyramid on page 46.
- 1. Why is the pyramid shape useful for showing the energy available at each of the levels of a food web?

Con’t energy pyramid spiral page 105

- 2. Why are there relatively few 3rd level consumers such as an owl in an ecosystem?

Answer to previous slide

- So much energy is lost at each level of the food pyramid that there is not enough energy to support very many third-level consumers.

- Go ahead and correct your answer to your bell work if necessary.

Energy Pyramid Drawing

- Draw a empty pyramid on sp page 105.
- Divide it into 4 horizontal sections.
- Number 1-4 from bottom to top.

1. Which level will include the producers?
2. Which level will include the top consumer?
3. Which level**s** include consumers?
4. Which level represents the most available energy?
5. The least available energy?
6. Which level supports the fewest organisms?

Section 1 Assessment

- Complete textbook page 47, ALL QUESTIONS except “Lab Zone”
- Answer on spiral page 106, label your paper “Chapter 2 Section 1 Assessment”
- Write in complete sentences.
- Label all questions with a number and a letter. Example- 1a.
  - 1b.

Extra Time- Visit these Interactive Web Sites

- Basic Food Web http://www.harcourtschool.com/activity/food/food_menu.html
- Create a Food Web- print out http://www.vtaide.com/png/foodweb.htm
- 4 food webs to choose from http://www.gould.edu.au/foodwebs/kids_web.htm
- Food Web Game http://gingerbooth.com/coursewareCBC/ms/kerplunk/cards/instructions.html#howto
- ikeepbookmarks for more activities

Class Activity

- Divide into groups of 3.
- Materials: Scissors and graph paper
- 1st student- producer, 10 by 10 block of squares (total amount of food energy)
- Cut a row of 10 squares off and pass it on to the 2nd student, the “first level consumer”. Cut one square from the row and pass it to the third student “2nd level consumer”.
- FACT- Only a small portion of the original energy stored in the producer reaches the second-level consumer.

Whole Class Activity Weaving a Food Web

- Textbook page 44
- Materials- yarn, scratch paper
- Write a name of a producer, consumer or decomposer (Energy Levels) on a piece of paper.
- How many organisms were affected by the removal of just one organism?
- What does this activity show about the importance of each organism in a food web?

Extension Activities

- Online crossword- click in the box and the question will pop up.
- DO NOT click the “CHEAT” button, try doing it yourself (there is not a grade on this)