



Activity Description & Estimated Class Time

Throughout the guide, teaching tips are in red.

In this 50-minute activity, students work in teams with five different ecosystems to categorize organisms as producers, consumers, scavengers, or decomposers. Using this information, they create a food chain “wheel” for one of the ecosystems. The wheel illustrates the roles of each organism in the ecosystem. This activity should be done after students have completed the activities in 5.L.2.1, “What’s in an Ecosystem?” and Lesson 7 from the STC Ecosystems Unit.

Objectives

Students demonstrate knowledge and understanding of the roles different organisms play in ecosystems as producers, consumers, scavengers, and decomposers.

Students demonstrate this knowledge and understanding by:

- stating examples of specific organisms that have these roles in each of several different types of ecosystems,
- creating a food chain “wheel” for an ecosystem.

Correlations to NC Science Standards

5.L.2.2 Classify the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers (biotic factors).

Who Does What in an Ecosystem? – 50 minutes

Materials

Materials for the whole class

- sets of Ecosystems sheets used in the previous set of activities, 5.L.2.1 “What’s in an Ecosystem?”
- scissors
- BLM 1 Food Chain Wheel Blanks ready to cut out
- tape (masking or transparent)

Materials for pairs of students

- 1 food chain wheel photocopied from the end of Lesson 7 “Joining the Aquarium and Terrarium” in the Ecosystems Teacher’s Guide, but with organisms blanked out using the blanks from BLM 1
- tape
- science notebooks – 1 per student. These should be the same notebooks used for 5.L.2.1 “What’s in an Ecosystem?”



Preparation

1. Copy BLM 1 and cut out four blanks.
2. At the end of Lesson 7 “Joining the Aquarium and Terrarium” in the Ecosystems Teacher’s Guide, find the food chain wheel master and photocopy one.
3. Tape 4 blanks from BLM 1 over each organism drawn in the four quadrants of the wheel (for example, cover up the cricket in the consumer quadrant).
4. Make one copy of the blanked-out wheel for each team of students.

Procedure

1. Review with students the concepts of producers, consumers, scavengers and decomposers. Ask a few students to each name an organism found in an ocean or forest ecosystem, and state whether it is a producer, consumer, scavenger, or decomposer.
2. Ask students to look at the lists of organisms they made in Part 1 of 5.L.2.1, “What’s in an Ecosystem?” Be sure they look at all 5 lists of organisms in an ecosystem: grasslands, lakes and ponds, salt marshes and estuaries, oceans, and forests. Tell students to work as a team to decide whether each organism in an ecosystem is a producer (P), consumer (C), scavenger (S), or decomposer (D). Point out that some organisms may have more than one role in an ecosystem. For example, raccoons and possums are both consumers and scavengers in forest ecosystems. Tell students that after they have determined an organism’s role, they should write one of the letters P, C, S, or D (or a combination of letters) next to the organism’s name.

Allow teams to consult the Ecosystems Sheets they used earlier if they are unsure about an organism’s role.

3. Give each pair of students a food chain wheel with organisms blanked out. Be sure pencils or pens are available to draw with.
4. Assign an ecosystem to each team, and have them choose organisms from that ecosystem to draw on the blanks in spaces for each role on the food chain wheel. In the space for consumers, ask them to include both a plant eater and an animal eater.
5. Remind students that there are four roles in an ecosystem. Each member of the team should be responsible for drawing the organisms in two of the roles. Ask students to draw two different producers in the space for producers, and two of each type (consumers, decomposers, and scavengers) in each of the other spaces.



Wrap-Up

1. Ask teams to exchange their filled-in food chain wheel with another group. Ask each team to name the organisms they included and explain to the other team why they included each one. Teams looking at another team's food chain wheel should comment and suggest any other organisms in the ecosystem that could be added if they had a poster-sized wheel.
2. Ask students why they think producers are called producers. When they answer, probe for understanding by asking, "What do they produce?"

They produce food for themselves so they can grow and produce seeds; and oxygen, which they need when it is dark and they can't do photosynthesis.

3. Discuss additional questions such as, "Do all consumers eat plants?", "How do scavengers benefit an ecosystem," and "Why are decomposers important?"

Scavengers consume a lot of the bulk of dead plants and animals, which keeps these from piling up, since it takes a long time for decomposers alone to do the job.

Guided Practice

Guided Practices are similar to typical tests, but require students to reveal their thinking about content. They serve as a practice before a test and should not be graded. They are intended to expose misconceptions *before* an assessment and to provide opportunities for discussion, re-teaching, and for students to justify answers. They are best given as individual assignments without the manipulatives used in the activity. In that context, pose the following "test items" to the class. Ask them to write responses in notebooks.

Ask students to write the numbers 1 - 20 in a column down the left side of a new page in their science notebooks.

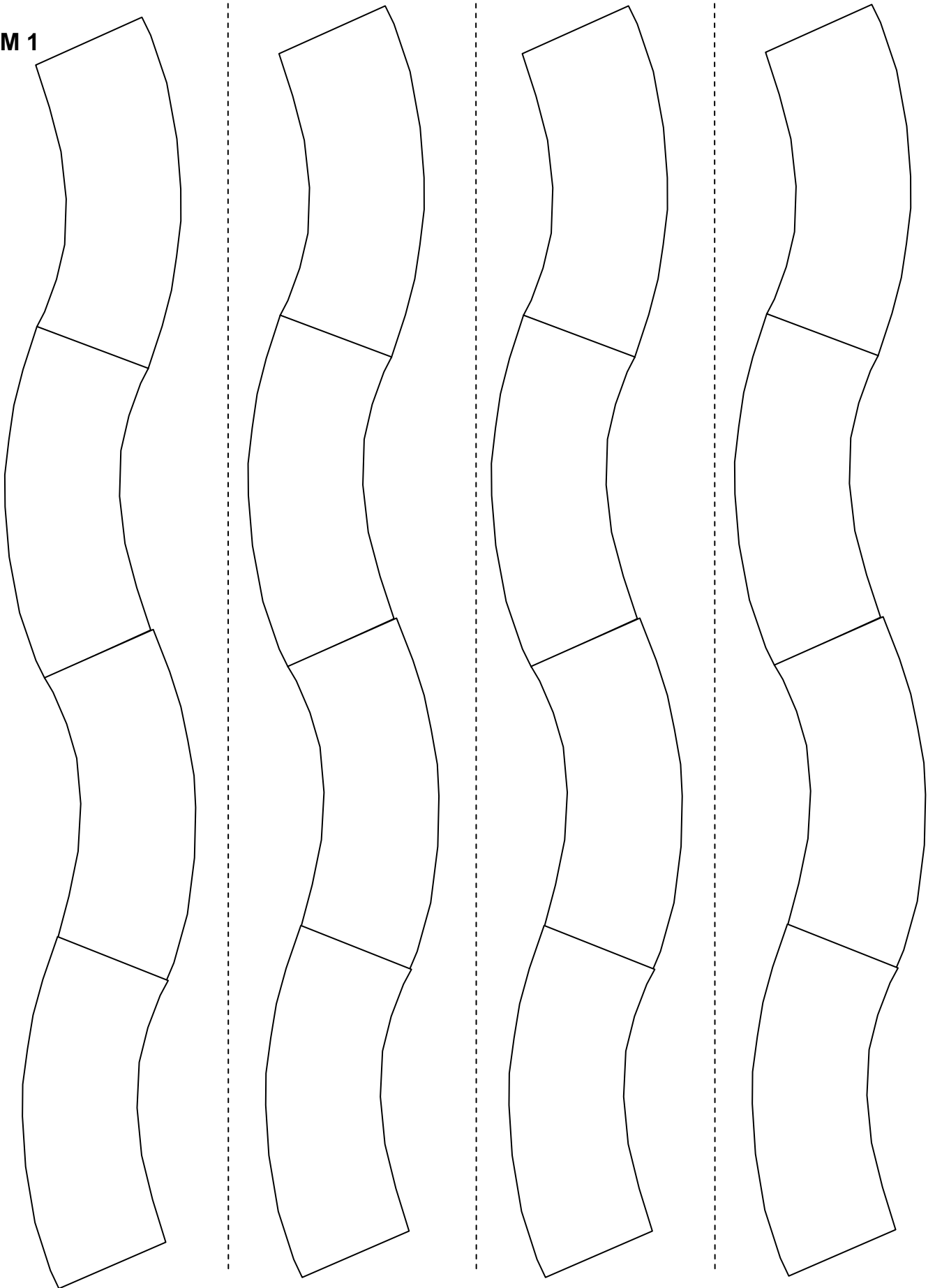
Read the following list of organisms, pausing after each one so that students can use the letters P, C, S, and D to indicate that organism's ecosystem role as producer, consumer, scavenger, or decomposer.

1. Eel grass - **P**
2. Bobcat - **C**
3. Prairie dog - **C**
4. Bacteria living in soil - **D**
5. Bacteria living in salt marsh mud - **D**
6. Snail living in a pond - **C and S**
7. Owl - **C**
8. Krill - **C**
9. Algae - **P**



10. Fungus underneath a log - **D**
11. Phytoplankton - **P**
12. Vulture - **S**
13. Grasshopper - **C**
14. Fiddler crab - **C and S**
15. Oak tree - **P**
16. Baleen whale - **C**
17. Killer whale - **C**
18. Zooplankton - **C**
19. Large-mouth bass - **C**
20. Mummichog - **C**

BLM 1





Appendix

Common Student Preconceptions About This Topic

See the preconceptions described in 5.L.2.1, “What’s in an Ecosystem?”

In addition, many students believe that plants exist for the purpose of providing food for people, and in some cases, for animals. Similarly, they believe that prey animals exist for the benefit of predators, for example, rabbits exist so foxes will have something to eat, and cows exist so people can have milk to drink and beef to eat.