

# Food Chains

## Teacher Facilitation Notes

### In General . . .

- Project the slide deck in edit mode—do not show it as a slideshow.
- Hide the speaker notes before projecting. (View/Show Speaker Notes)
- Hide the toolbar. (Click on the up arrow at the right end of the tool bar.)
- Call on students to read the various content shown on slides.
- For each investigation, assemble the needed materials for each group and place in a central location for ease of distribution.
- Duplicate copies of the data sheets for each student.

### Materials Needed:

#### Explore/Explain: How Does Energy Flow in a Food Chain?

*Student Data Sheet*, 1 per student

Pencil, 1 per student

#### Elaborate: Changes in a Food Chain

*Food Chain Links Template*, 1 per student

Scissors, 1 per student

Crayons, 1 box per group

Tape or Glue, per group

#### Evaluate

Science Notebook, 1 per student

Quiz, 1 per student

### Engage: What is Energy and Why do Living Things Need It?

- Introduce the title slide and discuss.
- Be sure students grasp the meaning of interact. Ask:
  - What living things do you see in this photo?
  - What nonliving things do you see?
  - How does the frog interact with the water?
  - How do the water lilies interact with the water?
  - Suppose a mosquito flew by the frog. What do you think would happen?
- Remind students that the organisms in an ecosystem interact with each other and with the nonliving factors (air, water, sunlight, etc.) in the ecosystem.
- Discuss how organisms get the energy they need for life by interacting within their ecosystems.

# Food Chains

## Teacher Facilitation Notes, p. 2

### **Explore/Explain: What is a Food Chain? & How Does Energy Flow In a Food Chain?**

- Use the slide to introduce food chains. Discuss the idea of how energy might flow through organisms in an environment.
- Watch the video about food chains. Discuss as desired.
- Show the slide that shows how each organism gives energy to the next organism in a food chain. Tell them that the arrow means “gives energy to”. The arrow always points from the sun or the organism GIVING the energy toward the organism GETTING the energy.
- Discuss the roles of organisms in a food chain. For this grade level, simply identify organisms as producers or consumers.
- Show *Food Chain #1*. Remind students that every food chain starts with the sun. Tell students that scientists usually create a diagram or model to show how energy flows in an ecosystem. The diagram may or may not have the sun in it, but the sun is always where the energy begins.
  - Look at the three pictures below the diagram: bird, caterpillar, worm.
  - Which organism is a producer, or the first link in a food chain after the sun?
  - Which organism consumes, or eats, the plant?
  - Which organism consumes, or eats the grasshopper?
- Drag and drop the organisms into the food chain diagram as students identify them. Assist students as necessary by asking guiding questions.
- Have students fill in the blanks for Food Chain #1 on their data sheets.
- Continue in the same manner for the other food chains. Discuss as desired.

# Food Chains

## Teacher Facilitation Notes, p. 3

### Elaborate: Changes in a Food Chain

- Divide the class into groups.
- Duplicate one copy of the food chain links per student. Duplicate 4 extra copies to make demonstration chains.
- Make 4 demonstration chains to use in discussing what happens to the ecosystem if one organism is removed from the food chain.
- Give each group a copy of the links page. Make sure they have scissors, tape, and crayons available.
- Have students follow the directions on the slide to create paper food chains.
- Hold up one food chain and cut the bee link.
- Ask these types of questions about removing each organism from the food chain:
  - Suppose it has been a very cold spring, and there are fewer bees than there were in the past. How would fewer bees in the ecosystem affect the flowering plants? (*Their pollen would not get spread and they would make fewer seeds so there would be fewer plants the next year.*)
  - How would fewer bees affect the frog population in the ecosystem?
- Ask the following summary questions:
  - What are different ways changes to organisms in a food chain affect the environment?
  - If a producer is removed from a food chain, how does that affect consumers at the end of the food chain?
  - What is flowing throughout the food chain starting with the sun?
- Discuss as desired.

### Evaluate

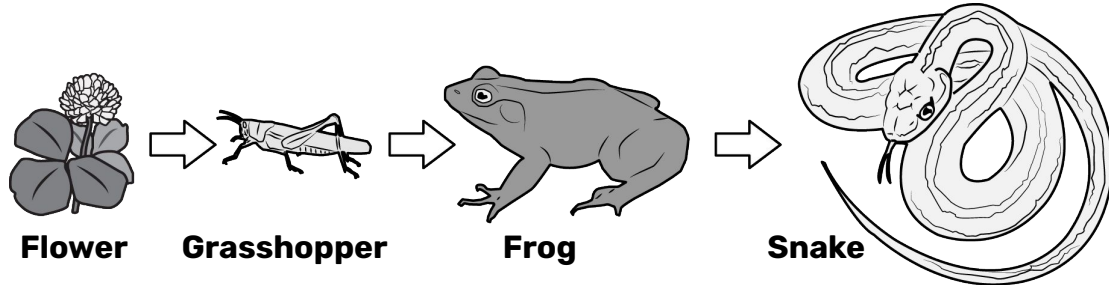
- Let students complete the quiz independently.
- Discuss evaluation activities as desired.

# Food Chains

Name: Key

## Evaluation

Use the food chain pictured below to answer questions 1-6.



1. Which organism is a producer? Flower
2. Which organisms are consumers? Grasshopper, frog, and snake
3. What organism gives energy to the frog? Grasshopper
4. To what organism does the frog give energy? Snake
5. How would removing the frogs from the ecosystem affect the grasshoppers? There would be more grasshoppers because there would be less animals eating them.
6. How would removing the frogs from the ecosystem affect the snakes living there? The snakes would have less food to eat.
7. What organisms get energy from the sun to produce their own food?
  - A Bees and other consumers who eat plants
  - B Trees, grass, and other plants
  - C Wolves and other consumers who eat meat
  - D Soil, water, and the air

# Food Chains

Name: Key

## Evaluation

8. A food chain shows-
- F** What kind of animals plants and trees eat
  - G** How plants and animals interact with the air
  - H** How natural resources can be used and recycled
  - J** The flow of energy through organisms in an ecosystem
9. All food chains start with-
- A** air
  - B** producers
  - C** the sun
  - D** consumers
10. Which of the following are examples of producers in an ecosystem? Mark all that apply.
- F** Tree
  - G** Weeds
  - H** Bees
  - J** Bush
  - K** Alligator
  - L** Cow
11. Which food chain is in the correct order to show the flow of energy in an ecosystem?
- A** cat → grass → bird → snail
  - B** grass → snail → bird → cat
  - C** bird → snail → grass → cat
  - D** grass → cat → bird → snail

# Food Chains

Name: \_\_\_\_\_

## Explore: What is a Food Chain?

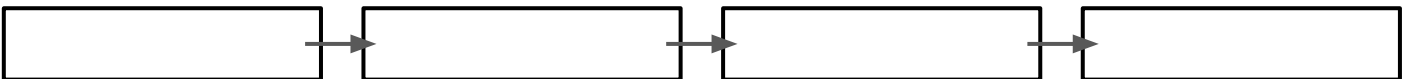
### Food Chain #1

1. Producer: The \_\_\_\_\_ makes its own food using energy from the sun.
2. Consumer: The \_\_\_\_\_ eats the plant to get energy.
3. Consumer: The \_\_\_\_\_ eats the caterpillar to get energy.

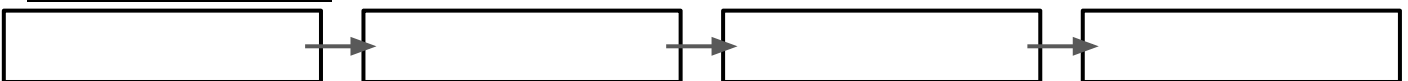
### Food Chain #2

4. Producer: The \_\_\_\_\_ makes its own food using energy from the sun.
5. Consumer: The \_\_\_\_\_ eats the acorns to get energy.
6. Consumer: The \_\_\_\_\_ eats the mouse to get energy.
7. Consumer: The \_\_\_\_\_ eats the snake to get energy.

### Food Chain #3



### Food Chain #4



8. What is a food chain? \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

# Food Chains

**Elaborate: How do Changes in a Food Chain Affect an Ecosystem?**

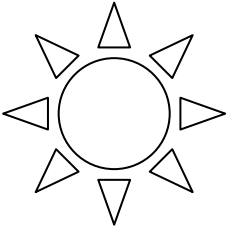
**Directions:** Cut out each strip. Arrange the strips to show the correct flow of energy in this food chain. Then glue them in order to form a paper chain.

## Food Chain Links



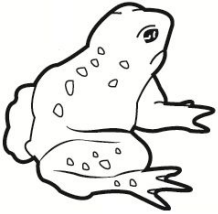
**Bee**

Glue or  
Tape



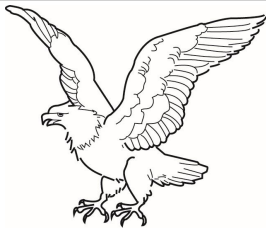
**Sun**

Glue or  
Tape



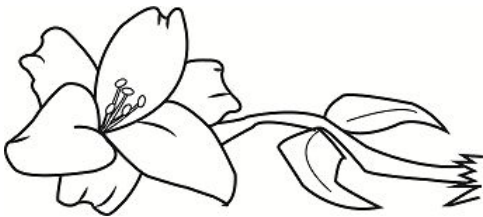
**Frog**

Glue or  
Tape



**Eagle**

Glue or  
Tape



**Lily**

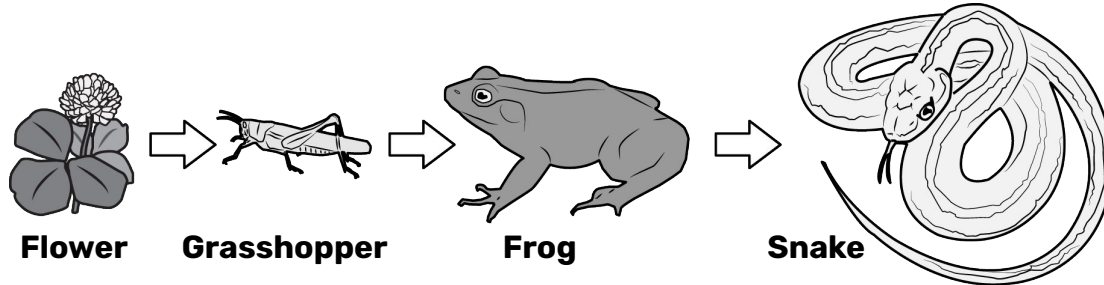
Glue or  
Tape

# Food Chains

Name: \_\_\_\_\_

## Evaluation

Use the food chain pictured below to answer questions 1-6.



1. Which organism is a producer? \_\_\_\_\_
2. Which organisms are consumers? \_\_\_\_\_  
\_\_\_\_\_
3. What organism gives energy to the frog? \_\_\_\_\_
4. To what organism does the frog give energy? \_\_\_\_\_
5. How would removing the frogs from the ecosystem affect the grasshoppers? \_\_\_\_\_  
\_\_\_\_\_
6. How would removing the frogs from the ecosystem affect the snakes living there? \_\_\_\_\_  
\_\_\_\_\_
7. What organisms get energy from the sun to produce their own food?
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