

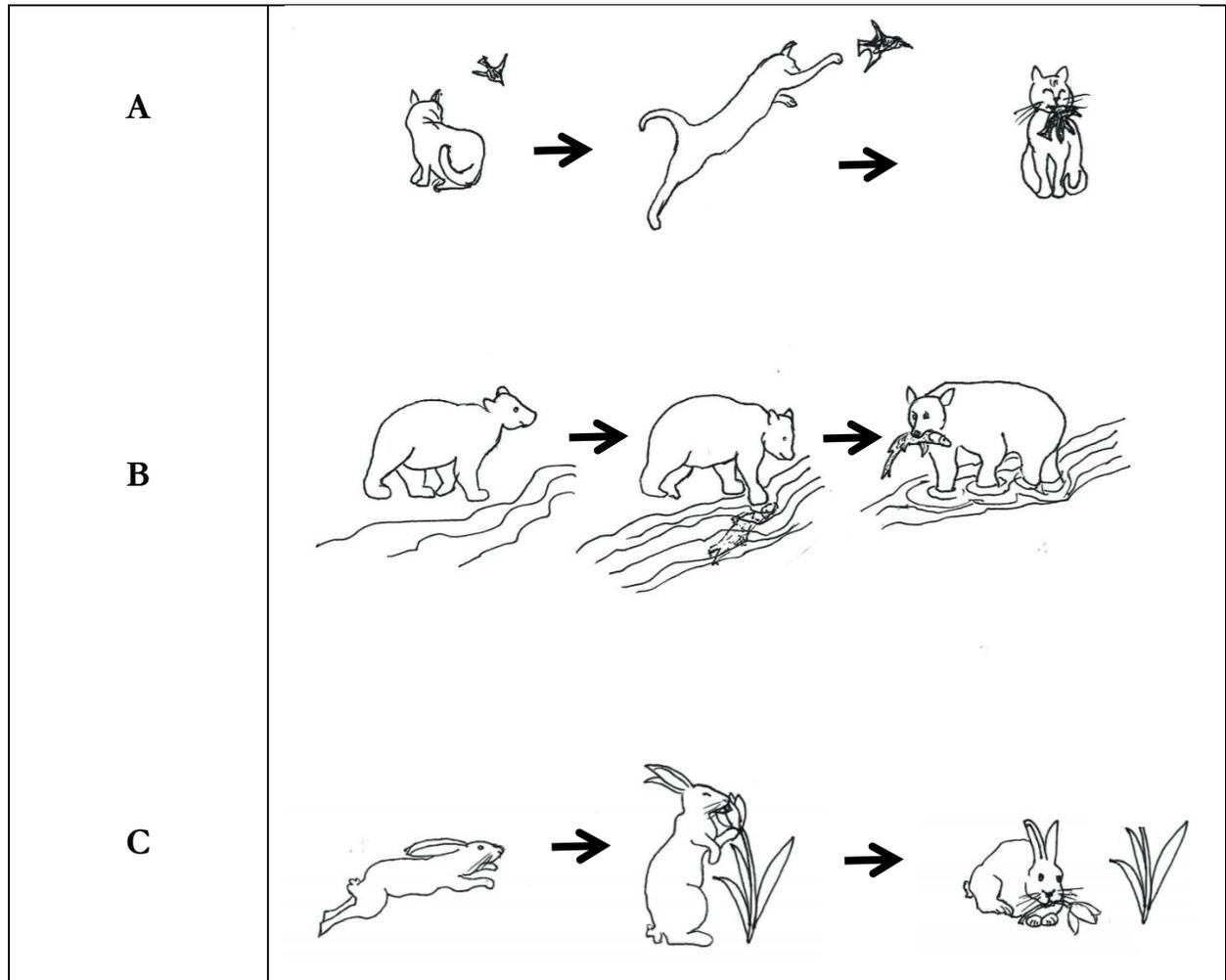
## How Do Living Things Interact?

### Why?

Every living thing (organism) constantly interacts with many other organisms. Scientists who study these interactions notice some patterns of behavior between many different pairs of organisms. In this activity we will investigate three common types of interactions you will find everywhere you look in the natural world.

*As you work through the following questions, be sure to follow your team role(s).*

### Model 1 - Three Stories: What's for Dinner?



*Use the Model 1 drawings to answer questions 1 - 5.*

*Reach agreement with your team before writing down your consensus answer.*

1. Look closely at Model 1. How many different stories are included?

2. **Circle** the sentence that explains what the arrows mean:
- The arrows in each story show an animal moving from left to right.
  - The arrows in each story tell us that time is passing.
  - The arrows in each story show us where to look more closely at the drawings.
3. In each story there is a “winner” and a “loser.”
- Draw a **circle** around the “winner” organism at the end of each story in Model 1.
  - Draw an **X** on top of the “loser” organism at the end of each story in Model 1.
4. The same basic action is happening in each of the stories in Model 1. Write one complete sentence to describe this action. Include the words “winner” and “loser” in your description.



Check with your teacher before you continue.

### Read This!

In stories like those in Model 1, scientists use the word **predation** to describe the interaction taking place between the two organisms. The “winner” is called the **predator**. The “loser” is called the **prey**.



5. Write a 1-2 sentence description of **predation**.  
**Include these words** in your definition:

predator      prey      interaction      organism      eat

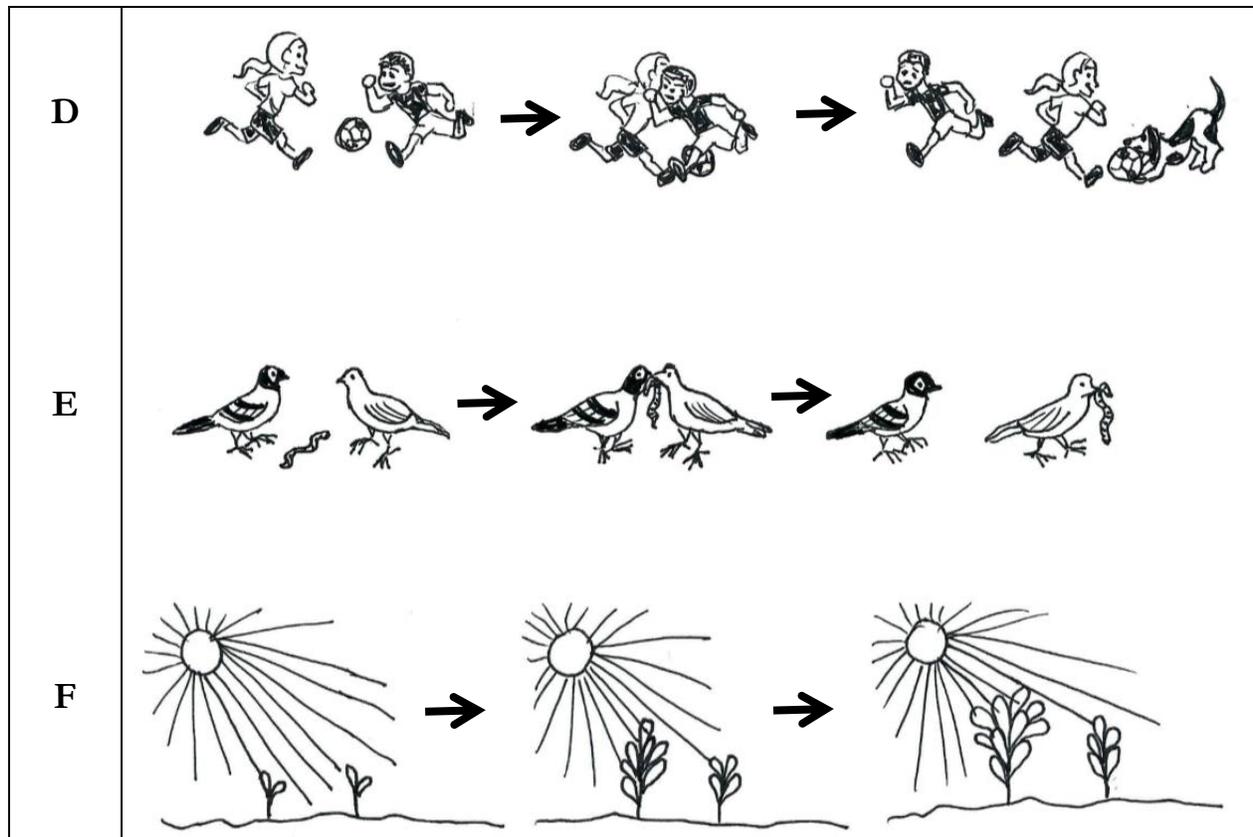
*In a predation relationship...* \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Model 2 - Three Stories: That's Mine!



*Use the Model 2 drawings to answer questions 6 – 11.*

*Reach agreement with your team before writing down your consensus answer.*

6. Look carefully at Model 2. Which story includes two plants as the organisms that are interacting?  
 (Circle) the story that includes plants:

**D**

**E**

**F**

7. In each story there is a “winner” and a “loser.”

a. Draw a (circle) around the “winner” organism in each story in Model 2.

b. Draw an **X** on top of the “loser” organism in each story in Model 2.

8. The same basic action is happening in each of the stories in Model 2. Write 1-2 complete sentences to describe this action. Include the words “winner” and “loser” in your description.



Check with your teacher before you continue.

## Read This!

In stories like those in Model 2, scientists use the word **competition** to describe the interaction taking place between the two organisms. They use the words “winner” and “loser” the same way we use them. Scientists use the word **resource** to describe the item that both organisms want for their own.

9. In each story there is one resource that both organisms want.
- Draw lines** to connect each story to the name of the resource.
  - There are extra resources in the list. **Draw an X** through the extra resources.

<b>Story D</b>	<b>Water</b>
<b>Story E</b>	<b>Sunlight</b>
<b>Story F</b>	<b>Food</b>
	<b>Soccer ball</b>
	<b>Birds</b>



10. Write a 2-3 sentence description of **competition**.  
Include these words in your definition:

resource    winner    loser    interaction    organism    compete

*In a competition relationship...* \_\_\_\_\_

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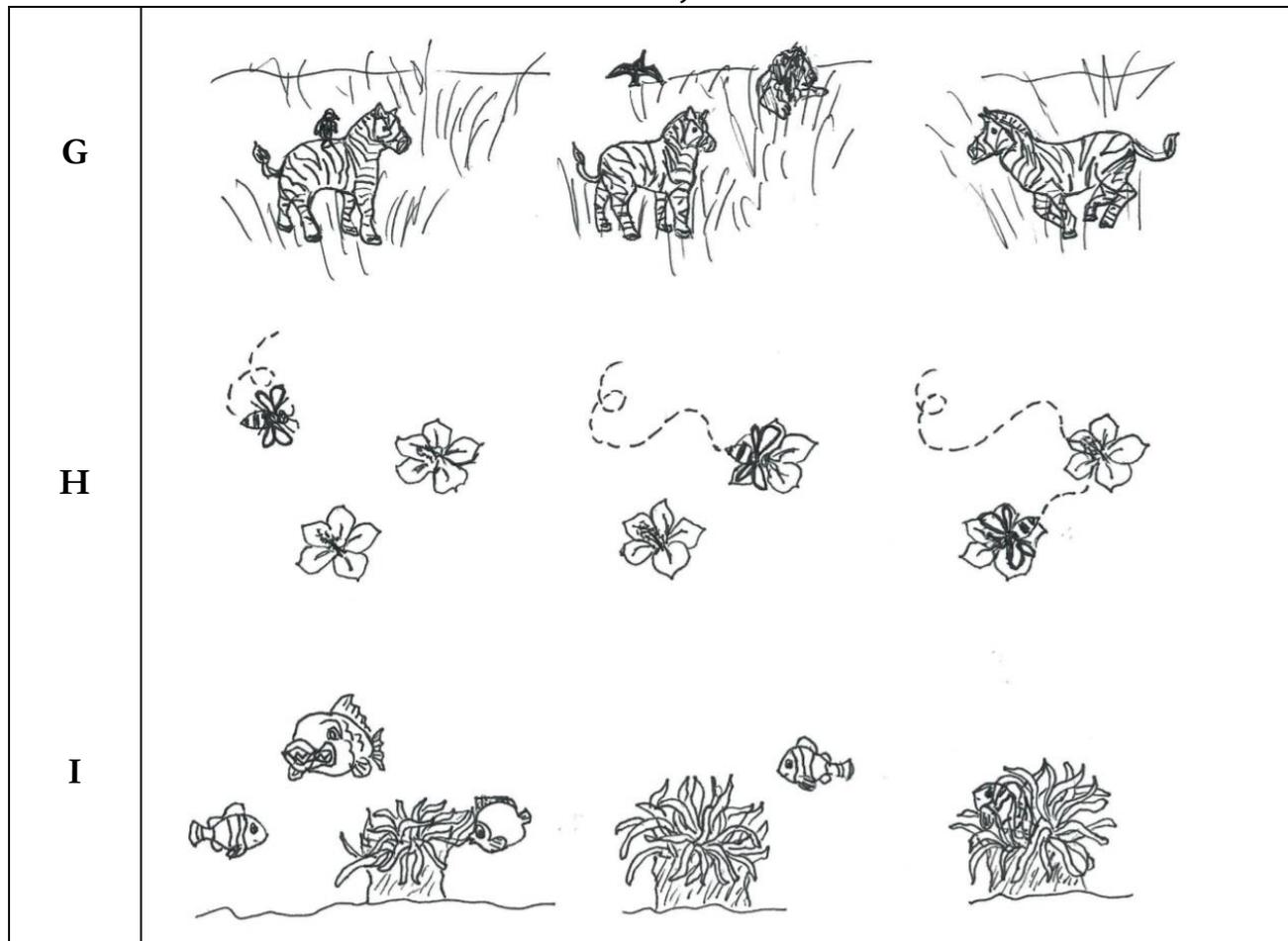
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11. a. Circle the one claim that is accurate, based on the information in Model 2.
- Competition can occur between organisms of the same type or organisms of different types.
  - Competition can occur **only** between organisms of the same type.
  - Competition can occur **only** between organisms of different types.
- b. Write two pieces of evidence from Model 2 that justify the claim you chose.



Check with your teacher before you continue.

### Model 3 - Three Stories: Give a Little, Get a Little



Story	Name of resource	Organism that wants the resource	Organism that has the resource
<b>G</b>	Food	<b>Tickbird:</b> Wants to eat ticks and insects	<b>Zebra:</b> Has ticks and insects on skin
	Protection	<b>Zebra:</b> Wants warning of predators in the distance	<b>Tickbird:</b> Flies up and screams an alarm when lions are nearby
<b>H</b>	Food	<b>Bee:</b> Wants to eat high-energy nectar hidden deep in the center of each flower	<b>1<sup>st</sup> and 2<sup>nd</sup> Flowers:</b> Nectar is located so the bee bumps into pollen particles when the bee seeks food
	Pollen particles (Male sex cells)	<b>2<sup>nd</sup> Flower:</b> Needs pollen from a different flower to join with its eggs to make seeds	<b>Bee:</b> As it feeds on nectar from many flowers, it carries pollen from the 1 <sup>st</sup> flower to the 2 <sup>nd</sup> flower
<b>I</b>	Protection	 <b>Clownfish:</b> Wants to hide in the sea anemone animal to avoid bigger predator fish	<b>Sea Anemone:</b> Uses its tentacles to sting nearby fish, but doesn't sting the clownfish
	Protection	 <b>Sea Anemone:</b> Wants someone to scare away the fish that eats its tentacle tips	<b>Clownfish:</b> Chases away all small fish, including the butterfly fish

*Use the Model 3 drawings and data table to answer questions 12 – 17.  
Reach agreement with your team before writing down your consensus answer.*

12. Look closely at Model 3. One story includes plants as one of the organisms that is interacting. Circle the story that includes plants:

G

H

I

13. In each story in Model 3 there is something that each organism wants. Draw lines to connect each organism to the type of resource it wants. Note: You may connect more than one organism to each resource.

Tickbird	Food
Zebra	
Clownfish	Protection
Sea Anemone	
Bee	Male sex cells
Flower	

14. Identify each “winner” and/or “loser” in stories G, H, and I.

- Draw a circle around any “winner” organism in Model 3.
- Draw an **X** on top of any “loser” organism in Model 3.

15. The same basic action is happening in each of the stories in Model 3.

**Write** 1-2 complete sentences to describe this action. Hint: Read the title of Model 3.



Check with your teacher before you continue.

### Read This!

In stories like those in Model 3, scientists use the words **mutual benefit** or **mutualism** to describe the interaction taking place between the two organisms.

16. The word “mutual” means “done by each of two or more parties toward the other.” In Latin, the word “**bene**” means “well” or “good.” Based on this information, describe what the term “mutual benefit” or “mutualism” must mean.



17. Write a 2-3 sentence description of **mutualism**.

Include these words in your definition:

resource      organism      interaction      share

*In a mutualism relationship...* \_\_\_\_\_

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### Read This!

Scientists use the term **ecological relationships** to describe the processes of predation, competition, mutualism, and a few more types of interactions between organisms.

18. Look carefully at the drawing below. Base your answers on information from Models 1, 2, and 3.

Draw a **circle** around one interaction that shows **predation**. Write “**P**” beside the circle.

Draw a **box** around one interaction that shows **competition**. Write “**C**” beside the box.

Draw a **heart** around one interaction that shows **mutualism**. Write “**M**” beside the heart.



## What I Still Wonder...

19. Write one additional question you have about how organisms interact in the world around you.

## Extension Questions

20. Search the internet to find one additional example of **predation**. Identify the predator and the prey in the relationship.

Predator:

Prey:

Search the internet to find one additional example of **competition**. Identify the organisms in the relationship and the resource they compete for.

Organism 1:

Organism 2:

Resource:

Search the internet to find one additional example of **mutualism**. Identify the organisms in the relationship and the resource each is providing to the other.

Organism 1:

Resource that organism 1 provides:

Organism 2:

Resource that organism 2 provides:

21. **Commensalism** and **parasitism** are two additional ecological relationships identified by scientists. Search the internet or a biology textbook to identify the basic action that is happening in these relationships. Describe the relationship. Which organism is a “winner” and which is a “loser” in each type of relationship?

Commensalism:

Organism 1: Winner or Loser?

Organism 2: Winner or Loser?

Parasitism

Organism 1: Winner or Loser?

Organism 2: Winner or Loser?