Symbiosis Introduction

Objective
NHA Explain common patterns of interdependence and interrelationships of living things.

Vocabulary

Symbiosis	Relationship	Mutualism
Commensalism	Parasitism	

Materials
Symbiotic Relationships worksheet
Symbiotic Relationship game cards
Can We Be Friends?: Nature's Partners (Nature's Treasures) by Alexandra Wright
Hummingbirds and Flowers video

Procedure
1. Today, students will learn about different way animals and plants live together.

2. Ask students if they know what a ***relationship*** is. (When two things interact or "hang" out" with each other). When we talk about animals and plants we say they have ***symbiotic*** relationships. That means they have a relationship in which at least one of the organisms is benefiting/getting something.

3. Read the story about symbiosis between some ants and aphids from *Can We Be Friends?: Nature's Partners (Nature's Treasures)* by Alexandra Wright.

4. Do you think the ants and the aphids have a good or bad relationship? (*Good. The ants get sweet juice from the aphids and the aphids get protection from the ants*)

4. Pass out the Symbiosis worksheet and complete the definitions. Animals and plants have three main types of symbiotic relationships:

- Relationship #1: If your friend gives you a piece of candy, is that a nice thing to do? (yes) Does it hurt your friend? (no) What would we call this type of relationship? (happy/doesn't matter, ☺/😐 or +/0) This is known as ***commensalism***. *If the students are having trouble remembering the scientific terms, refer to the smiley faces and simple explanations*.
- Relationship #2: If you buy a piece of candy from the store, you pay the cashier. Are both people happy? (yes, you got the candy and the cashier got the money) Does anyone get hurt? (no) This type of relationship is called a happy/happy, ☺/☺ or +/+ relationship. This is known as ***mutualism***.
- Relationship #3: If a bad child in the neighborhood punches you in the nose. Does anyone get hurt? (yes) This type of relationship is called a happy/sad, ☺/☹ or +/- relationship. This is known as ***parasitism***.

5. What type of symbiotic relationship do you think the ants and the aphids had? (*mutualism, the ants get sweet juice from the aphids and the aphids get protection from the ants*) Show the Hummingbirds and Flowers video and ask the students to identify the type of relationship. (*mutualism*)

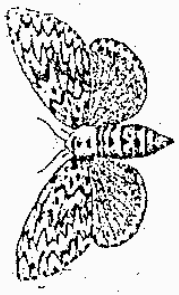
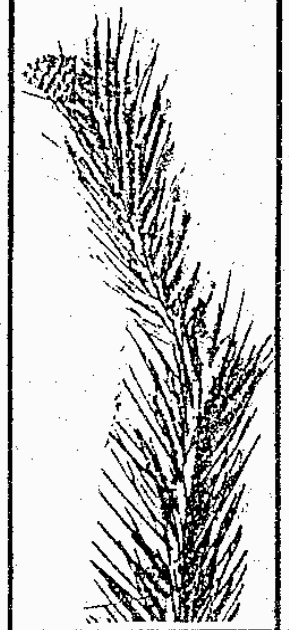
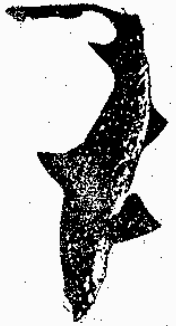
6. Pass out one animal card to each student. (*you will have extras so make sure each student has a partner card*) The student must find their 'partner' in the relationship. (They will walk around the room looking for their partner.)

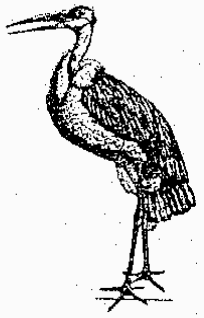
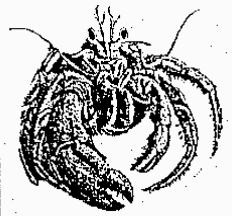
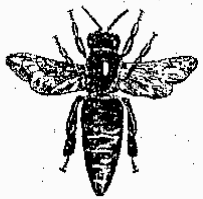
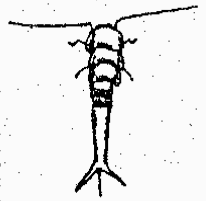
7. When they find their partner, they will look on their worksheet and read what it explains about their

relationship. They will use this information to decide what kind of relationship they have (commensalism, mutualism, or parasitism). Once they figure out the relationship, they should write it down on their worksheet in the appropriate place. *If the students are having a difficult time with this activity, you may want to do it as a whole class activity*.

8. When each pair is finished, have a race to see who can figure out the rest of the relationships on their worksheet.

9. Read each of the relationships and have the class vote, to decide whether the relationships are commensalism, mutualism or parasitism. Students should write the correct answers on their worksheet, if they had any wrong.

OSTRICH	WARBLER	YUCCA MOTH	WHALE	SPRUCE	RHINO	SHARK
						
						
GAZELLE	CUCKOO	YUCCA	BARNACLE	MISTLETOE	OXPECKER	REMORA

HONEY GUIDE BIRD	MARIBOU STORK	HERMIT CRAB	DEER	FLEA	COWBIRD	BASS	ANTS
							
							
BADGER	BEE	SHELL	TICK	MOUSE	BISON	WRASSE FISH	SILVERFISH

Name: _____

Symbiotic Relationships

Define each symbiotic relationship term:

Commensalism _____

_____

_____

Mutualism _____

_____

_____

Parasitism _____

_____

_____

Read the information below. Decide what type of symbiotic relationship the two organisms have and write the answer on the line.

_____ Ostriches and gazelles eat next to each other. They both watch for predators and danger. Since they see things differently, they each can identify threats the other animal may not see. Both species are happy.

_____ A cuckoo bird may lay its eggs in a warbler's nest. The cuckoo's young will kick out the warbler's young and will be raised by the warbler. This is good for the cuckoo but bad for the warbler.

_____ Yucca flowers are pollinated by yucca moths. The moths lay their eggs in the flowers and the eggs hatch. The larvae eat some of the seeds, and spread them around. Both species are happy.

_____ Barnacles attach themselves to whales so they can get a free meal. This neither harms nor helps the whales.

_____ Mistletoe takes water and nutrients from the spruce tree. This is good for the mistletoe but bad for the tree.

_____ Oxpecker birds get a good meal by eating the ticks found on a rhinoceros. The rhinoceros get a free cleaning. Both species are happy.

_____ Remora fish attach themselves to a shark's body. They then travel with the shark and eat scraps from the shark's meals. This neither harms nor helps the shark.

_____ Silverfish bugs live and hunt with army ants. They share the prey. This neither helps nor harms the ants.

_____ Wrasse fish get a free meal by eating the parasites found on the bass fish's body. The bass gets free doctor services. Both species are happy.

_____ A bison walks through the grass, insects fly up and are seen, and eaten, by cowbirds. This neither harms nor helps the bison.

_____ A flea feeds on a mouse's blood. This is good for the flea but bad for the mouse.

_____ Ticks feed on deer blood. This helps the ticks but hurts the deer.

_____ Hermit crabs live in shells that snails don't use anymore. The hermit crab gets a nice free home. This neither harms nor helps the snails.

_____ The stork bird uses its saw-like beak to cut up dead animals it eats. Bees then come along and lay their eggs in the meat so when the eggs hatch, their larvae will have food to eat. This neither harms nor helps the stork.

_____ Honey guide birds show badgers where bee hives are. The badger rips open the hive and eats the honey first. Then the honey guide birds eat.