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**SYMBIOTIC RELATIONSHIPS**

*The goal of this lesson is to teach students about the concept of symbiosis; as an interaction between two different species that live in close association with each other. In order to achieve this, students will learn about the meaning of symbiosis, and more importantly the three different types of symbiotic relationships that exist – when both organisms benefit (mutualism), when one benefits while the other is unaffected (commensalism), when one benefits while the other is harmed (parasitism).*

**Material List**

* Laminated pictures of animals and plants: *barnacles, whales, hermit crabs, snails, orchids, bromeliad plants, sparrows, osprey birds, yucca flowers, yucca moths, ostriches, gazelles, oxpecker birds, rhinoceros, mistletoes, spruce trees, fleas, mice, ticks, deer, heartworms, dogs, wasps, caterpillars.*

**Key Words**

* Symbiosis
* Mutualism
* Parasitism
* Commensalism
* Relationships
* Laminated posters of ☺☺ ☺☹ ☺😐
* Speakers
* Chart paper (2) and paper
* Tape (to stick pictures on chart paper)
* Markers
* Small ball
* Space large enough to sit in a circle
* Printed cards with an example of each type of symbiotic relationship

**Activities**

**Introduction [15 mins]**

I am sure all of you know what relationships are. Can anyone tell me what a relationship is? In science, we often refer to “symbiotic relationships.” This comes from the word “symbiosis” where *syn* means [with] and *biosis* means [living]. This is because symbiotic relationships are relationships between two different species living closely together. These plants and animals normally interact with each other to get food or shelter!! There are 3 main types of symbiotic relationships!

Sometimes, both the organisms benefit from each other, which means they both become happier! This type of symbiotic relationship is called MUTUALISM. (Can you repeat that with me?) Other times, one organism benefits from the other, but the other organism is unaffected. This means one becomes happier but the other one stays unaffected or in the same mood!! This type of symbiotic relationship is called COMMENSALISM. (Can you repeat that with me?) The last type of symbiotic relationship is when one organism benefits from the other and this other organism is harmed. This means one becomes happier and the other becomes sadder or is injured!! This type of symbiotic relationship is called PARASITISM (Can you repeat that with me?)

**Activity 1 – *Sorting***

Divide the kids into two different groups and hand them chart paper and tape. Then present them with all the laminated pictures of the plants and animals that you want them to sort out into the 3 different symbiotic titles – mutualism, commensalism, parasitism. Read out the examples from the sheet of paper and have them sort them with the pictures of the corresponding species into the 3 columns.

1. Ostriches and gazelles eat their food next to each other. They both watch for predators and alert each other to any danger. That means they help each other identify threats. (mutualism)
2. The tick burrows into the cow’s skin to suck blood. This is not good for the cow; it will make the cow weak. (parasitism)
3. Grey wolves and striped hyenas help each other hunt animals (mutualism)
4. Hermit crabs live in shells that were made earlier by snails. These snails don’t need these shells anymore, so it does not help or harm them. (commensalism)
5. Orchids (one type of plant) grow inside a bromeliad plant (another type of plant). The orchid gets water and nutrients from the bromeliad, but this does not help or harm the plant. (commensalism)
6. Mistletoe sucks water and nutrients from the spruce tree. This harms the spruce tree. (parasitism)

Give them to identify the correct pictures of the corresponding animals/plants and to classify them into one of the 3 categories. Then they should stick it on the chart paper. Let a different kid do it each time.

**Activity 2 – *3 corners!!* [10 mins]**

Now we’re going to play a game! Have you played 4 corners before? This time we’re going to do 3 corners! Point out the 3 different spots in the room which should have the signs - ☺☺ ☺☹ ☺😐 and explain how they relate to mutualism, commensalism and parasitism. Explain that you will play music and as soon as the music is paused, you will read out a description of a symbiotic relationship and that they must run to the corner that corresponds to that symbiotic relationship.

Music: Play a Spotify children’s playlist (10-year-old birthday party)

* Fish hide in coral reefs and gain protection from predators without affecting the reefs (commensalism)
* Ticks will feed on a deer’s blood and harm the deer. (parasitism)
* Barnacles make a home by attaching themselves to whales. This relationship does not harm nor benefit the whales. (commensalism)
* Green algae and fungus depend on each other, the fungus gets nutrients from the algae and the algae gets water and nutrients from the fungus (mutualism)
* A sparrow, which is a small bird, builds its nest under the nest of an osprey, a bigger bird. The smaller bird gets more protection and this does not help or harm the at all. (commensalism)

**Activity 3 – *Tell us about you!* [15 mins]**

**Circle Time with a ball**

Find a spot in the classroom which has enough space to make a big circle. Sit down in a circle and give the students instructions – the ball will be thrown to one child who has to give an example of a mutualistic relationship or incident that he/she can recall. Explain that this is a relationship or incident where the student and another person both benefited or both felt happier after. After recounting the story, the student throws the ball to the next student of their choice and the pattern/game continues. These examples can also be examples from famous children’s movies and television shows etc. *(For example: nemo and the sea anemone in finding nemo)*

**Activity 4 – *Take me home!* [5 mins]**

Present each of the students with a card that they can take home. The card illustrates the 3 different types of symbiotic relationships and they have to label the relationship next to the image.

The three images on the card:



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**Conclusion**

Let the kids take home the card with the 3 picture categorization. Summarize the lesson by talking about how different species HAVE to interact with each other in order to gain nutrients, seek shelter and live in general. Repeat the 3 different symbiotic relationships – some positive, some negative and some neutral.

**Instructor Comments**

*Make sure they can connect with the topic so that they can relate it to symbiotic relationships in their own life in some way. It is more important for them to realize that three different types of symbiotic relationships exist than knowing how to spell, write or remember the terminology.*

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