**Name of Participant:** Jennifer White

**Instructional Coach:** Jan Brown/ Chris Gibler

**Lesson Title:** Unlikely Friends

**Grade Level:** 4th

**Student Learner Goals/Objectives:**

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| **Strand 4: Changes in Ecosystems and Interactions of Organisms with their Environments** |
| **Big Idea: 1. Organisms are interdependent with one another and with their environment** |
| **Concept: A. All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem** |
| a. Identify the ways a specific organism may interact with other organisms or with the environment (e.g., pollination, shelter, seed dispersal, camouflage, migration, hibernation, defensive mechanism)b. Identify and describe different environments (i.e. pond, forest, prairie) support the life of different types of plants and animals |

**Featured Book**:

Weird Friends by Jose Aruego and Ariane Dewey

**Academic Vocabulary**:

Mutualism Symbiosis Organism

**Safety:** none

**Bibliography of more information**:

There’s a Zoo on You by Kathy Darling

 Friendships in Nature by JG Hines

Big Friend, Little Friend: A Book about Symbiosis by Susan Sussman

 Partners for Life: The Mysteries of Animal Symbiosis by Margery Facklam

 How to Clean a Hippopotamus by Steve Jenkins and Robin Page

National Geographic Website: “Odd Couples”

<http://magma.nationalgeographic.com/ngexplorer/0601/articles/mainarticle.html>

**Engage**: Teacher will tell the following story (teacher may also have this displayed on the board or handed out):

 Last night I had this dream. It was very strange, but can you help me think of its meaning? Okay, I dreamed that I entered a room. It was filled with people. I noticed that they each had one arm that was a fork and the other that was a spoon. There was also the most beautiful table overflowing with food! These people were very sad…and HUNGRY. They were so upset because they could not bend their arms to feed themselves. Next, I went to the second room. It looked almost identical! It was filled with people having fork and spoon arms along with the beautiful table overflowing with food. The only difference I noticed was that they were VERY happy and NOT hungry. What could this mean? Why is one room so sad and the only happy?

The class will discuss reasons the second room might be happy even if they are identical rooms. They will come to the assumption that each individual was helping another to be able to eat. The class will define this relationship as MUTUALISM.

**Explore:** \*(Formative Assessment) Teacher will partner kids up. Partners will be given a list of organisms cut into cards. Students will pair organisms into couples that they think might have a mutualistic relationship. Teacher will invite students to share ideas and compare their ideas with others.

**Explain**: Teacher will read Weird Friends while students identify what type of mutualistic relationship the organisms have. For example: food, shelter, protection, or transportation. Students can keep a list of these examples in their science notebook.

**Elaborate/Extend**: Teacher will place students in small groups. Students will rotate between four tables, taking a picture walk through books listed above (see bibliography). Groups will create focus questions (taking turns) about mutualism. Students will also brainstorm other relationships organisms have (parasitism or commensalism). Teacher may choose to define these types depending on the class. Students will also identify new mutualistic relationships they found in these books. Students will turn these questions in to the teacher. (\*Formative assessment)

**Evaluate**: Summative Evaluation- Students will be given a link to complete PART 1 of the test on the computer. PART 2 will be completed on paper. This summative will give the teacher a good idea about how the last two days went. Part 2 will allow for differentiated instruction. Students will get to chose two organisms and will describe their relationship with one another. Students will also be given a scenario about a construction company that believes a particular organism is a nuisance. Students will write a letter to the mayor and telling the effects of this plan.

Part 1; Go to the following URL:

<http://assignments.discoveryeducation.com/?cdPasscode=Q7D0A-4761>

Part 2: see part 2

PART 2

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Choose a one set of organisms, and then describe their mutualistic relationship. Be specific.

1. Ostrich and Zebra
2. Hermit Crab and Sea Anemone
3. Hippo, Oxpeckers, and Black Labeo Fish
4. Impala and Baboon
5. Rhino and Cattle Egret

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There was a group of divers that thought the Sea Anemones in one particular area were absolutely beautiful! Many of the divers thought they could sell them to make a lot of money from tourist. They are planning a day to capture as many Sea Anemones as they possibly can in a couple of months. As a concerned citizen, write a letter to the mayor stating the effects if the divers were to go through with this.

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| Clown Fish | Zebra |
| Wrasse | Baboon |
| Rhino  | Sea Anemone |
| Cattle Egret | Ostrich |
| Google-Eye Fish | Impala |

Explore: Word Sort