**Symbiosis in Your Ecosystem Project**

| **Rubric** | |
| --- | --- |
| 4 points | Ecosystem Description – A description of your ecosystem and two examples of other places it is found on Earth |
| 2.5 points | 5 Abiotic Factors Requirement - Vocabulary must be used properly in the context of describing how you are connected to your ecosystem. Describe how each factor is part of the ecosystem. |
| 2.5 points | 5 Biotic Factors Requirement - Vocabulary must be used properly in the context of describing how you are connected to your ecosystem. Describe how each factor is part of the ecosystem. |
| 8 points | Identify 8 DIFFERENT symbiotic relationships in your ecosystem – EXPLAIN the examples of these relationships - identify the two organisms involved in each relationship. Include two examples for each of the 3 types of symbiosis we studied (parasitism, commensalism, mutualism) and 2 additional examples for your choice of symbiosis. |
| 3 | Spelling, neatness, animals and plants are part of the ecosystem, etc |

Fill in the table for your project

| **Other Information** | |
| --- | --- |
| Description of the ecosystem | The ecosystem is a giant ocean located in the Pacific Ocean and the Atlantic Ocean. |
| 5 Abiotic factors | 1. Water is a part of the ecosystem because water is one of the most intestinal parts of the ecosystem.  2. Wind is a part of the ecosystem because it increases the rate of water loss from the organisms.  3. Rocks are a part of the ecosystem because it is home to many creatures that live there.  4. Ruins are a part of the ecosystem because it is home to many creatures that live there.  5. Dead coral reef is a part of the ecosystem because it is home to many creatures that live there. |
| 5 Biotic factors | 1. Fish are a part of the ecosystem because they store a large proportion of ecosystem nutrients  2. Squid are a part of the ecosystem because a lot of predators like sperm whales, seabirds and seals depend on squid for food.  3. Sharks are a part of the ecosystem because they help remove the weak and the sick as well as keeping the balance with competitors.  4. Plants are a part of the ecosystem because plants harvest the energy of the sun, providing both food and habitat for other organisms.  5. Coral is a part of the ecosystem because half a billion people depend on reefs for food and protection. |

| **Symbiotic Relationships in your Ecosystem** | | |
| --- | --- | --- |
|  | Example 1- What are the two organisms? How does this represent this type of symbiosis? | Example 2- What are the two organisms? How does this represent this type of symbiosis? |
| Mutualism | One is the manta ray and remora fish. The remora fish benefits its host for the unusual amenities, protection, transportation, and scraps from the large predator’s meals. The manta ray benefits from the remora by riding and cleaning the manta rays skin of bacteria and parasites. | One example of mutualism is between the clownfish and sea anemone. The clownfish benefits by getting protection from larger fish. The sea anemone benefits from the clownfish by getting nutrients, the clownfish rids the anemone of parasites, and wards away predators. |
| Commensalism | The whale and the barnacle are commensalism because the whale is neither helped nor harmed from the barnacle but the barnacle benefits by attaching itself to the whale by getting a free meal. | One is the jellyfish and fish. The jellyfish does not benefit because the jellyfish don’t prey on the fish. The fish does not benefit because the fish don’t prey on the jellyfish. |
| Parasitism | One is the crab and the barnacle. The crab is harmed by this relationship because the barnacle prevents reproduction which causes the crab to die. The barnacle benefits by living off the crab. | One is the whale and the intestinal worms. The worms benefit by feeding off the nutrients of the intestines of the whale. The whale is harmed by becoming malnourished and sick. |
| Your choice | An example of Mutualism is the boxer crab and anemone. The crab holds the anemone in its hands and uses its stinging tentacles to fend off predators. In turn, the anemone gets the scraps after the crab eats. | Another example of Mutualism is the cleaner shrimp and large fish. The cleaner shrimp gets its food from parasites or dead skin cells inside the large fish. In turn, the large fish benefits from having bad things like parasites removed. |