Read Pearson Online Chapter 6 section 1 before doing the worksheet.
Ms. Briggs email her by 3 pm on 6/5/2020 Mrs. Hardy upload to Schoology by 3 pm 6/5/2020

Name: _____

Relationships
Worksheet
Symbiotic Relationships, Predation and Competition

SYMBIOTIC RELATIONSHIPS: **Organisms living together resulting in at least one of them benefitting from the other.**

How are these organisms interacting with each other?

1. Parasitism: Ex. A tapeworm feeding off an organism

When one organism (the parasite) lives in/on another organism (the host) and benefits at its expense. (☺, ☹)

STOP & JOT: Parasites rarely kill their hosts right. Instead they keep them alive as long as needed. In fact, the best parasites *never* actually kill their hosts, though they may weaken them significantly. Explain why parasites would **not** want to kill their hosts immediately. _____
_____

2. Commensalism: The Remora Fish feeds off the food scraps from the shark

When one organism benefits, and the other isn't helped or harmed (☺, 😐)

The remora has a suction cup on the top of its head to attach to the shark. It eats the excess food that the shark doesn't eat and also gets a free ride (using no energy of its own for movement). Does the remora cause any harm to the shark? _____ Does the shark benefit from the remora in any way? _____

3. Mutualism: The Plover cleans the teeth of the crocodile

When organisms do things that benefit each other (☺, ☺)

How does the plover benefit? _____
How does the crocodile benefit? _____

Other Relationships:

<u>Predation</u> – one kills and eats eats another (herbivores

animal stalks, another or simply when finding it "prey" on plants).

<u>Competition</u> – two or more organisms fight for resources (food, space, shelter, a mate), can be between same species or different species.

<u>Symbiosis PRACTICE</u>

<u>Directions:</u> *Read each of the relationship scenarios below. Identify the two organisms involved in the boxes labeled 'Organism 1' and 'Organism 2', and identify whether they benefit, are harmed, or are neutral in the relationship. Lastly, classify what type of symbiosis each example is in the third column.*

Example:

Organism 1	Organism 2	Symbiotic Relationship?
Cordyceps Fungus (Benefits)	Ant (Harmed)	Parasitism (☺,☹)

1. A type of bacteria lives in the roots of plants. The bacteria helps the plants obtain nutrients. The roots are a moist home,

Organism 1	Organism 2	Symbiotic Relationship?

which helps the bacteria grow and reproduce.

2. The fungus known as "chicken of the woods" grows on trees. The fungus breaks down the tree and gets its nutrients that

Organism 1	Organism 2	Symbiotic Relationship?

way. The tree decays, gets weak, and becomes very vulnerable to extreme weather.

3. Tapeworms are a particular species of worm that resides in the small intestine of mammals (including humans). The tapeworm latches on to the walls of the small intestine, and siphons (steals) nutrients from the mammal's digestive tract. This can cause severe nutrient deficiency, weakness, and extreme weight-loss for the mammal.

Organism 1	Organism 2	Symbiotic Relationship?

4. Cattle Egrets are a type of bird commonly found on farms. As cattle, horses, and other livestock graze (eat grass) on the field, they cause movements that stir up various insects. As the insects are stirred up, the cattle egrets following the livestock catch

and feed upon them.

Organism 1	Organism 2	Symbiotic Relationship?

5. Oxpeckers are a small bird commonly found on rhinoceroses. The oxpecker feeds on the parasites that cover the rhinoceroses' skin. The bird gets a meal and the rhinoceros is relieved of the harmful parasites.

Organism 1	Organism 2	Symbiotic Relationship?

1. Two interactions between organisms are shown in the table below. X and Y do *not* represent the same organisms in the two interactions

	Organism X	Organism Y
Interaction 1	predator	prey
Interaction 2	parasite	host

Which statement best describes the relationship between organism X and organism Y in each interaction?

(1) Organism X is positively affected by the relationship and organism Y is negatively affected
(2) Organism X is negatively affected by the relationship and organism Y is positively affected
(3) Both organisms are positively affected by the relationship
(4) Both organisms are negatively affected by the relationship

2. After the Aswan High Dam was built on the Nile River, the rate of parasitic blood-fluke (a worm-like microorganism) infection doubled in the human population near the dam. As a result of building the dam, the flow of the Nile changed. This changed the habitat, which resulted in an increase in its population of a certain aquatic snail. The snails, which were infected, released larvae of the fluke. These larvae then infected humans.

   The role of the snail in this relationship may be described as a

   (1) Host (3) Producer
   (2) Parasite (4) Decomposer

For the questions that follow, determine the type of relationship (mutualism, parasitism, commensalism, predation or competition) being described, and briefly <u>explain</u> your reasoning.

3. A fox is carrying a dead squirrel as a hawk swoops down to grab it. They both pull on the squirrel but the flapping wings of the hawk against the face of the fox are strong enough to make the fox drop the squirrel.

   _____

   _____

4. Wasp larvae can grow inside a type of caterpillar known as the Tomato Hornworm. The caterpillars are eventually killed when the larvae eat through and rupture its organs and skin as they exit its body.

   _____

   _____

5. Barnacles are small sea creatures which filter plankton and other microscopic organisms from the water for food. Barnacles often attach themselves using a type of natural glue to larger animals such as whales and sea turtles, which inadvertently carry the barnacles to new sources of food when they move. Their "glue" is harmless.

   _____

   _____

6. Two mule deer lock antlers as they demonstrate strength and worthiness to a female mule deer. The winner of this battle will mate with the female.

   _____

   _____

7. Polar bears wander the ice looking for signs of seals. Once they find a seal they will attack and eat it.

   _____

   _____

8. A bee feeds off the nectar of a sunflower. While feeding, pollen from the sunflower clings to the legs and body of the bee. When the bee lands on a different sunflower, the pollen is left behind and new pollen picked up.

   _____

   _____

<u>Toxoplasmosis: A Cause for Concern?</u>

Toxoplasmosis is a disease caused by the microscopic parasite *Toxoplasma gondii*. The parasite usually infects mice, affecting their nervous system and causing them to take unusual risks (such as running out in the open, and coming unusually close to animals which may eat them). Scientists believe this is actually a way for the parasite to reach its primary host – cats. When a cat catches and eats an infected mouse, the *Toxopasma gondii* enters its digestive system and steals nutrients from the cat. Humans can become infected by *Toxoplasma gondii* through contact with cat feces. Scientists now believe that *Toxoplasmosis* in humans can cause substantial changes in mood and behavior, and may even be linked to certain types of depression. It is estimated that 30-65% of people worldwide may be infected with *Toxoplasma gondii*.

9. Based on the story above, discuss how the organisms interact with each other. In your response, be sure to: ○ Identify at least TWO different symbiotic relationships involved in *Toxoplasma gondii* transmission and explain each

1. _____
_____
_____

2. _____
_____
_____

○ Identify a predatory relationship

_____
_____
_____

Define the following Ch 6 section 1 Vocabulary Words. Use your Pearson Online for definitions for full credit.

Vocabulary Words	Definitions
1. Habitat	

2. Tolerance	
3. Niche	
4. Resource	
5. Competitive Exclusion	
6. Principle	
7. Keystones Species	
8. Symbiosis	
9. Commensalism	
10. Mutualism	
11. Parasitism	