

Teacher Guide: What Are They Thinking?

Concepts:

- Living organisms form interdependent relationships in an ecosystem. Carnivores, herbivores and omnivores can interact as predators, prey and scavengers. They ultimately depend on the producers (plants) to create food using the energy from sunlight.

Learning objectives:

- Students will infer the predator/prey relationships between species depicted in a diorama (the “Puma Case”).
- The relationships between organism can be depicted graphically as food webs, which show the direction of energy flow in an ecosystem, from producers to consumers. Consumers can be further classified as herbivores, carnivores, and omnivores depending on their diets.

TEKS: Grade 1-5

Grade 1: §112.12 (b) 9C, 10A

Grade 2: §112.13 (b) 9A, 9C, 10A

Grade 3: §112.14 (b) 9A (STAAR Supporting Standard), 9B, 10A

Grade 4: §112.15 (b) 9A,B, 10A

Grade 5: §112.16 (b) 9A (STAAR Readiness Standard), 9B (STAAR Readiness Standard), 9C (STAAR Supporting Standard), 10A (STAAR Readiness Standard)

Location: Hall of Texas Wildlife (3rd Floor), Puma Case

Time: 10 minutes

Supplies:

- Worksheet
- Pencil
- Clipboard

Vocabulary: *producer, consumer, carnivore, herbivore, omnivore, scavenger*

Pre-Visit:

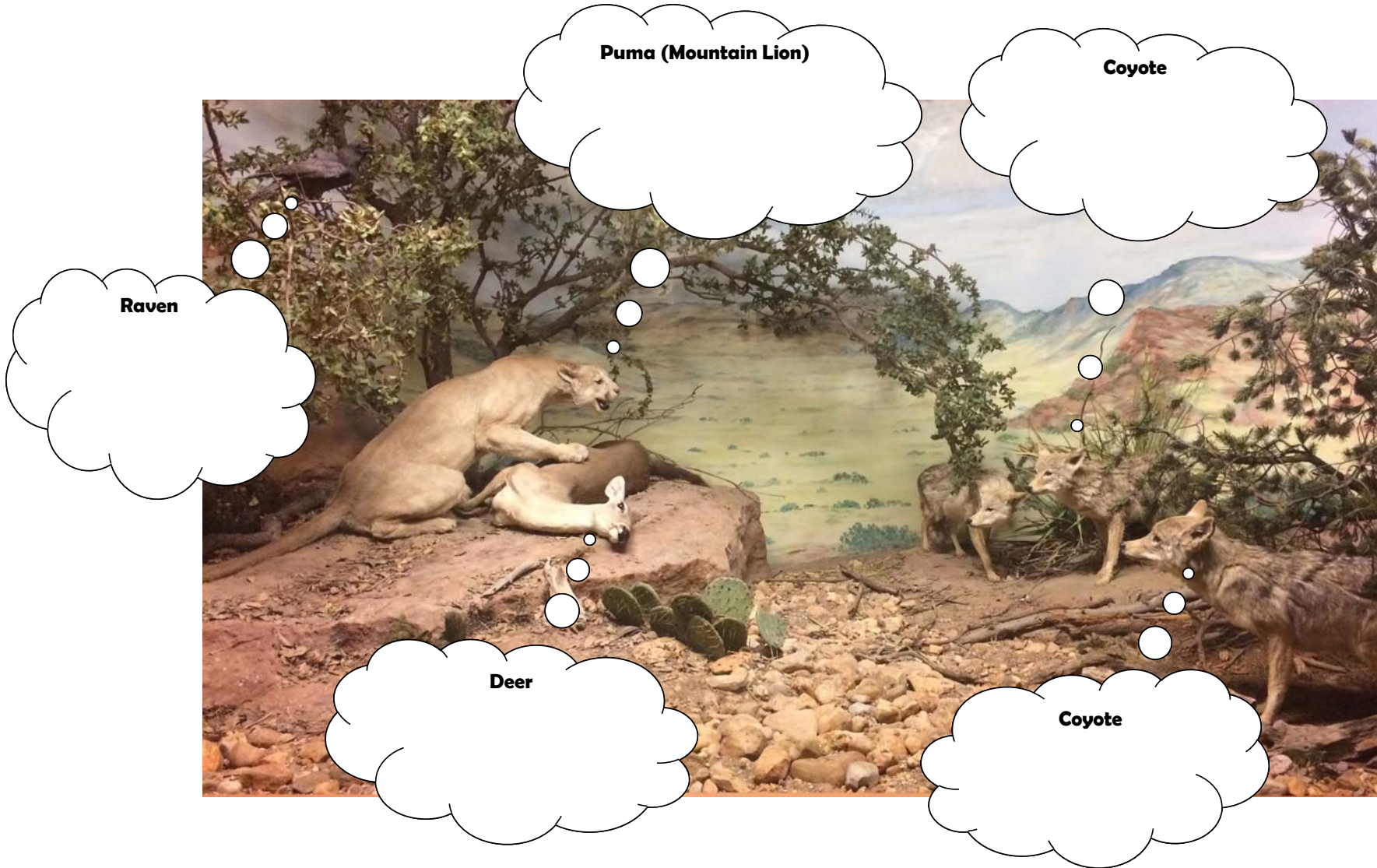
- Have students practice identifying carnivores and herbivores and adaptations that make them well-suited to their ways of life.

Post-Visit :

- Ask students to share some of their responses from the worksheet with the rest of their class. (Note that some responses may be silly; try to bring the conversation back to the idea of interdependence between species.) Ask students what role they think plants might play in this ecosystem—they should realize that deer eat plants and without plants, there would be no deer and no prey for the puma.
- Have students complete the Create a Food Web worksheet in small groups. This provides an opportunity to emphasize the often unrecognized importance of producers (mostly plants): they form the foundation for all food chains/webs on Earth. For older students, you may want to introduce the concepts of primary, secondary, and tertiary consumers by having students label consumers 1, 2, and/or 3.

What Are They Thinking?

Find the diorama pictured below in the Hall of Texas Wildlife (3rd Floor). As you look at the animals in the case, try to imagine what they might be thinking. What does each animal want? How is it interacting with the other animals around it? Fill in each of the thought bubbles below using what you know about each animal.



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Example Responses



Puma (Mountain Lion)

I just want to enjoy my meal in peace, but those coyotes keep bothering me! I have to keep an eye on them at all times...

Coyote

If we wait around, maybe we can steal a bite when the puma isn't looking.

Raven

No one has noticed me. If I wait up here, maybe I'll be able to scavenge my meal after all the others leave.

Deer

I should never have strayed from my herd!

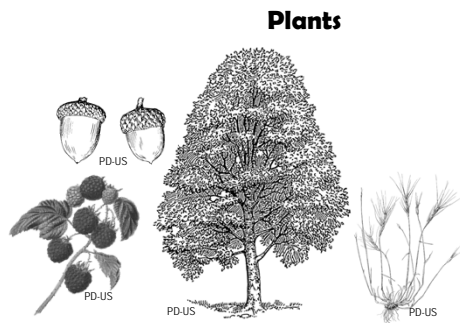
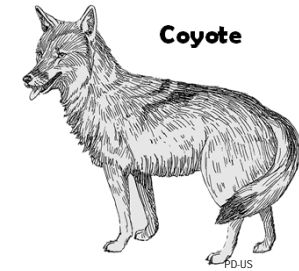
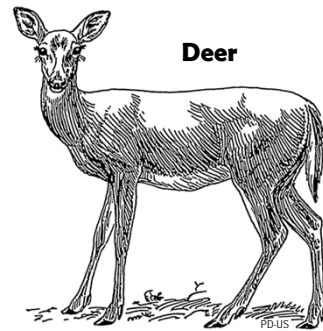
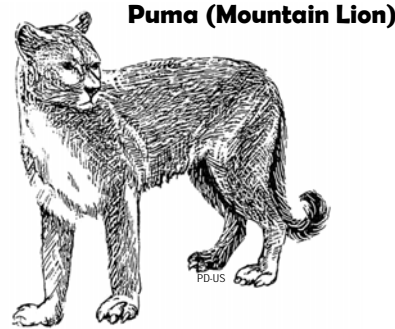
Coyote

That deer looks tasty, but I'm afraid to get any closer, or I might be the puma's next meal!

Create a Food Web

Below are drawings of the organisms from the Puma Case. Follow the instructions to create a food web:

1. Label each organism as either **P** for producer or **C** for consumer. Producers are organisms that make their own food using the energy from sunlight.
2. Label each consumer with **H** for herbivore, **O** for omnivore, or **R** for carnivore. Hint: ravens are scavengers who often eat whatever food is available, whereas coyotes are mostly hunters, but they sometimes eat grasses, fruits, and berries.
3. Draw arrows showing the flow of energy through the ecosystem. For example, draw an arrow from a prey animal pointing to the predator that eats it. Use as many arrows as you need; there can be multiple arrows going to or coming from an organism.



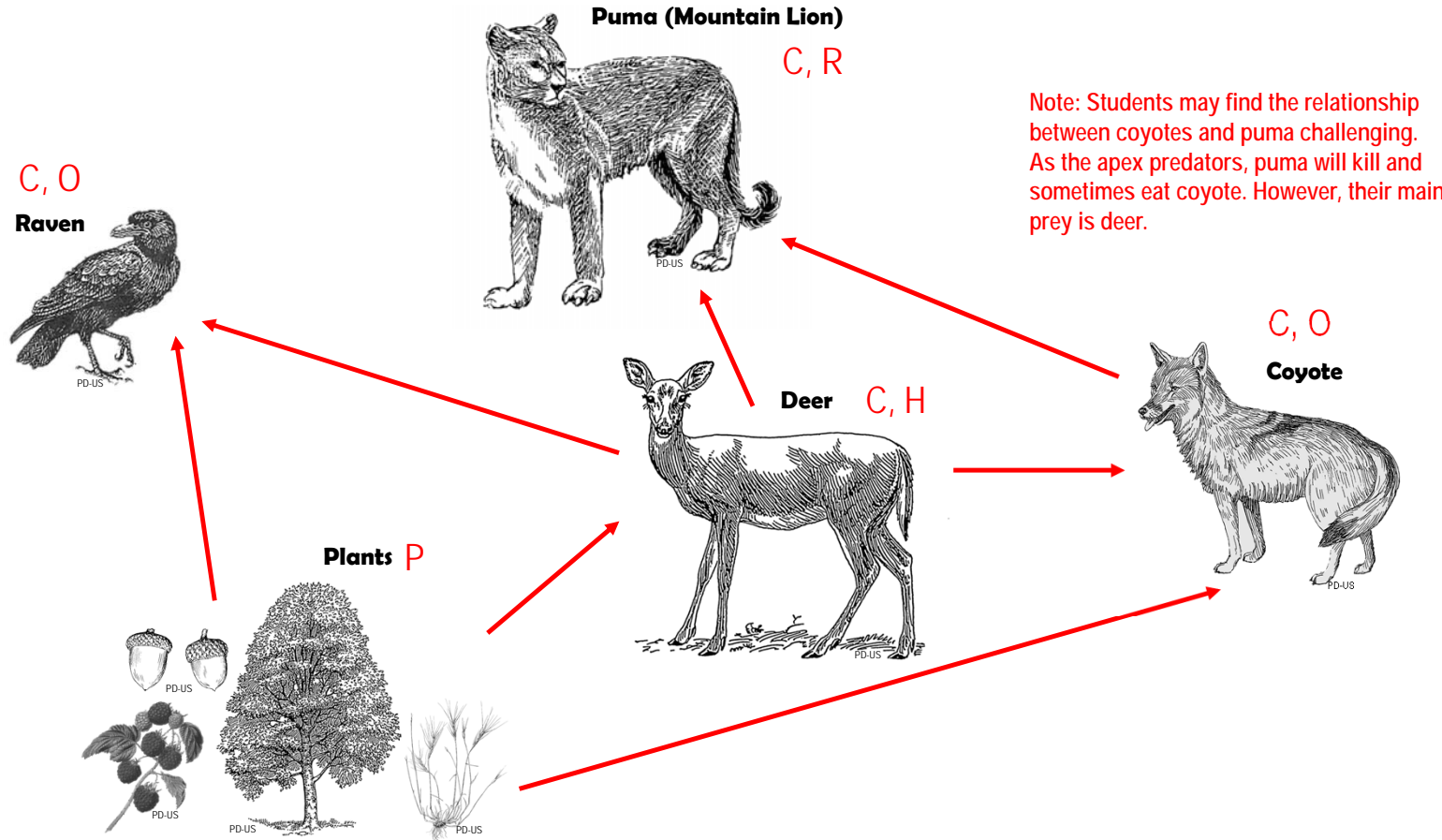
4. What would happen to this food web if deer were over-hunted, meaning their numbers fell?

5. What would happen if all the puma were killed by humans?

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4. What would happen to this food chain if deer were over-hunted, meaning their numbers fell?

The puma would also decrease in numbers because they would not have enough prey to eat. Coyotes would not suffer as much, because they do not depend on deer as their main food. Plants (especially grasses) would be more abundant because there would be fewer deer to eat them.

5. What would happen if all the puma were killed by humans?

The deer would no longer have their main predators, so their numbers would increase. The coyotes' numbers would also increase because of less competition for prey. Plants (especially shrubs and oaks) would decrease as more deer would be grazing on them.