

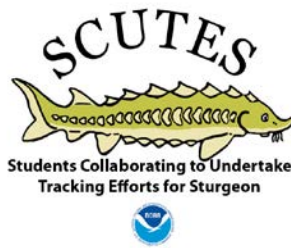
Topic/Lesson:	Food Chain Skit
Objectives:	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Demonstrate their knowledge of food chain relationships. • Create a skit or short play representing how an ecosystem is affected by changes to populations of one species. • Work cooperatively in groups to complete the assignment. • Demonstrate their knowledge of Atlantic sturgeon including what they eat.
Materials:	<ul style="list-style-type: none"> • Composition paper • Pencils, erasers • Crayons, markers, colored pencils • Construction paper • String • “Organism Info” & “Food Web” cards • Plain white computer paper • Instruction page and information page • Scissors • Tape • Rubric
Vocabulary:	<ul style="list-style-type: none"> • Atlantic sturgeon • dialogue • Skit/Play/Drama • Food Web • Ecosystem • Food chain • Scenario • Community
Procedures:	<ol style="list-style-type: none"> 1) Begin class with a discussion to activate prior background knowledge of the food chain. 2) Next read the information pages out loud together, discussing food chains, food webs, and how population changes affect the entire ecosystem or community. 3) Before class, cut out the “Organism Info” and “Food Web” cards. Print and cut at least two copies of the “Food Web” cards. (Note: There are cards that are already cut and laminated in the “Miscellaneous Cards” bag in the SCUTES kit.) Multiples of these

cards can be used at one time. Scatter the “Organism Info” cards on one or multiple tables.

- 4) Depending on the number of students and “Food Web” cards, allow them to work individually, pair them up, or put them into groups. Give each group one of the “Food Web” cards that contains a certain organism. Inform the students that they are the organism on the card and they have to figure out: 1) what they eat, and 2) who eats them. Do not tell the students the name of their organism.
- 5) Allow the students to go around the tables looking at the “Organism Info” cards. The cards have a large picture of an organism with smaller pictures. The smaller pictures of organisms represent what the organism in the larger picture eats, but do not tell the students this just yet. Tell them these cards are clues as to what they eat and what eats them and they have to figure that out.
- 6) To demonstrate the food web activity, randomly tape three of the “Food Web” cards that have a direct relationship on a white or blackboard. For example you could tape the sun, phytoplankton and zooplankton cards in any scattered pattern that you wish. Ask the students if they know what each organism is. Then ask them who eats what. As they tell you, draw an arrow going from the prey to the predator. So for our example, you would have an arrow from the sun to the phytoplankton, and another arrow going from the phytoplankton to the zooplankton.
- 7) Allow the students one at a time, to go up to the board, tape their organism anywhere on the board and draw one arrow to what it eats, and another to what eats them. To remind them how to draw the arrow, tell them the arrow points into the predator’s mouth. With the random distribution of cards and with multiple cards, this should create an intertwined food web. Remind the students that all of their predators or prey may not be up on the board yet, and that they should draw arrows to/from the applicable organisms that are present at their turn.
- 8) After the last student takes their turn, ask the students if there are any missing connections. The teacher can take suggestions from the students and draw it on the board, or choose a few students to come back up and finish the web. Discuss and review students’ food web and any questions or concerns they may have.
- 9) Distribute the assignment direction page and read it out loud together.
- 10) Place students into groups. Pass out and discuss rubrics.
- 11) Groups begin working on their assignment.

	<p>12) Teacher walks around assisting groups as needed and evaluating them.</p> <p>13) When groups are finished begin skit presentations.</p> <p>14) Groups present their skits. Teacher evaluates using the rubric.</p> <p>15) For homework, students write an essay explaining how important maintaining each species' population is to every ecosystem.</p>
<p>Accommodations/ Modifications:</p>	<ul style="list-style-type: none"> • Peer partnering • Scaffolding • Written multiple step instructions • Preferential seating • Repetition, oral cueing





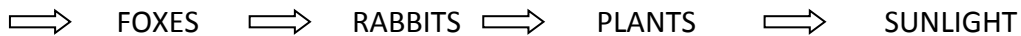
Information Page

Food Chains and Food Webs

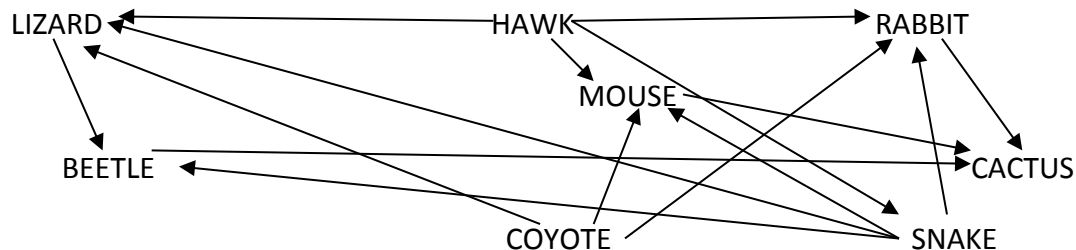
Food chains and food webs examine how the nutrients and energy contained in food is passed from organism to organism. Each living thing, whether it is a plant or animal, depends on nutrients and energy to survive and reproduce.

Plants and Animals

Most food chains and webs contain both plants and animals. Scientists generally use food chains to study what large species eat. Let's look at an example: The fox eats small rodents such as rabbits. The rabbit eats plants. The plants get their food by changing sunlight into food that is stored in their leaves. Here is their food chain:



When scientists create food webs, they are usually looking at all of the living things in an area, or community, and studying how the different species interact to meet their food needs. In a desert community, a simple food web might look like this:



You might notice that some species consume more than one food source. The snake has four prey items (e.g., sources of food) and is the prey for only one, the hawk. The snake does not depend only on the rabbit because it has three other food sources. The snake's only predator, the hawk, does not depend on the snake, because it too has more than one food source. The rabbit in this food web, however only has one food source, the cactus, so the rabbit depends on the cactus.

Population Changes

All the individuals of one species that live in an area make up a population. The number of people who live in your community is the population of that community. The number of ducks that live in an area wetland is the population for that wetland.

Populations vary for many reasons but a major factor as to how large the population may become in an area is available prey or food. If there is not a sufficient supply of food, a species may move on to another area in search of food. If not enough food is found, then the species' population may decline.

When You Have Too Many

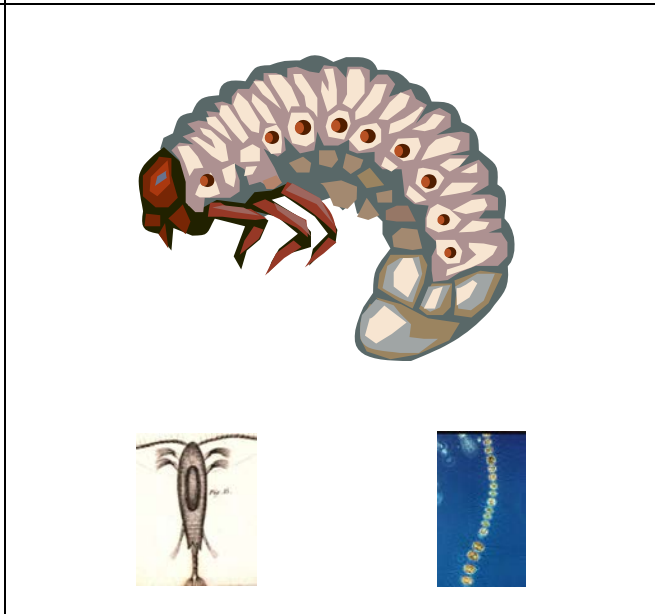
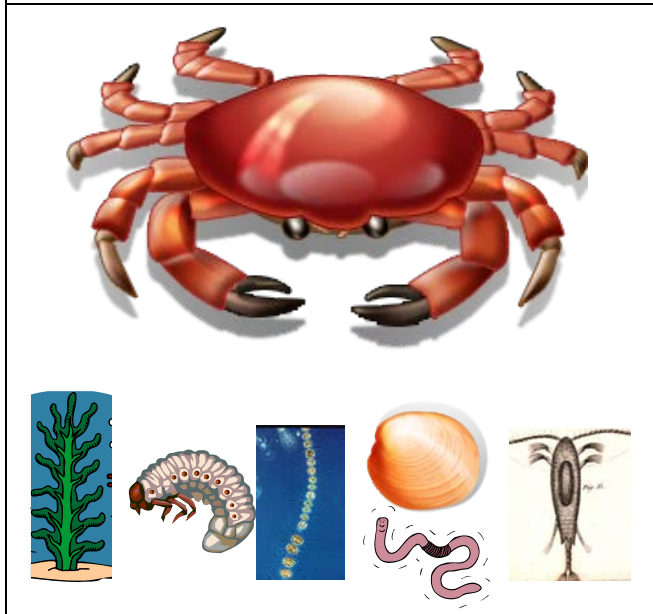
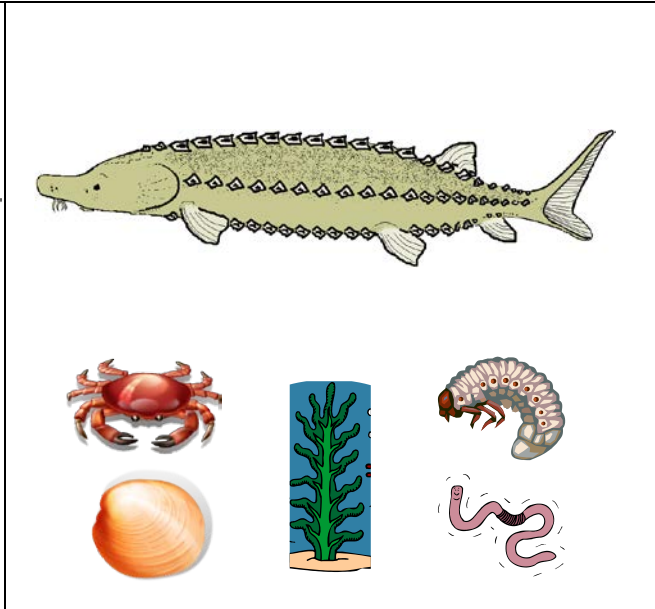
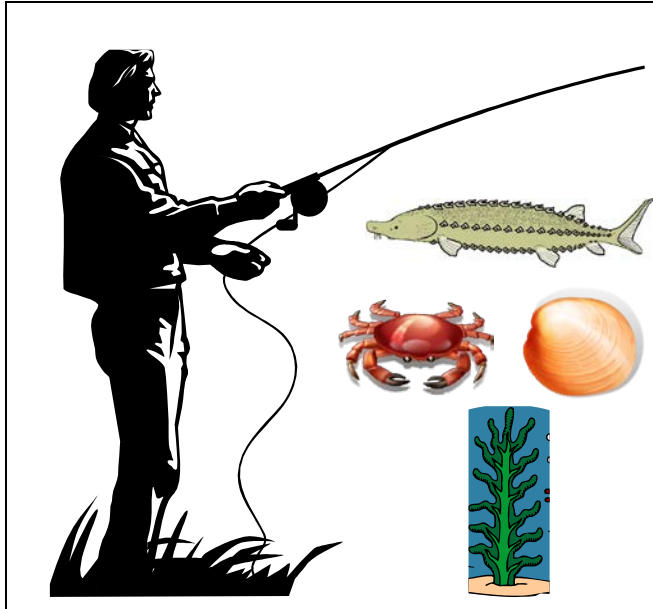
Within an ecosystem or community, if all the individual populations are in balance with each other, then each species has enough food to live and reproduce. If the system gets out of balance, by one species population getting too large or too small, then the entire food web can be affected and possibly destroyed.

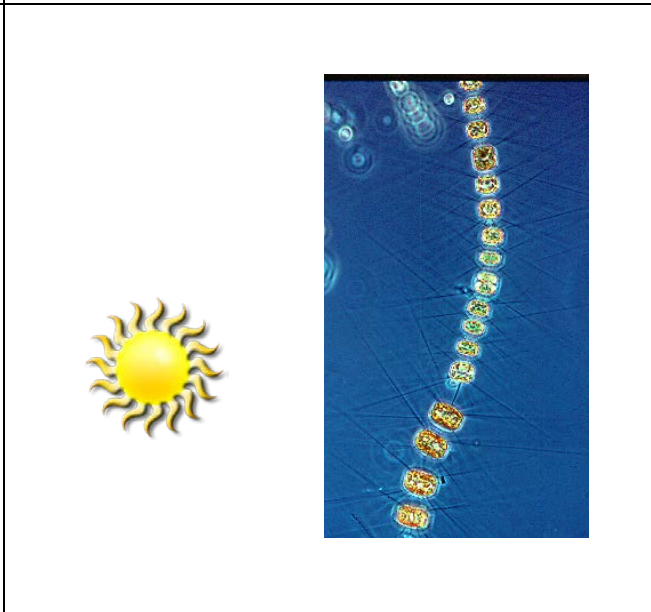
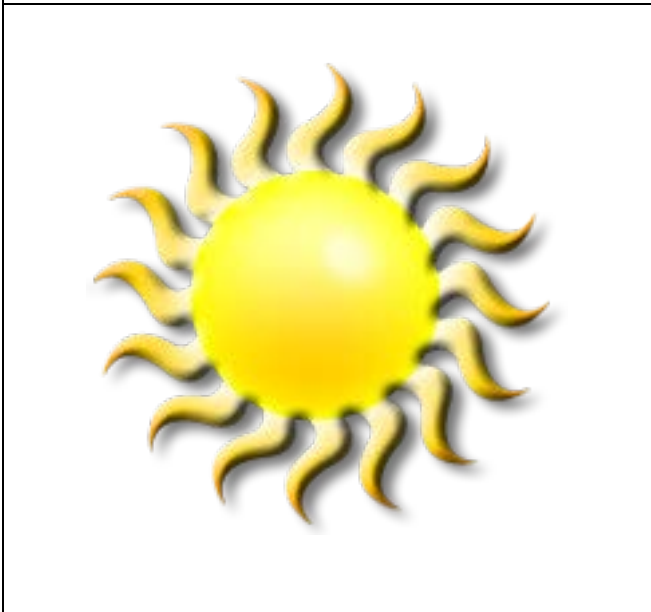
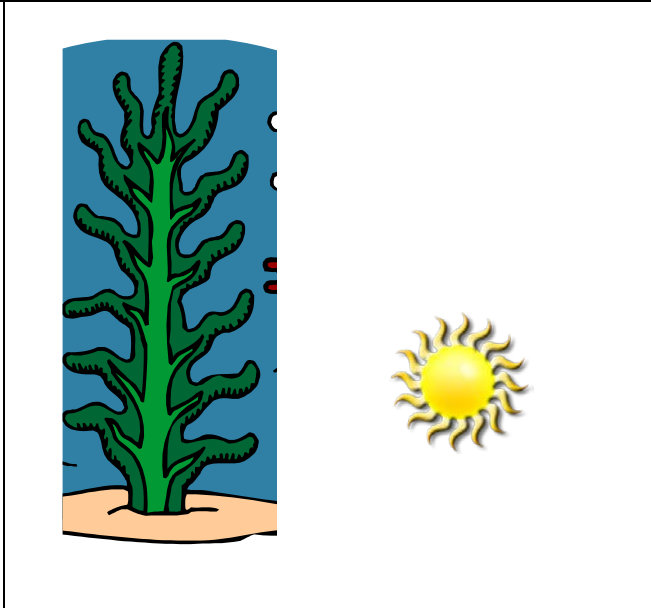
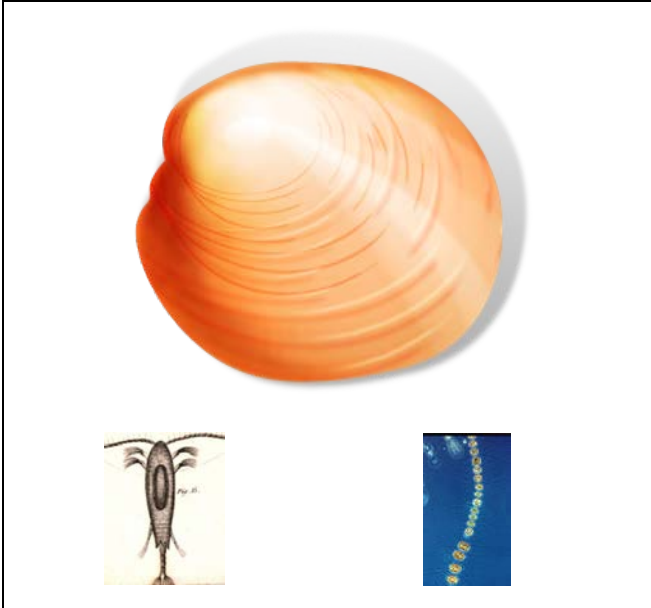
Let's look at the desert food web. What do you think would happen if the beetle population were suddenly killed off? Which species depend on the beetle? There are two species that eat beetles in this food web: the lizard and the coyote. Any change in one species can directly affect those populations that depend on that species. Without beetles to eat, the coyote will have to depend on the other available prey to live. However, in this food web, the lizard only eats beetles. If all of the beetles were gone, the lizard would have to move to a different location to find more beetles, find another insect to eat, or that lizard population could die out.

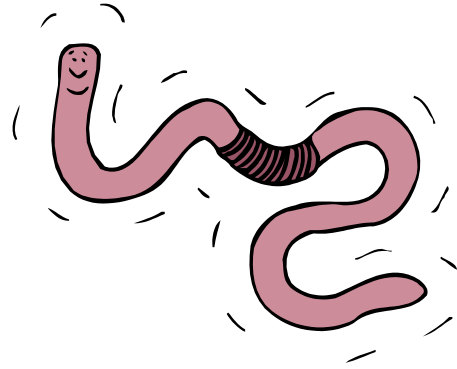
The opposite can happen when there is a sudden increase in the abundance of one species in the web. If the beetle population suddenly doubled, the lizards would have so much food that their population might thrive and do well. They would be able to reproduce and more young might reach adulthood. Their population would therefore increase as well. If the lizard population increases, then the food supply for every species that eats lizards also increases, which can result in larger populations of the predators of lizards as well.

However, with these increased populations, there is more demand for food. With the increased beetle population, the cactus that they depend on for food will be consumed faster, may not be able to keep up and will potentially die out. With the removal of the beetle's food source, the beetle population may decline, as will those species that depend on beetles for food. However, the loss of the cactus due to increased beetles, also affects the rabbit population, who also depends on the cactus. The rabbit population may then also decline or die out because of lack of food. You can see from these examples that, in order for everyone to eat, live, and reproduce, a balance of populations needs to be maintained. Increases and decreases can affect each species in the community.

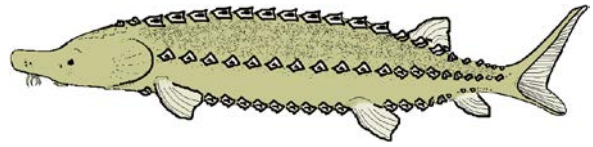
Organism Info cards

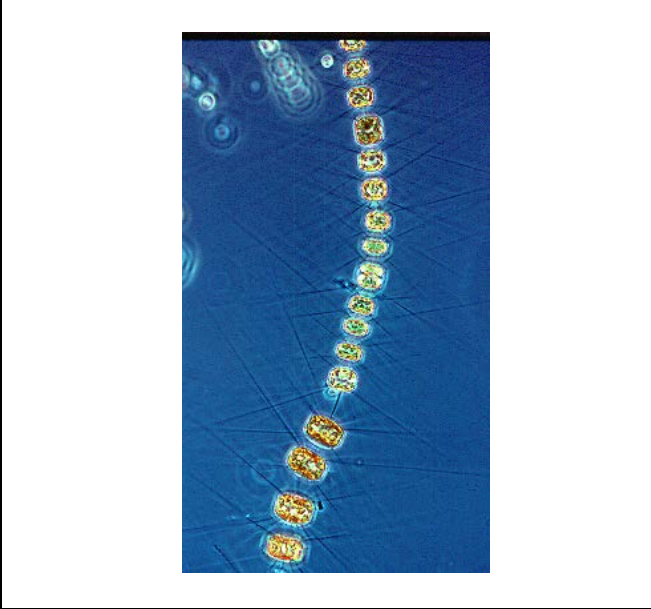
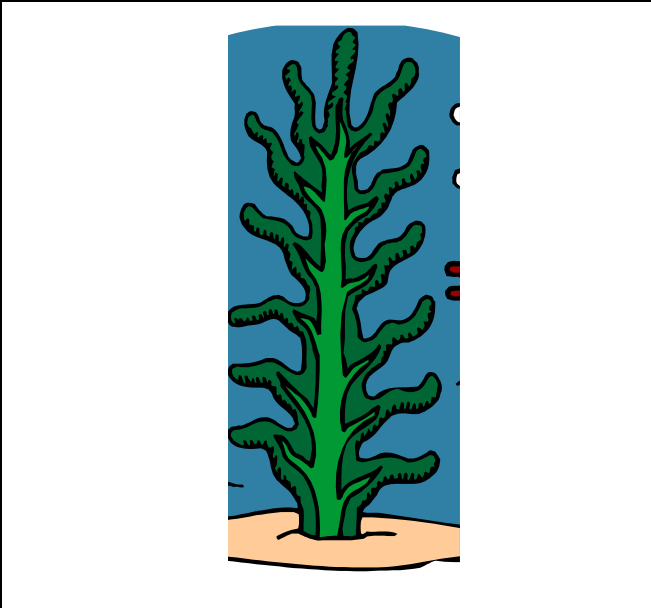


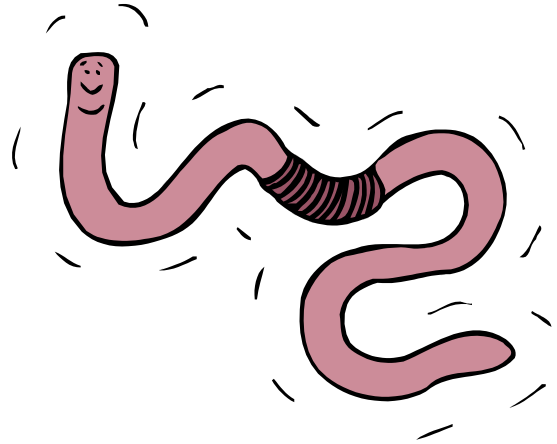
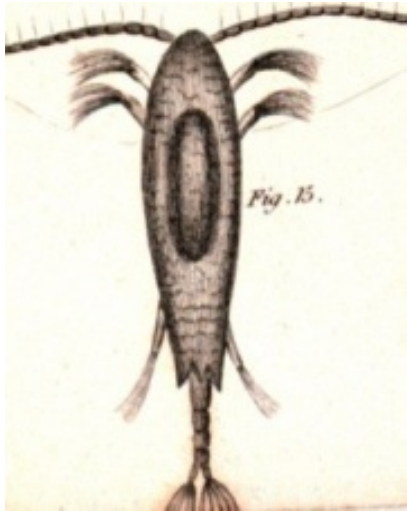


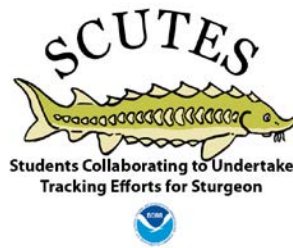


Food Web cards









Your Assignment

You will be put into groups of four or five. Each member must choose one of the Atlantic sturgeon food web species to represent during your activity and presentation. For example, Member 1 might choose to be a crab; Member 2 could be an Atlantic sturgeon; Member 3 could choose to represent a worm; and Member 4 might choose a clam.

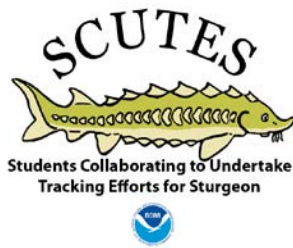
Each group must create a hypothetical play or scene using your species and the ecosystem of the Atlantic Ocean. Your group will choose one scenario: 1. there are “too many” of a particular species, or 2. There are “too few” of a particular species. They will then see how that change would affect the other animals or species within the ecosystem.

For example, in the desert ecosystem if there were too few coyotes, many of the other species in that environment would be severely affected. Many populations of species, such as the mouse, would grow rapidly without a predator to keep the populations at normal levels. If the mouse population grows too rapidly, there will be more mice eating cactus. The cactus population will then be affected because it will be being eaten faster than normal, hindering its ability to reproduce and grow at normal rates.

Your group must create a short “play” demonstrating the affects and relationships within their ecosystem. At the end of the play, your group should explain the consequences that the change of population in one species could have on the entire ecosystem. Within your “scene” each species must demonstrate how they are affected by the population change. For example if your group decides to use the scenario that there are too many Atlantic sturgeon, your skit must include how all of the species are affected by this. What might happen to the crab population if there are too many Atlantic sturgeon and they are eating more than usual?

Each group will present their skit in front of the class. Your first step is to assign each member a specific species from above. Next create your short play or skit, including dialogue. Practice reading through the lines and how you will present it to the class. Finally, your group should create a mask or some sort of hanging sign to wear to demonstrate what animal you are representing.

You will be graded using the attached rubric. Refer back to it while completing the assignment to make sure you get full credit.



Food Chain Skit Rubric

Task	Criteria	Possible Points
Group Participation	All members of the group participate in the creation of the skit. All members work together cooperatively.	25 points
Followed Instructions	The group followed the instructions accurately. The steps were followed and all aspects of the assignment are completed.	25 points
Accurate Ecosystem Information	The information given through the presentation and skit is accurate and true. The examples and scenarios given are appropriate.	30 points
Skit Presentation	All members participate in the skit. The rate of speech and volume is appropriate. The dialogue is accurate and includes how each species is affected by the situation the group chose to represent.	20 points