Food Chains

Investigation Data Sheet

ANIMAL LIFE IN ACTION™

Growing An Aquatic Food Chain

Every living thing uses energy that flows from the sun. When a mouse eats grass, it gets energy. If a snake eats the mouse, then the snake gets energy. Eventually, the snake dies and its body becomes a source of energy for insects, fungi and microscopic creatures. This energy transfer from organism to organism is called a food chain. Everything in nature has a place and serves a purpose in passing energy to other species through a food chain. You can even find this in a drop of water! It can be full of microscopic plants, herbivores, carnivores and decomposers — most of them too small to see without the help of a microscope.

Objective

Observe the development of a microscopic food chain.

Materials

__ a handful of grass
__ some distilled water
__ a saucepan
__ 6 microscope slides and covers
__ an adult helper
__ a medicine dropper
__ a microscope
__ an electric burner

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure

1. Pour the water into the saucepan and have an adult turn the burner on. Place the grass into the water and allow the mixture to boil for several minutes. This boiling will destroy any organisms present, creating a nutritious "grass soup" to help get the food chain started.
2. After the mixture has cooled, use the dropper to remove a small amount of the mixture and place it on a microscope slide. Put a slide cover on the slide and then place it under the microscope for observation. Observe and draw what you see in the space below. Repeat this step every two days for twelve days. Make a new slide from your "grass soup" and draw what you see.

Conclusions

- After about two days, you probably saw tiny dots floating around in tiny currents. These are bacteria. Bacteria are always present in the air and probably settled on the water and fed on the "grass soup." So, this food chain starts with decomposers. When do you begin to see evidence of producers and consumers? How can you tell?

- Use your sketches and observations to determine if there is evidence of herbivores, carnivores, or both. Is it even possible for these types of consumers to live in a small drop of water? How can you tell?

- Is this ecosystem balanced? Explain.

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