

The Good, The Bad, and The Both

Summary

Students will use information from articles about microorganisms and their prior knowledge to identify both the positive and negative aspects of microorganisms.

Group Size

Small Groups

Materials

Articles on microorganisms (specifically positive and negative effects)

Books on microorganisms (specifically positive and negative effects)

Additional Resources

Books/Magazine

- *Kids Discover Microbes Magazine*

; ISBN 1054-2868

- *Germs*

, by Don Nardo; ISBN 0-7377-0943-X

- *Decomposers in the Food Chain*

, by Alice B. McGinty; ISBN 0-8239-5757-8

- *The Benefits of Bacteria*

, by Robert Snedden; ISBN 1-57572-242-9

- *Fungi*

, by Elaine Pascoe; ISBN 0-8239-6313-6

- *Microorganisms: The Unseen World*

, by Edward R. Ricciuti; ISBN 1-56711-040-1

- *My Health--What Are Germs?*

, by Dr. Alvin Silverstein, Virginia Silverstein, and Laura Silverstein Nunn; ISBN 0-531-16640-6

Background for Teachers

Microorganisms are tiny creatures that can be harmful or helpful. They are responsible for human diseases such as food poisoning, typhoid fever, cholera, and pneumonia. However, microorganisms are helpful in breaking down dead animals and plants and making their chemicals available to other organisms. Animals depend on microorganisms for digestion. Microorganisms are also responsible for turning milk into yogurt, cheese, and butter.

Intended Learning Outcomes

1. Use Science Process and Thinking Skills

4. Communicate Effectively Using Science Language and Reasoning

Instructional Procedures

Invitation to Learn

Ask students if they know any helpful aspects of microorganisms; list them on one side of a T-chart on the overhead. Ask students if they know harmful aspects of microorganisms; add on the other side of the T-chart.

Instructional Procedures

Day One

Put students into groups for a jigsaw activity. The number of students in each group depends on the number of articles you have. (If you have five articles, you should have five students in each group.)

Explain to the students that this is their home group and they will return to the same group later on in the activity.

Pass out the articles on the positive and negative effects of microorganisms. Make sure that each person in the home group has a different article than the other members of that group.

Put students into new groups based on what article they have-- they will be working with students who have the same article.

Each group reads and discusses the article to become "experts" on that particular article.

Have students return to their home group. Each student will teach their home group about the important aspects of the article they read.

Have students create their own T-chart listing the positive and negative effects of microorganisms.

Have a class discussion on the effects of microorganisms; add new information to the class T-chart.

Day Two

Create learning centers with books about microorganisms.

Put students into groups and have them rotate through the different centers.

Tell students to look for positive and negative effects of microorganisms that can be added to their T-chart.

Have students write a paragraph on the positive effects of microorganisms and one on the negative effects of microorganisms using individual T-charts. Make sure the students use key words as they expand the paragraphs into a compare/contrast paper.

Extensions

Have a class debate on the positive and negative effects of microorganisms.

Have students write a persuasive paper on whether they believe microorganisms are more harmful or more helpful.

Family Connections

Look at food in a refrigerator or pantry to find food that used microorganisms in the food processing.

Look for food in a refrigerator or pantry that uses preservatives to help prevent the growth of microorganisms.

Assessment Plan

Assessment includes individual T-charts and paragraphs on positive and negative effects of microorganisms.

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