
SYNOPSIS:

Despite the great technological advances in modern medicine, some of the most important tools in the treatment of disease, cancer, AIDS, and other illnesses, scientists are searching the globe for new natural medicines. They're applying today's advanced scientific techniques to the study of natural substances from the South American rain forests, marine life under the sea, and even the very soil under our feet. The search has led them to exciting new discoveries, one of which may prove to be a miracle drug more effective and powerful than penicillin.

This program takes a look at the complex process of new drug discovery and reveals some of the most important medical discoveries from nature. These healing medicines from nature's bounty may prove to be the hope for our future.

CURRICULUM UNITS:

Biology	General Science
Botany	Life Science
Chemistry	Marine Science
Ecology	Medical Science
Forestry	Pharmacology

CAREER OPPORTUNITIES:

Biologist	Naturalist
Botanist	Pharmacist
Chemist	Pharmacologist
Ecologist	Taxonomist
Lab technician	Zoologist

BACKGROUND INFORMATION**& PROGRAM OVERVIEW:**

The plants and animals around us are vital to our existence. Not only do plants provide oxygen and food, they are also important sources for medications. The use of natural elements is ancient, dating back, perhaps, to prehistoric time, yet it is being pursued with renewed interest as our need for medicines increases.

This program reveals the various types of natural substances which are forming a frontline defense against such diseases as cancer, glaucoma, arthritis, and heart disease. Students follow scientists as they travel from the rain forests of South America into the oceans of the world. They'll observe the extensive testing process that natural substances undergo in the laboratory as potential sources of new drugs, and discover how computers are helping speed up this process.

ISSUES AND CRITICAL THINKING:

- 1) After showing the video, ask your class the following:
 - a) What are some ways we benefit from plants?
 - b) What is one very common medicine made from the bark of a willow tree?
 - c) What is anesthetic?
 - d) Why must natural substances undergo extensive testing before they can be approved for use as medicines?
 - e) What is one of the natural substance scientists are studying for its healing potential?
- 2) Invite a pharmacist to your class to discuss medications. Have your students prepare questions for him/her such as:
 - a) Are there some medications that are "all natural"?
 - b) What are the natural ingredients or origins of

some medicines your students may have taken?

- c) Why are some drugs prescription and others non-prescription?
- d) How does a person become a pharmacist?

3) For centuries, people relied on "folk" remedies or the medicine men or women among them to keep them healthy or help them through illnesses. Even today, they are respected and sometimes the only aid for many people, especially of isolated cultures. Have students research to try to find what modern medicine has learned from them.

4) Discuss with the class why substances have to be tested carefully before they can be used as medicine.

5) Obtain an aloe plant (Aloe Vera), a species which has been used medicinally since ancient times and is commonly kept in households for the skin-soothing properties of the gel in its succulent leaves. Cut off a 1/2" tip of its leaves and squeeze out some gel. It is used in many commercially prepared first aid and personal care products. Have the students check for it in the ingredients list of those they have at home.

6) Grow various plants in a terrarium so students can develop an understanding of the delicate balance and care plants need to thrive.

7) Discuss the difference between prevention and treatment in medicine. What do students think is meant by the adage, "An apple a day keeps the doctor away"?

8) Discuss why it's important to protect natural ecosystems around the globe, especially rain forests. Discuss how deforestation has resulted in the loss of some vital plant or animal species.

GLOSSARY:

Anesthetic- A drug used to create loss of feeling or numbness in the body.

Antibiotic- A substance, such as penicillin, that can stop the growth and spread of microbes that cause infection or disease.

Bacteria- Microscopic organisms that can live just about anywhere, and can be harmful or helpful.

Fungus- A spore-bearing organism such as a mushroom, mold, or yeast, that is neither plant nor animal, lacks chlorophyll, and cannot synthesize its own food.

Magainin- A substance, discovered in frogs, which seems to be a natural antibiotic and shows great promise for the treatment of infections, cancer, and other diseases.

Penicillin- An antibiotic that comes from the mold called penicillium, used to treat many infections and diseases.

Tunicate- Any of various marine animals, such as the sea squirt, which have cylindrical bodies in tough outer covers.

Sea squirt- A tunicate which is being studied for its medicinal potential.

Submersible- Something which is capable of going underwater.

Wonders of Biology – Animals,
Insects, Plants & Fungi



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MEDICINE: NATURE'S PHARMACY



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