

Dr. Ward

Integrated Science Packet

Day 1-5

These Integrated Science assignments are geared toward discovery and the scientific method. Please do the best that you can and feel free to use any resources at your disposal. These activities may reference a textbook, but the book is not needed.

These activities are meant to keep your mind engaged while you are away, but do try to have fun with them.

Earth Science

Activity One

The Nature of Scientific Investigations

What chemicals are in the tap water you drink? What is the nutritional value of the average school lunch? What minerals make up the soil on the soccer field? You can answer these questions, and many others, by using the steps of scientific problem solving.

MATERIALS

paper
pencils
resource materials such as encyclopedias, books, and the Internet

INVESTIGATION

1. Question

- Write a science-related question that pertains to your daily life or that interests you. Brainstorm from these topics: astronomy; meteorology; geology; oceanography.

- Do research. Scientists begin by consulting with their peers. Ask two classmates what they think, and summarize their opinions in your notebook. Go to the library or to the Glencoe Science Web Site at science.glencoe.com. Look up articles in encyclopedias, periodicals, and books that relate to your question. Summarize the information you find. Ask the reference librarian to help you locate other sources of scientific information such as videos and software programs. Again, keep a written record summarizing what you discover.
- Design a test to determine an answer to your question. What materials will you need? Write the steps of your test.

INVESTIGATION, continued

- Guess and predict. What do you think the answer to your question will be? Write your guess, or hypothesis, and make a prediction.

2. Test

- Determine how variables will be controlled and measured. Do you need a scale? Do you need a meterstick? Plan ahead for each step of your test. Write exactly what you will do, what will be needed, and how much time each step should take.
- Conduct the experiment or test. Write your observations and measurements.
- Record the results.

3. Analyze

- Organize your results using a table, a chart, or another type of graphic organizer.
- Look for patterns in the data. Describe any trends you observe.
- Compare the data with your hypothesis and prediction. Explain any similarities and differences.

4. Conclude

- Examine the data and form a conclusion. Is your question answered?

GOING FURTHER

Practice thinking like a scientist. As you go about your day, ask yourself how and why the world works the way it does. For example, how does a cable connected to your television enable you to watch hundreds of channels? Why do lights turn on when you flip a switch? How do words in an E-mail transmit through phone lines? Apply the scientific method to the questions your mind imagines. In how many cases does the scientific method yield an answer? In how many cases must you reformulate the question?