

Chapter 1 Review

Thinking Like a Scientist

Using one or more of your senses to gather information is called observing.

Observations that deal with a number or amount are called quantitative observations.

Observations that deal with descriptions that cannot be expressed in numbers are called qualitative observations.

Explaining or interpreting the things you observe based on reasoning from what you already know is called inferring.

Making a forecast of what will happen in the future based on past experience or evidence is called predicting.

When scientists put things into categories or group together items that are alike in some way, they are classifying.

When scientists create a representation of a complex process, they are making models.

Noticing that sugar tastes sweet is a qualitative observation.

Counting the number of cookies on a plate is a quantitative observation.

Counting ten bikes on a bike rack is an example of a quantitative observation.

The Study of Life

Processes that enable an organism to survive are functions.

Genetics, the study of how physical characteristics are passed from parents to offspring, is a branch of biology.

A species of animal develops a specialized eye structure that enables the species to see better in its environment. The big idea in life science best described by this example is that organisms have structures and functions that are complementary.

Development is the process of change that occurs during an organism's life to produce a more complex organism.

Frogs are a diverse group of organisms, but all have life cycles that follow approximately the same pattern, showing that all frogs share similar characteristics.

Scientific Inquiry

Trying to explain why a cactus needs little water to survive is an example of scientific inquiry.

Scientists can communicate their results at scientific meetings, in scientific journals, and by exchanging information on the Internet.

To reveal trends in data, the data should be presented in a graph.

During an experiment, variables must be controlled so that researchers can draw a logical conclusion from the experiment.

A group of scientists are studying various types of sound waves in order to learn how animals' ears detect noise. This shows that organisms operate on the same set of physical principles as the rest of the natural world.

In scientific inquiry, questions that are posed can be answered through investigation.

Thinking and questioning is the start of the scientific inquiry process.

A(n) hypothesis is a possible explanation for a set of observations or answers to a scientific question.

An operational definition is a statement that describes how to measure a particular variable or define a particular term.

A graph is a good way for scientists to look for patterns or trends in data.

In a scientific experiment, the one variable that is purposely changed to test a hypothesis is called the manipulated variable.

In a scientific experiment, the factor that changes in response to the manipulated variable is called the responding variable.

In a controlled experiment, the control is the part of the experiment to which you compare the results of the other tests.

Safety In the Laboratory

Be prepared and use common sense are some reasonable safety precautions for field investigations

If a beaker breaks, the first thing you should do is notify your teacher.

Safety symbols alert you to possible dangers and identify safety equipment you should use.

When you do field work, you should always tell an adult where you will be.