

# The Scientific Method

The “scientific method” is one of several creative and systematic processes for proving or disproving a given question after an observation has been made. When the “scientific method” is used, a basic set of guidelines and procedures are followed in order to answer a question.

1

Select a **QUESTION** to investigate.

Be very clear about what you are asking. Make your question simple, yet specific.

*Example: How does a cell get water?*

2

Make a **HYPOTHESIS** (Prediction).

A hypothesis is a good guess about what the answer to the question will probably be. Do not make a wild guess. You should predict what you think will happen and tell why.

*Example: I think plant cells get water by soaking it in.*

3

Carry out the **EXPERIMENT**.

The first thing you must do in developing the experiment is to determine the materials you will need. List them.

You must state exactly what needs to be done in step-by-step order. Your directions must be in the right order. Do not leave out any steps. As a scientist, you never know when other scientists will want to try your experiment to see if they end up with the same results!

*Example: Materials needed – 6-8 raisins, one clear plastic glass, and water*

*We will be observing the process of osmosis in raisins.  
Place the 6-8 raisins in the bottom of the glass and cover  
with water. Let them stand overnight.*

4

Record the **OBSERVATIONS** of the investigation in written and/or picture form. The results (data collected) of a scientific investigation are usually expressed two ways – in written form and in picture form. Both are summary statements. The written form reports the results with words. The picture form (often a chart or graph) reports the results so the information can be understood at a glance.

*Example: Day 1 – no change  
Day 2 –*

*or*

*The next morning, I found that.....*

5

State a **CONCLUSION** that tells what the results of the investigation mean.

The conclusion is a statement, which tells the outcome of the investigation. It is drawn after you have studied the results of the experiment. Refer back to your hypothesis when you are stating your conclusion. A conclusion statement may say, “The results show that the hypothesis is supported,” or “The results show that the hypothesis is not supported.” Then you should restate the hypothesis if it was supported or

revise it if it was not supported. Be sure to describe the outcome of your investigation.

*Example: My hypothesis that stated “plant cells get water by soaking it in” is supported. Plant cells take in water by.....*

Your scientific investigation is complete. As you think about it, you may come up with a new question to investigate. Then you will be ready to use the steps of the scientific method all over again!!!!

*Example: Do all cells get water in the same way?*