

# Steps of the Scientific Method

## **Problem**

**What are we testing?**

## **Research**

**Look at the past work of others to see if this problem has already been tested.**

## **Formulate a hypothesis**

**Identify variables and explain the expected outcome using an if/then statement.**

## **Design the experiment**

**Detail the materials and procedures that will be used. Identify the control variables.**

## **Test the hypothesis**

**Follow the experimental design. Make observations and collect data.**

## **Organize / Summarize the data**

**Make charts and graphs that explain the collected data. Summarize all observations.**

## **Conclusions**

**Share what was learned by the experiment. State any potential improvements that could be made.**

### Scientific Method - Group Project

Instructions: Give each group or pair one of the scenarios below. Ask the group to design and experiment to answer the experimental question. Students should identify a control group, dependent and independent variables and possible outcomes or what type of data would be gathered. Stress to students that they will not actually be performing these experiments. Have students either turn in their design on paper or do a mini-presentation to the class.



Does the wavelength of light (R.O.Y.G.B.I.V.) affect a plant's growth?



Does tomato juice make hair grow faster?



Is acid rain causing a decline of frog populations?



Does the hormone estrogen increase the milk yield of dairy cows?



Does the size of a fish tank determine how large a fish will grow?



Does aspirin keep cut roses fresher longer?



Will crickets chirp more if the temperature is warmer?



Do wounds heal faster when they are covered by Band-Aids?



Which battery lasts longer, energizer or duracell?



Does hot water freeze faster than cold water?



Do tanning beds cause skin cancer?



What causes leaves to fall in autumn (light, temperature, or both)?

