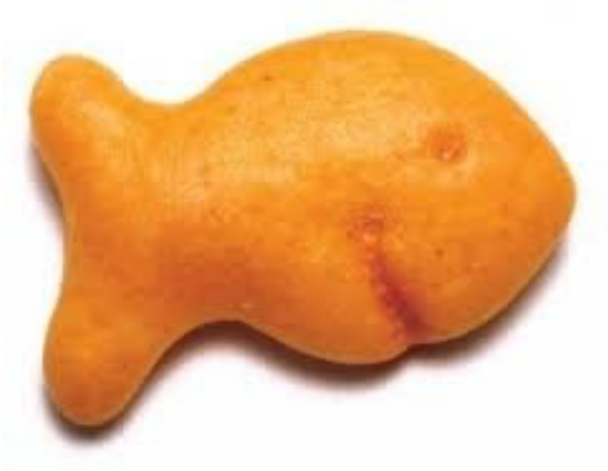
Going for Gold...fish

It's everybody's favorite fish-shaped cracker! Cheesy and delicious, they can brighten up any afternoon snack, but what type of science is going on as these little guys "swim" into your belly?



Materials:
Fun-shaped crackers
Small cups or beakers
Various solutions ranging in pH (recommended: diet soda and regular soda)
Stirrers
pH strips

Procedure:
Allow students to make observations and predictions about which solution will cause the crackers to break down the fastest.
Students will develop a hypothesis.
Note: To allow for differentiation, you may choose to encourage students to design the experiment themselves or you can help them define the following variables and constants.
Identify the independent variable (solution types, ex: soda types).
Identify the dependent variable (the rate of cracker breakdown).
Discuss control groups (comparing each solution to one another acts as the control in this scenario).
Identify experimental constants (how to check for breakdown, how often to stir, amount of liquid, etc).
Students will carry out their experiment until they determine the rate of cracker breakdown in each solution.
They will develop a conclusion explaining the outcome of their hypothesis and discussing the data and variables they tested.
*This activity can also be used to demonstrate the effects of acidic solutions and can be related to bodily processes such as enzyme action, digestion and even dental health.

The Effect of
_____ on _____
(independent variable) (dependent variable)

Science is all about investigating questions or problems in order to find a solution. This means that curiosity is one of the most important aspects of science! Think about the questions you come up with on a daily basis. Where do they come from? What makes you question the world around you? Every question you develop comes from an observation, so you must begin any scientific process with your five senses!

You will design your own procedure based on the following information. In order to carry out a successful experiment, you must organize your initial observations, your hypothesis, your subjects or groups, and the variables you will be manipulating and observing.

Observations:

_____

_____

Hypothesis: Is it testable? Be sure to include both variables!

_____

_____

Independent (manipulated) variable:

_____

Dependent (responding) variable:

_____

Control Group:

_____

Control Variables/Constants: Make sure they're kept the same throughout the experiment!

_____ _____ _____

_____ _____ _____

Procedure: Describe the steps you will take to carry out the process of testing your hypothesis:

1. _____

   _____

2. _____

   _____

3. _____

   _____

4. _____

   _____

5. _____

   _____

Data: Use another sheet of paper to construct a data table for your experiment.
Conclusion: Write a detailed summary describing the outcome of your experiment. Was your hypothesis correct? Why or why not? What could be done to improve your experiment?