Inquiry

Let these exhibits lead your curiosity as you ask questions, make observations, and try experiments.

Think About It

• How can the things you observe at each exhibit be organized and how do they interrelate?
• How do the things you observe change?
• How can we communicate what we learn to others?

Path

MOTION DISH
• Start a ball rolling in the dish and use your senses to make observations about what is happening. Do you notice any patterns?
• Describe the different variables that change as the ball rolls. How many different variables stay the same?

THE SPIRAL
• Why do you think some balls stop at the top of the ramp and some keep rolling? Develop a hypothesis.
• Try testing your hypothesis. What could you try and do to see if you are right?

SKI JUMP
• Try starting the ball at different positions on each ramp and predict which bucket it will land in.
• Keep trying until you can get the ball into each bucket in order from farthest to closest.

HIT THE BUCKET
• What is the relationship between where the ball starts on the ramp and the speed at which the bucket turns?
• Try to create an experiment and find out.

LOOP-THE-LOOP
• How close to the loop do you think the ball can start and still make it around? Try it!
• Analyze your results. Did it work? If not, what could you do differently?

CREATE YOUR OWN EXPERIMENT
• Pick an exhibit. Is there anything you have observed that you would like to learn more about?
• How could you learn more about it?

What’s Going On?

Inquiry is an active approach to learning that involves exploring the world, asking questions, making discoveries, and carefully testing those discoveries in the search for new understanding. The “scientific method” is a process that scientists use to find the answers to questions. It is the process of thinking through the possible solutions to a problem and testing each possibility to find the best one. This process can involve the following steps in any order: making observations, developing a hypothesis, making predictions, performing experiments and analyzing results.
**Learn More About It!**

Stephen P. Kramer  
*How to Think Like a Scientist: The Scientific Method in Practice.*  

Mike Blanford, et. Al.  
*Teaching The Scientific Method: Instructional Strategies To Boost Student Understanding.*  

Janice VanCleave  
*Janice VanCleave’s Teaching the Fun of Science*  

Virginia S. Lee  
*Teaching & Learning Through Inquiry.*  

Amy E. Alvarado & Patricia R. Herr  
*Inquiry-Based Learning Using Everyday Objects*  

[Concept to Classroom](http://www.thirteen.org/edonline/concept2class/inquiry/index.html)  
[Introduction to the Scientific Method](http://teacher.pas.rochester.edu/phy_labs/AppendixE/AppendixE.html)  
[The Inquiry Page](http://inquiry.uiuc.edu/)

---

**Vocabulary**

**Analyze** - To examine, closely study and evaluate in order to better understand.

**Communicate** - The act of expressing information or emotions from living thing, or machine, to another.

**Discover** - To learn, or become aware of something.

**Experiment** - The act of conducting a controlled test or investigation.

**Hypothesis** - A possible explanation for an observation that can be tested through experimentation. Often described as "an educated guess."

**Inquiry** - The act of learning through investigation.

**Interrelate** - To find out what a group of things have in common, or a how they a group of things are related.

**Observation** - The use of one's senses to learn something new.

**Organize** - To arrange, or order, into groups or patterns.

**Predict** - To suggest what may happen based on available information.

**Process** - A procedure or way of doing something.

**Results** - The outcomes of an experiment.

**Senses** - The means through which the body feels and perceives including: seeing, hearing, touching, smelling, and tasting.

**Solution** - A statement that solves a problem or explains how to solve a problem.

**Variable** - A factor which can change during an experiment.