



Science Hunt

Middle School

Welcome to the Michigan Science Center.

Within the galleries, you will find the answers to our Science Hunt questions by exploring the laboratories and interacting with the exhibits.

Explore the possibilities!

Upper Level

What is the first step in making steel?

Melt rocks- Heat iron ore, limestone and carbon in a blast furnace. The blasts of hot air feed the exothermic reactions and melt the ingredients to make liquid iron. The liquid iron drips to the bottom of the blast furnace and drains out through a tap hole.

What is the 3-phase power distribution panel? (Hint: Fun Factory)

An efficient electrical system used by the Fun Factory. The three powered electric lines in a panel are coded black, red, and blue.

Name three important things lean manufacturing eliminates? (Hint: Fun Factory)

Any three of the following: overproduction, waiting, transporting, inappropriate processing, unnecessary inventory, unnecessary movement, defects

In the *Cell Drawers*, how can you tell that a particular cell is from a plant?

The plant cell has a cell wall, an animal cell does not.

The pulmonary artery takes blood to the lungs and the aorta takes blood to the rest of the body. Which chamber of the heart does the blood enter when returning from the body?

Right atrium

True/False- If you are thin, you are not in danger of having high cholesterol.

Write down the order of all of the planets in our solar system.

Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune (Pluto, technically no longer considered a planet but instead it is considered a dwarf planet)

Lower Level:

What is a fulcrum? Where is a fulcrum in this gallery?

The pivot point or support point of a lever- in the Giant Lever and Lever exhibits.

Describe how you would use the *Giant Lever* to weigh yourself.

The scale on the side shows how many pounds of force it takes to pull the lever down. If you move the rope to the point where you can barely lift yourself off the ground, you have found how much you weigh.

Find the giant *Foucault pendulum*. Look for the arrow that shows which direction it was swinging when it was started. What has happened? Why?

The Earth has spun since this morning- out from underneath the pendulum. So, compared to the ground, the pendulum is swinging in a different direction.

What are the primary colors of light? List the secondary colors of light and how you get each one.

Red, Green, and Blue

Combine red and green to make yellow, add green and blue to get cyan, and add red and blue to make magenta.

What are the two basic types of waves? (Hint: sound is an example of one type and light is an example of the other).

Transverse and Longitudinal (a.k.a. compression)

Explain one method used to get an upside-down image with lenses. Explain one way to get an image that is upright.

Use one (or three) convex lenses at a distance to get an upside-down (or inverted) image. Use one convex lens close up or a concave lens to get an upright (or erect) image.

Name one exhibit that heats fluids to move something. How does it work?

Find the *Electricity Users*. Which device uses the most electricity? Of the light bulbs, which one uses more electricity?

Hot Air Balloon- the air is heated, expands, and therefore is less dense than the surrounding air. It therefore rises until the air inside cools.

Expanding Gas- Heats liquid and gas in one bulb. The liquid evaporates and the gas expands, pushing the remaining liquid to the other side.

Convection- Heats liquid, which rises.

Describe how electricity is generated in this gallery. (Not used or changed, but actually generated as part of one or more exhibits.)

If you move a wire in a magnetic field, it generates a current, as in the Hand Generator or Making Electricity exhibits.

Bonus Question:

Name the four states of matter.

Solid, liquid, gas, plasma