

GET geeked!

**Answer Key:
FOR MIDDLE SCHOOL ACTIVITIES**



DETROIT SCIENCE CENTER
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Science Scramble!

The following scrambled words are important science terms related to things you will see at the Detroit Science Center. Unscramble the terms and write them in the spaces below.

For example: C E S C N I E = S C I E N C E

TYPES OF SCIENCE:

C S P H I Y S _____ PHYSICS

G Y B I O O L _____ BIOLOGY

R Y C H T E S M I _____ CHEMISTRY

M Y A S T O N R O _____ ASTRONOMY

G E O Y G O L _____ GEOLOGY

TYPES OF SCIENTISTS:

O R D O T C _____ DOCTOR

U A S T A T N R O _____ ASTRONAUT

E N E G R E N I _____ ENGINEER

E R A S T M O R N O _____ ASTRONOMER

S C H E T M I _____ CHEMIST

SCIENTIST TOOLS:

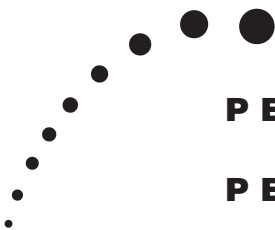
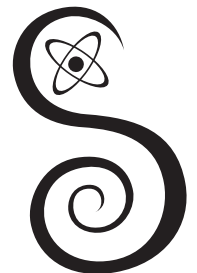
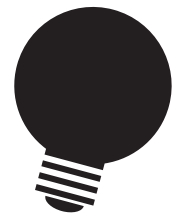
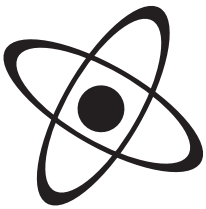
P E M I C O C R S O _____ MICROSCOPE

P E T E L O C E S _____ TELESCOPE

E R C O M T U P _____ COMPUTER


E B E R A K _____ BEAKER

E R U R L _____ RULER





Detroit Science Center **SCIENCE HUNT** MIDDLE SCHOOL



WELCOME TO THE DETROIT 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!

1 Space Exhibits

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

Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune Pluto

In order to spend 1 billion dollars, how much money would you have to spend per hour and how many years would you have to maintain that rate of spending?

1000 per hour for 114 years!

2 DTE Energy Science Sizzle & Spark

Read the exhibit signs to find: 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 could you 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?

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.

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

Hair dryer, regular (or incandescent) light bulb

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*

3 Medical Exhibits

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. **FALSE**

Remembering Your Visit

Detroit Science Center Crossword Puzzle

Use the clues at the bottom of this page to help you remember words you may have seen at the science center.

Tip for younger audiences: Place a word bank on the board to guide students to the correct words.


Figure A 

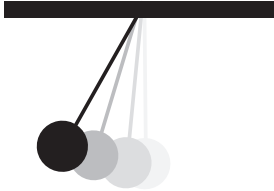
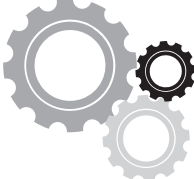
Figure B 

Figure C 

ACROSS

- The study of life
- A person who designs or builds engines and machinery
- Using science to solve problems. Examples include computers, engineering, and industry
- Vibrations that can be heard by the human ear
- Disturbances that transmit energy through mediums like air or water. Ex. Sound _____ or Light _____.
- The form of energy that allows us to see
- The point that supports a lever (see Figure A)
- This is needed to do work
- Having to do with medicine and healing
- The substance that makes up an object

DOWN

- A device used to raise an object
- Another word for movement
- An object that hangs and swings freely from a fixed point (see Figure B)
- A rapid back and forth motion that can produce sound
- A science that deals with matter and energy
- Part of a machine that helps in movement (see Figure C)
- A "picture" taken to show the insides of a body, for example a broken bone
- A way of studying the world using experiments and evidence. Biology, Physics, and Engineering are all examples of this.