

Nano Activities

Guidelines:

Part of exploring a new world—like the nano world—is not knowing the answers or how things work, but striving to understand them through observation and experiment—the scientific method. Our exploration of the nano world starts here.

Your challenge:

- 1) Observe the situation
- 2) Infer what causes this behavior
- 3) Propose an experiment to verify your inference. A great way to record an observation is drawing a picture/sketch.

Activity 1: Each container has only water and pieces of iron in it.

Materials:

- Magnet
- Bottles w/different types of iron

Steps:

- 1) Look at and compare the 3 bottles with different types of iron in them. What do you notice about them? Write down any observations.
- 2) Place a magnet next to the bottle at the top. Slowly move the magnet towards the bottom of the bottle where the iron is. What do you notice? Write down any observations.

Observations:

- 3) Compare the three bottles. List how they are different.

4) What do you think the reason is for why the iron filings behaved so differently?

Inferences:

___ 5) What experiment(s) could you do to help decide if your inferences are correct?

Experiment:

Activity 2: The same material has been used to color each of the pieces of glass.

Materials:

Different pieces of stained glass

Flashlight

Steps:

___ 1) Observe the pieces of stained glass using the flashlight. Try to infer how they got their colors.

Inferences:

___ 2) What experiment(s) could you do to help decide if your inferences are correct?

Experiment:

Activity 3: A piece of steel has been heated for a short time.

Materials:

- Piece of steel

Steps:

___ 1) Observe the steel in the light. Do you notice any differences? Can you tell which end was not heated?

Observations:

___ 2) Make some inferences about why parts of the heated steel appear different.

Inferences:

___ 3) What experiment(s) could you do to help decide if your inferences are correct?

Experiment:

Activity 4: One piece of wood has been treated with a substance. The other end has not.

Materials:

- Wood - WetSpray - Beaker w/water - Eye dropper

Steps:

___ 1) Add a drop of water to both sides of the wood. Do you notice any differences?
Which side is the treated one?

Observations:

___ 2) Why did the drop of water behave differently? Make some inferences.

Inferences:

___ 3) What experiment(s) could you do to help decide if your inferences are correct?

Experiment: