Basis of Science Review

Which of these two chemicals is more hazardous to your health?

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Reactivity</th>
<th>Health</th>
<th>Flammability</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Chloroform</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

How many meters is object A?

How many centimeters is object A?

How many millimeters is object A?

What should you wear in the lab to protect against chemical spills?

What should you wear to protect your eyes against splashing chemicals?

What should you wear to protect your feet from chemicals and falling objects?

First Aid Measures—Chloroform

Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Induce vomiting. After vomiting, give mixture of 2 Tbs. of activated charcoal mixed with one cup of water. Call a physician or poison control at once.

Use the MSDS information above to answer the following:
Which section tells you what to do if someone breathed in chloroform?

Which section if someone drinks it?

Can this statement be supported by the scientific method? “I chocolate chip is the best ice cream flavor.”

Why?

Use the Scientific Method to figure out if a substance is a liquid or solid. *(The first step is done for you.)*

**Step 1:** Observe: the substance changes shape.

**Step 2:**

**Step 3:**

**Step 4:**

<table>
<thead>
<tr>
<th>Liquid</th>
<th>Color</th>
<th>Burns?</th>
<th>Volume</th>
<th>Reacts with Baking Soda?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Clear</td>
<td>No</td>
<td>35 mL</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>Clear</td>
<td>Yes</td>
<td>12 mL</td>
<td>No</td>
</tr>
<tr>
<td>C</td>
<td>Clear</td>
<td>No</td>
<td>46 mL</td>
<td>Yes</td>
</tr>
<tr>
<td>D</td>
<td>Clear</td>
<td>No</td>
<td>88 mL</td>
<td>No</td>
</tr>
</tbody>
</table>

Make a reasonable conclusion from the above data table.

How many mL of water is there in the graduated cylinder?

What is the curve of water called?

Which of the two cylinders above is more precise?

Why?
### How is a solid different from a liquid?
- A solid has a definite shape and volume.
- A liquid has a definite volume but takes the shape of its container.

### How is a solid similar to (like) a liquid?
- Both solids and liquids are able to flow.

### How is a liquid different from a gas?
- A liquid has a definite volume and shape.
- A gas has no definite volume or shape.

### How is a liquid similar to (like) a gas?
- Both liquids and gases can fill a container.

### What causes a substance to change phase?
- Phase changes occur when substances change from one state to another, such as from solid to liquid or liquid to gas.

### When a substance changes phase, is this a physical or chemical change?
- Phase changes are usually physical changes.

### The temperature at which a solid turns to liquid is called:
- Melting point

### The temperature at which a liquid turns to a gas is called:
- Boiling point

### The temperature at which a gas turns to liquid:
- Condensation point

### The temperature at which a liquid turns to a solid:
- Freezing point

### When a solid turns straight to a gas is called:
- Sublimation

### At what temperature does water melt?
- 0°C (32°F)

### At what temperature does water boil?
- 100°C (212°F)

### Convert the following:
- 3.2 kilometers = ___________ meters
- 0.23 centimeters = ___________ micrometers
- 0.12 liter = ___________ milliliters
- 2500 milliliters = ___________ liters
- 4500 grams = ___________ kilograms
- 9 kilograms = ___________ grams
- 54 megaliters = ___________ centiliters

### Kilogram milligram Megagram gram centimeter microgram

### Which is bigger?
- Mega- or kilo-?
- Centi- or milli-?
- Micro- or milli-?
- Centi- or micro-?
- Kilograms or grams?

### How Big Are They Really?
- A centimeter is the width of:
- The size of a liter is:
- A meter is how many feet?
- A gram is about:
- A millimeter is the width of:

### What is the correct order shortest to longest?

### Draw the metric prefixes chart here:

| 1. Substance or non-mixture | a. Made up of two types of matter that can be physically separated. |
| 2. Mixture | b. Two samples might not be the same. |
| 3. Heterogeneous Mixture | c. Two samples will have the same makeup. |
| 4. Matter | d. Has only one kind of atom in the sample. |
| 5. Element | e. Contains two kinds of atoms that cannot be physically separated. |
| 7. Compound | g. A classification of anything that has mass and takes up space. |

### Mixture (M) versus Substance (S) (non-mixture):
- Salt Water ___________ Chicken Soup ___________
- Water ___________ Salt ___________
- Silver ___________ Chex Mix ___________

### Homogenous (Ho) versus Heterogenous (He):
- Salt Water ___________ Chicken Soup ___________
- Tomato Soup ___________ Plain Jello ___________
- Jello with Fruit ___________ Chex Mix ___________

### What do we call things that can be felt and seen, but we cannot touch and has no mass?

### What do we call things that can be felt and seen, but we cannot touch and has no mass?