

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Core: \_\_\_\_\_

### Chemical and Physical Properties

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Being able to make observations about and identify different substances is important to many different fields of science. Forensic science and paleontology are only two of those fields but they can be the most exciting. Paleontologists uncovering different fossil compositions and rock structures can tell us about the creatures, plants, and even the structure of earth's past. Forensic scientists can find many different substances at a crime that they'll have to identify in order to catch the culprit.

Being able to identify different substances based on their properties is a vital skill to have as a scientist. You will go around the room to each station and make observations about the chemical and/or physical properties about the items at the table. Be sure to follow the instructions for each station carefully.

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#### Station 1: Paleontology/ Geology

At this station you will examine the physical properties of the rock through observation and by using the tools at hand and use the rock identification guide at the station to make your best guess as to the type of rock.

Observations:

<b>Color:</b> <b>Visible Grains?(yes/ no)</b>	
<b>Texture:</b>	
<b>Luster:</b>	
<b>Hardness:</b> <b>&lt; or &gt; than 5.5</b>	

#### Station 2: Paleontology/ Geology

At this station you will examine the physical properties of the rock through observation and by using the tools at hand and use the rock identification guide at the station to make your best guess as to the type of rock.

Observations:

<b>Color:</b> <b>Visible Grains?(yes/no)</b>	
<b>Texture:</b>	
<b>Luster:</b>	
<b>Hardness:</b> <b>&lt; or &gt; than 5.5</b>	

Name: \_\_\_\_\_

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### Station 3: Paleontology/ Geology

At this station you will examine the physical properties of the rock through observation and by using the tools at hand and use the rock identification guide at the station to make your best guess as to the type of rock.

Observations:

<b>Color:</b> <b>Visible Grains?(yes/no)</b>	
<b>Texture:</b>	
<b>Luster:</b>	
<b>Hardness:</b> <b>&lt; or &gt; than 5.5</b>	

### Station 4: Forensic Science and Chemistry

At this station you will examine the powder below to determine its physical and chemical properties and to determine what type of powder it is using the reactions guide at the Physical Properties:

<b>Color:</b>	
<b>Odor:</b>	
<b>Texture:</b>	

Chemical Properties: Does it react?

<b>Substance:</b>	<b>Does it React? (yes/no)</b>	<b>Reaction:</b>
Water (Cup A)		
Vinegar (Cup B)		

### Station 5: Forensic Science and Chemistry

At this station you will examine the powder below to determine its physical and chemical properties and to determine what type of powder it is using the reactions guide at the station.

Physical Properties:

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Core: \_\_\_\_\_

<b>Color:</b>	
<b>Odor:</b>	
<b>Texture:</b>	

Chemical Properties: Does it react?

<b>Substance:</b>	<b>Does it React? (yes/no)</b>	<b>Reaction:</b>
Water (Cup A)		
Vinegar (Cup B)		

### Station 6: Forensic Science and Chemistry

At this station you will follow the directions carefully to determine which pen the culprit left the note with. This is chromatography and it is used to separate different solvents within solutions.

Observations:

<b>Culprit's Pen</b>	<b>Pen A</b>	<b>Pen B</b>
<b>Conclusion:</b>		

### Station 7: A little bit of everything

At this station you will examine the video on the computer to determine a substance's chemical and physical properties. Be sure to watch the video at least twice.

Observations:

What do you assume about the reactivity of potassium chlorate? Why?

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Core: \_\_\_\_\_

**Summary:**

1. Do you think that physical or chemical properties are more important in identifying substances? Why?
  
  
  
  
  
  
  
  
  
  
2. Which chemical or physical property did you find most helpful in identifying the rocks? What about the powders?

**Analysis**

1. What other fields of science or careers can you think of that would need to use chemical or physical properties? Why? How would they use them?