REVISION: MATTER 18 MARCH 2014

Lesson Description

In this lesson we:

- What is Matter?
- States of Matter & the Kinetic Molecular Theory

Improve your Skills

What is Matter?

Question 1

The table below gives the melting point and boiling point of different substances.

Substance	Melting Point (^{0}C)	Boiling Point (^{0}C)
Water	0	100
Nitrogen	-210	-195.8
Carbon	3500	4827
Ethanol	-114	78.37
Carbon dioxide	-78	-57
Mercury	-38.83	356.7
Pentane	-130	36.1
Butane	-140	-1

a.) Which substances will be liquids at room temperature (25^{0}C)?

b.) At what temperature will pentane and butane both be solids?

c.) Suggest reasons why mercury and ethanol are both used in thermometers to measure temperature.

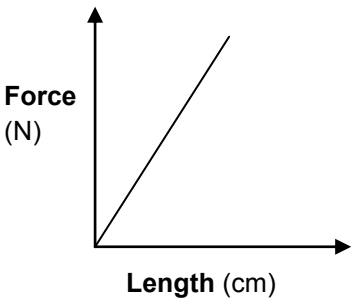
d.) At what temperature does carbon dioxide exist as a liquid?

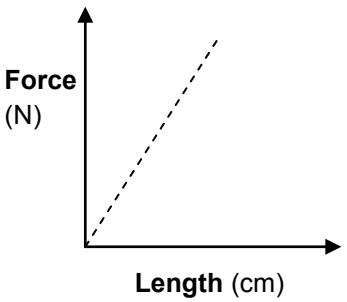
e.) Which substance is the strongest?

Question 2

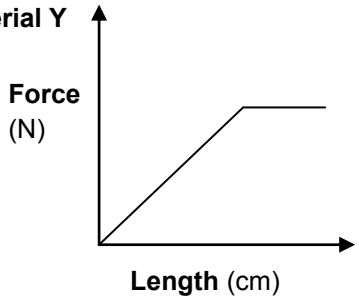
The sketch graphs below illustrate what happens when substances X, Y and Z experience a stretching force. The solid line shows the length of the sample when a force is applied and the dashed line indicates what happens when the force is removed.

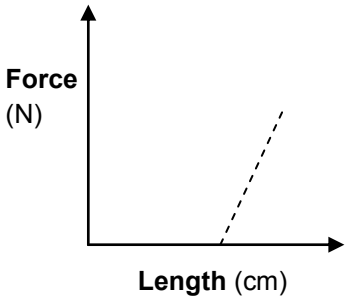
Material X



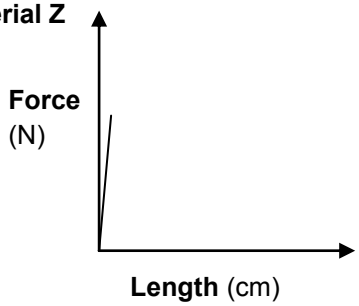


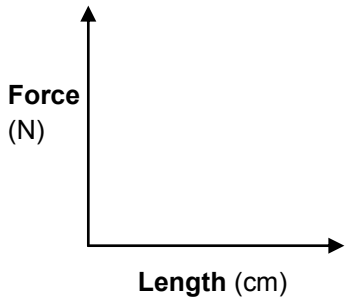
Material Y





Material Z





Use the graphs to answer the following questions

a.) Which material is the weakest?

b.) Which material is brittle?

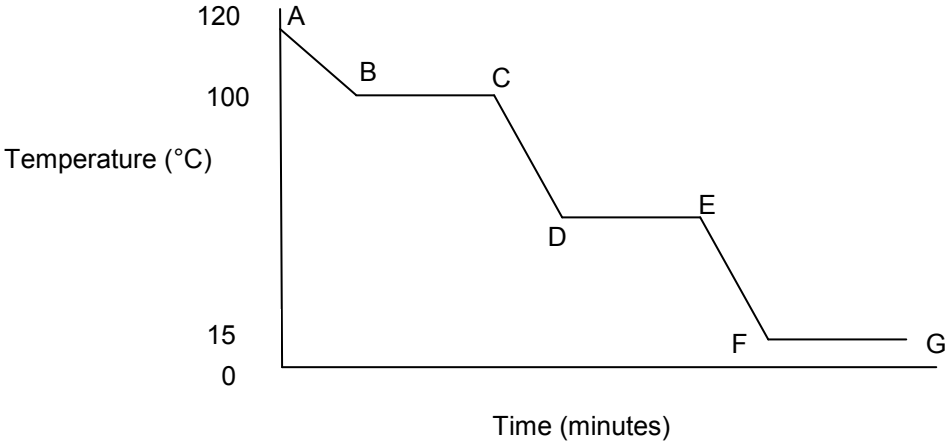
c.) Which material is most elastic?

d.) Which material is most likely to be metallic?

States of Matter & the Kinetic Molecular Theory

Question 1

The graph below indicates a cooling curve – the temperature of a substance as it cools over time.



a. Identify any phase changes occurring in the substance.
b. What is the boiling point of the substance?
c. Identify the region on the graph when the substance is all a liquid.
d. What is the temperature of the room?

Question 2

Steven wants to know why his fingers often stick to the ice or the ice tray when he takes ice out of the freezer. Explain this to him using your knowledge of the kinetic molecular theory and states of matter.