

# HPS Ch. 3 Keynote Presentation: Phases of Matter

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Note: You will also need a sheet of paper to do some drawings.

Name \_\_\_\_\_ per. \_\_\_\_

1. The 4 phases of matter are: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ & \_\_\_\_\_.

They can be changed from one to another by adding or taking away \_\_\_\_\_.

## All About Solids

2. Particles in most solids are held together in an \_\_\_\_\_ with \_\_\_\_\_.

Sketch this structure on a separate sheet of paper.

To stop particle motion, temperature must be reduced to \_\_\_\_\_ = \_\_\_ K = \_\_\_\_\_ °C.

3. Atoms are arranged in a \_\_\_\_\_ - a \_\_\_\_\_ of particles.

This structure is made up of \_\_\_\_\_ which are composed of \_\_\_\_\_.

4. Allotropes are \_\_\_\_\_.

Two examples are \_\_\_\_\_ and \_\_\_\_\_ which are both forms of \_\_\_\_\_.

Allotropes are caused by \_\_\_\_\_ in the substance.

One diamond carat = \_\_\_\_\_ while 1 gold karat = \_\_\_\_\_.

5. What are amorphous solids? \_\_\_\_\_

Give 4 examples: \_\_\_\_\_

6. Summing up solids:

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

## All About Liquids

7. When heated to its \_\_\_\_\_ the \_\_\_\_\_ of a solid breaks apart forming a \_\_\_\_\_. Particles are now \_\_\_\_\_.

8. Are liquids compressible? \_\_\_\_\_ Explain why \_\_\_\_\_.

9. Four properties of liquids are:

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

10. Viscosity is the \_\_\_\_\_ of a liquid to \_\_\_\_\_. The viscosity of a liquid \_\_\_\_\_ as temperature goes down and \_\_\_\_\_ as temperature increases.

Syrup would have a \_\_\_\_\_, water a \_\_\_\_\_.

(over)

11. What causes a liquid to boil? \_\_\_\_\_.

What keeps particles in a liquid from escaping into the air? \_\_\_\_\_

12. How can water to boil at a temperature lower than 100°C? \_\_\_\_\_

At what temperature Celsius does water boil: on Mt. Everest \_\_\_\_\_, Denver \_\_\_\_\_ Sarasota \_\_\_\_\_

How are air pressure and B.P. related? \_\_\_\_\_

13. How does a pressure cooker work? \_\_\_\_\_

14. Define sublimation: \_\_\_\_\_.

Give one example: \_\_\_\_\_.

### All About Gases

15. Unlike solids & liquids, the particles in a gas \_\_\_\_\_

\_\_\_\_\_. Another property is that gases are \_\_\_\_\_.

16. Four properties of gases are:

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

d) \_\_\_\_\_

17. What is the difference between evaporation and boiling? \_\_\_\_\_

### All About Plasma

18. How are particles in plasma different from other phases of matter? \_\_\_\_\_

What percent: Of the Earth is made of plasma? \_\_\_\_\_% Of the Universe is made of plasma? \_\_\_\_\_%

What two types of plasma are found on Earth? \_\_\_\_\_ and \_\_\_\_\_

### All About Phase Changes

19. During a phase change, there is a change in \_\_\_\_\_ but no change in \_\_\_\_\_

Explain why: \_\_\_\_\_

20. Draw a phase change graph and label each change of phase on a separate sheet of paper.

21. Any \_\_\_\_\_ substance can be changed into a \_\_\_\_\_

by \_\_\_\_\_. A phase change is a \_\_\_\_\_ change

since you can \_\_\_\_\_.

22. Draw particles models of a solid, liquid and gas below.