

# States of Matter Webquest

Name \_\_\_\_\_

## Part 1 [http://www.chem4kids.com/files/matter\\_states.html](http://www.chem4kids.com/files/matter_states.html)

The website has been changed on this one. The questions don't quite match. You'll have to search around in the site to find the answers.

1. List the four states of matter (skip the 5<sup>th</sup>):
2. Place the four main states of matter on the diagram below.



3. If a substance changes from one phase to another, is it still the same substance? Why?

**Scroll up and click on the SOLID link on the right hand side.**

4. One of the main characteristics of a solid is that they
5. Are the atoms in a solid allowed to move around much? YES NO
6. In the box to the right, draw what the atoms in a solid look like. →



**Scroll back up and click on the LIQUID link on the right hand side.**

7. One characteristic of a liquid is that it fills:
8. Atoms in a liquid have \_\_\_\_\_ energy than atoms in a solid, so the easiest way to change a solid to a liquid is to add \_\_\_\_\_. When changing from a solid to a liquid, there is a magic temperature for every substance called the \_\_\_\_\_.
9. To change a gas to a liquid, you will need to lower \_\_\_\_\_. The \_\_\_\_\_ is the temperature when the gas becomes a liquid.
10. Sometimes a liquid can be sitting there and its molecules will become a gas. That's called \_\_\_\_\_.

**Scroll back up and click on the GAS link on the right hand side.**

11. Gases are really \_\_\_\_\_ and the atoms and molecules are full of \_\_\_\_\_, bouncing around constantly.
12. One of the physical characteristics is that a gas can \_\_\_\_\_.

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**Part 2** [http://www.harcourtschool.com/activity/states\\_of\\_matter/](http://www.harcourtschool.com/activity/states_of_matter/)

Click on Gas

13. Describe what you see in the beaker (the purple thing).
  
14. Describe what you see in the chamber (the big round thing).
  
15. What does the description say about the amount of space between gas molecules?

Click on Liquid

16. Describe what you see in the beaker (the purple thing).
  
17. Describe what you see in the chamber (the big round thing).
  
18. What does the description say about the arrangement of the particles?

Click on Solid

19. Describe what you see in the beaker (the purple thing).
  
20. Describe what you see in the chamber (the big round thing).
  
21. What does the description say about how the particles are arranged?

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## Part 3 <http://www.harcourtschool.com/activity/hotplate/index.html>

22. Drag each of the substances onto the hot plate. Watch what happens. At what temperature do the substances melt, and then boil?

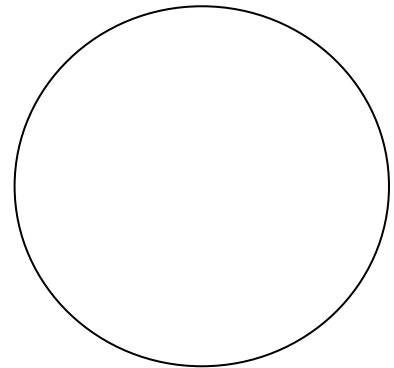
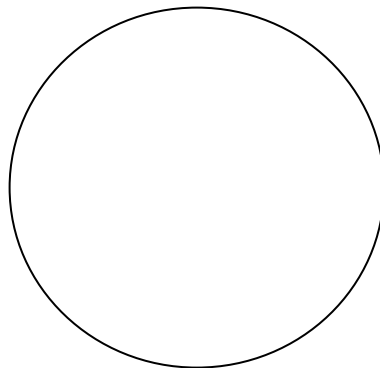
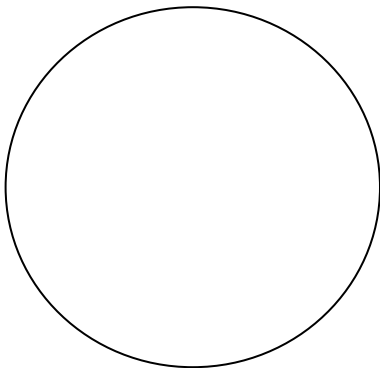
White:	Melting		Boiling	
Pink:	Melting		Boiling	
Green:	Melting		Boiling	

Do all substances have the same melting and boiling temperatures?

Could this be a characteristic used to identify substances?

## Part 4 <http://www.chem.purdue.edu/gchelp/atoms/states.html>

23. Draw and label the pictures as best you can.



24. Particles in a:

gas are well \_\_\_\_\_ with \_\_\_\_\_ regular arrangement.

liquid are \_\_\_\_\_ with \_\_\_\_\_ regular arrangement.

solid are \_\_\_\_\_, usually in a regular pattern.

25. Particles in a:

gas \_\_\_\_\_ and move \_\_\_\_\_ at high speeds.

liquid \_\_\_\_\_, move about, and \_\_\_\_\_

solid \_\_\_\_\_ (jiggle) but generally do not \_\_\_\_\_

\_\_\_\_\_

26. \_\_\_\_\_ and \_\_\_\_\_ are often referred to as **condensed phases** because the particles are

\_\_\_\_\_.

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27. Fill in the missing parts of the table.

Some Characteristics of Gases, Liquids and Solids and the Microscopic Explanation for the Behavior		
gas	liquid	solid

28. Use the chart to identify the state of matter described by the following. Many of these have more than one answer! (Use S, L or G in the spaces.)

\_\_\_\_\_ not easily compressible

\_\_\_\_\_ rigid – particles locked into place

\_\_\_\_\_ flows easily

\_\_\_\_\_ compressible

\_\_\_\_\_ lots of free space between particles

\_\_\_\_\_ does not flow easily

\_\_\_\_\_ assumes the shape of the part of the container which it occupies

\_\_\_\_\_ particles can move past one another

\_\_\_\_\_ retains a fixed volume and shape

\_\_\_\_\_ assumes the shape and volume of its container

\_\_\_\_\_ little free space between particles