Key

Fluid Worksheet

1. What is the definition of a fluid?

A substance that has no definite form; is able to flow in all directions

2. Why are solids not fluids?

Because they have a definite form

3. Why is a gas considered a compressible fluid, but a liquid is considered a incompressible fluid?

the volume of a gas can be reduced by exerting a force on the fluid, pushing the particles closer together. In a liquid it is impossible to decrease the volume because the particles are already close together

4. Define the term pressure.

The measure of the amount of force exerted on a certain area. Measured in pascals

5. In a liquid, which 2 variables affect pressure?

concentration, temperature, volume

6. In a gas, what affects the pressure?

volume : temperature

7. What three factors affect collision?

# of particles/concentration
volume

8. What type of relationship does volume and pressure have in a gas?

more pressure the smaller the volume

9. If the volume of a substance increases, what happens to the pressure inside of it?

pressure decreases

10. Circle each statement below that applies to fluids.

a) Sand flowing through an hourglass
b) A substance that can spread and take a container's shape
c) A substance that can be deformed → solid
d) A fluid that can be a liquid and a solid
e) A gas that contains solid particles in suspension

11. Match each substance below to the corresponding type of fluid. More than one substance may be associated with a type of fluid.

Substance	Type of fluid
a) Cream b) Molasses c) Propane gas d) Helium	1. Compressible fluid 2. Incompressible fluid

12. Use the following terms to complete the sentences below.

particles	fluid	incompressible	volume	close to
liquid	decreases	pressure	plunger	far from

The volume of a gas decreases when the plunger of a syringe is pushed down. The particles of a gas are very far from each other. Therefore, gas is a compressible fluid. The volume of a liquid varies very little under pressure because particles are very close to each other. Therefore, liquids are incompressible fluids.

13. How does the particle model explain the relationship among pressure, volume and temperature of compressible fluids? Complete the following sentences.

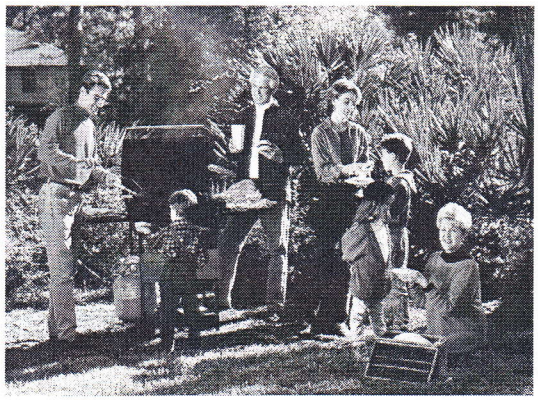
a) When the temperature and number of particles are increased, pressure will increase if volume decrease. On the other hand, under the same conditions, pressure decreases if volume increases.

b) At a stable pressure, if fluid volume increases, pressure decreases because fluid (gas) particles spread out and the number of collisions decreases.

c) If the number of particles is lowered, there are fewer collisions and pressure is decreased at a stable temperature and constant volume.

d) By maintaining a stable number of particles, the volume of a compressible fluid is inversely proportional to the pressure.

14. Look at the following photos.



Find the compressible fluids and the incompressible fluids in these photos. Present your answers in the table below.

COMPRESSIBLE FLUIDS	INCOMPRESSIBLE FLUID
air in ballons	liquid in cups
Propane	

15. The statements below refer to fluid pressure. /3

- ◯ Circle each statement that applies to all fluids.
- □ Box each statement that applies only to compressible fluids.
- △ Mark with a triangle each statement that applies only to incompressible fluids.

There can only be one symbol per statement.

a) The number of collisions between particles of these fluids determines their pressure.

b) Pressure exerted by these fluids depends on the depth in the fluid of the reading and not on the total amount of the fluid.

c) Pressure exerted by these fluids depends on the number of particles, temperature and volume of the fluid.

d) Since particles of these fluids are constantly moving, pressure exerted in a closed environment is the same in all directions.

e) Pressure is greatest at the bottom of the container in which the fluid is placed.

f) Pressure exerted on an object by these fluids depends on depth and density of the fluid.