Name: _____ Group: _____ Date: _____

FLUIDS

STUDENT BOOK | Ch. 3, pp. 66–29

Compressible fluids and incompressible fluids

1. 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
d) A fluid that can be a liquid and a solid
e) A gas that contains solid particles in suspension

2. 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

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

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

The _____ of a gas _____ when the _____ of a syringe is pushed down. The _____ of a gas are very _____ each other. Therefore, gas is a compressible _____. The volume of a _____ varies very little under _____ because particles are very _____ each other. Therefore, liquids are _____ fluids.

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FLUIDS (*continued*)

STUDENT BOOK	Ch. 3, pp. 70–84

Pressure: relationship between pressure and volume

1. What am I?

a) I am the result of force applied perpendicularly on a surface. _____

b) I am the unit of measurement for pressure. _____

c) The smaller I am, the greater the pressure. _____

d) The more I increase, the greater the pressure becomes. _____

e) I am an action that modifies the movement of an object. _____

2. For the statements below, circle the ones that require great pressure and box the ones that require slight pressure.

a) Increase the width of snowshoes to walk on the snow.

b) Camels have wide feet to help them walk in the sand.

c) Rescuers crawl on a thin ice surface to reach a victim.

d) Perforate a sheet of paper with the sharpest possible tool, such as a thumbtack.

e) Use a hose equipped with a nozzle.

3. Based on the formula for calculating pressure: $P = \frac{F}{A}$, use the following terms to identify each variable and its unit of measurement.

Pascal	Square meter	Contact surface area	Pressure	Force	Newton

	Variable	Unit
a) P:	_____	_____
b) F:	_____	_____
c) A:	_____	_____

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Pressure: relationship between pressure and volume (*continued*)

4. The statements below refer to fluid pressure.

◯ 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.

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.

g) These fluids move from an environment of high pressure to an environment of low pressure.

5. 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 _____ are _____, pressure will increase if volume _____. On the other hand, under the same conditions, pressure decreases if volume _____.

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

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

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

Pressure: the relationship between pressure and volume (*continued*)

6. Solve the following riddles using the clues for syllables.

a) My first is a synonym of "happy." _____
My second is a famous appliance manufacturer. _____
My whole is used to measure tire pressure. _____

b) My first is a large unit of measurement. _____
My second is a universal donor. _____
My third is a unit of length. _____
My whole is an instrument used to measure liquid pressure in the eye. _____

c) My first is a synonym of "rod." _____
My second is the 15th letter of the alphabet. _____
My third accepts payment for parking. _____
My whole is an instrument used to measure atmospheric pressure. _____

d) My first sounds like "death." _____
My second sounds like "cage." _____
My whole is an instrument used in scuba diving. _____

7. Circle the statement below that explains why humans are not crushed by air pressure.

a) Atmospheric pressure is too low to have this effect on humans.
b) Air does not react like a compressible fluid.
c) Air particles hit humans equally from all directions.
d) Atmospheric pressure increases with altitude and humans are not located at an elevation required to suffer from such an effect.