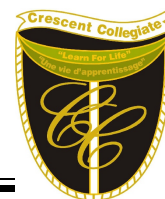
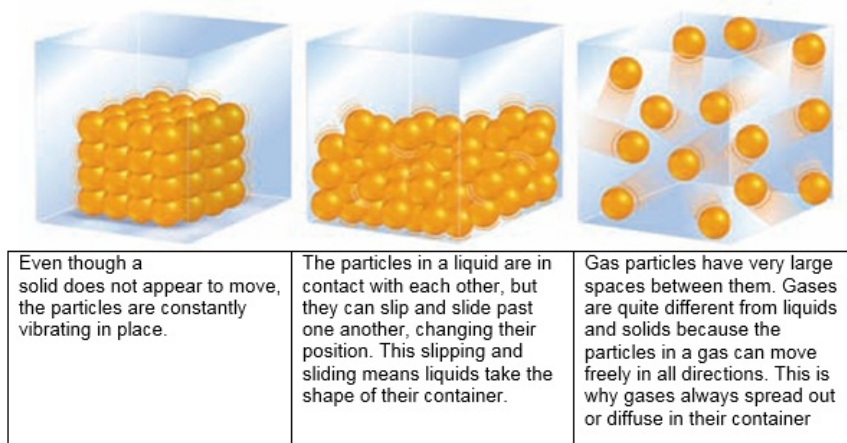


**Science 8**  
**Unit 2: FLUIDS**  
**Topic 2: Fluids**



**Fluid** any substance that can flow to take the shape of a container

- Liquids and gases are fluids. They flow because they do not have a fixed shape.
- Solids are not fluids because they have a fixed, rigid shape



Since liquids and gases do not have a definite shape they are able to flow. Hence by definition, liquids and gases are fluids. The substance must flow in order to be a fluid. Being a fluid is not necessarily a permanent property of a substance. (The substance can change with different circumstances.)

-Some examples of fluids in everyday life:

- (i) compressed air in tires
- (ii) water
- (iii) syrup

Other examples include:

- food fluids (syrup, honey, molasses, water, or oil.)
- cleaning fluids (shampoo, liquid detergents, gels, abrasive creams like Vim™)
- bodily fluids (blood, mucus)
- industrial fluids (oils as lubricant, compressed air in tires)

Explain why solids that flow are not fluids:

Solids can appear to flow, especially when ground into very fine fragments or grains.

Salt, for example, can be poured from one container to another and takes the shape of the box or saltshaker. However, if you look closely at such solids you will see that each fragment still has a definite shape.

In a solid the forces of attraction are so strong that the particles vibrate very small distances. The particles are more or less locked in place. They cannot slide past one another

Solids form piles when poured; fluids do not. Imagine trying to make a pile of liquid water or a pile of oxygen!

**PART A: MULTIPLE CHOICE.**

*Instruction: Circle the correct answer below each question. Also, transfer your answers to the bubble sheet provided.*

1. Which of the following are fluids?
  - (A) Gases only
  - (B) Liquids only
  - (C) Gases and liquids only
  - (D) Solids, liquids, and gases
  
2. Why are fluids able to flow?
  - (A) They do not have a fixed shape
  - (B) They do not have a fixed volume
  - (C) Their particles are packed tightly together
  - (C) Their particles have very little kinetic energy
  
3. Which of the following fluids is necessary for life?
  - I) Oxygen
  - II) Carbon
  - III) Water
  - (A) I and II
  - (B) I and III
  - (C) II and III
  - (D) I, II and III
  
4. Which of the following has the ability to flow?
  - (A) Solids only
  - (B) Gases only
  - (C) Liquids only
  - (D) Liquids and gases
  
5. According to the particle theory, why do fluids flow?
  - I) Particles have weak attractive forces
  - II) Particles have large spaces between them
  - III) Particles are slowly moving
  - (A) I and II
  - (B) I and III
  - (C) II and III
  - (D) I, II and III
  
6. Which of the following is a non fluid ?
  - (A) Syrup
  - (B) Cereal
  - (C) Milk
  - (D) Shampoo
  
7. Why are solid not considered fluids?
  - (A) Particles can flow
  - (B) Particles are locked in place
  - (C) There are weak attraction between particles
  - (D) There are large spaces between particles

**PART B WRITTEN RESPONSE**

1. Fill in the appropriate columns to identify which of the items in the list are fluids. (Hint: As you consider each item, ask yourself: Can it be poured? If so, then it could be a fluid. When it is poured, does the substance make a pile or a heap? If so, it is not a fluid.)

Substance	Can it be poured? Yes/No	Does it pile up when poured? Yes/No	Is it a fluid? (Yes/No)
Water			
Vegetable Oil			
Popcorn Kernel			
Sand			
Mud			
Flour			
Milk			
Salt			

2. Draw a circle around each picture that shows a fluid. Then answer the question at the bottom of the page



3. If you break a solid into thousands of pieces and “pour” it onto a table, it forms a pile instead of a level surface. How does the particle theory of matter help explain why even solids that appear to be pourable, are not considered fluids?

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4. Why do solids form a pile when they are poured?

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5. Explain why particles in a liquid cannot hold their shape?

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### STUDENT ACTIVITY

In 1949, Dr. Seuss introduced the mysterious substance Oobleck to the world in his children's book *Bartholomew and the Oobleck*. Today, you will examine an Oobleck-like substance (we will call it Goobleck) and determine whether it is a liquid or a solid. You will also give reasons why there might be some confusion.

Equipment and Materials:

measuring cup;	medium-sized bowl;	graduated cylinder; spoon;
cornstarch;	water	

1. Create your Goobleck by mixing 45 mL of cornstarch with 30 mL of water in the bowl. Stir slowly and well. When the water and cornstarch are thoroughly mixed, you can begin your investigation.

2. Perform the following actions using slow movements. Push your finger into the mixture. Slowly pour it. Let it run between your fingers. Record your observations with each new action.

3. Now perform the following actions using quick movements.

Poke your finger into the mixture. Pick some up and squeeze it. Try breaking some in half. Record your observations with each new action.

A. In what ways did your Goobleck behave like a liquid?

B. In what ways did it behave like a solid?

C. Decide whether you think Goobleck is a liquid or a solid. Justify your answer