

## UNIT 6

## MATTER AND ITS PROPERTIES

### Activities

1.-  Put the words in order to make questions. Listen and check. Ask and answer the questions with a partner. Give reasons for your answers.

- a) of a liquid / we / measure / How / the mass / do / and of a gas / ?
- b) is / to measure it / density / What / are used / and what SI units / ?
- c) or the seawater in a bucket / has / greater density / : all the seawater in a sea / Which / ?
- d) occupy / 1 kg of straw / Does / 1 kg of lead / the same volume / ?

2.-  Listen and complete the sentences with the missing words. Are the sentences true or false?

- a) If two \_\_\_\_\_ bodies have the same \_\_\_\_\_ then they are composed of the same \_\_\_\_\_.
- b) The greater the \_\_\_\_\_ of a substance is, the greater its \_\_\_\_\_ is.
- c) \_\_\_\_\_ and \_\_\_\_\_ are \_\_\_\_\_ properties of matter so therefore, density is too.
- d) When the \_\_\_\_\_ of a bottle is 1 l, then its \_\_\_\_\_ is also 1 l.
- e) \_\_\_\_\_ doesn't float on water, but \_\_\_\_\_ does.

3.-  Calculate the following unit conversions. Listen and check.

- a)  $200 \text{ cm}^3$  to  $\text{m}^3$ .
- b)  $70 \text{ dm}^3$  to l.
- c) 10 l to ml.
- d)  $0,2 \text{ dm}^2$  to  $\text{mm}^2$ .

4.-  $200 \text{ cm}^3$  of water is poured into a test tube of  $250 \text{ cm}^3$ . Next a stone with 100 g of mass is put in the test tube. The level of the water rises to  $225 \text{ cm}^3$ .

- a) Which is the volume of the stone?
- b) What is its density?

5.- Platinum is one of the densest metals:  $21\,500 \text{ kg/m}^3$ .

- a) Express its density in  $\text{g/cm}^3$ .
- b) Measure the dimensions of your book and calculate its volume in  $\text{cm}^3$  and  $\text{m}^3$ .
- c) If your book was made of platinum, how many kilograms would it weight?

6.-  Choose the correct word. Listen and check.

- a) The particles in *liquids* / *solids* \_\_\_\_\_ are very near to each other and have a fixed position.
- b) The particles in *solids* / *liquids* \_\_\_\_\_ are not as near to each other as in *solids* / *liquids* \_\_\_\_\_ and they can move relative to each other.
- c) The particles in *solids* / *gases* \_\_\_\_\_ cannot move but they may vibrate a little.

- d) In *gases / liquids* \_\_\_\_\_ the particles are far apart from each other and they move freely and very quickly.
- e) *Solids / liquids* \_\_\_\_\_ can easily take any shape.
- f) Gases / Liquids \_\_\_\_\_ expand to fill all the available space.

7.-  Put the words in order to make questions. Listen and check. Ask and answer the questions with a partner.

- a) is / two suppositions / What / based on / the kinetic theory / ?
- b) or less quickly / the particles in matter / makes / move more / What / ?
- c) is / gas expansion / the difference / what / and gas compression / between / ?
- d) increases / to the air inside a ball / What / when the temperature / happens / ?

8.- Are the following statements true (T) or false (F)? If false, modify the statement to make it true in your note book.

- a) The particles in a liquid have complete freedom of movement. \_\_\_\_\_
- b) Liquids and solids are not compressible. \_\_\_\_\_
- c) Liquids tend to occupy the entire volume of their container. \_\_\_\_\_
- d) The forces of attraction between the particles of a gas are very strong. \_\_\_\_\_
- e) The particles of solids occupy fixed positions. \_\_\_\_\_

9.-  Match the processes and the descriptions. Listen and check.

- |                         |                 |
|-------------------------|-----------------|
| a) from solid to liquid | 1. sublimation  |
| b) from liquid to gas   | 2. condensation |
| c) from gas to liquid   | 3. freezing     |
| d) from liquid to solid | 4. melting      |
| e) from solid to gas    | 5. vaporization |
| f) from gas to solids   | 6. deposition   |

10.-  Listen and complete the sentences with the correct word from the box.

increases	volume	inversely	quantities
matter	closer	mass	decreases

- a) When a substance changes state, its \_\_\_\_\_ does not change, because no \_\_\_\_\_ is added or taken away.
- b) When a substance changes state, its \_\_\_\_\_ also changes: it occupies more or less than it did before.
- c) The \_\_\_\_\_ volume and density are \_\_\_\_\_ proportional to each other.
- d) As the particles of a substance move \_\_\_\_\_ together, its volume \_\_\_\_\_ and its density \_\_\_\_\_.