

# DAY 1 – KPSI: MATTER AND FORCES

Write "YES" or "NO" in every box to evaluate your knowledge.

|  |  |  |  |
|--|---|--|---|
|  | I don't know  | I know a little  | I could explain it  |
| Can you define the term " <b>matter</b> "?   |   |  |   |
| Can you describe the <b>general properties</b> of matter?  |   |  |   |
| Can you define the term " <b>force</b> "?  |   |  |   |
| Can you explain the <b>types of forces</b> ?   |   |  |   |
| Can you describe how <b>forces can change an object movement</b> ?                                   |   |  |   |
| Can you describe <b>how forces affect materials</b> ?  |   |  |   |
| Can you classify <b>objects</b> depending on <b>how they change</b> when a force is applied to them? |   |  |   |
| Can you explain the <b>properties of materials</b> ?   |   |  |   |

# ACTIVITIES 1: MATTER

## 1. Watch the video “[What is matter?](#)” and complete the following questions.

1.1. What is matter?

Matter is everything around us that has \_\_\_\_\_ and \_\_\_\_\_.

1.2. What is mass?

It's how \_\_\_\_\_ something is.

1.3. What is volume?

It is the amount of \_\_\_\_\_ something occupies.

1.4. What are the most common states of matter?

They are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.

1.5. Why is the level of water inside the glass lower than the level of water outside in the experiment?

Because \_\_\_\_\_ has occupied the space inside the glass.

1.6. What happens when you tilt the glass aside?

You see bubbles of \_\_\_\_\_ rushing out and it is replaced by \_\_\_\_\_.

1.7. What Happens when the air-filled balloon is stuck to the meter stick?

The stick end with the air-filled balloon bend downwards because the air-filled balloon is \_\_\_\_\_ than the empty balloon.

1.8. Is air matter?

\_\_\_\_\_ because it has \_\_\_\_\_ and \_\_\_\_\_.

2. Complete the diagram by choosing the correct words.

# MATTER

Matter is everything around us that has:



## MASS

**DEFINITION:**

quantity of \_\_\_\_\_ in an object.

**MEASURE:**

we measure mass in \_\_\_\_\_ using \_\_\_\_\_ and \_\_\_\_\_.



## VOLUME

**DEFINITION:**

\_\_\_\_\_ that an object occupies.

**MEASURE:**

we measure volume in \_\_\_\_\_, using \_\_\_\_\_ and \_\_\_\_\_.



## DENSITY

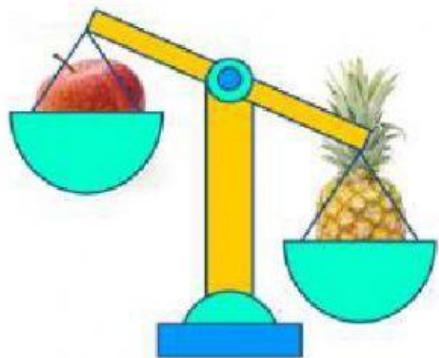
**DEFINITION:**

the \_\_\_\_\_ between the mass of an object and its volume.

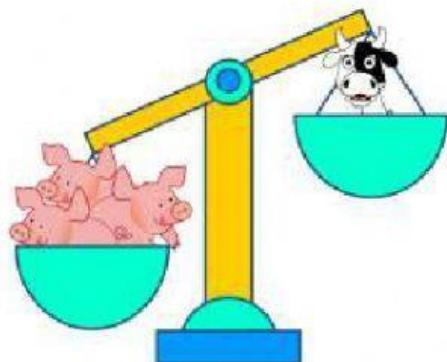
- when water is "more dense" than an object, it \_\_\_\_\_
- when the object is "more dense" than water, it \_\_\_\_\_

### 3. Complete the sentences about mass according to the images.

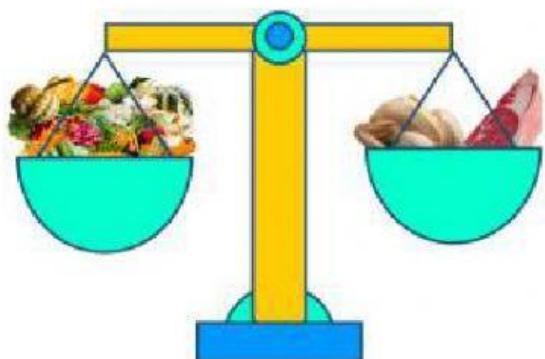
3.1. An apple has \_\_\_\_\_ mass than a pineapple.



3.2. The pigs has \_\_\_\_\_ mass than the cow.



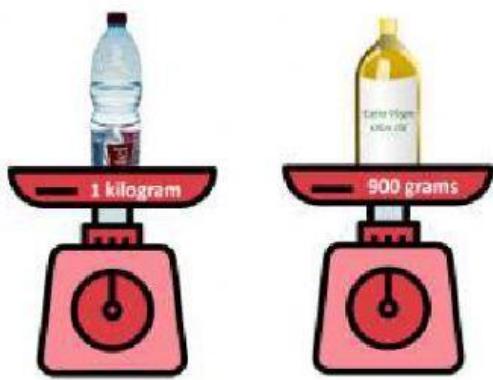
3.3. The vegetables has \_\_\_\_\_ mass than the meat.



3.4. The cars has \_\_\_\_\_ mass than a plane.



3.5. Water (1 ℥) has \_\_\_\_\_ mass than olive oil (1 ℥).

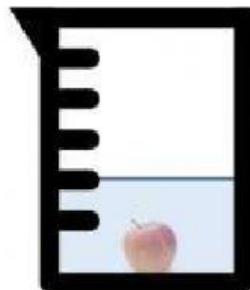
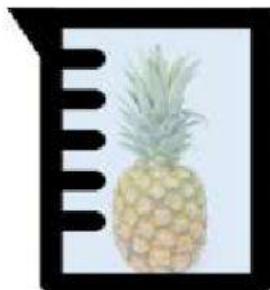


3.6. Water (1 ℥) has \_\_\_\_\_ mass than milk (1 ℥).

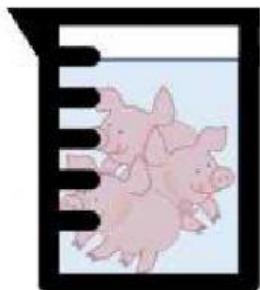


#### 4. Complete the sentences about volume according to the image.

4.1. An apple has \_\_\_\_\_ volume than a pineapple.



4.2. The pigs has \_\_\_\_\_ volume than the cow.



4.3. The vegetables has \_\_\_\_\_ volume than the meat.



4.4. The cars has \_\_\_\_\_ volume than a plane.



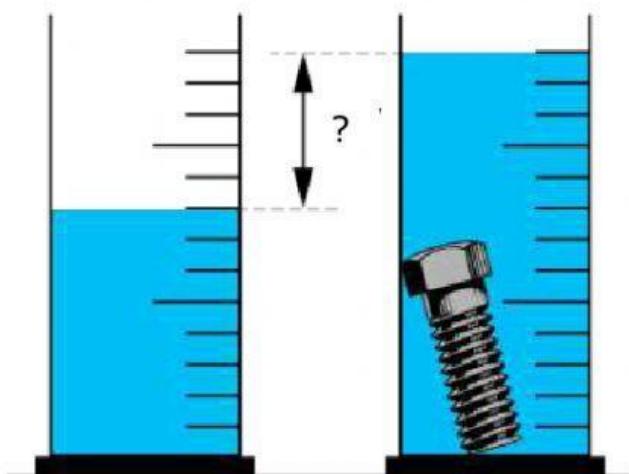
4.5. Water (1 ℥) has \_\_\_\_\_ volume than olive oil (1 ℥).



4.6. Water (1 ℥) has \_\_\_\_\_ volume than milk (1'5 ℥).



## 5. Calculate the volume of this object (a screw).



### Data:

The first cylinder marks 160 ml.

The second cylinder marks 260 ml.

### Mathematical operation:

I have to do \_\_\_\_\_.

### Solution:

The screw measure \_\_\_\_\_ ml.

## 6. The density of water is 1 kg/l. Hence, choose if the following materials will float or sink.

| MATERIALS    | DENSITY    |
|--------------|------------|
| Cork         | 0,25 kg/l  |
| Iron         | 7,90 kg/l  |
| Orange juice | 1,25 kg/l  |
| Olive oil    | 0,916 kg/l |

Cork will \_\_\_\_\_.

Iron will \_\_\_\_\_.

Orange juice will \_\_\_\_\_.

Olive oil will \_\_\_\_\_.

## 7. Answer the following questions.

- Why does an **apple** float on water?

Because it is \_\_\_\_\_ than water.

- Why does a **brick** sink?

Because it is \_\_\_\_\_ than water.