English – Unit 3

Prof.Sosa

Measuring

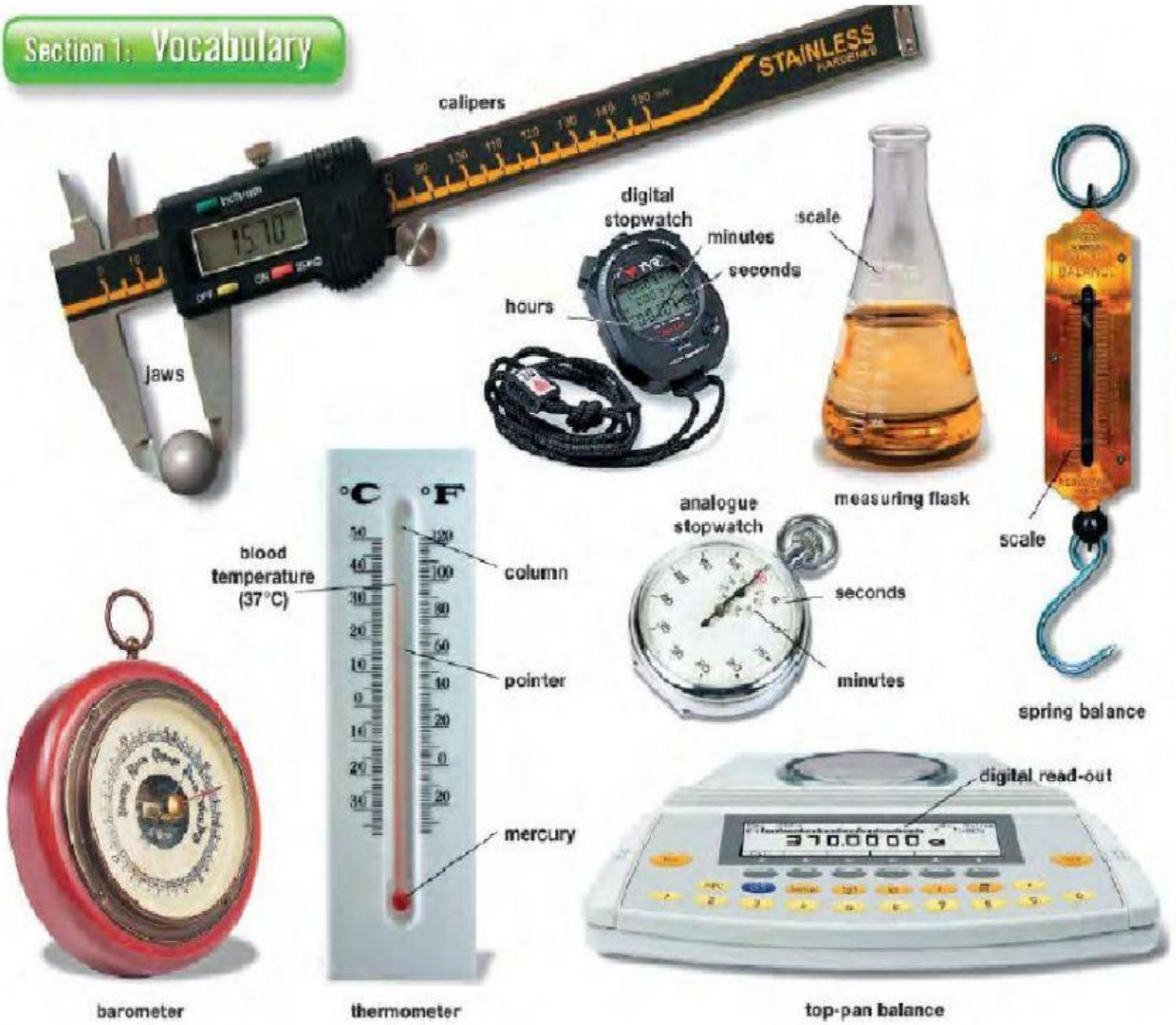
1) What's the name of these figures?

- How long is the line?
- What's the formula for the area of a square?
- What's the formula for the volume of a cube?

5) What other things can we measure?

6) Look at the pictures and read the text

Section 1: Vocabulary



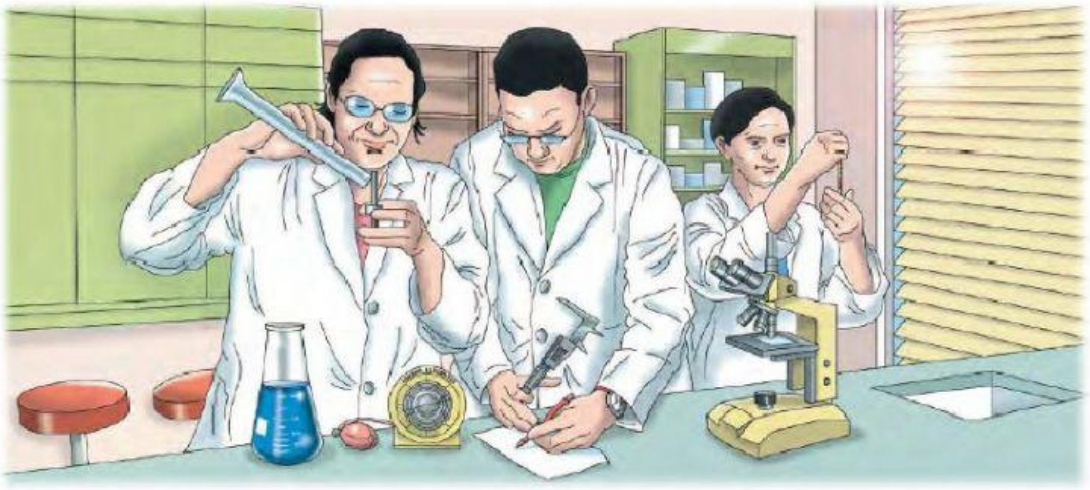
The basis of science and technology is **measurement**. Scientists and technicians must be able to measure **physical objects** and **events**. Measurement is especially important in the laboratory. Experiments involve measuring **mass**, length, time, temperature, **pressure**, or other **quantities**. The results are useless, however, unless **standard units of measurement** are used. One System of standard units is the SI system. The kilogram (kg), the metre (m), and the second (s) are basic SI units. The SI unit for temperature is the Kelvin but degrees Celsius (°C) is more common outside the laboratory. Similarly, the SI

There are special devices for taking measurements. For example, **Vernier calipers** are used to measure small widths and diameters while a traveling microscope is used to measure small lengths.
A **top-pan** balance or a spring balance can be
used to measure mass or weight.
Stopwatches are used to measure time. The read-out can be analogue or digital. **Thermometers** are used to measure temperature while **barometers** and **manometers** are used to measure atmospheric pressure. **Measuring flasks** are used for volume, measured in litres (l).

unit for pressure is the pascal, but bars, millibars, and hectopascals are more commonly used.

7) Look at the table. Fill in the missing information

Quantity being measured	Measuring device	Possible unit of measurement	Abbreviation
length	calipers; travelling microscope		mm
		degrees Celsius	
mass	spring balance	grams	
time		seconds, minutes, hours	
	measuring flask		l
pressure	barometer;	hectopascals	mb;



8) Read the text and choose the best answer in each case

1 It is difficult to weigh elephants because:

a. they are so big.

b they are so heavy.

c they are wild.

d they are so big and so heavy.

2 What happens when you take the elephant out of the boat?

a The boat goes down ¡n the water

b The boat goes up in the water

c The water goes into the boat

d The line goes under the water.

3 You put stones into the boat until:

a. the line is under the water.

b you have no more stones.

c the line is at the same level as the water

d the boat goes down in the water.

4 Calíbrate means:

a write weights on stones.

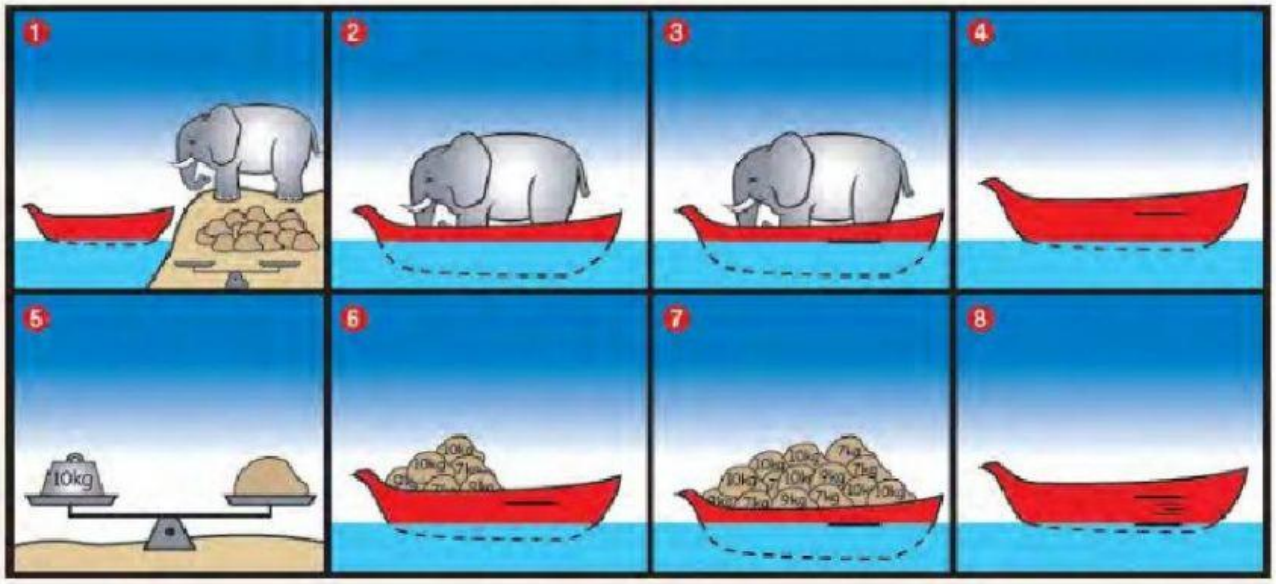
b, mark up a device for measuring.

c draw lines on a boat.

d make a measuring device.

BRAINTEASER

How to weigh an elephant



WHEN VETS NEED TO give medicine to a large animal, they must know how much the animal weighs. But how can you weigh an elephant? There is no top-pan balance big enough for the elephant to sit on. You need a huge pair of scales which is strong enough to hang the elephant from ... or you could use a small pair of scales, a boat and a pile of stones.

First, put the elephant into the boat. The boat goes down in the water. Mark a line on the side of the boat at the level of the water with a marker pen. Take the elephant out of the boat. The boat goes up in the water. Weigh large stones and write the weight on each stone. Put the stones into the boat until it goes down to the level of the mark. Add up the weights, and you have the weight of the elephant.

You could go further. Write the weight of the elephant next to the mark on the side of the boat. Take out stones in groups of 10 kilos. Make a new line and write the weight each time. Continue until there are no more stones in the boat. You have now calibrated the boat. You have a measuring device for animals or other heavy items.

Asking about measurements

We can ask about most measurements with ***What*** or ***How***.

Examples:

What *is the volume of the sphere?* ***What*** *is the mass of the elephant?*

9 Find and correct the mistake in each question. There are grammar and vocabulary mistakes.

1 What is length of the line?

2 How height is the rectangle?

3 What is the volume of the square?

4 How is the temperature of the water?

5 What the volume of the triangle?

6 What is the radius of the square?
