Measurement Practice

Teachers Notes

We use measurements a lot in the EPro8 Challenge.

We want to create an engineering vibe. This means measurements are made using a tape measure. Likewise, the engineering units for measurement are kilometres, metres and millimetres. Centimetres are NOT used in this event (Centimetres are NOT an engineering unit).

Example of how measurements will be presented are:

- Build something **at least** 1.6m tall
- The shelf is **approximately** 600mm high
- The panels are **less than** 300mm apart.
- The wheel **is** 200mm diameter.

It is important that your students:

1) Can read a tape measure and can interpret the measurement in both metres and millimetres.
2) That teams have common sense in terms of measurements e.g. they know roughly what 4m looks like.
3) Can understand the difference between at least, approximately, less than and a given measurement.

In practice:

- if someone says approximately 700mm, this means it is closer to 700 than 600 or 800 (so anything between 650 and 750mm would suffice).
- If someone says 700mm (without an approximately, at least, less than) then this means very close to 700mm.

We have put together an activity that your students can work through that should give them some practice in using a tape measure and in correctly interpreting measurements.

The only equipment required is a tape measurement. Please use a tape measure rather than a ruler.
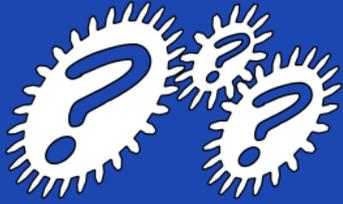
Measurement Challenge

You are to compete against your team-mates with challenges related to measurements. The person who gets the most points is becomes "The Supreme Ruler".

For the EPro8 Challenge (and in engineering) answers should be in either millimetres or metres (NOT centimetres).

You must ALWAYS write the unit after your answer. For example 1.7m

Name	

Measure the Distance			
Write the answer down. If you are correct, you get the points.			
	Answer	Points	✓
How tall is your desk (in mm)?		10	
How tall is the shortest person in your team (in metres)?		10	
How long is your pen (in mm)?		10	
What is the diameter of a ball (in mm)?		10	
How tall is a door frame (in metres)?		10	
Throw the ball. How far away did it stop (in metres)?		10	
How wide is your chair (in mm)?		10	
	Total		
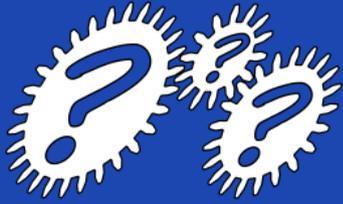
EPro8 Challenge
Engineer   Problem Solve   Innovate

Guess the Distance

Guess these measurements. Write the answer down, then measure the distance.   The person with the most accurate answer gets the points.

	Guess	Actual	Points	Closest?
How wide is your classroom (in metres)?			20	
How long is a sheet of A4 paper (in mm)?			20	
How wide is your hand span (in mm)?			20	
How far is one walking step (in metres)?			20	
How long is your school field (in meters)? *Don't use your tape measure to check this. Count how many steps it is and multiply by the answer to your previous question.*			20	
How long is a scooter (in mm)?			20	
How long is your left foot (in mm)?			20	
How far is it from your desk to your teacher's desk (in metres)			20	
How tall is your seat (in mm)?			20	
What is the diameter of your rubbish bin (in mm)?			20	
How wide is your school hall (in metres)?			20	
How wide is your arm span (in metres)?			20	
What diameter is a bikes tyre (in mm)?			20	
		Total		

Place the Object

Take two objects and place them as described.
You can use your tape measure again for this challenge.

	Points	✔
Two pens are **at least** 400mm apart.	10	
The gap between two desks is **approximately** 1.2m.	10	
Your bag is **less than** 4m from your friend's bag.	10	
Two erasers **are** 1.6m apart.	10	
A ruler is suspended from your desk, but it must be at least 300mm above the ground.	10	
Three school bags are arranged so that they are each approximately 1.5m apart.	10	
Your feet are 1.4m apart.	10	
	Total	
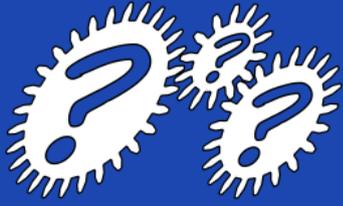
EPro8 Challenge

Engineer   Problem Solve   Innovate

Quick Spot

Throw two dice and add the points. Read the corresponding question. The first person to spot an object that fits the criteria gets the points.
Each object can only be used once.

Dice		Points	Tick each time you are the Fastest
2	An object is 1.5m tall.	10	
3	An object is less than 400mm from the roof.	10	
4	An object is less than 15mm wide.	10	
5	An object is approximately 1m wide.	10	
6	An item is more than 100m away.	10	
7	An object is less than 100mm long.	10	
8	An object is approximately 4m away.	10	
9	An object is at least 5m wide.	10	
10	An object is at least 10mm tall.	10	
11	An object is approximately 1.8m above the ground.	10	
12	An object is 300mm long	10	
		Total	