

GCSE Maths

ASSIGNMENT

Preparatory Sheet

Required preparation for the session on.....

Metric and Imperial Measures and Compound Measure

Aims of this session: Review your abilities in each of these areas, Green (feel confident....G), Amber (need to work more on...A), Red (Feel weaker at this...R)

1. Measure items using the Metric Measurement System
2. Measure items using the Imperial Measurement System
3. Convert Metric units within the Metric System
4. Convert Imperial units (to metric or imperial) using a ratio
5. Use a 'Compound Measure Conversion Triangle' for SPEED/DENSITY/FORCE

G	A	R
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MOSTLY GREEN

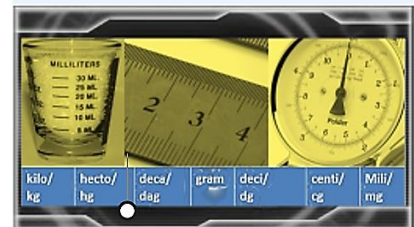
MOSTLY ORANGE

MOSTLY RED

M01 The Metric Measure System

M01 . Watch the video/s, read and practice using the online materials. Read your GCSE maths AQA book

Write a comment about what you learned from the videos / materials below



padlet.com/mathsman230774/q4a47lzs8jd

1.

Measure items using the Metric Measurement System

Q... Take a ruler and read off 22cm. Take a measuring jug from your kitchen cupboard and fill it up to 300ml. Use a weighing scale and find the weight of a piece of fruit, like an apple.



HINT... giving something a real go with actual measuring items is the best way to get to grips with the measuring system..have a go! Write down your measurements and show examples with pictures etc

padlet.com/mathsman230774/25ugl9iju57

2. You will need M02 next

Measure items using the Imperial Measurement System

Q... This time use the other system to measure the same items



M02 Imperial Measure System



inches



fl ozs



OZS



HINT... find the length of 22cm using inches. Try drawing a 22cm line then turning your ruler round to measure how long it is in inches. Do you need a different jug to measure in fluid ounces? what about your kitchen scales, do they have 2 measuring scales around the edge?



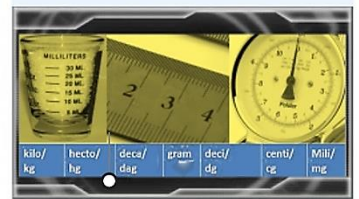
3. ...back to the metric system again!



Convert Metric units within the Metric System

Q... Convert 0.183kg into grams (using the metric conversion table if you need)

M01 The Metric Measure System



Kilo	Hecto	Deca	* Unit *	Deci	Centi	Milli

Hint... for metric weight the seven main units are kilogram, hectogram, decagram, Gram, decigram, centigram, milligram. Each is ten times greater or smaller than the one next to it. Try writing 0.183 in the kg column with 0 under kilo then the other values '1' under hector, '8' under deca and '3' under Unit. Can you now read how many Grams (units) you have directly from the table? You may have another way of doing this, probably using ratios (conversion rates).

4. ok... back again to IMPERIAL !!



Convert Imperial units (to metric or imperial) using a ratio

Q... Use the ratio conversion for Kilometres to Miles to change 40km to miles.

M02 Imperial Measure System



Metric → Imperial
Imperial → Metric

1 inch = 2.54 cm

To convert inches to cms: multiply by 2.54
To convert cms to inches: divide by 2.54

1 gallon = 4½ litres

To convert gallons to litres: multiply by 4.5
To convert litres to gallons: divide by 4.5

1 Km = 5/8 mile

To convert Kilometres to miles: multiply by 5/8 (0.625)
To convert miles to Kilometres: divide by 5/8 (0.625)

1 litre = 1¾ pints

To convert litres to pints: multiply by 1¾ (1.75)
To convert pints to litres: divide by 1¾ (1.75)

1 Kg = 2.2 lbs

To convert Kilograms to pounds: multiply by 2.2
To convert pounds to Kilograms: divide by 2.2

HINT... this is all about ratios! Take the ratio of 1km to 5/8 mile and multiply both sides by 40. This will give both values 40 times larger. Therefore you have 40km on one side and (5/8) x 40 on the other which will tell you how far in miles 40km is!



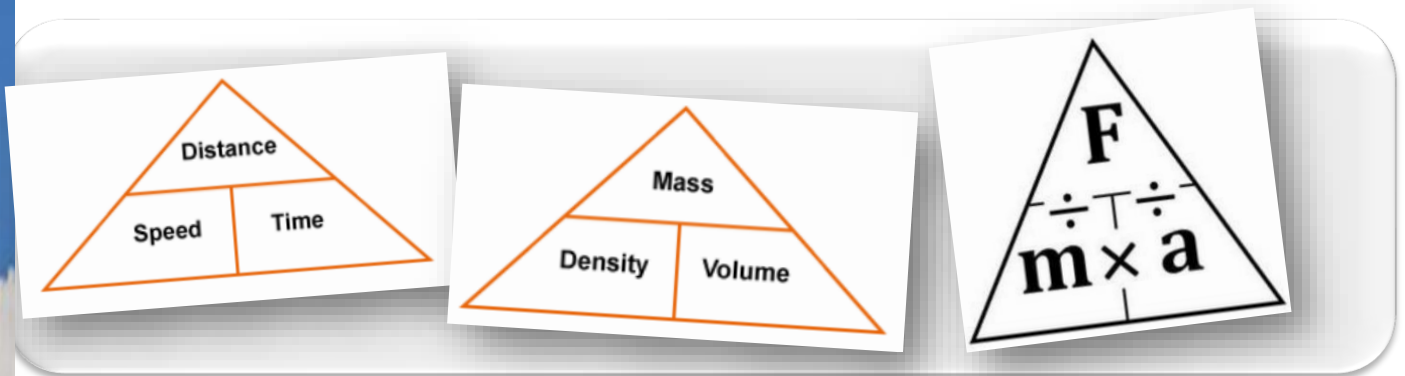
5. Now to look at more than one measure at a time !!

Use a 'Compound Measure Conversion Triangle' for SPEED/DENSITY/FORCE

Q... How do you find the density of a coin weighing 20grams with a volume of 0.5 cubic centimetres.

Or..Find the speed of a car travelling for 30mins a distance of 10miles ...in mph)

Or..Find the force required to accelerate a 20kg rock with 10ms⁻²) TRY THESE FORMULA TRIANGLES !



Hint... mass is divided by volume to get density. You need to divide the 20g between a volume of 0.5 cubic centimetres...do this on a calculator. After, you need to sort out the units. Density is a compound measure so its units are just both the units for mass and volume put together. Use a similar technique for the others..

END OF PREPATORY ASSIGNMENT

What to do now....

1. Ensure you have marked in each box if you feel confident in each topic or not (this will inform you and your tutor which activities you should do in the session)
2. Bring this yellow assignment with you to your next session and check with your tutor answers given
3. Add this to your folder of work IN ORDER YELLOW...GREEN...ORANGE... (and any BLUE you achieve)!

