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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Compound Measures**  |
| 1. Metric System | A system of measures based on:* the metre for length
* the kilogram for mass
* the second for time

**Length: mm, cm, m, km****Mass: mg, g, kg****Volume: ml, cl, l** | $$1kilometres=1000 metres$$$$1 metre=100 centimetres$$$$1 centimetre=10 millimetres$$$$1 kilogram=1000 grams$$ |
| 2. Imperial System | A system of weights and measures originally developed in England, usually based on human quantities **Length: inch, foot, yard, miles****Mass: lb, ounce, stone****Volume: pint, gallon** | $$1lb=16 ounces$$$$1 foot=12 inches$$$$1 gallon=8 pints$$ |
| 3. Metric and Imperial Units | Use the **unitary method** to convert between metric and imperial units. | $$5 miles≈8 kilometres$$$$1 gallon≈4.5 litres$$$$2.2 pounds≈1 kilogram$$$$1 inch=2.5 centimetres$$ |
| 4. Speed, Distance, Time | **Speed = Distance ÷ Time****Distance = Speed x Time****Time = Distance ÷ Speed**Image result for speed distance time triangleRemember the correct units. | Speed = 4mphTime = 2 hoursFind the Distance.$$D = S × T = 4 × 2 = 8 miles$$ |
| 5. Density, Mass, Volume | **Density = Mass ÷ Volume****Mass = Density x Volume****Volume = Mass ÷ Density**Image result for dmv triangleRemember the correct units. | Density = 8kg/m³Mass = 2000gFind the Volume.$$V = M ÷ D = 2 ÷ 8 = 0.25m³$$ |
| 6. Pressure, Force, Area | **Pressure = Force ÷ Area****Force = Pressure x Area****Area = Force ÷ Pressure**Image result for pressure triangleRemember the correct units. | Pressure = 10 PascalsArea = 6cm²Find the Force$$F=P×A=10×6=60 N$$ |
| 7. Distance-Time Graphs | You can find the **speed** from the **gradient** of the line (Distance ÷ Time)The steeper the line, the quicker the speed.A **horizontal** line means the object is not moving (**stationary**). |  |

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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Growth and Decay**  |
| 1. Exponential Growth | When we **multiply** a number **repeatedly** by the **same number** ($\ne 1)$, resulting in the number **increasing by the same proportion** each time.The original amount can grow very quickly in exponential growth. | $1, 2, 4, 8, 16, 32, 64, 128…$ is an example of exponential growth, because the numbers are being multiplied by 2 each time. |
| 2. Exponential Decay | When we **multiply** a number **repeatedly** by the **same number** ($0<x<1)$, resulting in the number **decreasing by the same proportion** each time.The original amount can decrease very quickly in exponential decay. | $1000, 200, 40, 8…$ is an example of exponential decay, because the numbers are being multiplied by $\frac{1}{5}$ each time. |
| 3. Compound Interest | Interest paid on the **original amount and the accumulated interest**. | A bank pays 5% compound interest a year. Bob invests £3000. How much will he have after 7 years.$$3000×1.05^{7}=£4221.30$$ |

**Knowledge Organiser**