AQA Physics GCSE
RP05 - Density

Flashcards

Part 1: Calculating the density of a regularly shaped object.

Outline the basic steps of the practical.

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1. Measure the dimensions of the regular shape and calculate the volume
2. Measure the mass of the shape using a calibrated balance
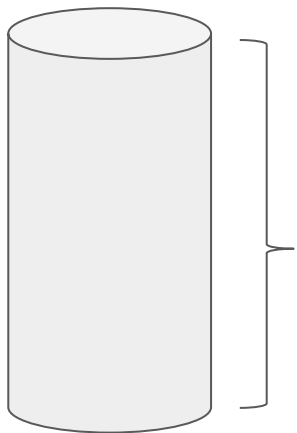3. Calculate density from the mass and volume

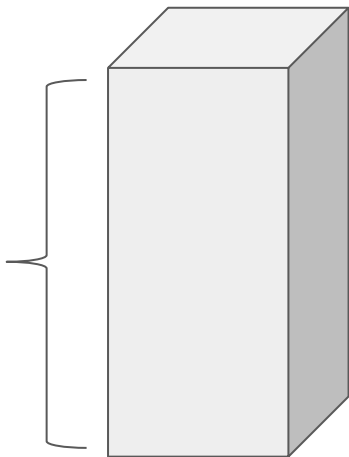# Give the formula for the volume of a prism

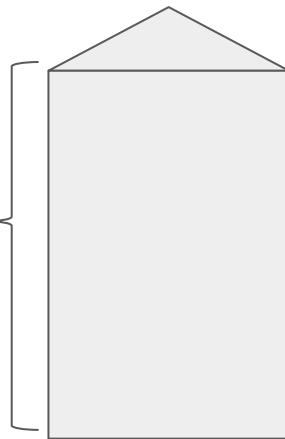# Give the formula for the volume of a prism

Volume = area of face x height

height

height

What equation is used to calculate volume of a rectangular prism?

What equation is used to calculate volume of a rectangular prism?

Volume = Length x Width x Height

(this also applies to cubes)

Give the formula for the volume of a sphere

Give the formula for the volume of a sphere

Volume = 4/3 x π x radius³

V = 4/3πr³

What equation is used to calculate density?

What equation is used to calculate density?

Density = Mass / Volume

What unit is used for density?

What unit is used for density?

kg/m^3

What piece of equipment is used to measure the object's mass? What must you do before using it?

What piece of equipment is used to measure the object's mass? What must you do before using it?

A digital balance, which should be zeroed before placing the object on it to avoid a zero error.

How do you convert from g/cm³ to kg/m³?

How do you convert from g/cm³ to kg/m³?

Multiply the value by 1000.

Part 2: Calculating the density of a irregularly shaped object.

Outline the basic steps of the practical.

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1. Measure the mass of the irregular shape
2. Fill a displacement can with water and submerge the object
3. Record the volume of water that has been displaced
4. Calculate the density from the mass and volume

What should you place under the can spout to collect the water?

What should you place under the can spout to collect the water?

A measuring beaker.

Explain how you should fill the displacement can to get the most accurate results.

Explain how you should fill the displacement can to get the most accurate results.

Fill the can until water starts to drip out of the spout and into the beaker. Wait until the dripping just stops before submerging the object.

Part 3: Calculating the density of a liquid.

Outline the basic steps of the practical.

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1. Measure the mass of the empty measuring cylinder
2. Pour around 100cm³ of liquid into the cylinder and record the volume
3. Measure the mass of the cylinder with liquid in, and subtract the cylinder's mass to calculate the mass of liquid.
4. Calculate density from mass and volume

How does the density of solids and liquids compare?

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In general, solids are more dense than liquids since their particles are more tightly packed together meaning there is more mass per unit volume.