Physics Paper 1

Model Exam Question Booklet

Physics Paper 1	
Topics in the Paper:	
P1	Energy Stores and Transfers
P2	Thermal Energy
P5	Electricity in the Home
P6	Particle Model of Matter
RP2	Thermal Insulators
RP5	Density

Essential Content for the Higher Separate Science Exam (PBT)

This booklet is split into 3 parts:

Part 1
The first part is a selection of short response questions and answers that are likely to come in your Physics exams this summer. Spend time learning the answers to these questions, for example you could produce flash cards. You should self quiz yourself on these questions regularly!

Part 2
Selection of extended response questions (4 to 6 marks) that are likely to be on your paper this year, either because they have not been assessed in the last couple of years, or because they come up most years in exams. Prepare and practice your responses to these questions.

Part 3
Required practical section. In this section you will find step by step guidance for each practical. This is followed by a page of short response questions and answers to learn for each of the practicals. There are also some extended response questions (4 to 6 marks) that are very likely to be on the exam paper this year.

P1: Energy Conservation

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1. What is a system?
2. What happens in terms of energy when an object is projected upwards?
3. What happens in terms of energy when a moving object hits an obstacle?
4. What happens in terms of energy when an object is accelerated by a constant force?
5. What happens in terms of energy when a vehicle is slowing down?
6. What happens in terms of energy when water is brought to the boil in an electric kettle?
7. What is the formula for kinetic energy?
8. What is the unit for kinetic energy?
9. What is the unit for mass?
10. What is the unit for speed?
11. What is the unit for elastic potential energy?
12. What is the unit for spring constant?
13. What is the unit for extension?
14. What is the formula for gravitational potential energy?
15. What is the unit for GPE?
16. What is the unit for gravitational field strength?
17. What is the unit for height?
18. What is the definition of power?
19. What formula would you use to calculate power if you had a value for energy transferred?
20. What formula would you use to calculate power if you had a value for work done?
21. What is the unit for power?
22. What is the unit for energy transferred?
23. What is the unit for time?
24. What is the unit for work done?
25. What is an energy transfer of 1 joule per second equal to?

1. Object or group of objects.
2. It gains gravitational potential energy and kinetic energy decreases.
3. The kinetic energy is transferred to heat and sound and kinetic energy of the obstacle that was hit.
4. Work is done by a force on an object. This work is converted to the object's kinetic store.
5. The kinetic energy of the vehicle decreases while energy is dissipated through heat and sound.
6. Energy transfers from the electrical store of the mains power supply to the thermal store of the water.
7. Kinetic Energy = 0.5 x mass x $(\text{speed})^2$
8. Joules, J
9. Kilograms, Kg
10. Metres per second, m/s
11. Joules, J
12. Newtons per metre, N/m
13. Metres, m
14. GPE = mass x gravitational field strength x height
15. Joules, J
16. Newtons per kilogram, N/kg
17. Metres, m
18. The rate at which energy is transferred or the rate at which work is done.
19. Power = Energy Transferred / Time
20. Power = Work Done / Time
21. Watts, W
22. Joules, J
23. Seconds, s
24. Joules, J
25. 1 watt

P2: Energy Transfer

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1. What is specific heat capacity?
2. What is the unit for change in thermal energy?
3. What piece of equipment would you use to measure change in thermal energy?
4. What is the unit for mass?
5. What piece of equipment would you use to measure mass?
6. What is the unit for temperature change?
7. What piece of equipment would you use to measure temperature change?
8. What factors affect the rate of cooling of a building?
9. What is a conductor?
10. What materials are good conductors?
11. What is an insulator?
12. What materials are good insulators?
13. How do insulators reduce unwanted energy loss?
14. What happens to energy that is wasted in a home?

1. The amount of energy needed to raise the temperature of one kilogram of a substance by one degree Celsius.
2. Joules (J)
3. Joulemeter
4. Kilograms (kg)
5. Balance
6. °C
7. Thermometer
8. The thickness and thermal conductivity of its walls.
9. This is the process by which energy is transferred through a material.
10. Metals
11. Materials that are poor conductors?
12. Non-metals and air
13. Insulation which has a low thermal conductivity and so less energy is transferred by conduction.
14. It is dissipated into the environment in the form of thermal energy.

P5: Electricity in the Home

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1. What is the equation that links current, potential difference and power?
2. What is the equation that links current, power and resistance?
3. What is the symbol for power?
4. What is the unit for power?
5. What is the symbol for potential difference?
6. What is the unit for potential difference?
7. What is the symbol for current?
8. What is the unit for current?
9. What is the symbol for resistance?
10. What is the unit for resistance?
11. What does the amount of energy an appliance transfers depend on?
12. When work done in a circuit?
13. What is the equation that links energy transferred, power and time?
14. What is the equation that links charge flow, energy transferred and potential difference?
15. What is the unit for energy transferred?
16. What is the unit for time?
17. What is the unit for charge flow?
18. What is the national grid?
19. What do step up transformers do?
20. What do step down transformers do?

1. Power = Potential Difference x Current
2. Power = $(\text{Current})^2$ x Resistance
3. *P*
4. Watts, W
5. *V*
6. Volts, V
7. *I*
8. Amperes, A
9. *R*
10. Ohms, Ω
11. The power of the appliance and how long it is switched on for.
12. When charge flows.
13. Energy Transferred = Power x Time
14. Energy Transferred = Charge Flow x Potential Difference
15. Joules, J
16. Seconds, s
17. Coulombs, C
18. A system of cables and transformers linking power stations to consumers.
19. Increase the potential difference from the power station to the transmission cables.
20. Decrease the potential difference for domestic use.

P6: Particles and Matter

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1. What is the equation for density?
2. What are the units for density?
3. What are the units for mass?
4. What are the units for volume?
5. How are the particles in a solid arranged?
6. How are the particles in a liquid arranged?
7. How are the particles in a gas arranged?
8. How are changes in state different to chemical changes?
9. Which state of matter is most dense?
10. What are the names of the five state changes?
11. How do you measure the volume of a regular solid.
12. How do you measure the volume of an irregular solid.
13. What is internal energy?
14. What is the definition of specific heat capacity?
15. What is the definition of latent heat?
16. Why doesn't the temperature of a material change as it's changing state?
17. The specific latent heat of fusion gives what state change?
18. The specific latent heat of vaporisation gives what state change?
19. What is the equation to calculate energy change from specific heat capacity?
20. What is the equation to calculate energy needed for a state change?

1. $\rho = m \div V$
2. kg/m^3
3. kg
4. m^3
5. The particles are touching and vibrate around a fixed pattern.
6. Particles are touching but not in fixed positions. They are free to flow around.
7. Particles are far apart and move around quickly and randomly.
8. The material recovers its original properties if the change is reversed.
9. Solid.
10. Melting (solid → liquid), evaporating (liquid → gas), freezing (liquid → solid), condensing (gas → liquid), sublimating (solid → gas/gas → solid).
11. Measure the length of the three sides and multiply together.
12. Place the irregular solid in water in a measuring cylinder. Measure how much the water level has gone up by.
13. Internal energy is the total kinetic energy and potential energy of all the particles that make up a system.
14. The energy needed to heat up 1kg of a material by a temperature of 1°C.
15. The energy needed to change state of 1kg of a substance without changing temperature.
16. Energy goes into breaking/making bonds.
17. From solid to liquid.
18. From liquid to gas.
19. $\Delta E = m \times c \times \Delta\theta$
20. $E = m \times L$

Topic	P1 Energy Conservation
Qu	Describe the energy transfer for a ____.
Info	You could be asked this question for a range of scenarios including: A falling object A car driving uphill A catapult A pendulum To answer this question, you will need to do the following: Identify the input energy Identify the output energy Identify the wasted energy Describe the overall energy change
Top Tip	If you are describing energy “wasted” as heat, make sure you say where it is going – e.g., heating the surrounding air.
Model Answer	**Describe the energy transfers for a falling object** 1. *For a falling object the input energy is gravitational potential energy. As the object falls the gravitational potential energy decreases.* 2. *The gravitational potential energy is transferred into kinetic energy and so as the object falls, and the gravitational potential energy decreases the kinetic energy of the object increases.* 3. *Some of the energy is wasted as heat to the surroundings due to air resistance.* 4. *Overall, the gravitational potential energy is transferred into kinetic energy.*
Practice	1. Learn and practice the model answers above. 2. Prepare and learn model answers to describe the energy transfers for a car driving uphill, a catapult and a pendulum.

Topic	P2 Thermal Energy
Qu	Calculating a value using the equation: Change in Thermal Energy= Mass x Specific Heat Capacity x Temperature Change
Info	There is frequently a question in which you will need to use this formula. Marks vary between 3 and 6 marks depending on how much processing of the information you need to do. To answer this question, you will need to do the following: 1. Check for any unit conversions you may need to do. Energy should be in joules and mass should be in kilograms. 2. Identify the temperature change (you may need to calculate this) 3. Write down the formula you will be using. 4. Substitute in the values. 5. Rearrange 6. Do the maths 7. Round to the correct number of significant figures. 8. Add units.
Top Tip	**You do not need to learn this formula. It will be given on the data sheet. Always write down the formula you are using, substitute numbers and then rearrange. Avoid writing a rearranged formula as its easy to make mistakes and can lose you marks.**

Model Answer

Calculate the change in thermal energy when a 500g potato with a specific capacity of 3400 J/kg °C is heated from 20°C to 100°C.

500g = <u>0.5kg</u>	Check for unit conversions.
100-20 = <u>80°C</u>	Identify temperature change.
$\Delta E= m \times c \times \Delta\theta$	Formula to be used.
$\Delta E= 0.5 \times 3400 \times 80$	Substitute values.
-	Rearrange.
$\Delta E= 0.5 \times 3400 \times 80$ $= 136{,}000$	Do the calculation
-	Round to correct number of sig fig.
136,000J	Answer with units

Topic	P2 Thermal Energy
Qu	Multistep equation using another equation alongside the equation: Change in Thermal Energy= Mass x Specific Heat Capacity x Temperature Change
Info	Multi step calculations for specific heat capacity may involve you using other equations to calculate a change in thermal energy first. One possible equation you could need to use includes: Power = Energy Transferred/Time If you have a question gives you a power and a time you can use this to calculate energy transferred. You can then use this value for energy transferred in the equation for specific heat capacity. To answer this question, you will need to do the following: 1. Check for any unit conversions you may need to do. Mass should be in kilograms; power should be in watts and time in seconds. 2. Identify the temperature change (you may need to calculate this) 3. Write down the 1st formula you will be using. 4. Substitute in the values. 5. Rearrange 6. Do the maths 7. Write down the 2^{nd} formula you will be using. 8. Substitute in the values. 9. Rearrange 10. Do the maths 11. Round to the correct number of significant figures 12. Add units to the answer.
Model Answer	**Calculate the SHC of water when a 2.6kW kettle heats 0.80kg of water from 18°C to 100°C over 120 seconds. Give your answer to 2 significant figures.**

2.6kW = 2600W	Check for unit conversions.
100-18 = <u>82°C</u>	Identify temperature change.
Power = Energy Transferred/Time	1^{st} formula to be used.
2600 = Energy Transferred / 120	Substitute values.
2600 x 120 = Energy Transferred	Rearrange.
Energy Transferred = 312,000	Do the calculation
$\Delta E = m \times c \times \Delta\vartheta$	2^{nd} formula to be used.
312,000 = 0.8 x c x 82	Substitute values
312,000 = c x 65.6 *312,000 / 65.5 = c*	Rearrange
4,763.358778626	Do the calculation
4,800	Round to correct number of sig fig.
4800 J/Kg °C	Answer with units

Topic	P2 Thermal Energy
Practice	Practice using the formula for specific heat capacity by answering the questions below: 1. The water distiller is filled with 5.0 kg of water at 20 °C The specific heat capacity of water = 4 200 J/Kg °C. Calculate the energy needed to raise the temperature of the water to 100 °C. 2. 18 000 J of energy was supplied to a 2 kg cylinder of steel by 18°C. Calculate the specific heat capacity of steel. 3. Calculate the change in thermal energy when a 750g potato with a specific capacity of 3400 J/kg °C is heated from 22°C to 100°C. 4. The mass of water in the pool is 5000 kg. The specific heat capacity of water is 4200 J/kg°C. Calculate how much energy needs to be supplied to increase the water temperature by 5°C and state the correct unit. 5. The air in a room is at a temperature of 12 °C. The house owner switches the heating on until the temperature reaches 22 °C. The amount of energy needed to raise the temperature of the air to 22 °C is 580 000 J. The mass of air in the room is 58 kg. Calculate the specific heat capacity of air and give the unit.
Multi Step Practice	Practice using the formula for both power and specific heat capacity by answering the questions below: 1. The SHC of water is 4800J/ kg °C. Calculate the time it will take to heat 0.62kg of water from 21°C to 100°C with a 2.5kW kettle. Give your answer to 2 significant figures. 2. The SHC of water is 4800J/ kg °C. Calculate the time it will take to heat 450g of water from 18°C to 100°C with a 2.5kW kettle. Give your answer to 2 significant figures. 3. The coffee machine heats water from 20 °C to 90 °C. The power output of the coffee machine is 2.53 kW. The specific heat capacity of water is 4200 J/kg °C. Calculate the mass of water that the coffee machine can heat in 14 seconds. 4. The coffee machine heats water from 19 °C to 90 °C. The power output of the coffee machine is 2.53 kW. The specific heat capacity of water is 4200 J/kg °C. Calculate the mass of water that the coffee machine can heat in 32 seconds.

Topic	P5 Electricity in the Home
Qu	Calculating a value using the equations: *Energy Transferred = Power x Time* ***OR*** *Energy Transferred = Charge Flow x P..D*
Info	There is frequently a question in which you will need to use these formulas. Marks vary between 3 and 6 marks depending on how much processing of the information you need to do. If you need to use both formulas to answer the question this will usually be worth 6 marks. To answer this question, you will need to do the following: 1. Check for any unit conversions you may need to do. 2. Write down the formula you will be using. 3. Substitute in the values. 4. Rearrange. 5. Do the calculation. 6. Round to the correct number of significant figures. 7. Add units.
Top Tip	**You do not need to learn these formulas as they will both be given on a data sheet this year. Always write down the formula you are using, substitute numbers and then rearrange. Avoid writing a rearranged formula as its easy to make mistakes and can lose you marks.**
Model Answer	**Calculate the power when 1.2kJ is transferred in a minute.**

1.2kJ = 1200J *1 minute = 60 seconds*	Check for unit conversions.
Energy Transferred = Power x Time	Formula to be used.
1200 = Power x 60	Substitute values.
1200 / 60 = Power	Rearrange.
Power = 20	Do the calculation
-	Round to correct number of sig fig.
20W	Answer with units

Topic	P5 Electricity in the Home
Qu	Calculating a value using the equations: *Energy Transferred = Power x Time* ***AND*** *Energy Transferred = Charge Flow x P..D*
Info	Sometimes you can be asked to calculate a value that would require you to use two equations. If you need to use both formulas to answer the question this will usually be worth 6 marks. In these examples we are going to be looking at using the 2 equations for energy transferred however you could need to use lots of different equations that are on your data sheet. To answer this question, you will need to do the following: 1. Check for any unit conversions you may need to do. 2. Write down the 1st formula you will be using. 3. Substitute in the values. 4. Rearrange 5. Do the maths 6. Write down the 2nd formula you will be using. 7. Substitute in the values. 8. Rearrange 9. Do the maths 10. Round to the correct number of significant figures 11. Add units to the answer.
Model Answer	**Calculate the potential difference when a 2.5kW kettle that has a charge flow of 1200C is turned on for 120 seconds.**

2.5kW = 2500W	Check for unit conversions.
Energy Transferred = Power x Time	1st formula to be used.
Energy Transferred = 2300 x 120	Substitute values.
-	Rearrange.
Energy Transferred = 276,000	Do the calculation
Energy Transferred = Charge x P..D	2nd formula to be used.
276,000 = 1200 x P.D	Substitute values
276,000 / 1200 = P.D	Rearrange
Potential Difference = 230	Do the calculation
-	Round to correct number of sig fig.
230V	Answer with units

Topic	P5 Electricity in the Home
Practice	Practice using the formulas for charge flow and potential difference by answering the questions below: 1. Batteries provide a potential difference of 36V and the total charge stored in the batteries is 670,000C. Calculate the maximum energy that could have been transferred from the batteries. 2. An electric bike has a battery with a potential difference of 36V and during the ride 28,000C of charge is transferred. Calculate the energy transferred by the battery in kilojoules. 3. A heater has a power of 65W. Calculate the energy transferred by the heater in 400s. 4. A 1500W heater is turned on for 5 hours. Calculate the energy transferred in this time in kJ. 5. A wind turbine supplies a power output of 9000kW for 9 seconds. Calculate the energy transferred by the wind turbine in kJ. 6. An electric bike has a motor that transfers 1800J of energy over 15 seconds. Calculate the power of the bikes motor.
Multi Step Practice	Practice using the formulas as part of a multistep question by answering the questions below. Some of the questions may need you to use other formulas (such as the ones for power): 1. Calculate the charge flow for when a 12V bulb is turned on for 25 seconds and has 25W of power. (5 marks) 2. Calculate the charge flow for when a 12V bulb is turned on for 1 minute and has 25W of power. (5 marks) 3. When the charger is connected to the battery, the potential difference across the battery is 15.0 V. The total energy stored when the battery is fully charged is 0.81 MJ. The average current used to charge the battery is 3.00 A. Calculate the time taken to fully charge the battery. 4. Calculate the potential difference when a 0.8W RAIO that has a charge flow of 5520C is turned on for 10 minutes.

Topic	P6 Particles and Matter
Qu	Identify and explain the properties of ___________________
Info	You could be asked this question for solids, liquids and gases. To answer this question, you need to: 1. Describe its shape and if it can flow 2. Link the state of matters shape and ability to flow to the forces of attraction between the particles. 3. Describe its density and if it can be squashed or compressed. 4. Link the density and ability to be compressed of the state of matter to the closeness of the particles.
Top Tip	Link the properties of the states of matter to the arrangement of particles.
Model Answer	**Identify and explain the properties of a gas.** *1. A gas can flow and will completely fill a container that they are in.* *2. This is because there are very little forces of attraction between the molecules and so they are able to move freely.* *3. A gas has a very low density and can be squashed and compressed.* *4. This is because the particles are very far apart and so there is lots of space between them.*
Practice	1. Learn and practice the model answer above. 2. Prepare and learn model answers to identify and explain the properties of solids and gases.

RP2 Investigating Thermal Insulators

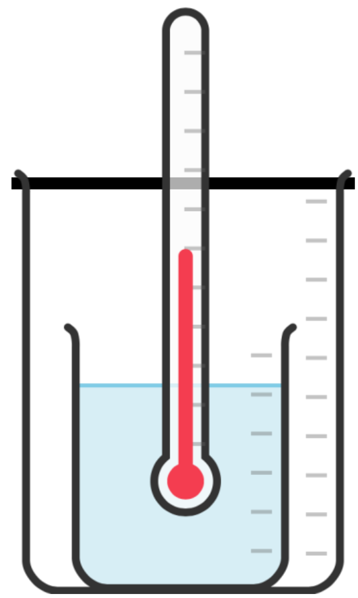
Testing the Effectiveness of Materials As Insulators

1

Boil water in a kettle and add 80cm^3 of this water to a 100cm^3 beaker.

2

Place this beaker into a larger beaker with a lid Place a thermometer through the lid.



3

Record the start temperature.

4

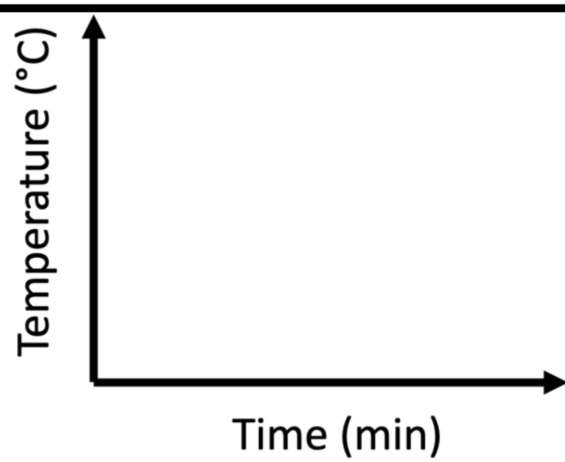
Start the timer and record the temperature at 5, 10 , 15 and 20 minutes.

5

Repeat steps **1-4** with different materials placed in the gap between the smaller and larger beaker.

6

Plot a cooling curve of temperature against time.



RP2 Investigating Thermal Insulators

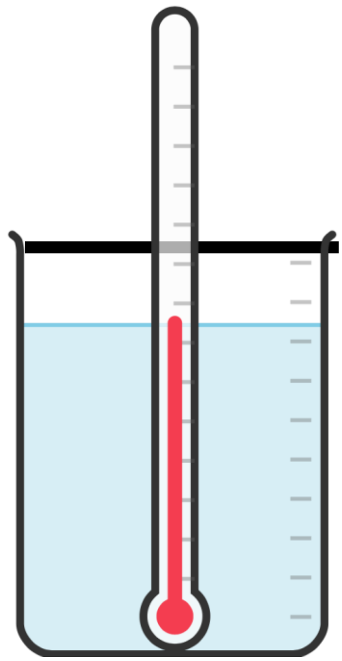
Investigating Factors That Affect Thermal Insulation Properties of a Material

1

Boil water in a kettle and add $200cm^3$ of this water to a $250cm^3$ beaker.

2

Place a thermometer through a cardboard lid.



3

Record the start temperature.

4

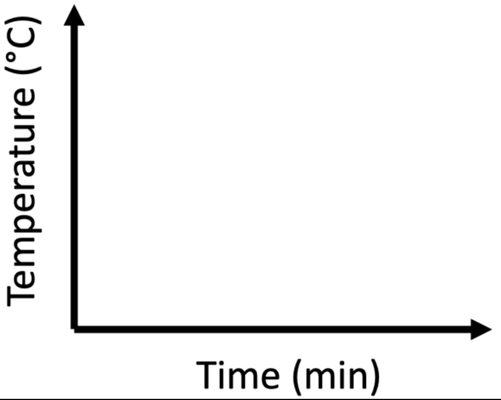
Start the timer and record the temperature at 5, 10 , 15 and 20 minutes.

5

Repeat steps **1-4** with different number of layers of insulation held in place with elastic bands.

6

Plot a cooling curve of temperature against time.



RP2: Thermal Insulators

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1. When investigating thermal insulators what should be controlled?
2. What would you use to heat the water up?
3. What would you use to measure temperature?
4. What would you use to measure time?
5. What unit would time be recorded in?
6. What graph would you draw to show your results?
7. When plotting temperature against time what would go on the x-axis?
8. When plotting temperature against time what would go on the y-axis?
9. What is the unit for temperature?
10. How could you hold the layers of insulation in place?
11. What could you use that would give a more precise temperature than a glass thermometer?
12. What are the advantages of using a digital thermometer?
13. How should using thicker insulation effect results?
14. Why are cotton wool and fleece good insulators?
15. Why should you use a beaker with no insulation in your investigation?
16. How could you determine the best insulating material from your results?
17. What is the risk of using boiling water?

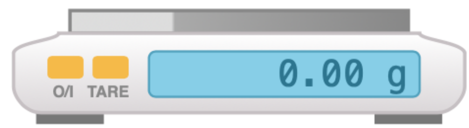
1. Start temperature of water, volume of test liquid, material of lid, thickness of lid.
2. Kettle
3. Thermometer
4. Stopwatch
5. Minutes
6. Temperature against time.
7. Time
8. Temperature
9. °C
10. Elastic bands
11. Digital thermometer
12. Higher resolution, less likely to misread results.
13. Water should cool slower.
14. They have pockets of air.
15. As a control
16. Look for the material in which the temperature dropped the least over a certain time.
17. Burns

Topic	RP2 Investigating Thermal Insulators
Qu	Explain how to determine the best insulating material for a ______
Info	You could be asked this question for some different scenarios. Some that have come up in the past include: • The best insulating material for a jacket. • The best insulating material for a sleeping bag. To answer this question, you will need to do the following: 1. Describe how to set up equipment. 2. Identify the measurements you will make 3. Identify control variables. 4. Describe how you will use your results.
Top Tip	**When discussing what you will do with your results this includes a description of the graph you will plot <u>AND</u> how you will then use this graph to form a conclusion.**
Model Answer	**Explain how to determine the best insulating material for a sleeping bag.** *1. Boil a kettle and add 80cm^3 into a 100cm^3 beaker.* *2. Place this beaker in a larger beaker that has a lid.* *3. Place the thermometer through the lid into the water.* *4. Record the start temperature.* *5. Start a stopwatch and record the temperature every 5 minutes for 20 minutes.* *6. Plot a graph of time against temperature.* *7. Repeat for some different materials in the space between the 2 beakers. Test materials include fleece, cotton padding, wool, duck feathers.* *8. Identify the material that had the smallest drop in temperature over the 10 minutes.*
Practice	1. Learn and practice the model answer above. 2. Prepare and learn a model answer to explain how you will determine the best material for a jacket. 3. Prepare and learn a model answer to explain how to determine what happens to temperature change when insulation is thicker.

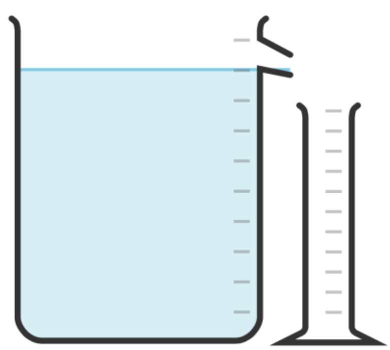
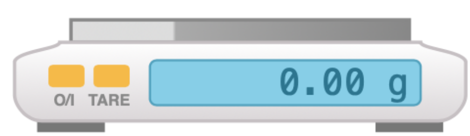
RP5

Determining Density

Determining Density of a Regularly Shaped Object

Finding Volume	Measure the length height and width of the object. Multiply these values together to calculate volume	
Finding Mass	Measure the mass of the object using a balance.	
Determining Density	Divide the mass by the volume to calculate density.	**Density = Mass / Volume**

Determining Density of an Irregularly Shaped Object

Finding Volume	Fill a displacement can with water. Place an empty measuring cylinder under the spout. Add the object to the can. Measure and record the volume displaced into the measuring cylinder.	
Finding Mass	Measure the mass of the object using a balance.	
Determining Density	Divide the mass by the volume to calculate density.	**Density = Mass / Volume**

RP5: Determining Density

1. What piece of equipment can be used to measure the dimensions of an object?
2. How do you determine volume of a regularly shaped object?
3. How do you determine the volume of an irregularly shaped object?
4. What apparatus is used to measure mass?
5. To calculate density what 2 measurements do you need?
6. What is the formula to calculate density?
7. How do you determine the volume of an irregularly shaped object?
8. What is the unit for mass?
9. What is the unit for volume?
10. What is the unit for density?
11. How do you determine the mass of a liquid?
12. What is the density of water?
13. What piece of equipment could be used to measure lengths more accurately than a ruler?
14. What is the resolution of a ruler?
15. What happens to accuracy when higher resolution apparatus is used?
16. What is zero error?
17. How can a zero error on a balance be corrected?
18. When measuring the volume of an irregularly shaped object how may an error occur?

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1. Ruler, micrometre or Vernier callipers
2. Measure dimensions.
3. A displacement technique.
4. Balance
5. Mass and volume
6. Mass / Volume
7. Add it to a displacement can filled with water. Add the object, collecting the displaced water in a measuring cylinder. The volume of water collected is the volume of the object.
8. Grams (g)
9. Cm^3
10. g/cm^3
11. Add a beaker to a balance and set to 0. Then add the liquid recording the mass.
12. $1g/cm^3$
13. Vernier callipers or a digital micrometer
14. 1mm
15. Increases
16. When a piece of apparatus gives a false reading when the true value is 0.
17. Record the value on the balance when it should be zero, subtract this value from each mass recorded.
18. The water level not at the same level as the spout, not all the displaced water is collected in the measuring cylinder, eye position too high or low when measuring the volume.

Topic	RP5 Determining Density
Qu	Explain how to determine the density of ______
Info	You could be asked this question for any object that is either a regular shape, or irregular shape. Some that have come up in the past include: • A small rock • A metal cube • A small statue • A chess piece • A rock cut into a cuboid To answer this question, you will need to do the following: 1. Identify if the object is a regular or irregular shape. 2. Describe how to measure mass. 3. Describe how to measure volume. 4. Explain how you will use results to determine density.
Top Tip	**For each measurement required identify the equipment you will use and describe how to use it.**
Model Answer	**Explain how to determine the density of a small rock.** *1. Measure the mass of a rock by placing it on a balance.* *2. To find the volume of the rock set a displacement can filled up to be level with the spout. Place a measuring cylinder underneath. Add the small rock to the displacement can. Record the volume of water that was displaced into the measuring cylinder.* *3. Calculate the density by dividing the mass by the volume.*
Practice	1. Learn and practice the model answer above. 2. Prepare and learn a model answer to explain how you will determine the density of a metal cube, a small statue, a chess piece and a rock cut into a cuboid.