



Aspire Achieve Thrive

**Half Term 1**  
**Science**  
**Year 11**

**Name:** \_\_\_\_\_

**Tutor:** \_\_\_\_\_

**Tassomai - 2 Daily Goals per week - Deadline is Friday**

## Example Year 11 Homework Timetable








<b>Monday</b>	Ebacc Option D	Option C	Modern Britain	
<b>Tuesday</b>	English	Tassomai	Option B	Option A
<b>Wednesday</b>	Sparx	Science	Modern Britain	Option C
<b>Thursday</b>	Ebacc Option D	Tassomai	Option B	
<b>Friday</b>	Sparx	Science	English	Option A

Block A	Block B	Block C	Block D
Art	Business Studies	Art	French
Dance	Child Development	Business Studies	Geography
Drama	Catering	Geography	History
Media Studies	Computer Science	Health & Social Care	
Music	Drama	History	
Photography	Health & Social Care	Catering	
	IT	Photography	
	Media Studies	Sport	
	Sociology	Travel & Tourism	
	Sport		

**Tassomai - 2 Daily Goals per week**

**Sparx - 4 tasks of Sparx per week**

## Year 11 - Homework Plan Science

Week/Date	Homework Task	Examination Question
Week 1 5th September 2022	<b>Cornell Notes</b> on factors affecting rates of reaction. 	Answer the questions on rates of reaction.
Week 2 12th September 2022	<b>Revision Cards</b> on the required practical for rates of reaction 	Answer the questions on rates of reaction.
Week 3 19th September 2022	<b>Cornell Notes</b> on reversible reactions 	Answer the questions on reversible reactions.
Week 4 26th September 2022	<b>Revision Cards</b> on mains electricity and the national grid 	Answer the questions on the national grid.
Week 5 3rd October 2022	<b>Cornell Notes</b> on electromagnetism 	Answer the questions on electromagnetism.
Week 6 10th October 2022	<b>Revision Cards</b> on specific heat capacity 	Answer the questions on specific heat capacity.
Week 7 17th October 2022	<b>Cornell Notes</b> on vaccinations 	Answer the questions on vaccinations.

Biology		Chemistry		Physics	
Keyword	Definition	Keyword	Definition	Keyword	Definition
Phagocytes	Cells, such as white blood cells, that engulf and absorb waste material, harmful microorganisms in the bloodstream and tissues.	Closed system	In chemistry, a system in which no substances can enter or leave during a reaction.	National grid	The network that connects all of the power stations in the country to make sure that everywhere has access to electricity.
Vaccine	Substances containing disabled antigens of a particular disease, usually administered via injection. Vaccines stimulate the body to produce antibodies to provide immunity against that disease.	Concentration	A measure of the mass or amount of solute dissolved in a given volume of solvent or solution.	Power	The energy transferred each second, measured in watts (W). power = current × potential difference or power = current <sup>2</sup> × resistance
Antibody	A protein produced by the immune system in humans	Reversible reaction	A chemical reaction which can go both ways.	Magnetic field	Area surrounding a magnet that can exert a force on magnetic materials.
Antibiotic	Substances that control the spread of bacteria in the body by killing them or stopping them reproducing.	Exothermic	Reaction in which energy is given out to the surroundings.	Electromagnet	A magnet made by wrapping a coil of wire around an iron bar and passing an electric current through the coil.
Antibiotic resistance	The ability of bacteria to survive exposure to antibiotics. It is caused by mutations in their genes.	Endothermic	Reaction in which energy is taken in.	Specific heat capacity	The amount of energy needed to raise the temperature of 1 kg of substance by 1°C.
Placebo	An inactive substance made to resemble a drug for researchers to use as a control.	Moles	The amount of substance that contains the same number of particles as there are atoms in 12 g of carbon-12	Specific latent heat	The amount of energy needed to melt or vaporise 1 kg at its melting or boiling point.
Xylem	Narrow, hollow, dead tubes with lignin. Transports water and minerals in plants.	Reactant	A substance that reacts together with another substance during a chemical reaction.	Transverse wave	A wave that moves in the same direction as the direction in which the particles are vibrating.
Phloem	The tissue in plants that transports sugars and amino acids.	Product	A substance formed in a chemical reaction.	Longitudinal wave	A wave that moves in a direction at right angles to the way in which the particles are vibrating.
Transpiration	The loss of water from leaves by evaporation through the stomata.	Equilibrium	When the forward and backward reactions happen at the same rate.	Amplitude	The maximum displacement of a point on a wave away from its undisturbed position.
Translocation	The movement of food molecules/sugars through the phloem.	Uncertainty	The interval within which the true value of a quantity can be expected to lie.	Frequency	The number of waves passing a point each second.
Most Important Fact					
Some diseases can be treated with antibiotics. Vaccinations allow protection against specific diseases, but the level of protection depends on the amount of people vaccinated. Plants, unlike animals, can make their own food. They do this using a process called photosynthesis. During photosynthesis, plants produce glucose from simple inorganic molecules – carbon dioxide and water – using light energy.		Chemical reactions are reversible and may reach a dynamic equilibrium. The position of equilibrium of a reversible reaction can be altered by changing the reaction conditions.		Electricity can flow either as direct or alternating current, and is used in homes to power electrical appliances. The National Grid distributes electricity throughout the country. Electromagnetism is due to the magnetic fields around electric currents. The fields can cause forces with other nearby magnets which can be used to make motors spin.	





Date.....

1.

- (c) Nitrogen is used to make ammonia.

The word equation for the reaction is:



Write the correct symbol in the equation to show that it is a reversible reaction.

(1)

- (d) A reversible reaction can reach equilibrium.

Complete the sentence.

Equilibrium is reached when the forward reaction and the reverse reaction happen

at the same \_\_\_\_\_.

(1)

- (e) Fertilisers are formulations containing nitrogen.

What is a formulation?

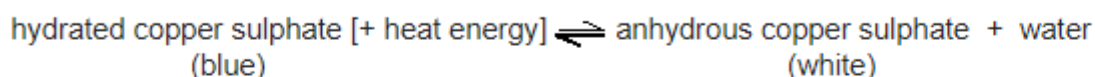
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(1)

2.

Hydrated copper sulphate is a blue solid. When it is heated, white solid anhydrous copper sulphate is made. This is a reversible reaction.



- (a) To make the forward reaction work, the hydrated copper sulphate must be heated all the time.

What type of reaction is this?

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(1)

Anhydrous copper sulphate can be used in a test for water. What **two** things will happen when water is added to anhydrous copper sulphate?

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

(2)

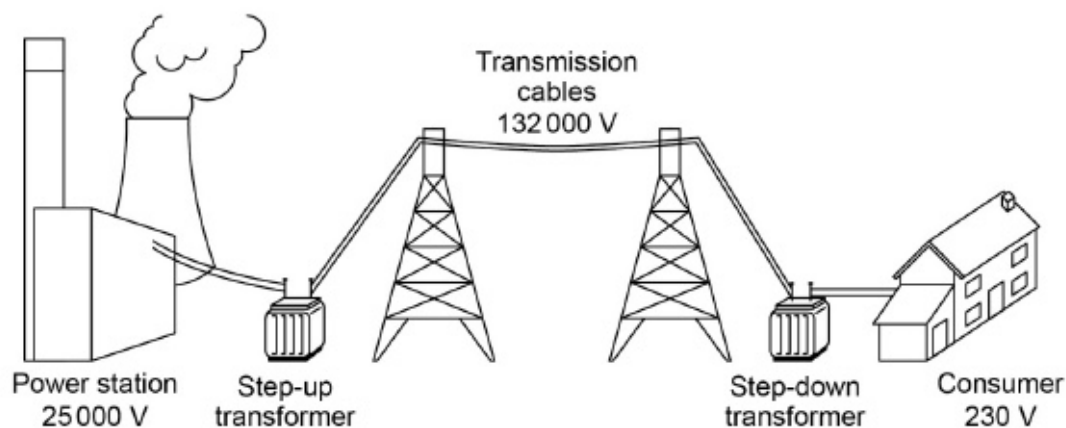


Date.....

The National Grid is used to transfer electrical power around the country.

Figure 1 shows a simplified diagram of the National Grid.

Figure 1



(a) The gas-fired power station shown in **Figure 1** uses a non-renewable energy resource.

Some power stations use renewable energy resources.

What is the difference between renewable and non-renewable energy resources?

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(2)

(b) Explain how transformers are used in the National Grid.

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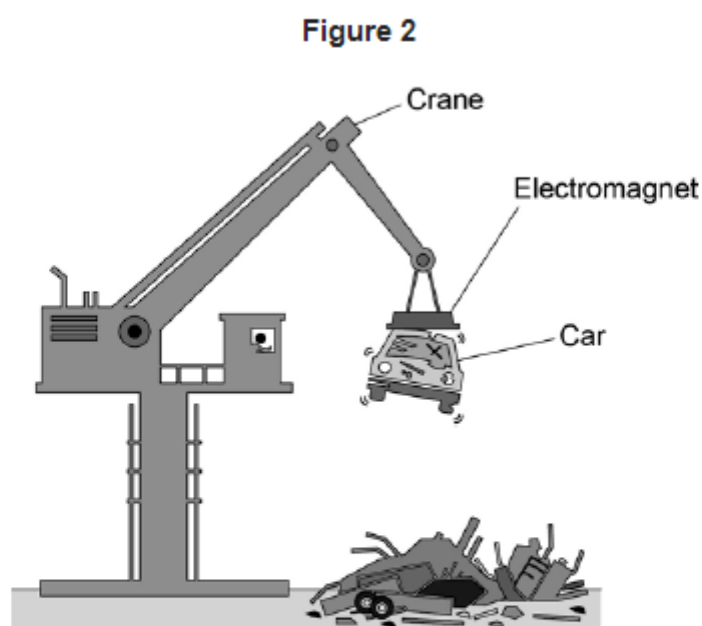
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(3)

Date.....

**Figure 2** shows an electromagnet being used to lift a car in a scrapyard.



An electromagnet is a solenoid.

Explain why it is better to use an electromagnet rather than a permanent magnet in a scrapyard.

You should include a comparison of the properties of electromagnets and permanent magnets in your answer.

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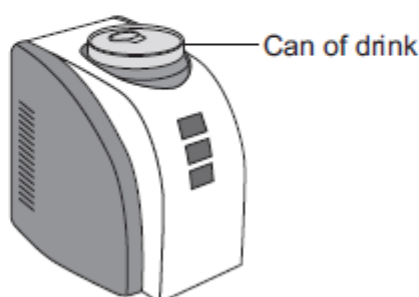
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Date.....

A 'can-chiller' is used to make a can of drink colder.

**Figure 1** shows a can-chiller.

**Figure 1**



- (a) The can-chiller decreases the temperature of the liquid in the can by 15 °C.  
The mass of liquid is 0.33 kg.  
The specific heat capacity of the liquid is 4200 J / kg °C.

Calculate the energy transferred from the liquid as it cools.

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Energy = \_\_\_\_\_ J

(2)

- (b) Complete the following sentence.

The specific heat capacity of a substance is the amount of energy required to change the \_\_\_\_\_ of one kilogram of the substance by one degree Celsius.

(1)

- (c) To calculate the specific heat capacity of a material, the mass of the material needs to be measured.

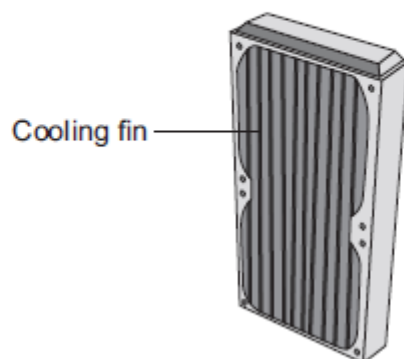
State the name of a measuring instrument used to measure mass.

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(1)

- (d) The back of the can-chiller has cooling fins, as shown in **Figure 2**.

**Figure 2**



The cooling fins increase the rate of energy transfer from the can-chiller to the surroundings.

Complete the following sentences.

The cooling fins are a \_\_\_\_\_ colour because that makes them good emitters of infrared radiation.

The large surface area of the cooling fins allows the air around the can-chiller to gain energy quickly and rise, transferring energy by \_\_\_\_\_.

(2)

Date.....

(i) Give **two** ways in which white blood cells protect us from disease.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

(2)

(ii) Explain, as fully as you can, how immunisation protects us from disease.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(3)

(Total 5 marks)



## STEP 2: CREATE CUES

**What:** Reduce your notes to just the essentials.

**What:** Immediately after class, discussion, or reading session.

**How:**

- Jot down key ideas, important words and phrases
- Create questions that might appear on an exam
- Reducing your notes to the most important ideas and concepts improves recall. Creating questions that may appear on an exam gets you thinking about how the information might be applied and improves your performance on the exam.

**Why:** Spend at least ten minutes every week reviewing all of your previous notes. Reflect on the material and ask yourself questions based on what you've recorded in the Cue area. Cover the note-taking area with a piece of paper. Can you answer them?

## STEP 1: RECORD YOUR NOTES

**What:** Record all keywords, ideas, important dates, people, places, diagrams and formulas from the lesson. Create a new page for each topic discussed.

**When:** During class lecture, discussion, or reading session.

**How:**

- Use bullet points, abbreviated phrases, and pictures
- Avoid full sentences and paragraphs
- Leave space between points to add more information later

**Why:** Important ideas must be recorded in a way that is meaningful to you.

## STEP 3: SUMMARISE & REVIEW

**What:** Summarise the main ideas from the lesson.

**What:** At the end of the class lecture, discussion, or reading session.

**How:** In complete sentences, write down the conclusions that can be made from the information in your notes.

**Why:** Summarising the information after it's learned improves long-term retention.

Date / /

Topic

**WEEK 1**

<b>Questions</b>	<b>Notes</b>

**Summary**



Date    /    /

Topic

Questions	Notes

Summary

Date        /        /

Topic

**WEEK 3**

Questions	Notes

Summary

Date     /     /

Topic

<b>Questions</b>	<b>Notes</b>

**Summary**

Date / /

Topic

**WEEK 5**

Questions	Notes

**Summary**



Date / /

Topic

**WEEK 7**

<b>Questions</b>	<b>Notes</b>

**Summary**

Date      /      /

Topic

Questions	Notes

Summary











<b>Revision Card on the required practical for rates of reaction</b>  <ol style="list-style-type: none"><li>1. What equipment is needed to measure the volume of a gas?</li><li>2. What factors that affect the rate of a reaction could you investigate?</li><li>3. Describe what equipment is needed to investigate how concentration affects the rates of reaction with sodium thiosulphate and acid.</li><li>4. What is a controlled variable?</li></ol>	<b>Answers</b>
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<b>Revision Card on mains electricity and the national grid</b>  <ol style="list-style-type: none"><li>1. What is the mains voltage value in this country?</li><li>2. What is the frequency of mains electricity?</li><li>3. What colour is the live wire?</li><li>4. Describe a step up transformer</li><li>5. Describe a step down transformer.</li></ol>	<b>Answers</b>
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<b>Revision Card on specific heat capacity</b>  <ol style="list-style-type: none"><li>1. Define specific heat capacity</li><li>2. List the equipment needed to investigate the specific heat capacity of a metal block.</li><li>3. What happens to the molecules in a liquid as it gets hotter?</li><li>4. What is the unit for specific heat capacity?</li><li>5. What is the unit for temperature change?</li></ol>	<b>Answers</b>
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