



Cycle 2

Science

Year 11

Name: _____

Tutor: _____

Year 11 Homework Timetable

Monday	English	Ebacc Option A	Option C	
Tuesday	Tassomai	Option B	Option D	
Wednesday	Hegarty	Science	Option C	
Thursday	Ebacc Option A	Tassomai	Option B	Option D
Friday	Hegarty	Science	English	







Tassomai – 2 Daily Goals per week

Hegarty - 4 tasks of Hegarty per week

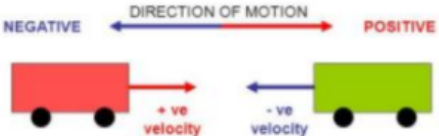
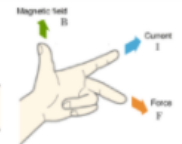
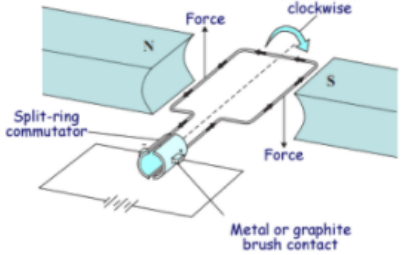
Block A	Block B	Block C	Block D
French	Art	Art	Business Studies
Geography	Business Studies	Business Studies	Catering
History	Child Development	Catering	Dance
Sociology	Catering	Drama	Drama
	Computer Science	History	Geography
	IT	Music	Media Studies
	Media Studies	Photography	Photography
	Sociology	Sport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

Aspire | Achieve | Thrive

Year 11 - Homework plan Science

Week/Date	Homework task	Exam Question
Week 1 November 15th	Cornell Notes: Energy Transfers 	Question 1: A stunt man swings from a high building to a low building several times. Describe how the gravitational potential energy store and the kinetic energy store of the stunt man change as he moves between the buildings. (4)
Week 2 November 22nd	Revision Card: Forces 	Question 2: Complete the calculation questions using the weight equation (weight = gravitational field strength x mass)
Week 3 November 29th	Revision: Cornell Notes / Mind map / Revision Cards	Revision for your Paper 2 Mock exams Use the knowledge organisers in this book along with your sequencing document to prepare.
Week 4 December 6th	Revision: Cornell Notes / Mind map / Revision Cards	Revision for your Paper 2 Mock exams Use the knowledge organisers in this book along with your sequencing document to prepare.
Week 5 December 13th	Cornell Notes: Ripple Tank Investigation 	Question 3: Explain how a student could make appropriate measurements and use them to determine the wavelength of the waves in the ripple tank.(6)
Week 6 January 3rd	Revision Card Hormonal and Nervous Control 	Question 4: Describe a method to investigate the effect of caffeine on reaction time. (4)
Week 7 January 10th	Cornell Notes: Homeostasis and blood glucose 	Question 5: Answer questions about hormonal control. (see page)
Week 8 January 17th	Revision card: Sustainable use of resources 	Question 6: Describe a method to determine the mass of dissolved solids in a 100 cm ³ sample of river water. (4)
Week 9 January 24th	Plug the gaps	Plug the gaps following your mock exam results

Cycle 2 Physics Year 11 Knowledge Organiser Week 1 and 2

Keyword	Definition	Key Ideas
Scalar	A quantity with size only, e.g mass, distance and speed	Newton's First Law: Balanced forces cause an object to remain stationary or continue at constant velocity. A resultant force will cause an object to accelerate or change direction. Newton's Third Law: Forces exist in pairs. Forces in a pair are equal in size and opposite in direction. An example of this is a person standing on the ground. The person exerts a force on the ground, the ground exerts an equal sized force back towards the person in the opposite direction. Surface area and air resistance: The larger the surface area of an object, the greater the air resistance acting on it. This is how a parachute helps to slow down a falling skydiver. The large surface of the chute causes a huge increase in air resistance.
Vector	A quantity with size and direction. E.g. acceleration, force and velocity	
Weight	The effect of gravity pulling on a mass. Weight = mass x gravitational field strength	
Magnetic field	The field of magnetic force around a magnet. The field is strongest closest to the poles.	
Induced magnet	A magnet that is only magnetic when inside the magnetic field of another magnet.	
Centre of mass	The point at the centre of an object that the mass can be said to act.	Higher Tier Only Momentum = mass x velocity Increasing the mass or the velocity will increase the momentum of a moving object.  Momentum is conserved during a collision. When two objects collide, the total momentum before is equal to the total momentum afterwards. In a head on collision, the total momentum can be 0 as momentum is a vector, meaning one of the objects will have a negative value for momentum. (e.g 100 Nkg – 100Nkg = 0 Nkg, in this example, the objects would end up being stationary after the collision.) Motor effect Fleming's left hand rule can tell us the direction of a force during the motor effect. The direction can be reversed by changing the direction of the electric current.  If a coil of wire is used, the force on each side will be in opposite directions. This causes the coil to spin around. This spinning can be used to drive a motor.  Force and extension in springs Proportionality – when two factors increase at the same rate. The symbol is \propto . The force on a spring is directly proportional to its extension. Refraction – When waves travel across the boundary between two materials, they change speed and can also change direction.
Non-contact force	A force that does not need to touch an object to interact with it. E.g. magnetic force or gravity	
Energy stores	Energy stores can transfer energy into different forms. For example, gravitational potential energy can be transferred into kinetic energy and vice versa.	
Thinking distance	The distance travelled during the reaction time of a driver.	
Braking distance	The distance travelled after pressing the brake in a vehicle	
Work done	The energy transferred. Calculated using Force x distance moved	
Electromagnetic waves	Waves that travel at the speed of light in a vacuum. They exist on a spectrum from radio waves (low frequency, long wavelength) to gamma (high frequency, short wavelength)	
Ultraviolet	An electromagnetic wave that can lead to sunburn and skin cancer.	
Ripple tank	A tank used to take measurements of wavelength and frequency for water waves.	
Transverse wave	A wave where the oscillations are at a right angle to the wave direction.	
Longitudinal wave	A wave where the oscillations are parallel to the wave direction.	
Microwaves	An electromagnetic wave that is used for communication on Earth. It can be used to communicate because it is transmitted by the atmosphere.	
Wave speed	The speed of a wave. Calculated using wave speed = frequency x wavelength	
Wireless communication	Communication without wires, using waves. The advantage of this is that wires do not get tangled.	

Cycle 2 Chemistry Year 11 Knowledge Organiser Week 3 and 4

Keyword	Definition	Key Ideas
Element	An element is a substance made from only one type of atom. They are found listed on the periodic table of elements.	<p>Crude Oil</p> <p>Crude oil is a mixture of different hydrocarbons including alkanes and alkenes. To make crude oil useful, it must be separated out into the individual hydrocarbons that make it up. To do this a process called fractional distillation is used.</p> <p>Fractional distillation is the use of a fractionating column to separate crude oil using the boiling points of the different hydrocarbons that make it up.</p> <p>A tall fractionating column is fitted above the mixture, with several condensers coming off at different heights. The column is hot at the bottom and cool at the top. Substances with high boiling points (long chain hydrocarbons) condense at the bottom and substances with lower boiling points (short chain hydrocarbons) condense on the way to the top.</p> <p>During this process there are lots of long chain hydrocarbons produced which are less useful than the short chains. In order to meet the demand for fuels which are shorter chained, a process called cracking is used to split the long chain alkanes into shorter chain alkanes and alkenes. Cracking can be done using steam or using a catalyst.</p> <p style="text-align: center;"> $\text{decane} \rightarrow \text{octane} + \text{ethene}$ $\text{C}_{10}\text{H}_{22} \rightarrow \text{C}_8\text{H}_{18} + \text{C}_2\text{H}_4$ </p>
Compound	A compound is two or more elements chemically bonded together. Such as water or carbon dioxide.	
Mixture	A mixture is two or more elements which are not chemically bonded together. Such as air or salt water.	
Bromine water	Bromine water is used to test for the presence of alkenes. If an alkene is present the bromine water will turn from orange to colourless.	
Conservation of mass	The mass of reactants in a chemical reaction must be equal to the mass of products in a chemical reaction.	
Carbon footprint	The total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions.	
Potable water	Potable water is any water that is safe to drink.	
Rate of reaction	The rate of a chemical reaction is a measure of how fast a chemical reaction goes.	
Pure	A single element or compound, not mixed with any other substance. Pure substances have an exact boiling point	
Formulation	A mixture that has been designed as a useful product.	
Impure	A substance containing a mixture of different elements or compounds. Impure substances have a range of boiling points.	<p>Sustainable Development.</p> <p>Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This means that finite resources, such as fossil fuels, should be used responsibly to preserve resources for future generations. Sustainable development also refers to the use of more renewable resources to limit the damage that is being done to our planet through the excessive release of greenhouse gases.</p> <p>An example of sustainable development could be through using carbon to produce fuels. This means that the carbon dioxide released through combustion could be collected and used to produce fuels instead of having to combust more resources. Carbon could also be collected using other methods so no more greenhouse gases are released into the environment.</p> <p>The Earth's Atmosphere</p> <p>By releasing more carbon dioxide through the burning of fossil fuels, humans are having an impact on the natural evolution of Earth's atmosphere.</p> <p>Earth's early atmosphere was made from predominantly carbon dioxide with traces of a few other elements. Volcanic eruptions caused degassing so the percentage of water vapour increased. As the Earth's temperature cooled, the water vapour condensed to form the oceans. Eventually, when green plants developed and carried out photosynthesis, carbon dioxide started being removed from the atmosphere and oxygen was released. Some of the carbon dioxide also dissolved in the oceans and got trapped in the formation of sedimentary rocks. The majority of today's atmosphere is nitrogen(78%) with some oxygen (21%) and traces of other gases.</p>
Endothermic	These reactions take in energy from the environment. They can be seen through a decrease in temperature.	
Exothermic	These reactions give out energy to the environment. They can be seen through an increase in temperature.	
Energy profiles	Energy profiles are used to show the energy changes that are occurring during an exothermic and endothermic reaction.	
Equilibrium	Equilibrium is reached when the rate at which the products are being made is the same as the rate at which they are being broken back down into the reactants.	
Reversible reactions	A reversible reaction is when the products of a reaction can be broken down to give the original reactants.	
Catalyst	A substance that is added to a chemical reaction to speed it up but it is not used up during the reaction.	
Lime Water	Limewater is used to test for the presence of carbon dioxide. If carbon dioxide is present, the limewater will turn cloudy.	
Oxygen test	In order to test for the presence of oxygen, you would attempt to relight a glowing splint. If it relights then oxygen is present.	

Cycle 2 BIOLOGY Year 11 Knowledge Organiser Week 5 and 6

Keyword	Definition	Key Ideas
Homeostasis	The maintenance of a constant internal environment.	<p>Homeostasis means maintaining the internal conditions of your body at a constant level. Factors that must be maintained include water and ion content, core body temperature (at 37.5°C) and the concentrations of carbon dioxide and glucose in the blood.</p> <p>Blood glucose concentration is kept at a relatively constant level by hormones produced by the pancreas; among these hormones is one called insulin, which is released just after you eat (when the blood glucose concentration increases). The control of blood glucose concentration is an example of the endocrine (hormonal) system helping to keep our body's internal conditions constant.</p> <p>The nervous system is also involved in homeostasis, for example, there are nerves which speed up or slow down your heart rate. Caffeine is a drug that speeds up heart rate; its effect can be investigated by measuring students' reaction times before and after drinking a cup of cola. Reaction times can be measured by dropping a ruler near to a person's hand and measuring how far it falls before they manage to catch it.</p> <p>When you measure a person's reaction time this is different to testing their reflexes; reaction times are conscious actions, whereas reflexes are fast protective responses that are outside conscious control.</p>
Endocrine system	A bodily system that controls our responses using hormones.	
Quadrat	A square shaped metal frame used for sampling populations of static organisms in a habitat.	
Population	The number of individuals of a single species living in a habitat.	
Biotic factor	A living factor that influences the survival of a species in a habitat, e.g. a new predator, a new pathogen.	
Abiotic factor	A non-living factor that influences the survival of a species in a habitat, e.g. light intensity, soil moisture.	
Biodiversity	The variety of different species in a habitat.	
Deforestation	The large-scale removal of trees from an ecosystem.	
Genome	The entire genetic material of an organism	
Mutation	A change in the DNA sequence of a gene.	
Interdependence	All of the organisms in a habitat depend on each other for their survival.	<p>Adaptations are features of an organism's body (or its behaviour) that help it to survive. Adaptations may be behavioural, structural or physiological.</p> <ul style="list-style-type: none"> • Behavioural adaptations are aspects of the way an organism behaves that make it more likely to survive (e.g. a crocodile rolling over and over to drown its prey). • Structural adaptations are bodily structures which improve survival chances – e.g. a camel's hump which acts as a store of fat. • Physiological (functional) adaptations are features of the way an organism's body actually operates; for example, a camel rarely sweats, even when the temperatures in its habitat reach up to 49°C. <p>All the organisms in a habitat depend on each other for their survival; this is known as interdependence. If the population of one species is reduced, this will affect all of the other species in the food web. Because of this interdependence, human activities like deforestation have far-reaching effects on all the organisms in surrounding ecosystems, with the result that biodiversity (the number of different species in a habitat) will be reduced.</p> <p>Another cause of species extinction and reduced biodiversity is climate change. This is brought about by the increasing concentrations of greenhouse gases like carbon dioxide in the Earth's atmosphere. Humans are increasing the levels of greenhouse gases in the atmosphere by activities like burning fossil fuels, growing rice, and farming cattle.</p>
Community	All the populations of all of the living species within a habitat.	
Stable community	A community in which all the populations of all the different species remain relatively constant over time.	
Selective breeding	Enhancing characteristics of a species by repeatedly selecting and breeding parent organisms with desirable traits.	
Punnett square	A genetic diagram which allows us to predict the likelihood of having offspring with a particular phenotype.	
Human genome project	A project which set out to sequence all of the genetic material in a human.	
Genetic engineering	Removing a gene from one organism and then inserting it into the genome of a different organism.	
Greenhouse gas	A gas that – when released into the atmosphere – prevents heat escaping from the Earth's atmosphere into space.	
Climate change	A gradual long-term change in global weather patterns.	
Carbon cycle	The recycling of carbon atoms in various forms through nature.	

Week 1: Date.....

Link: <https://www.youtube.com/watch?v=lbp01HgTBNc>

Question:

A stunt man swings from a high building to a low building several times.

Describe how the gravitational potential energy store and the kinetic energy store of the stunt man change as he moves between the buildings. (4)

Answer:-

[illegible]

Week 2: Date.....

Link: https://www.youtube.com/watch?v=W2aBVbcHr_k

Question:

The gymnast has a mass of 55 kg

gravitational field strength = 9.8 N/kg

Calculate the weight of the gymnast.

Use the equation:

$$\text{weight} = \text{mass} \times \text{gravitational field strength}$$

Weight = _____ N

(2)

The man has a mass of 75 kg

Gravitational field strength = 9.8 N/kg

Calculate the weight of the man.

Use the equation:

$$\text{Weight} = \text{mass} \times \text{gravitational field strength}$$

Weight = _____ N

(2)

- (c) An object has a weight of 6.8 N.

Calculate the mass of the object.

Use the equation

$$\text{Mass} = \text{weight} \div \text{gravitational field strength (g)}$$

Gravitational field strength = 9.8 N / kg

Mass = _____ kg

(1)

A mattress contains 1300 identical springs.

A person lies on the mattress and the springs compress.

The mean force on each spring in the mattress is 0.39 N

- (b) Calculate the mass of the person.

Gravitational field strength = 9.8 N/kg

Mass = _____ kg

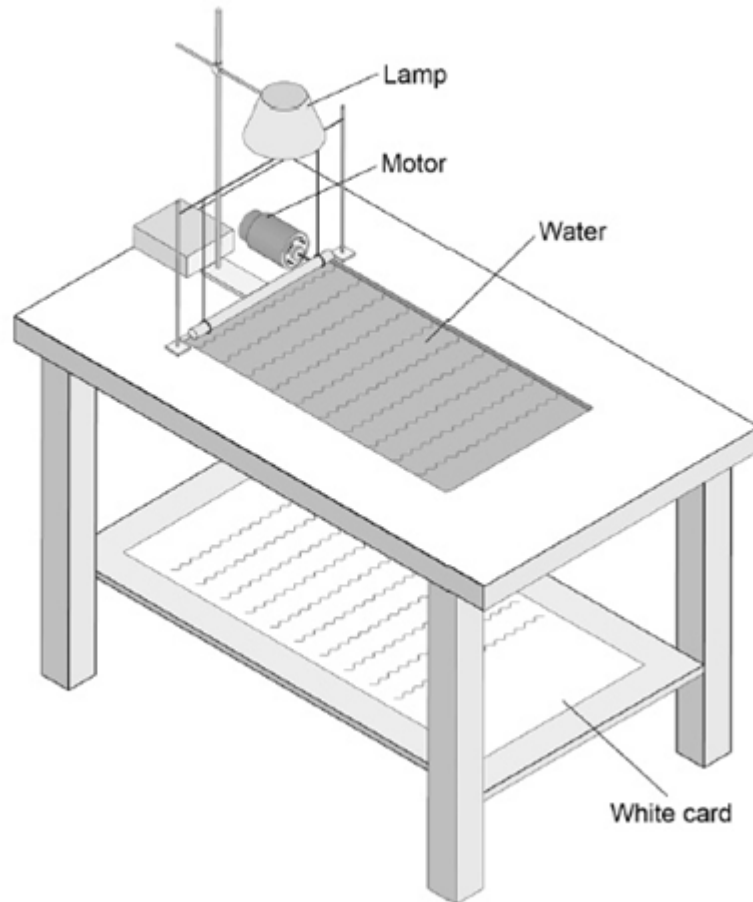
(4)

Week 5: Date.....

Link: <https://www.youtube.com/watch?v=UNmv6H-f180>

Question:

The diagram shows a ripple tank.



Explain how a student could make appropriate measurements and use them to determine the wavelength of the waves in the ripple tank.

(6)

[illegible]

Week 6: Date.....

Link: <https://www.youtube.com/watch?v=Fm02i4vEi5Q>

Question: Describe a method to investigate the effect of caffeine on reaction time. (6)

Answer:-

[illegible]

Week 7: Date.....

Link: <https://www.youtube.com/watch?v=77oyUdNZ054>

Coordination of the body can be affected
by chemicals called hormones

- (i) Where are hormones produced?

(1)

- (ii) How do hormones move around the body?

(1)

Insulin is a hormone.

- (i) Where is insulin produced?

(1)

- (ii) Explain the role of insulin in controlling blood sugar levels.

(4)

Set 1 and 2 should also explain the role of glucagon in controlling blood glucose levels.

[illegible]

Week 8: Date.....

Link: <https://www.youtube.com/watch?v=DikcEq2wg8g>

Question: Describe a method to determine the mass of dissolved solids in a 100 cm³ sample of river water.

(4)

Answer:-

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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.

Questions	Notes

Summary

Questions	Notes

Summary

Revision Page – Week 3

[illegible]

Revision Page – Week 3

[illegible]

Revision Page – Week 3

[illegible]

[illegible]

Revision Page – Week 4

[illegible]

[illegible]

Questions	Notes

Summary

Questions	Notes

Summary

Questions	Notes

Summary

Questions	Notes

Summary



Revision Card on Forces	Answers
<ol style="list-style-type: none">1. Define scalar and vector. How are they different?2. State Newton's first law.3. If an object has a resultant force of 20N right, what will happen to its motion?4. HT: Define momentum5. State what happens to air resistance as the surface area increases.6. State the equation for calculating weight7. State the equation for stopping distance8. State Newton's third Law	

Revision Card on Hormonal and Nervous Control	Answers
<ol style="list-style-type: none">1. Describe what is meant by a hormone2. Define homeostasis3. State the three types of variables in an experiment and what they mean.4. Describe a reflex arc5. State how reflexes differ from fast reactions6. Name the hormones involved in controlling blood glucose7. Describe how your body cools itself when too hot.	

Revision Card on Sustainable use of resources	Answers
<ol style="list-style-type: none">1. State the test for chloride ions2. Describe how to test the pH of a sample of water.3. Describe how to distil water.4. Define potable5. Describe the test to find if water is pure using the boiling point.6. State how oxides form when burning fuels7. Describe what is meant by a carbon footprint	

