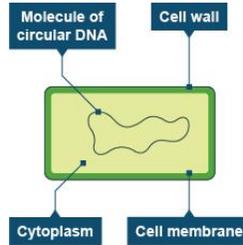
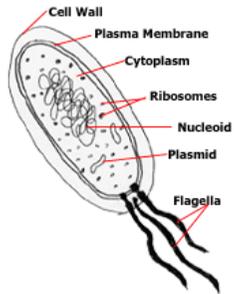


B2 REVISION - CHAPTER 1 - Cell, Tissues & Organs

Bacteria & Yeast



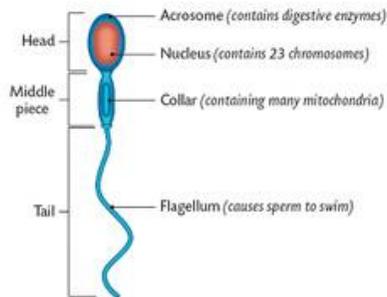
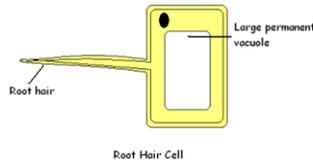
Where is the genetic material in a bacteria cell?
How many cells make up yeast?

Animal & Plant Cells

Structure	Purpose	Plant/Animal/Both
	Controls the cells activities	
Cytoplasm		
		Both
Mitochondria		
Ribosomes	Protein synthesis takes place	
		Plant
	Contain chlorophyll, absorb light energy to make food	
Vacuole		

Specialised Cells

Cells are specialised to carry out a specific function. The structure gives a clue to its function.



If a cell has many ribosomes it is making a lot of protein, which type of cell might it be?

Diffusion

Is how dissolved substances and gasses move into and out of cells.

KEY WORDS:

Gland cells
Nucleus
Algal cell
Cellulose
Chloroplast

ASSESSMENT:



B2 REVISION - CHAPTER 2 - Organisms in the Environment

Limiting Factors

Name the limiting factors and explain why the factor is limiting.

Photosynthesis

What is the equation for photosynthesis?

What is used to test for starch?

What is the by-product of photosynthesis?

How Plants use Glucose

Converted into _____ for storage.

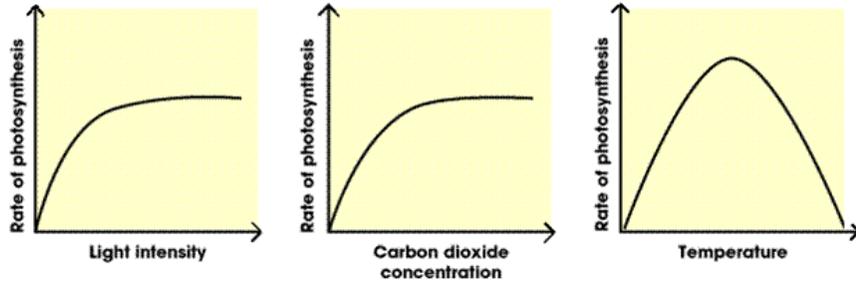
Used for respiration.

Converted into _____ and oils for storage.

Used to produce _____ which strengthens cell walls.

What else do plants and algal cells need to produce proteins?

Where do plants and algal cells get this supply from?



These 3 graphs show the limiting factors for photosynthesis. Explain what each graph shows.

KEY WORDS:

Glucose
Independent Variable
Dependent Variable
Mineral ion
Nitrate ion

ASSESSMENT:



B2 REVISION - CHAPTER 2 cont. -Organisms in the Environment

Making the most of photosynthesis.

What factors must be controlled in a greenhouse to improve plant growth?

Measuring Distribution of Organisms.

What would you use for a random quantitative sampling?

Why is sample size important?

What is the range of a set of numbers?

What is the mean of a set of numbers?

What is the median of a set of numbers?

Organisms in their Environment

Temperature:

Availability of nutrients:

Amount of light:

Availability of water:

Availability of oxygen:

Availability of CO₂

How valid is the data?

A measurement is _____ if the original experimenter creates the investigation using the same method and equipment and obtains the same results.

A measurement is _____ if the investigation is repeated by another person or by using different equipment or techniques and the same results are obtained.

If the sample is too small it may not be _____.

KEY WORDS:

Repeatable
Reproducible
Representative
Valid
Variable
Quadrat

ASSESSMENT:



B2 REVISION - CHAPTER 3 - Enzymes

Proteins, Catalysts & Enzymes

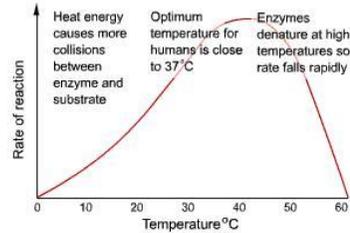
What are protein molecules made of?

Give 3 examples of what proteins can be?

What are enzymes and what do they do?

The _____ in a reaction can be held in the active site and either be connected to another molecule or be broken down.

Factors Affecting Enzyme Action.



If the temperature gets too hot the enzyme stops working, the enzyme becomes _____.
Each enzyme works best at a particular _____ value.

Making use of Enzymes

Biological detergents contain _____ and _____ that digest food stains.

Isomerase is used to convert glucose syrup into fructose syrup why?

In industry enzymes are used to bring about reactions at normal temperature and pressures.

High Tech Enzymes

Give 2 advantages of the fact that biological washing powders can be used at lower temperatures.

Some enzymes are used in medicines to diagnose, control or even cure diseases.

Disadvantages of Enzymes.

Give 2 disadvantages of enzymes.

Enzymes in Digestion

Enzyme	Reaction
Amylase	
Protease	
Lipase	

Speeding up Digestion

What acid is produced from glands in the stomach?

Which 2 enzymes work in the small intestine?

The liver produces _____ that is stored in the _____.

What does bile do?

KEY WORDS:

Denatured
Bile
Enzymes
Isomerase
Carbohydrase
Amylase

ASSESSMENT:



C2 REVISION - CHAPTER 1 - Structure & Bonding

Chemical Bonding

Elements react to form compounds by what 3 methods?

What do atoms of metals in Group 1 make when they combine with atoms of non-metals in Group 7?

A metal atom loses electrons and forms _____ ions.

When non-metallic elements join together they form _____ bonds.

How many electrons do elements in Group 1 have in their outer shell?

Covalent bonding

When is a covalent bond formed?

Which group need to gain a single electron therefore forming a single covalent bond?

How many bonds can an atom of an element in Group 5 make?
Draw a diagram using symbols and lines to show the covalent bonds in oxygen O_2 and hydrogen sulfide H_2S .

Ionic Bonding

Ionic compounds are held together by _____ forces between oppositely charged ions.

The ions form a giant _____ strong forces of attraction act throughout the structure.

What type of diagram is used to represent atoms and ions?

Draw a diagram showing sodium atoms and chlorine atoms.

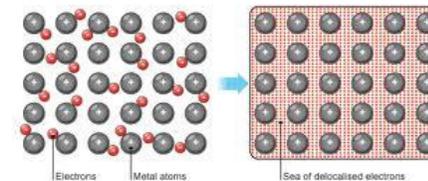
Formulae of Ionic compounds

Why are ionic compounds neutral?

Write the formula for calcium fluoride, copper(II) chloride and iron(III) hydroxide.

Metals

Atoms in metals are closely packed and arranged in layers. In the highest energy level the electrons are delocalised. This means they can move about freely between atoms.



The delocalised electrons strongly attract the positive ions and hold the giant structure together.

KEY WORDS:

Covalent
Ion
Ionic
Delocalised
Lattice

ASSESSMENT:



C2 REVISION - CHAPTER 2 - Structure & Properties

Properties of Polymers

What do the properties of a polymer depend on?

What can also change the properties of a polymer that is produced?

What is the difference between thermosoftening polymers and thermosetting polymers?

Properties

	Melting point high/low	State at room temperature	Do they carry electrical charge?	Do they conduct electricity?
Giant ionic structures				
Simple molecules				
Giant covalent structures				
Giant metallic structures				

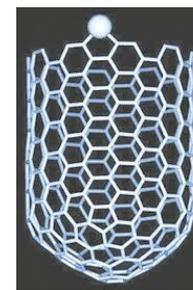
Nanoscience

This is the study of small particles that are between 1 and 100 nanometres in size.

How big is a nanometre?

Nanoparticles behave differently from the bulk materials they are made of.

Why does research need to be done into possible issues that might arise from increased use?



KEY WORDS:
 Macromolecule
 Fullerene
 Intermolecular
 Nanoscience
 Shape memory alloy

ASSESSMENT:



C2 REVISION - CHAPTER 3 - How much?

The Mass of atoms

What is the relative mass of protons and neutrons?
The atomic number of an atoms is its number of protons, what is this equal to?

What is the mass number?

Isotopes are atoms of the same element with different numbers of _____.

Masses of atoms & moles

Relative atomic masses (A_r) are used to compare the masses of atoms.

The relative atomic mass of an element in grams is called one _____ of atoms of the element.

Relative formula mass (M_r) can be found by adding up the relative atomic masses of the atoms in its formula.

Calculate the mass of one mole of sodium hydroxide, NaOH

Don't forget one mole of any substance is its relative formula mass in grams.

Percentages and Formulae

The relative atomic masses of the elements in a compound and its formula can be used to work out its percentage composition.

What is the percentage by mass of oxygen (O) in sodium hydroxide (NaOH)?

First, work out the relative formula mass of the compound, using the A_r values for each element.

In the case of sodium hydroxide, these are Na = 23, O = 16, H = 1. (You will be given these numbers in the exam.)

Next, divide the A_r of oxygen by the M_r of NaOH, and multiply by 100 to get a percentage.

KEY WORDS:

Mass number
Isotope
Atomic number
Mole

ASSESSMENT:



C2 REVISION - CHAPTER 3 - How much cont.

Equations & Calculations

Chemical equations show the _____ and products of a reaction.

Balanced symbol equations can be used to calculate the masses of reactants and products in a chemical reaction.

Don't forget correct units if calculating mass!

Reversible reactions

In a reversible reaction the _____ of the reaction can react to make the original reactants.

What sign is used to show a reversible reaction?

Ammonium chloride decomposes to produce ammonia and hydrogen chloride, when cooled ammonia and hydrogen chloride react to produce _____.

Instrumental analysis

Modern instrumental techniques provide fast, accurate and sensitive ways of analysing chemical substances. Compounds in a mixture can be separated using what?

Once the compounds are separated they can be identified using what?

In gas chromatography the mixture is carried by a gas through a long column packed with particles of a solid. Individual compounds travel at _____ speeds through the column and come out at different times, the _____ of substance is recorded against time. The retention time can be compared with results for known compounds to identify the compounds in the mixture.

Yield of a chemical reaction

Percentage yield = $\frac{\text{(amount of product collected)}}{\text{maximum amount of product possible}} \times 100\%$

The yield of a chemical reaction describes what?

The percentage yield of a chemical reaction tells us how much product is made compared with the maximum amount that could be made.

Why is it important to maximise yield and minimise energy wasted?

Analysing substances

What substances are added to food to improve its qualities?

What can be used to detect and identify artificial colours?

KEY WORDS:

Yield
Reversible reaction
Chromatography
Mass spectrometer

ASSESSMENT:



P2 REVISION - CHAPTER 1 - MOTION

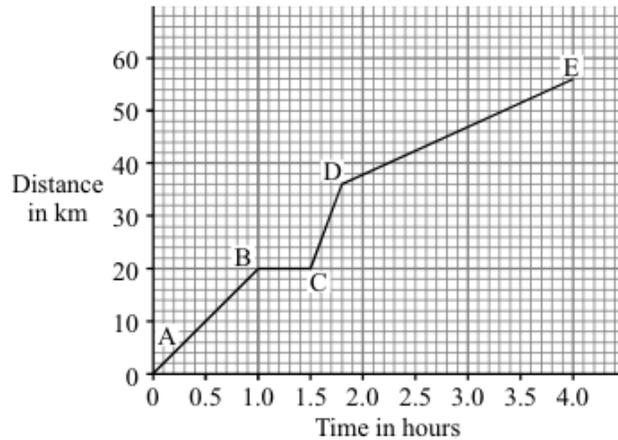
Describe what is happening in the graph between points:

A-B:

B-C:

C-D:

D-E:

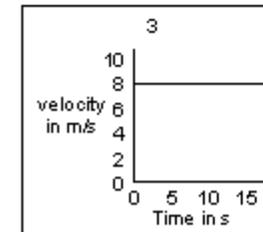
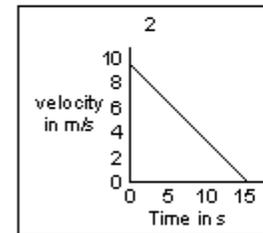
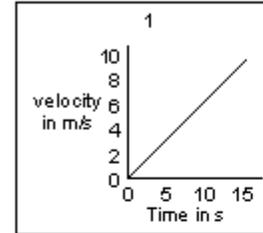


Using the formula $\text{speed} = \frac{\text{distance}}{\text{time}}$ work out the speed of the cyclist between points A and B:

Match the graph to the description of motion:

List A
Velocity-time graphs

List B
Descriptions of motion

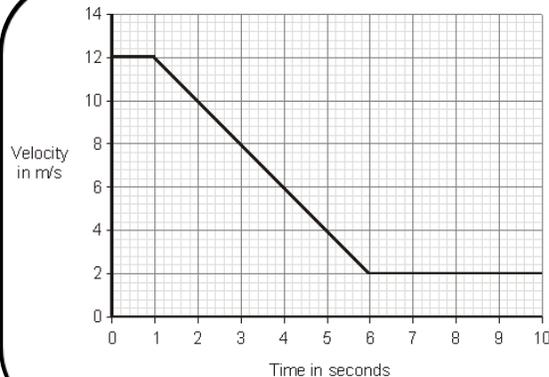


Constant velocity

Constant acceleration

Not moving

Constant deceleration



Work out the deceleration of the car and the distance it has travelled:

$$\text{Acceleration} = \frac{\text{change in velocity}}{\text{time taken}}$$

Distance = area under the line

KEY WORDS:

Distance-time graphs
Gradient
Speed
Velocity
Acceleration
Velocity-time graphs

ASSESSMENT:



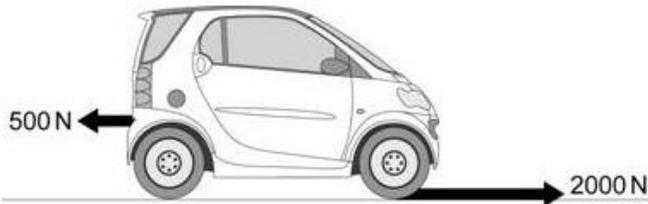
P2 REVISION - CHAPTER 2 - FORCES

What is the definition of a force?

What are balanced forces and when do they occur?

What are unbalanced forces and when do they occur?

Calculate the resultant force:



Using the formula $F=ma$, fill in the table

	a	b	c	d	e
Force (Newtons, N)		200	840		5000
Mass (kilograms, kg)	20		7.0	0.40	
Acceleration (meters/second squared, m/s^2)	0.80	5.0		6.0	0.20

What is stopping distance, and what are the two parts that make up a car's stopping distance?

What factors affect stopping distance?

What do we do to prevent speeding in this country?

What is terminal velocity?

What is Hooke's law?

KEY WORDS:

Force
Resultant force
Stopping distance
Thinking distance
Braking distance
Weight
Mass
Gravitation field strength
Drag force
Terminal velocity
Proportionality
Hooke's law

ASSESSMENT:



P2 REVISION - CHAPTER 3 - WORK, ENERGY & MOMENTUM

What is work done?

What is the equation for work done?

How does friction affect work done?

What is gravitational potential energy?

Complete the question below using this equation $E_p = m \times g \times h$
If a 2kg mass is lifted 0.4 meters how much GPE does it gain?

What is kinetic energy?

Complete the question below using this equation $E_k = \frac{1}{2} \times m \times v^2$
If a 500kg mass is moving at 12m/s how much kinetic energy does it have?

What features do we add to cars to make them safe?

What is momentum?

Complete the question below using this equation
momentum (kg m/s) = mass (kg) X velocity (m/s)
If a sprinter with a mass of 50kg runs at a velocity of 10m/s what is their momentum?

A 0.5 kg trolley is pushed at a velocity of 1.2 m/s into a stationary trolley with a mass of 1.5 kg. The two trolleys stick to each other after the impact.

Calculate:

The momentum of the 0.5 kg trolley before the collision
The velocity of the two trolleys straight after the impact

What is conservation of momentum and how do you calculate it?

KEY WORDS:

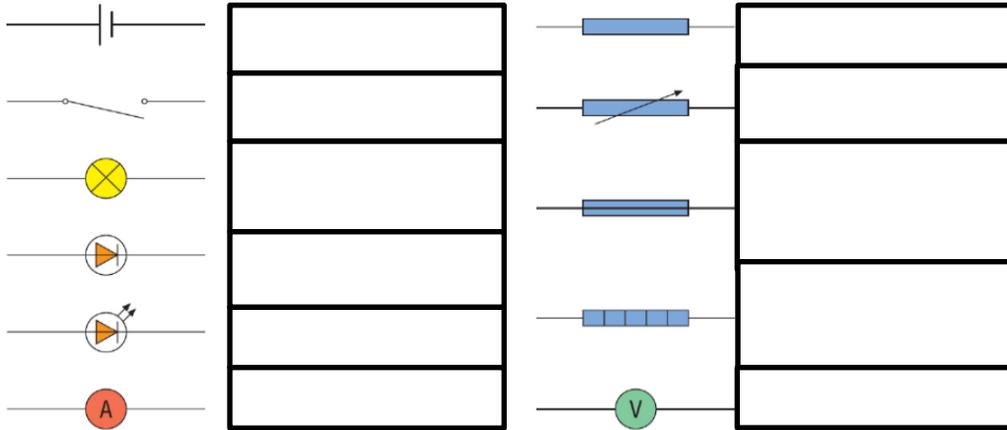
Transfer
Work done
Gravitational potential energy
Elastic potential energy
Momentum
Conservation of momentum

ASSESSMENT:



P2 REVISION - CHAPTER 4 - CURRENT ELECTRICITY

Label these circuit components:



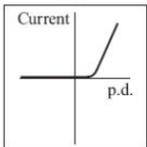
What is static electricity?

What happens when you rub a polythene rod with a dry cloth?

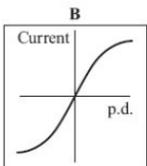
What happens when you rub a perspex rod with a dry cloth?

You can use diagrams to help.

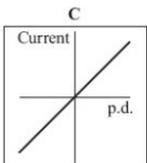
Link the component to the correct graph



A resistor at constant temperature



A filament lamp



A diode

What is resistance?

What is the equation for resistance?

What is the rule for resistance in a series circuit?

What is the rule for resistance in a parallel circuit?

What is electrical current?

Calculate the current in a bulb if there is a charge of 0.8C passes through the bulb in 0.4 seconds:

$$\text{Equation: } I = \frac{Q}{t}$$

KEY WORDS:

Static electricity	Series
Protons	Potential difference
Neutrons	Volts (V)
Ion	Parallel
Electric current	Resistance
Electrons	Ohmic conductor
Coulombs (C)	

ASSESSMENT:

