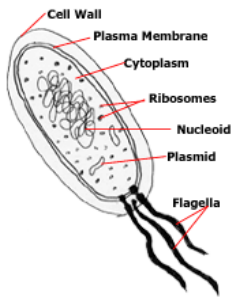
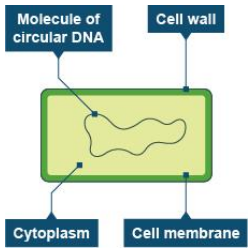
B2 REVISION – CHAPTER 1 – Cell, Tissues & Organs

Bacteria & Yeast

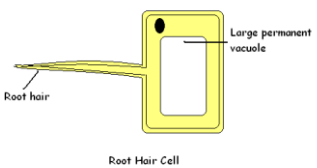




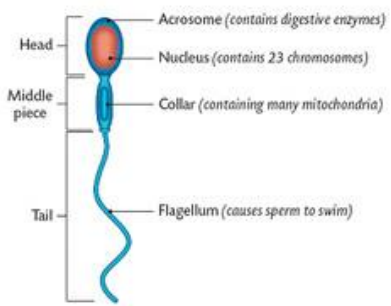
Where is the genetic material in a bacteria cell?
How many cells make up yeast?

Specialised Cells

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



Root Hair Cell



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.

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		

KEY WORDS:
Gland cells
Nucleus
Algal cell
Cellulose
Chloroplast

ASSESSMENT:

B2 REVISION – CHAPTER 2 – Organisms in the Environment

Limiting Factors

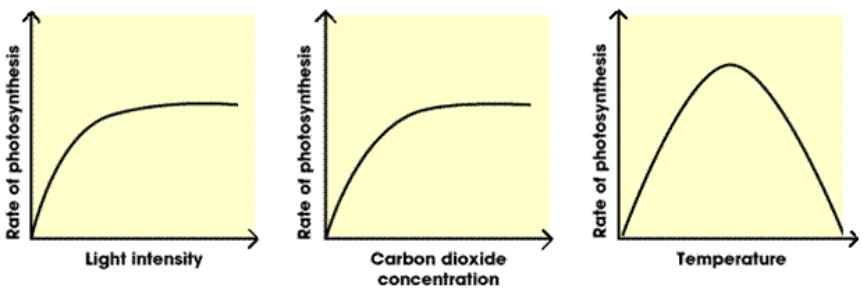
Name the limiting factors and explain why the factor is limiting.

Photosynthesis

What is the equation for photosynthesis?

What is used to test for starch?

What is the by-product of photosynthesis?



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

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?

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?

Organisms in their Environment

Temperature:

Availability of nutrients:

Amount of light:

Availability of water:

Availability of oxygen:

Availability of CO_2

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 _____.

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?

KEY WORDS:
Repeatable
Reproducible
Representative
Valid
Variable
Quadrat

ASSESSMENT:

B2 REVISION – CHAPTER 3 – Enzymes

Proteins, Catalysts & Enzymes

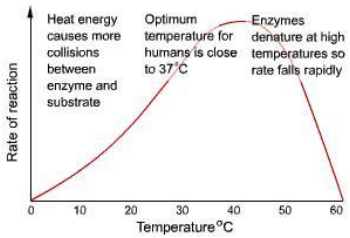
What are protein molecules made of?

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:

B2 REVISION – CHAPTER 4 – Energy from Respiration

Aerobic Respiration

Glucose + oxygen → CO_2 + water (energy)

Where do most of the reactions for aerobic respiration take place?

Does aerobic respiration just take place in animals?

The energy released may be used by the organism to:
Build larger _____ from smaller ones.
Enable _____contraction in animals.
Maintain a constant body temperature in colder surroundings in mammals and birds.

Effect of exercise on the body.

Why do muscles need more energy when you exercise?

What needs to be transported to the muscles?

To do this what changes take place?

What do muscles store glucose as?

If you need more energy when you exercise what other two things will you also need more of?

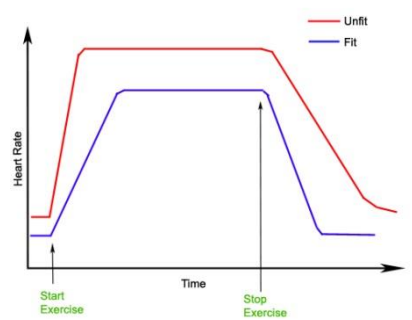
What also will you need to remove more of?

Anaerobic Respiration

When your muscles cannot get enough oxygen for aerobic respiration, they start to respire anaerobically.
What acid is produced?

Is more or less energy released from glucose in anaerobic respiration?

When muscles respire anaerobically they build up an _____debt.



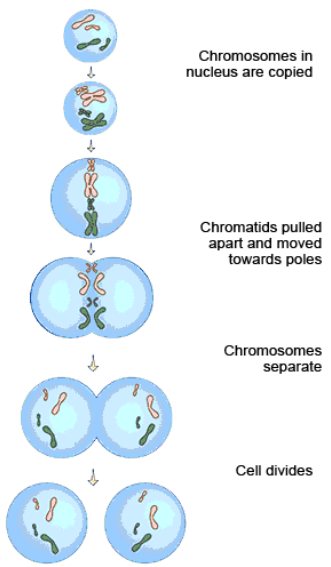
KEY WORDS:
Mitochondria
Lactic acid
Glycogen
Oxygen debt

ASSESSMENT:

B2 REVISION – CHAPTER 5 – Simple Inheritance

Cell division & Growth

What results in two identical cells being produced from an original cell?

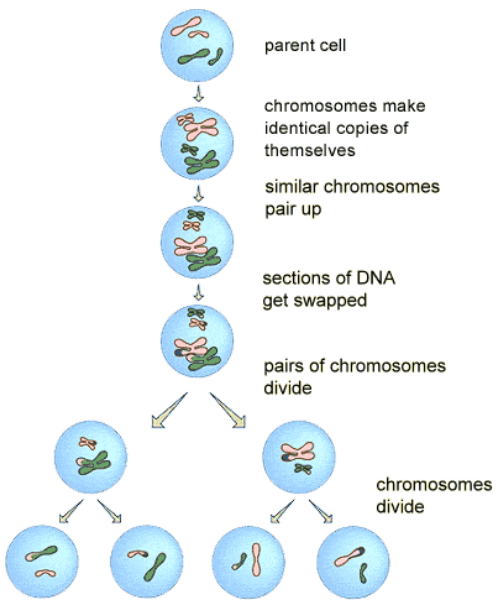


What are unspecialised cells called?

In body cells, what are found in pairs?

Cell division in sexual reproduction

By which process are gametes(sex cells) produced?



What does sexual reproduction give rise to?

What is the difference between gametes and body cells?

Stem Cells

What is so special about stem cells?

How could stem cells be used to cure some disorders?

From Mendel to DNA

What did Gregor Mendel work out with regard to characteristics?

What makes up chromosomes?

What is a small section of DNA?

Why is DNA important, what can it be used for?

KEY WORDS:
Meiosis
Ova
DNA fingerprint

ASSESSMENT:

B2 REVISION – CHAPTER 5 cont – Simple inheritance

Inheritance in Action

How many pairs of chromosomes do humans have?

What is sex determined by?

Genes controlling the same characteristic are called _____.

If an allele can be either _____ or _____.

Phenotype – physical appearance of the characteristic.
Genotype – the genetic make up – DD, Dd or dd.
Homozygous – both alleles are the same DD or dd
Heterozygous – the two alleles are different Dd.

Stem cells and embryos – science and ethics

What type of disorders can stem cells be used in treating?

Where can embryonic stem cells come from?

Why are some people concerned about the use of embryos?

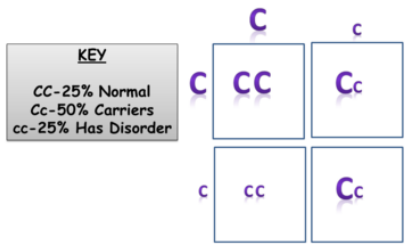
What can be used to test for disorders before the baby is born?

In IVF what happens to embryos that are carrying faulty genes?

Inherited Condition in Humans

Some disorders are caused by genes and can be inherited.

Cystic fibrosis is caused by a _____ allele.



Polydactyly is caused by a _____ allele.
Draw a punnet square where one parent has polydactyly - Pp, and one parent doesn't have it - pp.

KEY WORDS:
Sex chromosome
Dominant
Recessive
Carrier
Genetic disorder

ASSESSMENT:

B2 REVISION – CHAPTER 6 – Old & New species

The Origins of Life on Earth

Why can scientists not be exact about when life began on Earth?

What do we use to date when different organisms existed?

What part of animals form fossils?

Why might we not have a complete picture of all the organisms that have lived previously?

Exploring the Fossil Evidence

Extinction means that a species which once existed has completely died out. List as many changes in circumstance that may result in the extinction of a species.

What factors might have caused the extinction of the dinosaurs?

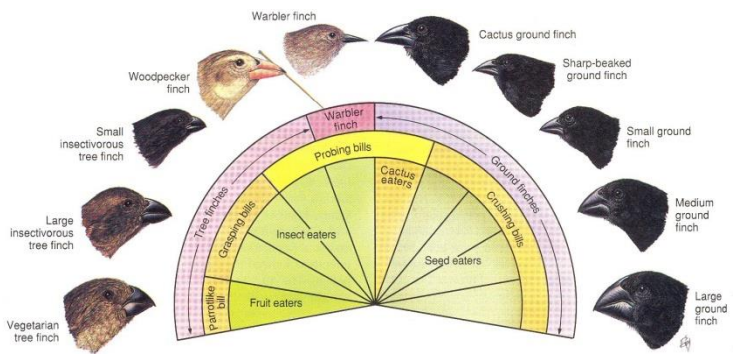
Why might climate change be having an impact on todays species?

Isolation and the evolution of new species

What does geographical isolation mean?

In an isolated population _____ are selected that increase the chances of survival in the new environment.

Speciation has occurred when the two populations can not longer what?



KEY WORDS:

Extinction
Predator
Speciation
Geographical isolation

ASSESSMENT: