GCSE Science homework - combined
Year 11 terms 3 & 4

The following tasks must be completed by the dates indicated:

Due date	Task
Friday 19th January 2024	**B5 – Variation**
Friday 26th January 2024	**C5 - Monitoring and Controlling Chemical Reactions**
Friday 2nd February 2024	**B5 – Genes and Inheritance**
Friday 9th February 2024	**C6 Global Challenges**
Friday 23rd February 2024	**C6 Earth's Atmosphere**
Friday 1st March 2024	**B6 - Sampling**
Friday 8th March 2024	**B6 Communicable Diseases**
Friday 15th March 2024	**B6 Feeding the Human Race**
Friday 22nd March 2024	**P5 Energy**
Friday 12th April 2024	**P6 Energy Resources**

Due date:	Friday 19th January 2024
Student number:	
Name:	

Y11 Combined T3 W2 – B5 – Variation

Question	Answer
Define 'variation'.	Differences between individuals in the same species.
What are the two causes of variation?	Genetic (inherited) and environmental factors.
What is discontinuous variation?	Differences according to characteristics that fall into distinct categories e.g. blood type, eye colour.
What is continuous variation?	Differences according to characteristics that show a whole range of values e.g. height and weight.
What is asexual reproduction?	Reproduction which only requires one parent and results in clones (genetically-identical offspring)
What is sexual reproduction?	Reproduction requiring two parents which results in variation.
What are gametes?	Sex cells e.g. sperm and egg cells.
How do gametes differ from normal body cells?	Gametes are haploid cells. This means they contain half the genetic material compared to normal body cells, which are diploid (contain a full set of genetic material).
How are gametes made?	Gametes are made by meiosis.
How many times does a cell divide during meiosis?	Twice.

Look, Cover, Write, Check

Question	Answer
What are gametes?	
How many times does a cell divide during meiosis?	
What is discontinuous variation?	
What is asexual reproduction?	
What is continuous variation?	
What is sexual reproduction?	
Define 'variation'.	
How do gametes differ from normal body cells?	
How are gametes made?	
What are the two causes of variation?	

Look, Cover, Write, Check

Question	Answer
What is continuous variation?	
	Differences between individuals in the same species.
	Discontinuous variation is differences according to characteristics that fall into distinct categories e.g. blood type, eye colour.
What is sexual reproduction?	
What are the two causes of variation?	
	Reproduction which only requires one parent and results in clones (genetically-identical offspring)
How do gametes differ from normal body cells?	
	Sex cells e.g. sperm and egg cells.
How many times does a cell divide during meiosis?	
How are gametes made?	

1. Which statement about skin cells is correct?

A They are diploid cells containing one set of chromosomes.
B They are diploid cells containing two sets of chromosomes.
C They are haploid cells containing one set of chromosomes.
D They are haploid cells containing two sets of chromosomes.

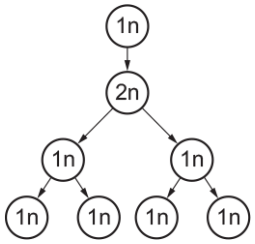
Your answer ☐ **[1]**

2. Meiosis is a type of cell division that is needed to make gametes.

Which diagram shows meiosis?

n = number of chromosomes

A



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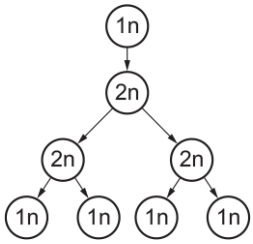

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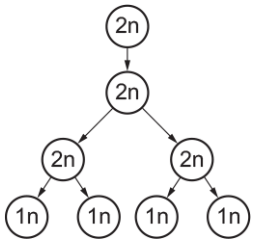

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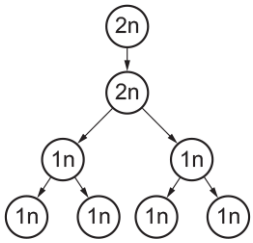


Your answer ☐ **[1]**

Due date:	Friday 26th January 2024
Student number:	
Name:	

Y11 Combined T3 W3 – C5 - Monitoring and Controlling Chemical Reactions

Question	Answer
How can rate of reaction be measured experimentally?	By recording the change in mass or volume of reactants or products over time
How could the rate of gas production be measured and calculated?	Use a gas syringe to record the volume of gas, a stopwatch to record time and then use rate = volume/time
What factors affect the rate of a chemical reaction?	Concentration (pressure in gases), temperature, surface area (of solids) and presence of a catalyst
What determines the rate of a chemical reaction?	The frequency and energy of collisions between particles e.g. a faster reaction has more frequent, successful collisions
How do catalysts speed up rates of chemical reactions?	They provide an alternative reaction pathway of lower activation energy and are not used up in the process
What is activation energy?	The minimum energy required for a reaction to start. The energy needed to break bonds in reactants.
What is a reversible reaction?	A chemical process which has both a forward and reverse reaction.
What is a dynamic equilibrium?	In a closed system, when the rates of the forward and backward reactions are equal.
What factors affect the position of a dynamic equilibrium?	Concentration, temperature and pressure.
What are compromise conditions?	A temperature and pressure which provide an acceptable yield at an acceptable rate of reaction: usually with a catalyst.

Look. Cover, Write, Check

Question	Answer
What determines the rate of a chemical reaction?	
How do catalysts speed up rates of chemical reactions?	
What is activation energy?	
How can rate of reaction be measured experimentally?	
How could the rate of gas production be measured and calculated?	
What factors affect the position of a dynamic equilibrium?	
What are compromise conditions?	
What factors affect the rate of a chemical reaction?	
What is a reversible reaction?	
What is a dynamic equilibrium?	

Look. Cover, Write, Check

Question	Answer
	Concentration (pressure in gases), temperature, surface area (of solids) and presence of a catalyst
What is a dynamic equilibrium?	
How can rate of reaction be measured experimentally?	
	A chemical process which has both a forward and reverse reaction
What determines the rate of a chemical reaction?	
How could the rate of gas production be measured and calculated?	
	A temperature and pressure which provide an acceptable yield at an acceptable rate of reaction: usually with a catalyst
What factors affect the position of a dynamic equilibrium?	
	They provide an alternative reaction pathway of lower activation energy and are not used up in the process
What is activation energy?	

1. Look at the equation for the reaction between nitrogen and hydrogen to make ammonia. $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

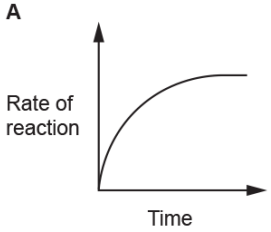
The reaction forms a **dynamic equilibrium**. Which of the following describes dynamic equilibrium?

A All the reactants and products are gases.
B The rate of the backward reaction is greater than the rate of the forward reaction.
C The rate of the forward and backward reactions are equal.
D The rate of the forward reaction is greater than the rate of the backward reaction.

Your answer ☐ **[1]**

2. A student investigates the rate of reaction between magnesium and an excess of dilute sulfuric acid. Which graph shows how the **rate of reaction** changes with time?

A



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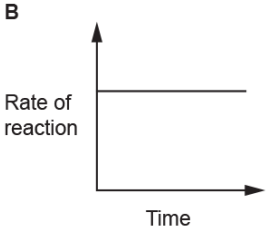
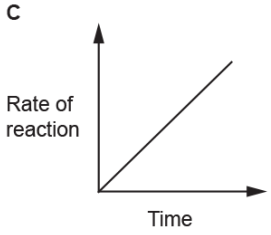


Your answer ☐ **[1]**

C



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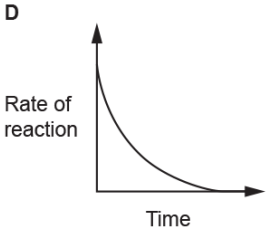


Due date:	Friday 2nd February 2024
Student number:	
Name:	

Y11 Combined T3 W4 – B5 – Genes and Inheritance

Question	Answer
What is a gene?	A section of DNA which codes for the synthesis of a protein e.g. for eye colour
What is an allele/variant?	A different version of a gene e.g. allele for blue eyes or an allele for brown eyes
What is a genotype?	The alleles which determine an organism's characteristics
What is a phenotype?	The physical appearance which results from genotype
How does a dominant allele affect phenotype?	If a dominant allele is present in the genotype, it will be expressed in the phenotype.
How do recessive alleles affect phenotype?	Recessive alleles will only be expressed in phenotype if no dominant alleles are present in the genotype.
What is the difference between homozygous and heterozygous genotypes?	A homozygous genotype contains identical alleles. E.g. HH or hh. A heterozygous genotype contains different alleles. E.g. Hh
What is the difference between haploid and diploid cells?	Diploid cells have the full number of chromosomes (46 in humans) whereas haploid cells contain half the number of chromosomes (23 in humans)
What is a mutation?	A change in an organism's DNA
What is evolution?	A change in the inherited characteristics of a population over time, through a process of natural selection.

Look, Cover, Write, Check

Question	Answer
What is a gene?	
What is an allele/variant?	
What is a genotype?	
What is a phenotype?	
How does a dominant allele affect phenotype?	
How do recessive alleles affect phenotype?	
What is the difference between homozygous and heterozygous genotypes?	
What is the difference between haploid and diploid cells?	
What is a mutation?	

What is evolution?	

Look, Cover, Write, Check

Question	Answer
What is an allele/variant?	
	The physical appearance which results from genotype
How do recessive alleles affect phenotype?	
	Diploid cells have the full number of chromosomes (46 in humans) whereas haploid cells contain half the number of chromosomes (23 in humans)
	A section of DNA which codes for the synthesis of a protein e.g. for eye colour
What is the difference between homozygous and heterozygous genotypes?	
What is a mutation?	
	If a dominant allele is present in the genotype, it will be expressed in the phenotype.
What is evolution?	
What is a genotype?	

1. Which term is used to describe a pair of alleles that control a characteristic?

A Gamete
B Genome
C Genotype
D Phenotype

Your answer ☐ **[1]**

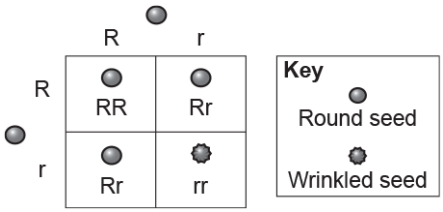
2. Which statement about alleles and genes is correct?

A Alleles are found in the cytoplasm, while genes are only found in the nucleus on the DNA.
B Allele is just another name for gene, they are both the same codes for a characteristic.
C Genes are sections of DNA that code for a characteristic, alleles are different forms of a gene.
D It is possible to have two different genes for a characteristic but only one allele.

Your answer ☐ **[1]**

3. The diagram shows a genetic cross for seed shape in peas.

Which prediction about the offspring is **most** likely?



A All the offspring will be heterozygous for seed shape.
B All the offspring will be homozygous for seed shape.
C The ratio of heterozygous to homozygous offspring will be 1 : 1.
D The ratio of heterozygous to homozygous offspring will be 3 : 1.

Due date:	Friday 9th February 2024
Student number:	
Name:	

Y11 Combined T3 W5 – C6 Global Challenges

Question	Answer
What is an ore?	An ore is a rock that contains enough metal to make it economically viable to extract.
Why is carbon used to extract iron?	Carbon can be used to extract iron as it is above iron in the reactivity series so will displace it.
Why must electrolysis be used to extract aluminium?	Electrolysis is used to extract aluminium as aluminium is more reactive than carbon in the reactivity series.
What is the life cycle assessment?	The life cycle assessment is a 'cradle to grave' analysis of the impact of a manufactured product on the environment.
What is recycling?	Recycling is collecting used materials and using them to produce new samples of the material.
What is fractional distillation?	Fractional distillation is the separation of a mixture by boiling points.
What is the general formula for an alkane?	C_nH_{2n+2}
What is a homologous series?	A homologous series is a group of chemicals which have similar chemical properties and can be represented by a general formula.
What is cracking?	Cracking is breaking down long chain hydrocarbons into shorter more useful hydrocarbons.
What are the conditions needed for cracking?	Cracking needs a high temperature and a pot catalyst.

Look, Cover, Write, Check

Question	Answer
What is the general formula for an alkane?	
What is cracking?	
Why must electrolysis be used to extract aluminium?	
What is a homologous series?	
What is the life cycle assessment?	
Why is carbon used to extract iron?	
What are the conditions needed for cracking?	
What is fractional distillation?	
What is cell differentiation?	
What is recycling?	

Look, Cover, Write, Check

Question	Answer
What is an ore?	
	Carbon can be used to extract iron as it is above iron in the reactivity series so will displace it.
Why must electrolysis be used to extract aluminium?	
What is the life cycle assessment?	
	Recycling is collecting used materials and using them to produce new samples of the material.
What is fractional distillation?	
	C_nH_{2n+2}
	A homologous series is a group of chemicals which have similar chemical properties and can be represented by a general formula.
What is cracking?	
	Cracking needs a high temperature and a pot catalyst.

1. Aluminium is extracted from its ore by electrolysis.

Which of these statements explains why aluminium can **only** be extracted by electrolysis?

A. Aluminium is higher than iron in the reactivity series.
B. Aluminium is lower than carbon in the reactivity series.
C. Aluminium is higher than carbon in the reactivity series.
D. Aluminium is lower than sodium in the reactivity series.

Your answer ☐

[1]

2. Which compound is an alkane?

A C_6H_8
B C_7H_{12}
C C_8H_{16}
D C_9H_{20}

Your answer ☐ **[1]**

3. A copper ore contains 66.4% copper. The ore is CuS.
What is the maximum mass of copper that can be extracted from 500 tonnes of the ore?

A 7.53 tonnes
B 66.4 tonnes
C 332 tonnes
D 33 200 tonnes

Your answer ☐ **[1]**

Due date:	Friday 23rd February 2024
Student number:	
Name:	

Y11 Combined T4 W1 – C6 Earth's Atmosphere

Question	Answer
Define 'atmosphere'	A layer of gases surrounding a planet.
What are the 2 main gases in the Earth's modern atmosphere?	Nitrogen (78%), oxygen (21%)
What was responsible for forming oceans?	Volcanic eruptions the Earth's early years released lots of water vapour which condensed to form oceans when the Earth cooled.
How does Earth's early atmosphere differ from the modern atmosphere?	The Earth's early atmosphere contained lots of water and carbon dioxide. It contained little or no oxygen and small amounts of other gases e.g. ammonia and methane.
How does photosynthesis affect the atmosphere?	Increases the concentration of atmospheric oxygen and decreases the concentration of atmospheric carbon dioxide.
How does aerobic respiration affect the atmosphere?	Increases the concentration of atmospheric carbon dioxide but decreases the concentration of atmospheric oxygen.
What is a pollutant?	Substances released into the environment that may harm living things.
What causes acid rain?	Nitrogen dioxide is emitted from car exhausts. It dissolves in the moisture of clouds forming an acidic solution which eventually falls as acid rain.
Give examples of greenhouse gases.	Carbon dioxide, methane and water vapour.

Look, Cover, Write, Check

Question	Answer
What is a pollutant?	
What are the 2 main gases in the Earth's modern atmosphere?	
Define 'atmosphere'	
How does Earth's early atmosphere differ from the modern atmosphere?	
How does photosynthesis affect the atmosphere?	
How does aerobic respiration affect the atmosphere?	
Give examples of greenhouse gases.	
What was responsible for forming oceans?	
What causes acid rain?	

Look, Cover, Write, Check

Question	Answer
What was responsible for forming oceans?	
What are the 2 main gases in the Earth's modern atmosphere?	
	A layer of gases surrounding a planet.
What is a pollutant?	
	Increases the concentration of atmospheric oxygen but decreases the concentration of atmospheric carbon dioxide.
What causes acid rain?	
	Carbon dioxide, methane and water vapour.
How does Earth's early atmosphere differ from the modern atmosphere?	
	Increases the concentration of atmospheric carbon dioxide but decreases the concentration of atmospheric oxygen.

1(a). i. Name **one** source of sulfur dioxide in the atmosphere.

_____

[1]

i. Describe **two** problems caused by the release of sulfur dioxide into the atmosphere.

1 _____

2 _____

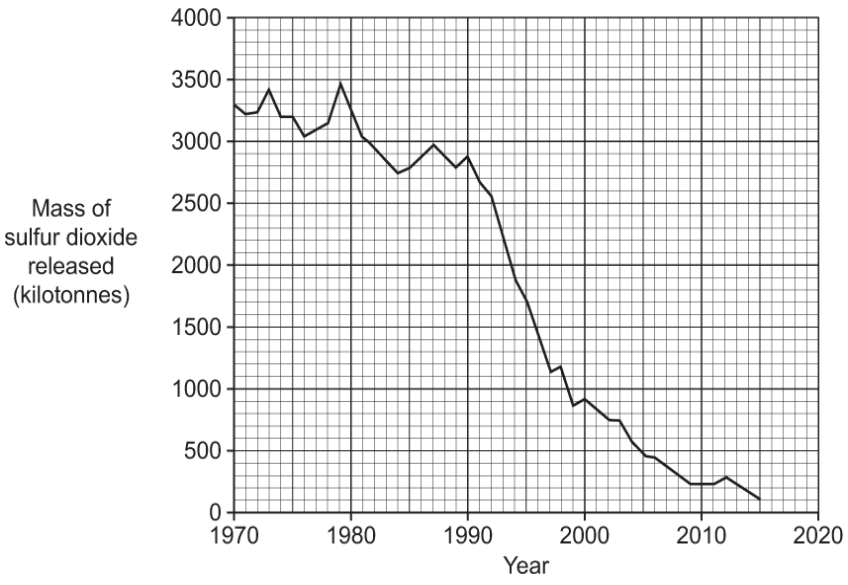
[2]

(b). The amount of sulfur dioxide released in the UK is decreasing. This graph shows how it has decreased since 1970.

How much did the sulfur dioxide decrease between 1975 and 2015?

Sulfur dioxide decrease

= ..... kilotonnes **[2]**



Due date:	Friday 1st March 2024
Student number:	
Name:	

Y11 Combined T4 W2 B6 - Sampling

Question	Answer
What is random sampling used for?	To estimate the population of an organism in an area.
How do you prevent bias during random sampling?	Use a random number generator to determine where to place your quadrat.
What equipment is needed for a transect?	Quadrat, tape measure.
What could a transect be used for?	To see how plant species change as you move inland from the sea.
What is biodiversity?	The variety of living organisms in an area.
How are humans contributing to the loss of biodiversity?	Deforestation, hunting and fishing, pollution.
What methods can be used to prevent further loss of biodiversity?	Captive breeding, protected habitats, hunting bans, education, artificial ecosystems, seed banks.
How does captive breeding increase biodiversity?	It creates a healthy stable population of a species that can be reintroduced back into its natural habitat.
What are seed banks?	A store of seeds that can be used to grow new plants in the future.
What is ecotourism?	A form of tourism that minimises the impact of visitors on the environment.

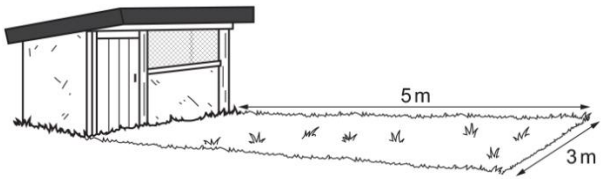
Look, Cover, Write, Check

Question	Answer
What is random sampling used for?	
How do you prevent bias during random sampling?	
What equipment is needed for a transect?	
What could a transect be used for?	
What is biodiversity?	
How are humans contributing to the loss of biodiversity?	
What methods can be used to prevent further loss of biodiversity?	
How does captive breeding increase biodiversity?	
What are seed banks?	

Look, Cover, Write, Check

Question	Answer
What is random sampling used for?	
	Use a random number generator to determine where to place your quadrat.
What equipment is needed for a transect?	
What could a transect be used for?	
	The variety of living organisms in an area.
	Deforestation, hunting and fishing, pollution.
What methods can be used to prevent further loss of biodiversity?	
How does captive breeding increase biodiversity?	
	A store of seeds that can be used to grow new plants in the future.

1(a). Two students investigate the population of daisies in a lawn. The diagram shows the lawn in front of a shed.



i. Complete these sentences about the method the students use to find the population of daisies..

The lawn is sampled using a square frame called a ..... . Drop the square frame over one shoulder to provide a ..... sample. Count and record the number of daisy plants present in the square grid. Repeat this process in 10 different areas of the lawn.

ii.
Table 16.1 shows their results.

Square frame	1	2	3	4	5	6	7	8	9	10	**Total**
Number of daisies counted	14	3	8	10	16	15	11	10	11	12	110

Estimate the population of daisies in the lawn.

The students used a 0.5 m × 0.5 m frame to sample the lawn.
The lawn size is 5 m × 3 m.

Estimate of population of daisies in the lawn = ... **[3]**

Due date:	Friday 8th March 2024
Student number:	
Name:	

Y11 Combined T4 W3 - B6 Communicable Diseases

Question	Answer
Name the four types of pathogen that can cause disease.	Bacteria, virus, protozoa, fungi.
What can cause non communicable diseases?	Poor diet, obesity, inheriting genetic disorders.
How does the immune system fight pathogens?	Engulf and digest pathogens, make antibodies, make antitoxins
What is present in a vaccine?	Dead or inactive pathogen.
How does a vaccine provide immunity?	Stimulates antibody production. Memory cells remember the antibodies and make them quicker the next time the pathogen is encountered.
What drugs can be used to fight viruses?	Antivirals.
What drugs can be used to fight a bacterial infection?	Antibiotics.
What is the difference between antiseptics and antibiotics?	Antiseptics kill pathogens outside the body. Antibiotics kill bacteria inside the body.
What is a double blind trial?	A drug test in which the patients, nor the doctors know who has received the drug or the placebo.
What is a placebo?	A replica of a drug that contains no active ingredients.

Look, Cover, Write, Check

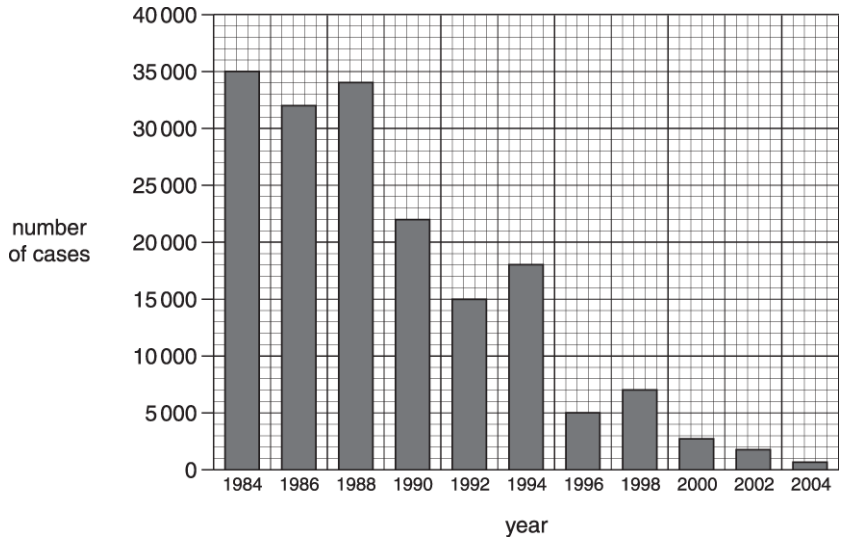
Question	Answer
What drugs can be used to fight a bacterial infection?	
What is the difference between antiseptics and antibiotics?	
What is a placebo?	
What can cause non communicable diseases?	
How does the immune system fight pathogens?	
Name the four types of pathogen that can cause communicable disease.	
What is a double blind trial?	
What drugs can be used to fight viruses?	
What is present in a vaccine?	

How does a vaccine provide immunity?	

Look, Cover, Write, Check

Question	Answer
	Bacteria, virus, protozoa, fungi.
	Poor diet, obesity, inheriting genetic disorders.
How does the immune system fight pathogens?	
What is present in a vaccine?	
How does a vaccine provide immunity?	
	Antivirals.
	Antibiotics.
What is the difference between antiseptics and antibiotics?	
What is a double blind trial?	
	A replica of a drug that contains no active ingredients.

1. Polio is an illness caused by a virus. In 1988 a campaign started to rid the world of polio. The campaign wanted to vaccinate children all over the world.
Look at the graph below. It shows the number of polio cases in the world from 1984 to 2004.



Explain how vaccinations work and use the data to conclude if the campaign was successful or not.

Due date:	Friday 15th March 2024
Student number:	
Name:	

Y11 Combined T4 W4 - B6 Feeding the Human Race

Question	Answer
What is food security?	The ability of human populations to access affordable food of sufficient quality and quantity.
What factors threaten food security?	Increasing human population, changing diets, climate change and new pests/pathogens.
What is intensive farming?	Techniques which aim to maximise food production from the minimum area of land. Often involves using chemicals e.g. fertilisers.
What is organic farming?	More natural methods of food production and avoids the use of artificial chemicals.
What is selective breeding?	The process by which humans breed animals and plants with desired characteristics.
What are the disadvantages of selective breeding?	Takes years before all the population have the desired characteristics, reduces genetic variation and increases chance of genetic disorders.
What is genetic engineering?	Transferring genes from a one organism into another organism, in order to produce an organism with desired characteristics.
What are the risks of genetic engineering?	Eating genetically engineered organisms may lead to health risks e.g. allergies. Genetically-engineered plants may cross-pollinate with wild plants, introducing the gene into the wild plant population.
What is biological control?	The control of a pest by introducing a natural enemy or predator.
How can we increase food production?	Maximise photosynthesis (artificial lighting, greenhouses), use of fertilisers, removing competition/pests and planting pest-resistant crops.

Look, Cover, Write, Check

Question	Answer
What is intensive farming?	
What factors threaten food security?	
What is food security?	
What are the risks of genetic engineering?	
What is selective breeding?	
What are the disadvantages of selective breeding?	
What is biological control?	
What is genetic engineering?	
How can we increase food production?	
What is organic farming?	

Look, Cover, Write, Check

Question	Answer
	Increasing human population, changing diets, climate change and new pests/pathogens.
	Techniques which aim to maximise food production from the minimum area of land. Often involves using chemicals e.g. fertilisers.
What is food security?	
	The process by which humans breed animals and plants with desired characteristics.
What is organic farming?	
	Transferring genes from a one organism into another organism, in order to produce an organism with desired characteristics.
What are the disadvantages of selective breeding?	
	The control of a pest by introducing a natural enemy or predator.
What are the risks of genetic engineering?	
How can we increase food production?	

1. This question is about genetic engineering. The picture shows a crop of corn growing in a field.

Farmers try to produce the largest crop of corn.

The corn plants grow tall and need space between rows.

Weeds grow in the spaces and insects quickly spread and damage the crop.

Farmers usually spray their crops with chemicals to kill the weeds and insects.

Scientists can genetically engineer corn plants to improve them.

Write about the **features** that would be useful to add to the corn plant.

Suggest advantages **and** risks from genetically engineered corn.

Due date:	Friday 22nd March 2024
Student number:	
Name:	

Y11 Combined T4 W5 - P5 Energy

Question	Answer
What are the 8 energy stores?	Thermal, kinetic, elastic, gravitational, chemical, electrostatic, magnetic and nuclear.
What is the conservation of energy?	Energy cannot be created or destroyed: it transfers from one form to another.
Which energy store is present in a stretched spring?	Elastic potential
Which energy store is present in a bowl of pasta?	Chemical energy
Which energy store is present in a moving car?	Kinetic energy
What are the four transfer pathways?	Mechanical, electrical, heating with particles and heating with waves.
What energy transfer occurs in a falling object?	Gravitational potential energy store decreases and kinetic energy store increases.
What energy transfer **pathway** occurs in a falling object?	Mechanical
What energy transfer occurs in a battery-operated fan?	Chemical energy store decreases and kinetic energy store increases.
What energy transfer **pathway** occurs in a battery-operated fan?	Electrical

Look. Cover, Write, Check

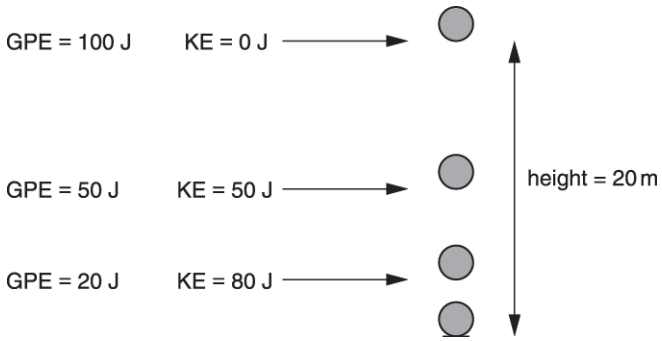
Question	Answer
Which energy store is present in a moving car?	
What are the four transfer pathways?	
What energy transfer occurs in a falling object?	
What energy transfer **pathway** occurs in a falling object?	
Which energy store is present in a bowl of pasta?	
What is the conservation of energy?	
Which energy store is present in a stretched spring?	
What energy transfer occurs in a battery-operated fan?	
What energy transfer **pathway** occurs in a battery-operated fan?	

What are the 8 energy stores?	

Look. Cover, Write, Check

Question	Answer
	Thermal, kinetic, elastic, gravitational, chemical, electrostatic, magnetic and nuclear.
	Energy cannot be created or destroyed: it transfers from one form to another.
Which energy store is present in a stretched spring?	
Which energy store is present in a bowl of pasta?	
Which energy store is present in a moving car?	
	Mechanical, electrical, heating with particles and heating with waves.
What energy transfer occurs in a falling object?	
What energy transfer **pathway** occurs in a falling object?	
	Chemical energy store decreases and kinetic energy store increases.
What energy transfer **pathway** occurs in a battery-operated fan?	

1. This question is about gravitational potential energy (GPE) and kinetic energy (KE). Look at the diagram and information about a small ball falling from a height of 20 m.



Explain the changes in GPE and KE and describe what would happen to the GPE and KE if the mass of the ball was doubled.

Use equations to help explain your answer.

Due date:	Friday 12th April 2024
Student number:	
Name:	

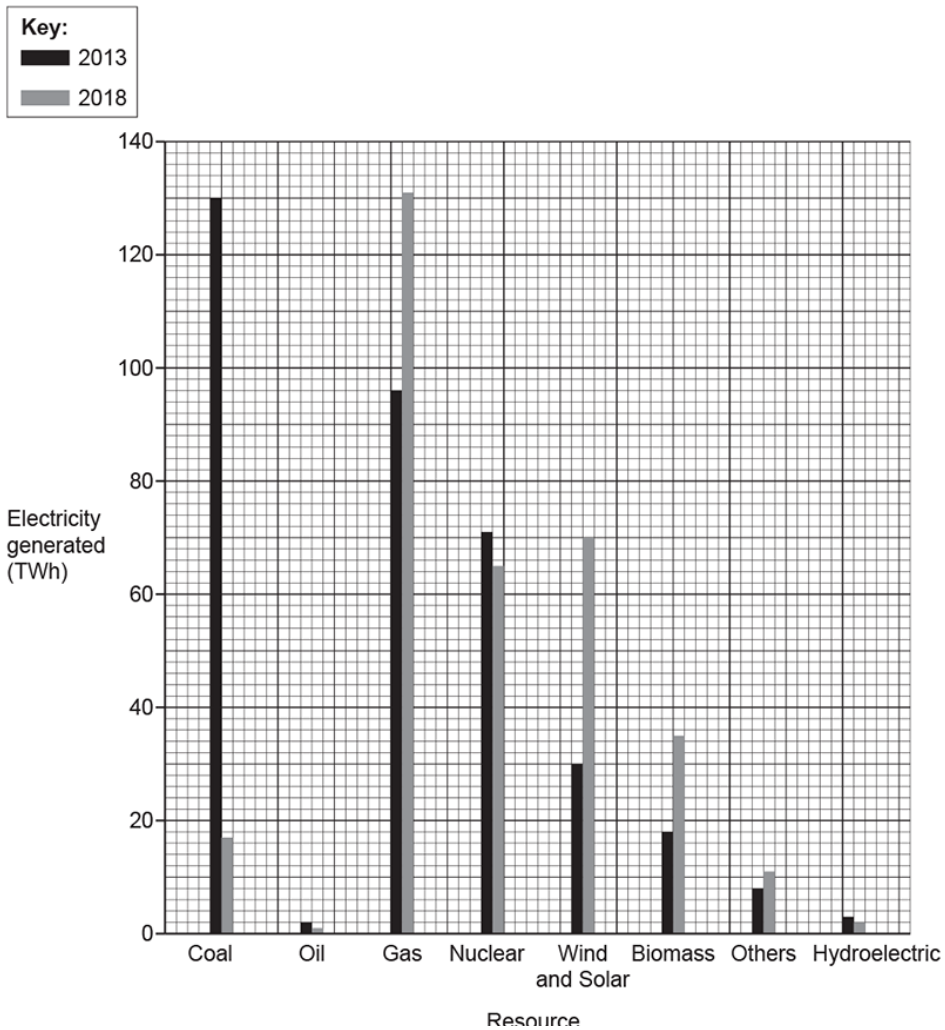
Y11 Combined T5 W1 - P6 Energy Resources

Question	Answer
What is meant by a renewable energy source? Give examples.	A renewable energy source is a source of energy which can be replenished within a life time. Wind / The Sun / Biofuels / Tides / Waves / Hot Rocks
What is meant by a non-renewable energy source? Give examples.	A non-renewable energy source is a source of energy which cannot be replenished within a life time. Fossil Fuels / Nuclear Fuels.
Why is the use of world energy sources increasing?	An increase in population means there is more demand for energy.
What issues do non-renewable energy sources pose to the planet?	Fossil fuels release greenhouse gases once burnt which causes global warming and climate change.
What is the National Grid?	A grid network of wires and pylons used for transporting electricity around the country.
What do transformers do?	Increase or decrease the voltage / current of a flow of electricity.
Why is electricity transported at high voltages?	If electricity flows at a high voltage then current decreases, this means that less energy is dissipated as heat, making the National Grid more efficient.
What is the potential difference and frequency of UK mains electricity?	Potential difference = 230V Frequency = 50Hz
What safety features are in UK electrical appliances?	Fuse – which breaks if the current is too high Double insulated – when the covering is made of plastic so it cannot be made live

Look, Cover, Write, Check

Question	Answer
What issues do non-renewable energy sources pose to the planet?	
	A non-renewable energy source is a source of energy which cannot be replenished within a life time. Fossil Fuels / Nuclear Fuels.
What is the National Grid?	
What do transformers do?	
What safety features are in UK electrical appliances?	
	A renewable energy source is a source of energy which can be replenished within a life time. Wind / The Sun / Biofuels / Tides / Waves / Hot Rocks
	An increase in population means there is more demand for energy. Also, advancements in technology means more energy is needed to run them.
What is the potential difference and frequency of UK mains electricity?	
	If electricity flows at a high voltage then current decreases, this means that less energy is dissipated as heat, making the National Grid more efficient.

1. *Electricity in the UK is generated using renewable and non-renewable resources. The graph shows how electricity was generated in 2013 and 2018.



Explain how and why electricity generation changed between 2013 and 2018. Write about renewable and non-renewable resources.