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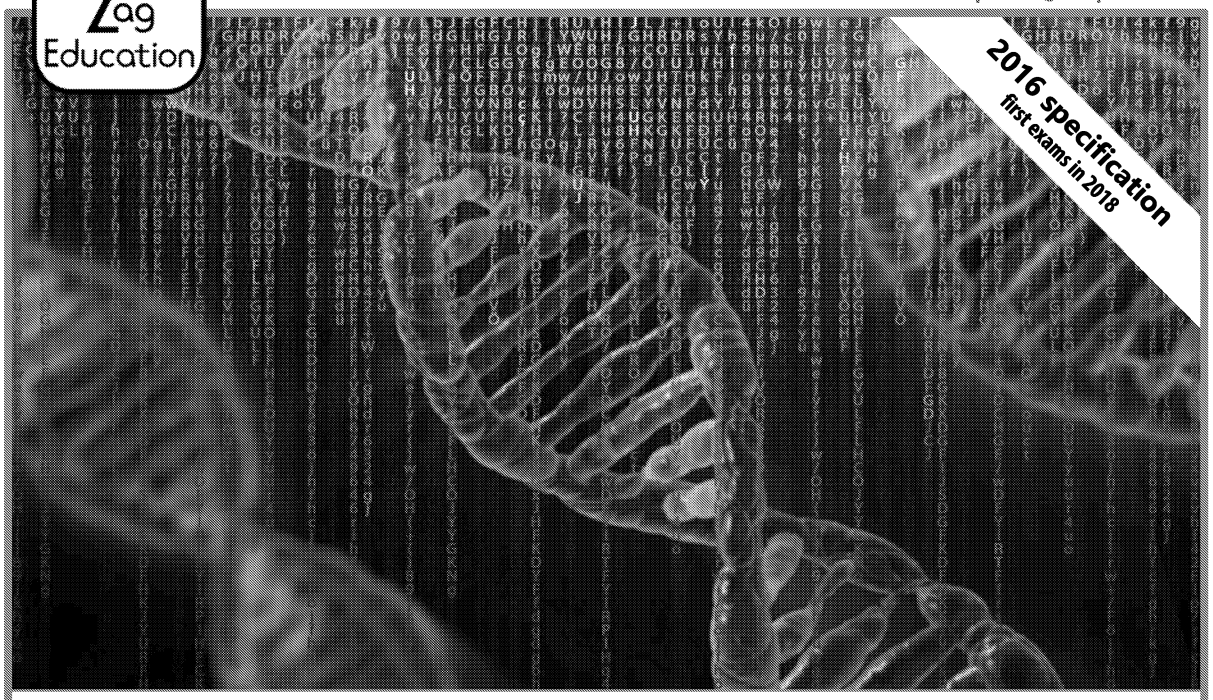

End-of-Topic A4 Quick-Mark Homeworks

for GCSE AQA Combined Science

Biology Topics 5–7

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Teacher's Introduction

These End-of-Topic Quick-Mark Homeworks are designed to test and consolidate students' knowledge of the **AQA GCSE (9–1) Combined Science** course, **Biology Topics 5–7**.

The second half of the Biology course is split into nine topics, each covered by at least 40 questions, for a total of over 440 questions.

Remember!
Always check the exam board website for new information, including changes to the specification and sample assessment material.

The questions increase in difficulty across each homework, with an extension section at the bottom of each homework. The **Fundamentals** section on each homework is targeted at students aiming for grade 4–5. The **Challenge** section is targeted at students aiming for grade 6. The **Extension** section is targeted at students aiming for grade 7 and above. All Higher-tier-only content is in the extension section, so the main body of the homework is suitable for students completing Foundation-tier exams.

All of the topics are in the same order as in the specification.

Maths questions and some shorter-answer questions may contain working or explanation that is not required in the answer so that students can more easily understand and follow difficult answers.

The homeworks are intended to be used at the end of each topic, but they can also be used at the end of the course to aid revision. Alternatively, you may choose to use them as tests in class or for students to work through by themselves or in pairs to test their understanding of the course material.

The first set of fundamentals questions for each homework are presented at the back of the pack for use with weaker students who may struggle with the full homework. These can be cut down the middle to use one test at a time or test two topics at a time.

Answers are presented at the back of the resource, enabling students to check their answers, or teachers to mark students' work, quickly and easily.

I hope you find this resource useful in your teaching.

April 2025

Specification Reference Table

Homework	Title	Specification Reference
1	Homeostasis and the Nervous System	4.5.1–4.5.2
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Topic 1 — Homeostasis and the Nerv

Fundamentals

1. Name a piece of apparatus that can be used to measure reaction time.
2. Glands and muscles are effectors. True or false?
3. What are the two main part[s] of [the] central nervous system?
4. What [is] an environmental change that p[rod]s a response in an individual?
5. Fill in the blank: The brain sends an impulse to an effector, which brings about a _____.
6. The brain and spinal cord are examples of what: effectors, coordinators or receptors?
7. Which of these is a coordinator in the nervous system: muscle, motor neuron, spinal cord?
8. What does the nervous system allow humans to respond to?
9. Blood glucose concentration is controlled by homeostasis. True or false?
10. What effect can using a mobile phone or eating have on the speed of a reflex?
11. Which of the following detects a stimulus: effector, receptor, coordinator?
12. Which of the following produces res[ponses]: coordinator, effector, recept[or]?
13. What is a synapse?
14. What [is the] fu[nc]tion of a coordination centre?
15. What [is] eostasis?
16. Describe what a reflex action is.
17. What is the function of a receptor?

C

1. Other than chem[ical] automatic respo[nses]
2. What is the missi[ng] stimulus → recep[tor]
3. What word does [describe] automatic, fast o[r]
4. What is the gap [between]
5. What is the depe[ndency] into how age affe[cts]
6. What kind of ne[uron] motor neurons?
7. In a knee-jerk re[flex] within the centra[l]
8. What homeosta[sis]
9. In what form is i[nformation]
10. How would a gla[nd] neuronal impuls[e]
11. What homeosta[sis] shivering and sw[eating]
12. In a ruler-drop p[ractical] independent or [dependent]
13. Why must the e[nvironment] be kept constan[t]
14. Explain why refle[xes]
15. Describe the role [of]
16. Why must reflex [responses] of the brain?
17. Explain why refle[xes] system rather th[an]

Extension

1. Does a chemical cross a synapse by diffusion, active transport or osmosis?
2. What type of neuron can cause release of a hormone from a gland?
3. What is the coordinator in a reflex response?
4. Name the type of neuron you can find in the spinal cord.
5. What part of the nervous system is skip[ped] in a reflex action?
6. What is released to al[low] an impulse to cross a synaps[e]?
7. What [type] of neurons connect sensory neurons to?
8. What [type] of tissue would secrete a hormone in response to signals from neurons?
9. What kind of response is coughing an example of?
10. Where are the n[eurons] neurons located?
11. What do sensory [neurons] around the body [do]
12. Why should you [repeat] time at least thre[e]
13. Suggest how repe[ating] person's reactio[n]
14. Explain why think[ing] not a reflex actio[n]
15. Explain how the [structure] endings enables [it]
16. Explain how the [structure] location enables [it]
17. How does an ele[ctrical] a synapse?

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Topic 2 — The Human Endocrine System and Re

Fundamentals

1. What is the word for the chemicals that are released from glands?
2. Where is oestrogen produced: ovary, pituitary gland or testes?
3. What system is made up of glands and hormones: endocrine or nervous?
4. What type of hormones cause the development of secondary sexual characteristics?
5. What hormone is produced when blood glucose levels become too high?
6. Name the main reproductive hormone in women.
7. What is the main reproductive hormone in men?
8. Which system tends to have longer-lasting effects: hormonal or nervous?
9. Where in the male human body is testosterone produced?
10. What is formed from glucose to decrease blood glucose concentration?
11. Which system tends to produce effects more quickly: hormonal or nervous?
12. What are growth of body hair and development of breasts examples of?
13. What cycle prepares the female body for pregnancy in humans?
14. Describe the role of blood in the endocrine system.
15. When do reproductive hormones start being produced by the body?
16. Describe the role of hormones in the endocrine system.
17. What effect does insulin have on glucose in the blood?
18. Give a function of testosterone.
19. What is ovulation?

Extension

1. In which types of cell is glycogen converted to glucose?
2. What gland produces follicle-stimulating hormone (FSH)?
3. What gland is also known as the 'master gland'?
4. What type of diabetes is a result of the pancreas failing to produce enough insulin?
5. What hormone is released from the ovary upon stimulation by FSH?
6. What hormone would increase after going for a run to return blood glucose to normal?
7. What hormone is inhibited during pregnancy: follicle-stimulating hormone or progesterone?
8. What are the hormones involved in maintaining the uterus lining in humans?
9. Predict the effect that a spike in oestrogen would have on FSH concentration.
10. Predict the
would have
11. Why would
themselves
12. What even
and LH in t
13. Why are in
treatment
14. Describe th
stimulating
15. How is it e
a cycle?
16. Explain wh
throughout
17. Explain wh
must be inh

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Topic 3 — Contraception, Infertility and N

Fundamentals

1. What is the word for the ability of a woman to conceive a child?
2. What word defines the practice of refraining from having sexual inter[illegible]?
3. On what part of the body [illegible] condom worn?
4. State[illegible] for.
5. Wh[illegible]ondoms prevent sperm from com[illegible]into contact with?
6. Which of the following controls the basal metabolic rate: auxins, adrenaline, thyroxine?
7. What gland produces adrenaline?
8. Which is a barrier method of contraception: diaphragm or progesterone injection?
9. What name is given to a drug that helps women conceive naturally?
10. What kind of control system reverses changes in the body to return it to normal?
11. What hormone may be released in response to watching a scary film?
12. Describe how adrenaline prepares a mouse to flee from a cat.
13. Explain how fertility dr[illegible] chances of preg[illegible].
14. De[illegible] wh[illegible]vasectomy involves, and its [illegible].
15. What is a negative feedback control system?
16. Suggest a benefit of condoms, unrelated to preventing pregnancy.

C

1. Which hormone is c[illegible] drenaline or thyrox[illegible]
2. What type of contra[illegible] patch examples of?
3. What hormone trigg[illegible] thyroid gland?
4. Name the method o[illegible] or tying the reprodu[illegible]
5. Which method of co[illegible] injection, sterilisatio[illegible]
6. What two substance[illegible] the fight or flight res[illegible]
7. What type of contra[illegible] transmitted infectio[illegible]
8. What hormone does[illegible]
9. What is implanted in[illegible]
10. Which contraceptive[illegible] spermicidal agents o[illegible]
11. What hormone incre[illegible] to the brain in times [illegible]
12. What hormone is re[illegible]
13. [illegible]xplain what is mea[illegible] a hormone.
14. How do scientists at[illegible] rate of IVF?
15. Explain why a couple[illegible] of contraception.
16. Describe the import[illegible]
17. Why can't the best m[illegible] individual be decide[illegible]
18. Describe how an int[illegible]
19. Explain how spermic[illegible]

Extension

1. Where are eggs fertilised during IVF?
2. Which type of contraceptive has the most permanent and irreversible effects?
3. Where are embryos inserted in the final stage of IVF?
4. What gland produces thyroid-stimulating hor[illegible]e?
5. What hormone in an oral contrace[illegible]s follicle-stimulating hormo[illegible]?
6. What method of co[illegible]n can prevent emb[illegible]?
7. Wh[illegible] hormones are typically underproduced in w[illegible]n who require fertility drugs?
8. What risk associated with IVF can harm the mother and baby?
9. Problems in child development may be caused by a lack of which hormone?
10. Other than lutein[illegible] present in a fertil[illegible]
11. What gland does t[illegible]
12. What effect migh[illegible] growth of a child?
13. Explain why proge[illegible] of contraceptive.
14. Why might a pers[illegible] health reasons?
15. Suggest why mor[illegible] fertilised during IV[illegible]
16. Explain how proge[illegible] contraceptives, p[illegible]
17. How does contro[illegible] other than locatio[illegible]

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Topic 4 —Reproduction, DNA and

Fundamentals

1. What chemical makes up the genetic information in a cell?
2. Which produces identical cells: meiosis or mitosis?
3. What word can be used to describe the differences between organisms?
4. What is the word for a single subunit of a polymer?
5. What does the nucleus contain?
6. What is another term for a sex cell?
7. Name the process that produces gametes.
8. Does meiosis form identical or non-identical cells?
9. How many strands make up a DNA molecule: 1, 2 or 4?
10. What is the name for offspring that are genetically identical?
11. What is the word for the genetic information of an organism as a whole?
12. What is the male sex cell in animals?
13. Where is the genetic information contained within a cell?
14. Does a cell divide twice in mitosis or in meiosis?
15. What is the word for a section of DNA on a chromosome?
16. What type of reproduction involves fusion of the sperm and egg in animals?
17. What is the female sex cell in humans: egg cell or sperm?
18. What is the word for a long molecule made of smaller molecules joined in a chain?
19. What is selective breeding?

Extension

1. How many parents are involved in asexual reproduction?
2. How many chromosomes are present in a gamete?
3. Why does asexual reproduction produce genetically identical offspring?
4. What event restores the normal number of chromosomes through the fusion of gametes?
5. Research into what area can help us trace human migration patterns?
6. What happens to cells during embryo development?
7. By what process after fertilisation?
8. How can know us to prevent
9. When does m take place dur
10. Why is it esse full number of
11. Explain what start of meios

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Topic 5 — Genetic Inheritance and Sex

Fundamentals

1. How many pairs of chromosomes do human body cells have?
2. What are sperm and egg cells examples of?
3. Which word means the visible characteristics of an organism, rather than its genotype or genotype?
4. What is the word for a pair of the genes in an individual?
5. What word means a variant of a gene?
6. Do males or females have two different sex chromosomes?
7. Most characteristics are controlled by a single gene. True or false?
8. What is the word for traits being passed on from parents to offspring?
9. How would you represent a 1 in 2 chance as a percentage?
10. What is the word for a short section of DNA that codes for a particular protein?
11. What is the thread-like structure that contains DNA called?
12. How would you represent a 1 in 4 chance as a percentage?
13. What is a phenotype?
14. Why is looking at a person's genes not enough to understand a complex characteristic?
15. What is a inherited disorder?
16. How do gametes and body cells differ in number of chromosomes?

C

1. How would you r… inheriting a trait a…
2. What is it known a… different alleles f…
3. What name is give… certain alleles be…
4. On a genetic diag… a recessive or a d…
5. Name the grid th… chances of inheri…
6. What is the ratio … offspring here? HH, Hh, Hh, hh
7. What disorder inv… and toes?
8. What type of alle… one copy is prese…
9. How many pairs o… determining gene…
10. How would you w… trait as a ratio?
11. Which of these p… males: XX, XY or Y…
12. Explain what it m…
13. Describe what em…
14. Describe how you… genetic cross mat…
15. What is the link b…
16. What can a Punne…

Extension

1. How many copies of a recessive gene are required for it be expressed?
2. Name the test used to determine whether a developing baby will have cystic fibrosis.
3. Is polydactyly caused by a dominant allele or by a recessive allele?
4. How many genes are in control of fur colour in mice?
5. What part of a cell is affected by cystic fibrosis?
6. How many genes determine red-green colour blindness?
7. Work out the possible genotypes of offspring of two heterozygous parents, HH and hh.
8. Cystic fibrosis is caused by a dominant allele. True or false?
9. What is the probability of a woman's next child being a boy if she has already had 4 boys?
10. Work out the possib… heterozygous parent…
11. What is the chance o… Rr, having a homozyg…
12. What is the chance o… rr, having a heterozy…
13. …xplain why results f… exact offspring ratios.
14. Suggest why embryo…
15. Suggest why a child … neither parent suffe…
16. Explain why polydac… just one parent suffe…
17. What kind of trait ma… predictable mathema…
18. Suggest why it is diffi… Punnett squares.

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Topic 6 — Evolution, Selective Breeding and G

Fundamentals

1. What is the word for an organism that is genetically identical to another organism?
2. What does GM stand for?
3. Name the process of producing new species.
4. What term is used to desc[illegible] differences betwe[illegible]s?
5. What [illegible]ct [illegible]etic engineering aim to [illegible] crop yields?
6. Whi[illegible]ot a cause of environmental variation: diet, culture, mutation?
7. What can scientists use to transfer a gene between organisms?
8. Name a technique that can be used to make plants produce more attractive flowers.
9. What is the word for population-wide change in characteristics through time?
10. What technique has been used to domesticate pets such as dogs?
11. Humans have used selective breeding to make cows produce more milk. True or false?
12. Other than genetics, what causes variation?
13. Which is a risk of genetic engin[illegible] increasing yield, or gen[illegible] to wildlife?
14. Mu[illegible] the time. True or false?
15. Wh[illegible]nique involves altering an organism's genome to produce a desired trait?
16. Describe the process of selective breeding.
17. What is inbreeding?
18. Is variation in weight caused by genetics, the environment, or both?

Ch

1. What does an organism' produce its phenotype?
2. [illegible]at technique is bein produce insulin?
3. What is the word for an selective breeding?
4. Vectors are used to tra genetic engineering. Tru
5. What is the term for a DNA altered?
6. What type of variation ca
7. What trait has been cho to reduce disease?
8. Is variation in skin colou environment or both?
9. Diet, climate and lifesty of variation?
10. Does selective breeding genetic variation?
11. Which cause of variatio genetic or environmen
12. What use do bacterial pl
13. What is separated from [illegible]etic engineering?
14. What can be engineere by pests?
15. How did selective bree
16. Which is not an examp bacterial plasmid?
17. Describe how more foo genetic engineering.
18. What does the environ individual's phenotype?
19. How does changing bo theory of evolution?
20. Describe the role of en

Extension

1. What kind of organisms can be genetically engineered to produce insulin?
2. What type of disorder might one day be treatable by genetic modification of patients' DNA?
3. What technique reduces genetic variation [illegible] cloning or selective breeding?
4. How often does a mutati[illegible] phenotype: rarely [illegible] always?
5. Exp[illegible] identical twins are not completely ide[illegible] adults.
6. What effect can selective breeding have on the gene pool of a population?
7. Describe how crop losses can be reduced using genetic engineering.
8. Give an example of a vector in genetic engineering.
9. What technique ha of 'unnatural' gene
10. Why are unspecialis
11. Explain why cloning new crop varieties
12. Explain how selecti a population.
13. Suggest why an ind from their parents
14. Why must genes be in development in
15. Suggest how genet patients with inher
16. Why does selective populations when

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Topic 7 — Evidence for Evolution Leading

Fundamentals

1. Where are fossils found?
2. Soft-bodied life forms are well preserved in the fossil record. True or false?
3. Do bacteria reproduce quickly or slowly?
4. What is it known as when a sp[illegible] out completely?
5. Antibiotics are [illegible] t[illegible]eat viral inf[illegible] T[illegible] or false?
6. Wh[illegible]other word for the collection of fossils that have been discovered?
7. What is the word for preserved remains of an organism from millions of years ago?
8. What is the word for the grouping of organisms based on shared characteristics?
9. What type of medicine can bacteria become resistant to?
10. What is the word for a particular variant of a bacterial species?
11. What diagram, similar to a family tree, is used to show relationships between species?
12. What word describes bacteria that are not killed by antibiotics?
13. Predation, competition and di[illegible]e[illegible] all lead to extinction. T[illegible] or f[illegible]se?
14. What does 'cl[illegible]n of org[illegible]m?
15. Des[illegible]n inappropriate use of antibiotics.
16. Why is it important that a patient finishes their prescribed course of antibiotics?

C

1. We still use the class[illegible] Linnaeus today. True
2. Which is not an exa[illegible] teeth, burrows?
3. What data is used to[illegible] extinct organisms?
4. Which domain includ[illegible]
5. Apart from Archaea [illegible] group in the three-d[illegible]
6. What kind of eviden[illegible] in rocks?
7. What kind of eviden[illegible] changed as life deve[illegible]
8. What kind of data is[illegible] of living organisms?
9. Which is an example[illegible] or a jawbone?
10. Name the classificat[illegible] Carl Woese.
11. What are the two co[illegible] uses to name organ[illegible]
12. What spontaneous e[illegible] of bacteria?
13. Which is not a group[illegible] Eukaryota, Animalia,
14. How can farmers hel[illegible] antibiotic resistance
15. Explain why bacteria[illegible]
16. Explain why very ear[illegible] poorly preserved.
17. Describe the role of[illegible]
18. Why might a doctor[illegible] in some cases?

Extension

1. What is the largest level of classification under the Linnaean system?
2. What term is missing from this sequence? kingdom, _____ , class, order
3. If a branch of an evolutionary tree stops before the end of the tree, what has occurred?
4. Species comes before gen[illegible]a[illegible]mial name. True or fal[illegible]
5. The [illegible]mia[illegible]or a cat is *Felis catus.* Ide[illegible]e genus.
6. Who developed the three-domain system?
7. What term is missing from this sequence? order, _____ , genus, species
8. What kind of evidence enabled development of the three-domain system?
9. What kind of activity ha[illegible] life forms?
10. What replaces parts of [illegible] form fossils?
11. [illegible]ich domain includes [illegible]n extreme conditions?
12. What is the biggest clas[illegible] or genus?
13. What group do protists [illegible] or Bacteria?
14. Describe the developme[illegible] classification being pro[illegible]
15. Why is it unlikely that w[illegible] antibiotic resistance de[illegible]
16. Suggest why classificati[illegible] over time.

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Topic 8 — Ecosystem Organi

Fundamentals

1. If you put a set of numbers in order, what term describes the number in the middle?
2. What diagram shows the order in which organisms feed off of one another?
3. What is the ... the nu... ...at ...curs most often in a ...t?
4. In what form is carbon returned to the atmosphere in the carbon cycle?
5. What is the word for the living parts of an ecosystem?
6. What are producers eaten by?
7. Is wind intensity a biotic factor or an abiotic factor?
8. What type of factor is temperature an example of: biotic or abiotic?
9. What are primary consumers eaten by?
10. What is the role of a producer?
11. What is an ecosystem?
12. What is a prey animal?
13. What is an adaptati...

Cha

1. What are transects and qua...
2. Which ... not an example of ... ...n, soil pH?
3. ...hat type of adaptation is th...
4. If repeat measurements are ... the mean?
5. Animals compete for territo...
6. What is 1 : 3 as a fraction?
7. In what cycle are condensat... vital processes?
8. Pollination of flowers by be... interdependence or compe...
9. Express 4/5 as a percentage.
10. Which is a functional adapta... in plant leaves?
11. Hibernation is an example o...
12. What pattern do predator a... stable community?
13. Explain why removing a spe... species has a large effect.
14. Expl... why it is important t... pr...ica...on rate of decay.
15. What resources do plants c... an ecosystem?
16. What is the purpose of the c...

Extension

1. What can be used to ensure that samples with a quadrat are taken at regular intervals?
2. What name is given to bacteria living in hydrothermal vents?
3. What is the word for a population with a relatively constant number of individuals?
4. What is produced by algae or plants at the start of a food chain?
5. What is the independent variable in a practical into how soil pH affects daisy number?
6. What is the median length in the following list?
   43 cm, 43 cm, 44 cm, 44 cm, 46 cm, 47 cm, 48 cm, 52 cm
7. By ... pro...
8. De... sta...
9. Ho... po...
10. Ex... im...
11. Ex... a c...

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Topic 9 — Biodiversity and Human Impac

Fundamentals

1. What is the word for the overall increase of Earth's temperature?
2. What is the word for the place in which a species lives?
3. What overall effect does h[illegible]vity have on biodiversity: a[illegible]e or a decrease?
4. Wh[illegible]d f[illegible]s the removal of large fore[illegible]s?
5. What word means reusing a resource rather than sending it to landfill?
6. What is waste water known as?
7. As living standards increase, so does the amount of waste people produce. True or false?
8. The word 'biodiversity' means changes in species over time. True or false?
9. Which has a positive effect on biodiversity: recycling, quarrying or pollution?
10. Where is the majority of waste dumped?
11. What effect does habitat loss have on number of species?
12. What is another word for the damaging substances that humans release into the environment?
13. What type of bog[illegible] destroyed to prod[illegible]or[illegible]?
14. How[illegible]ollution decrease biodiversity?
15. How does farming contribute to water pollution?
16. How are people attempting to reduce the amount of waste that goes to landfill?

C

1. The growth of crop[illegible] deforestation. True
2. What increases wa[illegible] or increasing living
3. What kind of progr[illegible] population number
4. Which type of poll[illegible] sewage or smoke?
5. What can become [illegible] off from fields?
6. What is the main t[illegible] fossil fuels?
7. Levels of what gas, global warming?
8. What word describ[illegible] to extinction?
9. Destruction of peat[illegible] True or false?
10. What is the word fo[illegible] in which they live?
11. Name a type of air
12. What factors have
13. Suggest how defor[illegible] global warming.
14. Describe how an in[illegible] increase in water p
15. Explain why our se[illegible] increased deforest[illegible]
16. Explain how high bi[illegible] ecosystem stability
17. Why is it important[illegible]

Extension

1. Emissions of what two gases must be reduced to slow down global warming?
2. What material, used by gardeners, is produced from peat?
3. What gas is released by burning peat?
4. What substance, other than smoke, can cause pollution of the air?
5. 900,000 hectares of [illegible] tree cover was lost in 2[illegible] this in standard form.
6. Na[illegible]activity involving extraction of mete[illegible]s that threatens biodiversity.
7. What is the term for scientific papers that have been checked by several scientists?
8. What is being reintroduced in fields of single crops to increase biodiversity?
9. What process, other tha[illegible] dioxide from peat?
10. What strategy can zoos
11. W[illegible]at strategy, other th[illegible] pr[illegible]serve rare habitats?
12. How can conservation o[illegible] global warming?
13. Why is peer-review imp[illegible] climate change?
14. Why do some people ar[illegible] peat bogs?
15. Explain how increased d[illegible] composition of atmosph
16. Why might some peopl[illegible] can reduce biodiversity?

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Fundamentals Test

Topic 1 — Homeostasis and the Nervous

1	Name a piece of apparatus that can be used to measure reaction time.
2	Glands and muscles are effectors. True or false?
3	What are the two main parts of the central nervous system?
4	What is the word for a change in environmental change that produces a response?
5	Fill in the blank: The brain sends an impulse to an effector, which brings a
6	The brain and spinal cord are examples of what: effectors, coordinators or
7	Which of these is a coordinator in the nervous system: muscle, motor ne
8	What does the nervous system allow humans to respond to?
9	Blood glucose concentration is controlled by homeostasis. True or false?
10	What effect can using a mobile phone or eating have on the speed of a re
11	Which of the following detects a stimulus: effector, receptor, coordinato
12	Which of the following produces responses: coordinator, effector, recept
13	What is a synapse?
14	What is the function of a coordination centre?
15	What is homeostasis?
16	Describe what a reflex action is.
17	What is the function of a receptor?

Topic 2 — The Human Endocrine System and Repro

1	What is the word for the chemicals that are released from glands?
2	Where is oestrogen produced: ovary, pituitary gland or testes?
3	What system is made up of glands and hormones: endocrine or nervous?
4	What type of hormones cause the development of secondary sexual cha
5	What hormone is produced when blood glucose levels become too high?
6	Name the main reproductive hormone in women.
7	What is the main reproductive hormone in men?
8	Which system tends to have longer-lasting effects: hormonal or nervous?
9	Where in the male human body is testosterone produced?
10	What is formed from glucose to decrease blood glucose concentration?
11	Which system tends to produce effects more quickly: hormonal or nervo
12	What are growth of body hair and development of breasts examples of?
13	What cycle prepares the female body for pregnancy in humans?
14	Describe the role of blood in the endocrine system.
15	When do reproductive hormones start being produced by the body?
16	Describe the role of hormones in the endocrine system.
17	What effect does insulin have on glucose in the blood?
18	Give a function of testosterone.
19	What is ovulation?

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Topic 3 — Contraception, Infertility and Neg

1	What is the word for the ability of a woman to conceive a child?
2	What word defines the practice of refraining from having sexual interc
3	On what part of the body is a condom worn?
4	State what IVF stands for.
5	What do condoms prevent sperm from coming into contact with?
6	Which of the following contains the basal metabolic rate: auxins, adren
7	What gland produces adrenaline?
8	Which is a barrier method of contraception: diaphragm or progesteron
9	What name is given to a drug that helps women conceive naturally?
10	What kind of control system reverses changes in the body to return it t
11	What hormone may be released in response to watching a scary film?
12	Describe how adrenaline prepares a mouse to flee from a cat.
13	Explain how fertility drugs improve chances of pregnancy.
14	Describe what vasectomy involves, and its purpose.
15	What is a negative feedback control system?
16	Suggest a benefit of condoms, unrelated to preventing pregnancy.

Topic 4 — Reproduction, DNA and the

1	What chemical makes up the genetic information in a cell?
2	Which produces identical cells: meiosis or mitosis?
3	What word can be used to describe the differences between organisms
4	What is the word for a single subunit of a polymer?
5	What does the nucleus contain?
6	What is another term for a sex cell?
7	Name the process that produces gametes.
8	Does meiosis form identical or non-identical cells?
9	How many strands make up a DNA molecule: 1, 2 or 4?
10	What is the name for offspring that are genetically identical?
11	What is the word for the genetic information of an organism as a whole
12	What is the male sex cell in animals?
13	Where is the genetic information contained within a cell?
14	Does a cell divide twice in mitosis or in meiosis?
15	What is the word for a section of DNA on a chromosome?
16	What type of reproduction involves fusion of the sperm and egg in ani
17	What is the female sex cell in humans: egg cell or sperm?
18	What is the word for a long molecule made of smaller molecules joined
19	What is selective breeding?

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Topic 5 — Genetic Inheritance and Sex De

1	How many pairs of chromosomes do human body cells have?
2	What are sperm and egg cells examples of?
3	Which word means the visible characteristics of an organism: phenotyp
4	What is the word for all of the genes in an indivi[illegible]?
5	What word means a variant of a gen[illegible]?
6	Do males or females have [illegible] different sex chromosomes?
7	Most characteri[illegible] controlled by a single gene. True or false?
8	W[illegible] the word for traits being passed on from parents to offspring?
9	Ho[illegible]uld you represent a 1 in 2 chance as a percentage?
10	What is the word for a short section of DNA that codes for a particular p
11	What is the thread-like structure that contains DNA called?
12	How would you represent a 1 in 4 chance as a percentage?
13	What is a phenotype?
14	Why is looking at a single gene not enough to understand a complex cha
15	What is an inherited disorder?
16	How do gametes and body cells differ in number of chromosomes?

Topic 6 — Evolution, Selective [illegible]eding and Ge

1	What is the word for an organis[illegible] is genetically identical to another
2	What does GM stand for?
3	Name the [illegible] of producing new species.
4	W[illegible]m is used to describe the differences between organisms?
5	What effect does genetic engineering aim to have on crop yields?
6	Which is not a cause of environmental variation: diet, culture, mutation?
7	What can scientists use to transfer a gene between organisms?
8	Name a technique that can be used to make plants produce more attrac
9	What is the word for population-wide change in characteristics through
10	What technique has been used to domesticate pets such as dogs?
11	Humans have used selective breeding to make cows produce more milk.
12	Other than genetics, what causes variation?
13	Which is a risk of genetic engineering: increasing yield, or genes spread
14	Mutations occur all the time. True or false?
15	What technique involves alterin[illegible] organism's genome to produce a de
16	Describe the process of selective breeding.
17	What is inb[illegible]
18	Is [illegible]n in weight caused by genetics, the environment, or both?

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Topic 7 — Evidence for Evolution Leading to

1	Where are fossils found?
2	Soft-bodied life forms are well preserved in the fossil record. True or fa
3	Do bacteria reproduce quickly or slowly?
4	What is it known as when a species dies out completely?
5	Antibiotics are used to treat viral infections. True or false?
6	What is another word for the collection of fossils that have been discov
7	What is the word for preserved remains of an organism from millions o
8	What is the word for the grouping of organisms based on shared chara
9	What type of medicine can bacteria become resistant to?
10	What is the word for a particular variant of a bacterial species?
11	What diagram, similar to a family tree, is used to show relationships be
12	What word describes bacteria that are not killed by antibiotics?
13	Predation, competition and disease can all lead to extinction. True or fa
14	What does 'classification of organisms' mean?
15	Describe an inappropriate use of antibiotics.
16	Why is it important that a patient finishes their prescribed course of an

Topic 8 — Ecosystem Organisati

1	If you put a set of numbers in order, what term describes the number i
2	What diagram shows the flow of energy which organisms feed off of one ano
3	What is the word for the number that occurs most often in a dataset?
4	What is the process by which carbon returned to the atmosphere in the carbon cycle?
5	What is the word for the living parts of an ecosystem?
6	What are producers eaten by?
7	Is wind intensity a biotic factor or an abiotic factor?
8	What type of factor is temperature an example of: biotic or abiotic?
9	What are primary consumers eaten by?
10	What is the role of a producer?
11	What is an ecosystem?
12	What is a prey animal?
13	What is an adaptation?

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Topic 9 — Biodiversity and Human Impacts o

1	What is the word for the overall increase of Earth's temperature?
2	What is the word for the place in which a species lives?
3	What overall effect does human activity have on biodiversity: an increas
4	What word means the removal of large fo[illegible] as?
5	What word means reusing a re[illegible] rather than sending it to landfill?
6	What is waste wat[illegible] wn as?
7	As li[illegible] st [illegible] increase, so does the amount of waste people produ
8	Th[illegible] 'biodiversity' means changes in species over time. True or fals
9	Which has a positive effect on biodiversity: recycling, quarrying or pollu
10	Where is the majority of waste dumped?
11	What effect does habitat loss have on number of species?
12	What is another word for the damaging substances that humans releas
13	What type of bog is being destroyed to produce compost?
14	How can pollution decrease biodiversity?
15	How does farming contribute to water pollution?
16	How are people attempting to reduce the amount of waste that goes to

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Answers

Topic 1 — Homeostasis and the Nervous Sys

Fundamentals

1. Ruler/stopwatch
2. True
3. Spinal cord and brain
4. Stimulus
5. Response
6. Coor s
7. Spina
8. Stimuli / changes in the environment
9. True
10. Slow it down
11. Receptor
12. Effector
13. A gap between neurons
14. To process information received from receptors and determine what action is needed
15. The maintenance of a constant, normal internal environment of the body (in response to changes)
16. An automatic, unconscious and quick response to a stimulus
17. To detect stimuli / changes in the environment

Challenge

1. Nervous
2. Coordinator
3. Conscious
4. Synapse
5. Reactio ime
6. Rela n
7. Relay n
8. Water level / osmotic balance
9. Electrical impulses
10. Release a chemical/hormone
11. Body temperature
12. Dependent variable
13. To provide optimal conditions for enzyme activity and prevent enzyme denaturing
14. They enable you to avoid a harmful stimulus quickly, and are essential for some vital functions such as breathing
15. Enables the transfer of an impulse from one nerve cell to another
16. To enable responses to be as rapid as possible
17. Nervous responses can happen much more qu ly than hormonal responses (reflex acti d be rapid)

Extension

1. Diffusion
2. Motor neuron
3. Relay neuron
4. Relay neuron
5. The brain
6. Chemical/neu
7. Motor neuron
8. Gland
9. Reflex respon
10. Muscles/gland
11. The CNS / cen brain / relay n
12. So that a mea which reduces caused by ran
13. The person's re better at the ta a ruler
14. The decision t conscious thou
15. Motor neuron muscles/gland function with t
16. Sensory neuro CNS, so they c receptors to th
17. Chemicals/neu neuron, diffus on the next ne

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Topic 2 — The Human Endocrine System and Repr

Fundamentals

1. Hormones
2. Ovary
3. Endocrine
4. Reproductive/sex hormones
5. Insulin
6. Oestrogen
7. Testosterone
8. Hormonal
9. Testes
10. Glyco
11. Nervou
12. Secondary sexual characteristics
13. The menstrual cycle
14. Carries hormones from glands to target organs
15. During puberty
16. To produce an effect in a target organ / target tissue
17. It causes glucose to enter the cells from the blood (to be converted to, and stored as, glycogen)
18. Stimulate sperm production / produce secondary sexual characteristics (e.g. increase muscle and bone mass, body hair growth)
19. The release of an egg from the ovary at the midpoint of the menstrual cycle

Challenge

1. Type 2 diabetes
2. The brain
3. 28 days
4. Glucagon
5. Ovulation
6. Testo
7. Exerci
8. It causes its release
9. Pancreas
10. Target organ
11. Liver and muscle cells lose their responsiveness to insulin
12. Causes an egg to mature in the ovary / stimulates oestrogen production
13. It causes the conversion of glycogen to glucose, which is then released into the blood
14. To cause an egg to be released from the ovary

Extension

1. Liver cells and
2. Pituitary gland
3. Pituitary gland
4. Type 1 diabete
5. Oestrogen
6. Glucagon
7. Follicle-stimula
8. Oestrogen and
9. Reduce FSH co
10. Increase LH co
11. To provide insu make, to preve dangerous con
12. Embryo implan
13. The liver and m so will not take
14. It causes the re from the pituit triggers ovulat
15. Release of folli stimulates relea which inhibits F eggs mature
16. Because it has a
17. To ensure that menstrual cycl

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Zig Zag Education

Topic 3 —Contraception, Infertility and Neg

Fundamentals

1. Fertility
2. Abstinence
3. Penis
4. In vitro fertilisation
5. The egg
6. Thyroxine
7. Adrenal gland
8. Diaphragm
9. Fertility drug
10. Neg[illegible]eed[illegible]ck system
11. Adre[illegible]
12. By increasing oxygen and glucose delivery to the muscles and brain
13. By increasing the chance of ovulation / stimulating egg maturation (thus improving chances of natural fertilisation)
14. The cutting or tying of tubes to prevent sperm from getting into semen in males
15. A system where changes in the body are reversed to return the body to normal
16. They provide protection against sexually transmitted diseases

Challenge

1. Thyroxine
2. Hormonal contraceptive
3. Thyroid-stimulating hormone
4. Vasectomy/tubectomy
5. Sterilisation
6. Glucose and oxygen
7. Barrier [illegible]oth[illegible]
8. Foll[illegible]ul[illegible]ng hormone (FSH)
9. Emb[illegible]ypically one or two)
10. Spermicidal agents
11. Adrenaline
12. Progesterone
13. Changes in concentration of a hormone are reversed to return the hormone concentration to the normal set level
14. By collecting, fertilising and developing several eggs
15. If they no longer want children, then this is a permanent way of preventing pregnancy without side effects
16. It is important in development and growth, through controlling the basal metabolic rate
17. Lifestyle factors are also important (e.g. whether they want a child, whether they want protecti[illegible] against sexually transmitted infection[illegible]nc contraceptives can have neg[illegible]e effects)
18. By slowly releasing p[illegible]e into the body over a long p[illegible]iod [illegible]hich prevents eggs from mat[illegible]nd [illegible]ing released
19. By ki[illegible] slowing down sperm as they enter the vagina, so they do not reach the egg

Extension

1. In a laborator[illegible]
2. Vasectomy/tu[illegible]
3. Uterus/womb[illegible]
4. Pituitary glan[illegible]
5. Progesterone[illegible]
6. Intrauterine d[illegible]
7. Follicle-stimul[illegible] hormone (LH)[illegible]
8. Multiple conc[illegible]
9. Thyroxine
10. Follicle-stimul[illegible]
11. Thyroid gland[illegible]
12. Inhibit normal[illegible]
13. It inhibits the[illegible] hormone (FSH[illegible] production an[illegible]
14. IVF can harm t[illegible] and it can cau[illegible] and mentally[illegible]
15. Because the su[illegible] increase the c[illegible]
16. Progesterone[illegible] stimulating ho[illegible] which results[illegible]
17. Thyroxine is c[illegible] whereas adre[illegible]

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Topic 4 — Reproduction, DNA and the Genom

Fundamentals

1. DNA
2. Mitosis
3. Variation
4. Monomer
5. Genetic material / DNA
6. Gamete
7. Meiosis
8. Non-identical cells
9. 2
10. Clone
11. Genom
12. Sperm
13. Nucleus
14. Meiosis
15. Gene
16. Sexual reproduction
17. Egg cell
18. Polymer
19. Choosing to breed certain individuals to develop favourable characteristics

Challenge

1. Asexual reproduction
2. Chromosome
3. Polymer
4. Mitosis
5. Pollen cell and egg cell
6. A particular sequence of amino acid
   corresponds to a certain pr
7. One
8. Doubl
9. Two
10. Sexual
11. Four
12. Reproductive organs / testes / ovaries
13. Male and female gametes join together
14. Genetic information from both parents becomes mixed / DNA crosses over / random fertilisation
15. The cells dividing twice
16. As DNA in chromosomes, within the cell nucleus
17. Sexual reproduction produces offspring with variation; asexual reproduction produces identical offspring

Extension

1. One
2. 23
3. Because there
   mixing of gene
4. Fertilisation
5. Human genom
6. They differenti
7. By mitosis
8. Identification o
   helping to prod
   inherited disor
9. At fertilisation/
10. So that cells ca
    forming an em
    of chromosom
11. Chromosomes
    are copied

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Topic 5 — Genetic Inheritance and Sex Dete

Fundamentals

1. 23
2. Gametes / sex cells
3. Phenotype
4. Genotype
5. Allele
6. Males
7. False
8. Inheritance
9. 50 %
10. Ger
11. Chro me
12. 25 %
13. Interaction of gene expression and environment in determining physical appearance
14. Many characteristics are controlled by more than one gene
15. A disease that is passed down from parents to offspring through genes
16. Gametes contain half as many chromosomes as body cells / gametes are haploid, body cells are diploid

Challenge

1. 1 : 1
2. Heterozygosity/heterozygous
3. Inherited disorders
4. Dominant allele
5. Punnett square/grid
6. 1 : 1
7. Polydactyly
8. Recessive allel
9. On
10. 1 : 3
11. XY
12. The individual has two copies of the same allele for a characteristic
13. A test to determine whether certain inherited disorders are present in an embryo
14. Through genetic diagrams, simple ratios and direct proportion
15. Our genotype is the genes we have; our phenotype is the interaction between how these genes are expressed and the environment in determining physical appearance
16. The expected ratios of offspring from two parents

Extension

1. Two
2. Embryo scree
3. Dominant all
4. One
5. Cell membra
6. One
7. Hh, Hh, Hh, H
8. False
9. 50 % / 0.5
10. RR, Rr, Rr, rr
11. 1 in 4 / 25 %
12. 100 %
13. Fusion of gam unpredictable individual bab genotype are
14. To make par diseases the c informed dec
15. Cystic fibrosis The parents m allele and onl both copies a
16. Polydactyly i parent passes the offspring
17. A trait that is
18. Height is dete the environm simplistic to

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Topic 6 — Evolution, Selective Breeding and G

Fundamentals

1. Clone
2. Genetically modified
3. Speciation
4. Variation
5. Increase yields
6. Mutation
7. A vector
8. Selective breeding / gen[illegible]ering
9. Evolution
10. Selec[illegible]eed
11. True
12. Environment
13. Genes spreading to wildlife
14. True
15. Genetic engineering/modification
16. Choose two individuals with a desired trait, breed them together, then breed their offspring with the desired trait for several generations
17. The development of inherited disorders or susceptibility to disease as a result of closely related individuals breeding
18. Both

Challenge

1. The environment / environmental factors
2. Genetic engineering
3. Inbreeding
4. False
5. GM (genetically modified) cro
6. Genetic variation
7. Disease [illegible]ista
8. Both
9. Enviro[illegible]tal
10. Decrease
11. Genetic
12. They can be used as vectors
13. The desired gene
14. Pesticides
15. Humans trying to produce crop plants and domesticate animals
16. Enzyme
17. By introducing genes that increase growth or fruit size, or give disease/pest/drought resistance to reduce yield losses
18. Genotype/genome/genes/genetics
19. It shows that organisms/species have changed over (geological) time
20. They are used to separate the desired [illegible]om the DNA of an organism's cell

Extension

1. Bacteria
2. Inherited disor
3. Cloning
4. Rarely
5. Because while t environmental lifetime and ca
6. Make it smaller
7. By introducing reduce losses b resistant and p
8. Plasmid/virus
9. Genetic engine
10. Because they h cell, so a full o genetically eng
11. It reduces the g
12. By selecting on breed, and the pool becomes s is reduced
13. Environmental cause variation
14. To ensure that desired genes i
15. By replacing a repairing the fa
16. It reduces the g that the whole by a disease (w whole populati

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Topic 7 — Evidence for Evolution Leading to

Fundamentals

1. In rocks
2. False
3. Quickly
4. Extinction
5. False
6. Fossil record
7. Fossil(s)
8. Classification
9. Antibi
10. Strai
11. Evolut y tree / phylogenetic tree
12. Resistant
13. True
14. Organisms are grouped based on shared characteristics
15. Taking antibiotics for a viral infection / when an infection isn't serious enough / not completing the course of antibiotics
16. To prevent some bacteria surviving and mutating to become resistant to antibiotics

Challenge

1. True
2. Teeth
3. Fossil record
4. Eukaryota
5. Bacteria
6. Fossil evidence
7. Fossils
8. Existing classific a
9. Foot
10. Three n system
11. Genus and species
12. Mutation
13. Animalia
14. By limiting their use of agricultural antibiotics
15. They have a very fast rate of reproduction
16. They had soft bodies so were not well preserved / didn't leave much of a trace behind
17. They replace parts of organisms as the organisms decompose, preserving traces of them
18. To help prevent the development of antibiotic resistance in bacteria / because it would be inappropriate (e.g. ineffective in treating a viral infection)

Extension

1. Domain
2. Phylum
3. Extinction
4. False
5. *Felis*
6. Carl Woese
7. Family
8. Chemical evide
9. Geological
10. Minerals
11. Archaea
12. Kingdom
13. Eukaryota
14. Improvements better understa knowledge of b
15. Developing ne consuming, an
16. Classification c and new techn are still being d Use both fossil produce evolu Scientists have inherited in ge from the fossil antibiotic resist

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Topic 8 — Ecosystem Organisation

Fundamentals

1. Median
2. Food chain
3. Mode
4. Carbon dioxide
5. Biotic
6. (Primary) consumers / herbivores
7. Abiotic
8. Abiotic
9. Secondary consumers / carnivores / predators
10. To p[roduce] [bio]mass / molecules such as glucose at the st[art] of food chain (by photosynthesis)
11. The interaction of living and non-living parts of a community
12. An animal that is eaten by other animals / predators
13. A trait that improves the ability of an organism to survive in its environment

Challenge

1. Determining species distribution
2. Soil pH
3. Structural
4. 70.3 (accept 70, 70.33, etc.); working: (72 + 68 + 71)/3
5. A mate
6. 1/4
7. Water cycle
8. Interdependence
9. 80 %
10. Toxins in plant leaves
11. Behavioural
12. Increa[se] and [de]creasing in cycles
13. Spec[ies] highly dependent on one another / there is a lo[w] interdependence
14. To produce a mean, reducing uncertainty, and identify outliers
15. Water and mineral ions from the soil, light, space, pollinators
16. To return carbon to the atmosphere from organisms in the form of carbon dioxide, which plants can then use in photosynthesis

Extension

1. Transect / tape
2. Extremophiles
3. Stable
4. Glucose
5. Soil pH
6. 45 cm (8 + 1 = 9 and 46 cm)
7. Photosynthesis
8. Balance in spec[ies] ensuring that p[opulation] constant (or va[ries])
9. One populatio[n] number of org[anisms] that they cann[ot]
10. They put mine[rals] (in the form of [nitrates]) the atmosphere[.]
11. The reliance of [plants] such as pollinat[ors]

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Topic 9 — Biodiversity and Human Impacts o

Fundamentals

1. Global warming
2. Habitat
3. Decrease
4. Deforestation
5. Recycling
6. Sewage
7. True
8. False
9. Recycli
10. Landf
11. Decrea
12. Pollution
13. Peat bog
14. By killing animal and plant species / destroying habitats which indirectly kills animals
15. By causing run-off of fertilisers, pesticides and other toxic chemicals into water
16. By recycling some of the waste / reusing resources / reducing the amount of waste they produce

Challenge

1. False
2. Increasing living standards
3. Breeding programme / habitat conservation
4. Sewage
5. Water/rivers/seas/lakes
6. Air/smoke
7. Carbon dioxide
8. Endangered
9. True
10. Cons
11. Smok
12. Human population growth and improved living standards
13. Reduces number of plants which usually take in CO_2, so atmospheric CO_2 increases, thus increasing global warming (because of the greenhouse effect)
14. More fertiliser/pesticide use so more run-off into water sources, and more sewage from waste water of large farms
15. Need to clear land to make room to grow crops to produce biofuels from
16. More species means there is less dependence between particular species; therefore, if one species is removed, it doesn't have much of an effect
17. To protect an important habitat for some species and to reduce carbon dioxide emissions

Extension

1. CO_2 and metha
2. Compost
3. CO_2
4. Acidic gas(es)
5. 9×10^5 hectare
6. Quarrying
7. Peer-reviewed
8. Hedgerows / fi
9. Decay
10. Breeding progr
11. Regeneration
12. By reducing ca peat, thereby r carbon dioxide
13. To prevent bia published, e.g. could publish st a myth, which climate change
14. Destruction of demand for ch
15. Trees take in c number of tre atmospheric c
16. Quarrying crea provides mater

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