AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.6.1.1

Sexual and asexual reproduction

Past-paper questions

Tier	**Foundation**
Question groups	**3**
Available paper years	**2020–2024**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.6.1.1 Sexual and asexual reproduction

Question 01

November 2020 | 8464/B/2F | Original Q1

0 1 This question is about reproduction.

0 1 . 1 Which **two** statements are true for sexual reproduction in humans?

[2 marks]

Tick (✓) **two** boxes.

- Gametes are formed. ☐
- Offspring are clones. ☐
- Offspring are genetically identical to parents. ☐
- Only one parent is involved. ☐
- Sperm and egg fuse. ☐

0 1 . 2 Humans reproduce by sexual reproduction.

Complete **Figure 1** to show the inheritance of sex.

[3 marks]

Figure 1

		Mother	
		X	**X**
Father	**X**	XX	

4.6.1.1 Sexual and asexual reproduction

Question 01 · continued

0 1 . 3 Draw a ring around the genotype of all male children in **Figure 1**.

[1 mark]

0 1 . 4 When children reach puberty, reproductive hormones cause changes in their bodies.

Draw **one** line from each hormone to the change the hormone causes at puberty.

[2 marks]

Hormone	Change the hormone causes at puberty
	Breasts develop
Oestrogen	
	Skin turns lighter
	Voice becomes deeper
Testosterone	
	Wisdom teeth appear

Question 1 continues on the next page

4.6.1.1 Sexual and asexual reproduction

Question 01 · continued

A woman does **not** want to become pregnant.

She considers two methods of contraception.

0 1 . 5 Draw **one** line from each method of contraception to how the method prevents pregnancy.

[2 marks]

Method of contraception	How the method prevents pregnancy
Condom	Embryos do not implant in the uterus
Oral contraceptive (the pill)	Hormones stop eggs maturing
	Sperm are killed
	Sperm do not reach the egg

4.6.1.1 Sexual and asexual reproduction

Question 01 · continued

0 1 . 6 Give **one** advantage and **one** disadvantage of taking oral contraceptives to prevent pregnancy.

[2 marks]

Advantage _____

_____

Disadvantage _____

_____

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Turn over for the next question

4.6.1.1 Sexual and asexual reproduction

Question 02

June 2023 | 8464/B/2F | Original Q6

0 6 Sexual reproduction in humans involves the production of egg cells and sperm cells.

0 6 . 1 Name the type of cell division that produces egg cells and sperm cells.

[1 mark]

0 6 . 2 Sexual reproduction produces offspring that are genetically different from each other.

Give **two** reasons why sexual reproduction causes variation in the offspring.

[2 marks]

1 _____

_____

2 _____

_____

Question 6 continues on the next page

4.6.1.1 Sexual and asexual reproduction

Question 02 · continued

Polydactyly is an inherited disorder.

The allele for polydactyly is dominant, **D**.

A person with two copies of the allele **d** will **not** have polydactyly.

0 6 . 3 A person with the genotype **DD** is homozygous.

What word describes the genotype **Dd**?

[1 mark]

_____

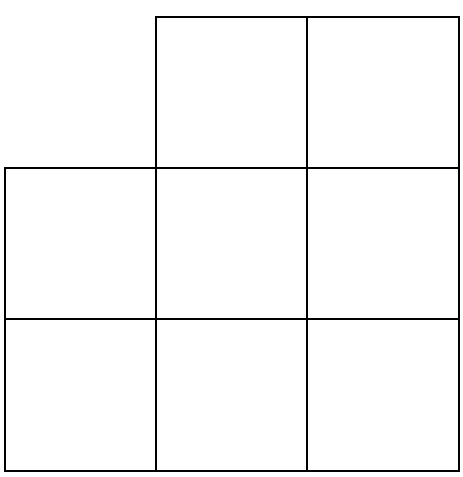
0 6 . 4 A person with the genotype **Dd** and a person with the genotype **dd** plan to have a child.

Determine the probability that the child will have polydactyly.

You should:

- complete the Punnett square diagram
- identify any offspring genotype that would have polydactyly.

[5 marks]



Probability that the child will have polydactyly = _____

4.6.1.1 Sexual and asexual reproduction

Question 02 · continued

0 6 . 5 Embryos can be screened for the alleles that cause inherited disorders.

Give **two** advantages of embryo screening.

[2 marks]

1 _____

_____

2 _____

_____

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Turn over for the next question

4.6.1.1 Sexual and asexual reproduction

Question 03

June 2024 | 8464/B/2F | Original Q6

0 6 Potatoes are a food crop.

0 6 . 1 Potato plants are classified as eukaryota.

What type of classification group is eukaryota?

[1 mark]

Tick (✓) **one** box.

- Class ☐
- Domain ☐
- Kingdom ☐
- Phylum ☐

0 6 . 2 Potato plants can reproduce by asexual reproduction.

Which statement is true for asexual reproduction?

[1 mark]

Tick (✓) **one** box.

- Meiosis occurs. ☐
- Offspring are genetically identical. ☐
- Pollen and egg cells are produced. ☐

Question 6 continues on the next page

4.6.1.1 Sexual and asexual reproduction

Question 03 · continued

June 2024 | 8464/B/2F | Original Q6

0 6 . 3 Flowers of potato plants contain gametes for sexual reproduction.

How is a gamete different from other cells in a potato plant?

[1 mark]

Tick (✓) **one** box.

A gamete contains one-quarter of the number of chromosomes. ☐

A gamete contains half of the number of chromosomes. ☐

A gamete contains double the number of chromosomes. ☐

0 6 . 4 Plants in the same genus as potatoes have been studied by scientists.

Describe **one** way a new plant species could be identified as being in the same genus as potatoes.

[1 mark]

4.6.1.1 Sexual and asexual reproduction

Question 03 · continued

0 6 . 5 Scientists have collected and stored seeds from species in the same genus as potatoes.

In the future, these seeds may be used for genetic modification of potato plants.

Genetically modified potato plants could help supply food to the human population as the climate changes.

Explain why genetic modification of crop plants may be important for the human population to survive climate change.

[6 marks]

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