

0	1
---	---

Gregor Mendel was a monk who studied inheritance in thousands of pea plants. Pea plants can produce either yellow pea seeds or green pea seeds.

Mendel crossed plants that always produced yellow pea seeds with plants that always produced green pea seeds.

He found that all the seeds produced from the cross were yellow pea seeds.

Use the symbol **D** to represent the dominant allele and **d** to represent the recessive allele.

0	1	.	1
---	---	---	---

Which alleles did the seeds from the cross have?

[1 mark]

D d [1]

Mendel grew hundreds of plants from the seeds of the offspring. He crossed these plants with each other. Mendel's crosses produced 5496 yellow pea seeds and 1832 green pea seeds.

0	1	.	2
---	---	---	---

Explain why Mendel's crosses gave him these results.

In your answer you should use:

- * a genetic diagram
- * the symbols **D** and **d**

[3 marks]

Gametes D, d and D, d

Dd

Dd

correctly done offspring from cross

DD

Dd

Dd

dd

Identification of yellow and green offspring (all yellow except dd which is green)

0	1	.	3
---	---	---	---

One of Mendel's crosses produced 18 yellow pea seeds and 15 green pea seeds. These numbers do not match the expected ratio of yellow and green seeds. Suggest why

[1 mark]

chance or expected ratio is only a probability/small sample size/larger sample size will yield results closer to the expected ratio

0	1	.	4
---	---	---	---

The importance of Mendel's discovery was not recognised until many years after his death.

Give one reason why.

[1 mark]

genes/chromosomes/alleles/DNA not discovered/known about [1]

or

published in an obscure journal/few scientists read his work [1]