THE STRIVING

MUSLIM ACADEMY

Islamic and Academic Education

YEARS 7 TO 9 · SCIENCE

Reproduction, inheritance and health

Two ways of making an organism, dominant and recessive, and what selection can and cannot act on.

WHAT IS INSIDE

- Two ways of making a new organism
- Dominant and recessive
- Variation, and what selection does with it
- Reproduction, inheritance and variation
- How each one is answered

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1 sets · a hint on every question

Written for a parent teaching at home. No training assumed, and nothing else to buy.

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Dominant and recessive

Read this, then answer the questions on it.



DOMINANT AND RECESSIVE

Mendel worked with pea plants and found that traits pass from parents to offspring independently of other traits, and in dominant and recessive patterns. He called them, respectively, dominant and recessive traits.

A dominant trait appears whenever its version of the gene is present. A recessive one appears only when both versions present are recessive, which is why a trait can skip a generation and reappear.

A recessive trait can therefore reappear in a later generation, and Mendel showed that traits stay separate rather than blending together.

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Reproduction, inheritance and variation

Every answer is on the pages you have just read.



1. **Give the two kinds of reproduction, how many parents each needs, and what that means for the offspring.**
   The difference that matters is variation.

2. **What did Mendel call the two patterns he found, and what else did he find about how traits pass on?**
   Two words, and one further finding about independence.

3. **Two parents neither of whom shows a trait have a child who does. Explain how.**
   Think about which pattern can be carried without showing.

4. **A plant grown in poor soil is smaller than its sibling grown in good soil. Explain why natural selection cannot act on that difference.**
   Ask whether that particular difference is inherited.

5. **Explain why sexual reproduction is worth its cost in a changing environment but not always in a stable one.**
   What does it buy, and what does it cost?

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How each one is answered

Mark it together. Where a question asks for a list, the order does not matter.



REPRODUCTION, INHERITANCE AND VARIATION

1. Give the two kinds of reproduction, how many parents each needs, and what that means for the offspring.

1. Asexual: one parent, and offspring genetically identical to it.
2. Sexual: two parents, genetic material combined, so offspring differ from both parents and from each other.

Answer: **asexual from one parent giving identical offspring, sexual from two giving varied offspring**

2. What did Mendel call the two patterns he found, and what else did he find about how traits pass on?

1. He called them dominant and recessive traits.
2. He also found that traits pass from parents to offspring independently of other traits.

Answer: **dominant and recessive, and traits pass on independently of other traits**

3. Two parents neither of whom shows a trait have a child who does. Explain how.

1. A recessive trait appears only when both versions present are recessive.
2. Each parent can carry one recessive version without showing the trait.
3. If the child receives the recessive version from both, the trait appears.

Answer: **because the trait is recessive and each parent carried one copy without showing it**

4. A plant grown in poor soil is smaller than its sibling grown in good soil. Explain why natural selection cannot act on that difference.

1. The difference was caused by the soil, not by the genes.
2. Only inherited differences are passed to offspring.
3. So the smaller plant's offspring are not smaller because of it, and the proportions in the next generation do not change.

Answer: **because the difference is not inherited, so it is not passed on and cannot change the next generation**

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SAMPLE PAGES

You have read a few pages. The pack is longer.

What you are holding is a short sample, taken from different parts of the pack so that you can see how a week is planned and what a child is actually asked to do, before you decide.

The complete pack, and the rest of the academic materials, are on our website: schemes of work for a parent teaching at home, and practice packs for the skills children get stuck on.

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Members of the homeschool community do not buy these. If you have joined the community, the pack for the term you are working on is given to you at no cost.

Our Islamic Education classes are free. These packs are part of what pays the teachers who teach them.