

Muscles and Movement

KS3 Biology · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Why do muscles have to work in pairs?

Step 1 · What can a muscle do?

A muscle can only contract (get shorter) and pull. It cannot push.

Step 2 · So how does a bone return?

A second muscle on the other side of the joint must contract to pull the bone back the other way.

Answer: Muscles can only pull, so a pair is needed to move a joint both ways

Check: These pairs are called antagonistic pairs: contracts, the other relaxes.

2. Now try one with the steps

Describe what happens to the biceps and triceps when you lift a cup to your mouth.

Step 1 · Which way does the forearm move?

Step 2 · Which muscle pulls it up?

Step 3 · And the other muscle?

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What happens to a muscle when it contracts? [1]

2. Can a muscle push a bone? [1]

3. What joins a muscle to a bone? [1]

4. What is an antagonistic pair of muscles? [2]

5. Which muscle contracts to bend the elbow? [1]
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6. Which muscle contracts to straighten the knee? [1]
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7. Name the type of muscle found in the heart. [1]
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8. Name the three types of muscle tissue. [3]
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9. When you kick a ball, what do your hamstrings do? [1]
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10. Why do muscle cells contain many mitochondria? [2]
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11. Explain why a torn tendon stops a person moving a joint, even though the muscle is fine. [2]
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12. A student measured her biceps as 28 cm round when relaxed and 31 cm when contracted. By how many cm did it increase? [1]
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13. Explain how muscles and bones work together to let you stand up from a chair. [3]
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4. Before you hand it in

"The triceps pushes the arm straight."

The triceps contracts and PULLS the forearm down, straightening the elbow.

"When one muscle contracts, the other contracts too."

In an antagonistic pair, one contracts while the other relaxes.

"Tendons join bone to bone."

Tendon = muscle to bone. Ligament = bone to bone.