

Year 4 Science Assessment: Skeletons and Muscles

Learning objective: To identify that humans and some other animals have skeletons and muscles for support, protection, and movement.

Read each question carefully. Use your scientific knowledge to provide detailed answers. Use clear, labelled diagrams where appropriate.

Nova the owl is observing the forest animals. She notices that while some creatures have hard shells, others like the forest deer have internal skeletons. Max the monkey is busy climbing trees, using his powerful muscles to pull himself upwards, while Ellie the elephant uses her massive bones to support her heavy body as she walks through the tall grass.

Word bank: vertebrae · skull · ribcage · support · protection · biceps · triceps · contract · relax · joint · tendon · femur

1. Identify two main functions of the human skeleton. Explain why these are essential for survival. (2 marks) (2 marks)

2. Name the specific bones that protect the heart and lungs. Why is this protection necessary? (2 marks) (2 marks)

3. Explain the difference between a vertebrate and an invertebrate. Provide one original example of each. (3 marks) (3 marks)

4. Describe the relationship between the biceps and triceps when you bend your arm at the elbow. Use the words 'contract' and 'relax' in your explanation. (4 marks) (4 marks)

5. Compare and contrast the human skeleton with an insect's exoskeleton. What are the advantages and disadvantages of each? (4 marks) (4 marks)

6. Justify why joints are necessary for movement. What might happen to our mobility if our bones were fused together in one single piece? (5 marks) (5 marks)

Draw: Draw and label a simple diagram of a human arm. Clearly mark the position of the biceps, the triceps, and the elbow joint.



Extension challenge: Imagine a world where humans had skeletons made of a flexible, rubber-like material instead of hard bone. Write a creative paragraph explaining how our daily lives, exercise, and safety would change. Total: /25