

## Nova's Skeleton and Muscle Challenge

*Learning objective: To identify the functions of the human skeleton and understand how muscles work in pairs to create movement.*

Join Nova the owl for a flight through the human body! Read the questions carefully and select the best answer. Good luck, young scientists!

Answer Key: 1. A, 2. True, 3. False (it protects the brain), 4. B, 5. Muscles, 6. Tendons, 7. True, 8. Femur, 9. B, 10. True.

*Word bank: Skeleton · Joints · Muscles · Biceps · Triceps · Protection · Support · Femur · Cranium · Contraction*

**1. Which of these is a primary function of the human skeleton? A) Digesting food B) Protecting vital organs \* C) Creating oxygen D) Pumping blood (1 mark)**

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**2. True or False: The adult human skeleton consists of 206 bones. (1 mark)**

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**3. True or False: The cranium is a delicate bone that has no protective purpose. (1 mark)**

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**4. Where two bones meet to allow movement, we call this a: A) Tendon B) Joint \* C) Muscle D) Socket (1 mark)**

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**5. What body parts work in pairs to pull on bones to make them move? (1 word answer) (1 mark)**

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**6. What tough cords attach muscles to bones to help them create movement? (1 word answer) (1 mark)**

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**7. True or False: Muscles can only pull; they cannot push. (1 mark)**

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**8. What is the scientific name for the longest bone in the human body, located in the thigh? (1 word answer) (1 mark)**

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**9. When you bend your arm at the elbow, your: A) Triceps contract B) Biceps contract \* C) Bones shrink D) Joints disappear (1 mark)**

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**10. True or False: The ribcage provides protection for the heart and lungs. (1 mark)**

**Draw: Draw a diagram of a human arm showing the bicep and tricep muscles. Label where the joint is located.**



*Extension challenge: Greater Depth Questions: 1. Explain why the human body would be unable to function if our bones were soft like rubber. 2. Compare and contrast the skeleton of a human with that of an invertebrate, such as a jellyfish. 3. Justify your answer: Why is it necessary for muscles to work in antagonistic (opposing) pairs? 4. What might happen if the tendons connecting your calf muscle to your heel bone were to snap? 5. If humans had no joints, how would our daily lives change? 6. Design an experiment to test how a model 'hinge joint' could be created using everyday materials, and explain your reasoning.*