

## PRACTICE WORKSHEET 3: SKELETAL SYSTEM AND NERVOUS SYSTEM | CLASS 5 SCIENCE

### A. Multiple Choice Questions

1. What is the largest bone in the human body?
    - a) Skull
    - b) Femur
    - c) Spine
    - d) Ribcage
  2. Which part of the brain is responsible for voluntary actions like solving puzzles?
    - a) Medulla
    - b) Cerebrum
    - c) Cerebellum
    - d) Spinal Cord
  3. What connects muscles to bones?
    - a) Ligaments
    - b) Cartilage
    - c) Tendons
    - d) Joints
  4. Which type of joint allows movement in one direction only, like opening and closing a door?
    - a) Pivot Joint
    - b) Gliding Joint
    - c) Hinge Joint
    - d) Ball-and-Socket Joint
  5. What type of nerve sends messages from the brain to muscles to cause movement?
    - a) Sensory Nerves
    - b) Motor Nerves
    - c) Mixed Nerves
    - d) Spinal Nerves
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### B. Fill in the Blanks

1. The backbone is made up of 33 small bones called vertebrae.
  2. The smallest bone in the human body is the *stapes*, found in the ear.
  3. The *cerebrum* is the largest part of the brain and controls memory, learning, and emotions.
  4. *Cartilage* covers the ends of bones to prevent friction at joints.
  5. The *ball-and-socket* joint allows movement in all directions and is found in the hips and shoulders.
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## **PRACTICE WORKSHEET 3: SKELETAL SYSTEM AND NERVOUS SYSTEM | CLASS 5 SCIENCE**

### **C. True or False**

1. The ribcage protects the digestive system.
  2. Reflex actions are controlled by the brain.
  3. The cerebellum helps maintain balance and posture.
  4. Voluntary muscles are found in the heart.
  5. The spinal cord is protected by the vertebral column.
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### **D. Short Answer Questions**

1. What are the main functions of the ribcage?
  2. How does the medulla help in controlling involuntary actions?
  3. Explain the role of ligaments in the skeletal system.
  4. What happens in the nervous system during a reflex action?
  5. Name two types of movable joints and give an example of each.
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### **E. Long Answer Questions**

1. Describe the structure and functions of the backbone (spinal column).
2. Explain how the nervous system and muscular system work together to create movement.
3. Write about the different types of joints in the skeletal system, including their examples and how they enable movement.

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### Answer Keys

#### A. Multiple Choice Questions

1. **What is the largest bone in the human body?**

**Answer:** b) Femur

- The femur, or thigh bone, is the longest and strongest bone in the human body. It supports the weight of the body and enables movement like walking and jumping.

2. **Which part of the brain is responsible for voluntary actions like solving puzzles?**

**Answer:** b) Cerebrum

- The cerebrum is the largest part of the brain and is responsible for voluntary actions, thinking, memory, and emotions.

3. **What connects muscles to bones?**

**Answer:** c) Tendons

- Tendons are strong, fibrous tissues that attach muscles to bones, enabling movement when muscles contract.

4. **Which type of joint allows movement in one direction only, like opening and closing a door?**

**Answer:** c) Hinge Joint

- Hinge joints are found in places like the knees and elbows, allowing movement in one direction only.

5. **What type of nerve sends messages from the brain to muscles to cause movement?**

**Answer:** b) Motor Nerves

- Motor nerves carry commands from the brain and spinal cord to muscles, initiating movement.

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#### B. Fill in the Blanks

1. **The backbone is made up of 33 small bones called vertebrae.**

- The vertebrae form the backbone and protect the spinal cord while allowing flexibility and movement.

2. **The smallest bone in the human body is the *stapes*, found in the ear.**

- The stapes is only 2.8 millimeters long and helps in hearing by transmitting sound vibrations.

3. **The *cerebrum* is the largest part of the brain and controls memory, learning, and emotions.**

- It is the thinking part of the brain and manages activities like problem-solving and voluntary muscle movement.

4. ***Cartilage* covers the ends of bones to prevent friction at joints.**

- Cartilage is a smooth, elastic tissue that reduces friction and absorbs shock in movable joints.

5. **The *ball-and-socket* joint allows movement in all directions and is found in the hips and shoulders.**

- This type of joint offers the most freedom of movement, such as rotating and swinging.
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### C. True or False

1. **The ribcage protects the digestive system.**

**Answer:** False

- The ribcage protects the heart and lungs, not the digestive system.

2. **Reflex actions are controlled by the brain.**

**Answer:** False

- Reflex actions are controlled by the spinal cord, allowing a quick response to danger.

3. **The cerebellum helps maintain balance and posture.**

**Answer:** True

- The cerebellum coordinates muscle movements and helps maintain balance and posture.

4. **Voluntary muscles are found in the heart.**

**Answer:** False

- The heart is made of cardiac muscles, which are involuntary and work without conscious control.

5. **The spinal cord is protected by the vertebral column.**

**Answer:** True

- The vertebral column surrounds and safeguards the spinal cord.
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### D. Short Answer Questions

1. **What are the main functions of the ribcage?**

**Answer:**

The ribcage protects vital organs such as the heart and lungs. It supports the upper body and assists in breathing by expanding and contracting during inhalation and exhalation.

2. **How does the medulla help in controlling involuntary actions?**

**Answer:**

The medulla, located in the brainstem, controls involuntary actions like breathing, heartbeat, digestion, and reflexes such as sneezing and coughing, ensuring essential body functions occur without conscious effort.

3. **Explain the role of ligaments in the skeletal system.**

**Answer:**

Ligaments are tough, elastic tissues that connect bones at joints. They stabilize the joints, prevent dislocations, and allow controlled movement while keeping the bones aligned.

4. **What happens in the nervous system during a reflex action?**

**Answer:**

During a reflex action, sensory nerves detect a stimulus (e.g., touching something hot) and send a message to the spinal cord. The spinal cord quickly sends a signal through motor nerves to muscles, causing a reaction, such as pulling your hand away, bypassing the brain to save time.

5. **Name two types of movable joints and give an example of each.**

**Answer:**

- **Hinge Joint:** Found in elbows and knees, allowing movement in one direction.
- **Ball-and-Socket Joint:** Found in the hips and shoulders, allowing movement in all directions.

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### E. Long Answer Questions

1. **Describe the structure and functions of the backbone (spinal column).**

**Answer:**

The backbone, or spinal column, is made up of 33 vertebrae stacked on top of each other. These bones protect the spinal cord, a vital nerve highway that connects the brain to the rest of the body. The vertebrae are cushioned by cartilage discs, making the backbone flexible and allowing movements like bending and twisting. The spinal column supports the head, shoulders, and upper body while maintaining an upright posture.

2. **Explain how the nervous system and muscular system work together to create movement.**

**Answer:**

The nervous system sends electrical signals through motor nerves to muscles, instructing them to contract or relax. When a muscle contracts, it pulls on the bone it's attached to via tendons, creating movement. For example, to lift an object, the brain sends a signal to the arm muscles to contract, while opposing muscles relax, allowing smooth motion. This coordination ensures precise and controlled actions.

3. **Write about the different types of joints in the skeletal system, including their examples and how they enable movement.**

**Answer:**

- **Hinge Joint:** Found in the elbows and knees, allowing movement in one direction, like opening and closing a door.
- **Ball-and-Socket Joint:** Found in shoulders and hips, enabling movement in all directions, like swinging an arm or leg.
- **Pivot Joint:** Found in the neck, allowing the head to move side-to-side and up-and-down.
- **Gliding Joint:** Found in the wrist and ankle, permitting sliding and twisting movements.

These joints, supported by ligaments and cartilage, enable a wide range of movements essential for daily activities like walking, writing, and bending.