

Class 9 - Physical Education and Well Being

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Understanding Our Body

CBSE NOTES

Understanding Our Body - Practice Worksheet

Strengthen your foundation with key concepts and basic applications.



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Solve the following questions. Write your answers in the space provided.

1. Explain the structure and function of bones in the human body. How does their composition aid in their function?

Hint: Consider the roles of different bone types and components in your answer.

2. Discuss the role of muscles in human movement. What are the differences between skeletal, smooth, and cardiac muscles?

Hint: Identify the characteristics and functions of each muscle type.



Solve the following questions. Write your answers in the space provided.

3. What are tendons and ligaments? Describe their functions and provide examples of where they can be found in the body.

Hint: Think about specific examples in your own body.

4. Define joints and classify them based on their structure. Provide examples of different types of joints.

Hint: Review the functions of different joint types.



Solve the following questions. Write your answers in the space provided.

5. Explain the importance of warm-up exercises before physical activities. What changes occur in the body during warm-up?

Hint: Consider physiological changes that facilitate exercise readiness.

6. What is the role of cartilage in the human body? Discuss its types and importance in joint health.

Hint: Illustrate how cartilage protects joints.



Solve the following questions. Write your answers in the space provided.

7. Describe how various factors influence muscle movement and strength. What is 'muscle power'?

Hint: Reflect on how different exercises might enhance these attributes.

8. What is human anatomy, and how does it differ from physiology? Give examples of each in relation to the musculoskeletal system.

Hint: Consider how understanding both concepts is essential in physical education.



Solve the following questions. Write your answers in the space provided.

9. Elucidate on the concept of 'range of motion' in joints. How does it relate to physical performance?

Hint: Think of activities that require different ranges of motion.

10. Explain the importance of hydration and nutrition in maintaining bodily function during physical activity.

Hint: Consider how diet changes might affect athletic performance.



Check your answers with the solutions below.

1. Explain the structure and function of bones in the human body. How does their composition aid in their function?

Solution: Bones are strong and rigid types of connective tissue forming the skeleton. They provide structure, protect organs, anchor muscles, and store calcium. Bones are composed mainly of collagen and calcium phosphate, making them both flexible and strong. For example, long bones like the humerus support weight and facilitate movement. Remodeling occurs throughout life, maintaining their strength.

2. Discuss the role of muscles in human movement. What are the differences between skeletal, smooth, and cardiac muscles?

Solution: Muscles produce movement by contracting. Skeletal muscles are voluntary and striated, attaching to bones, enabling movement. Smooth muscles are involuntary and found in internal organs, controlling processes like digestion. Cardiac muscles are also involuntary, striated, and make up the heart, responsible for pumping blood. Each muscle type plays a specific role in bodily functions.

3. What are tendons and ligaments? Describe their functions and provide examples of where they can be found in the body.

Solution: Tendons attach muscles to bones, helping in movement, while ligaments connect bones to other bones, stabilizing joints. Tendons can be seen at the Achilles tendon connecting the calf muscle to the heel. Ligaments are found in the knee, stabilizing it during movement. Both structures resist forces and ensure proper motion.

4. Define joints and classify them based on their structure. Provide examples of different types of joints.

Solution: Joints are where two or more bones meet, allowing movement. They can be classified as fibrous (immovable, e.g., skull sutures), cartilaginous (semi-movable, e.g., vertebrae), and synovial (freely movable, e.g., knee, shoulder). Synovial joints further include hinge, ball and socket, and pivot joints, each permitting specific movements.



Check your answers with the solutions below.

5. Explain the importance of warm-up exercises before physical activities. What changes occur in the body during warm-up?

Solution: Warm-up exercises prepare the body for physical activity by increasing blood flow, enhancing muscle elasticity, and reducing injury risk. During warm-up, heart rate increases, muscle temperature rises, and joints become more pliable. Activities like dynamic stretching enhance mobility and help in preparing the mind for performance.

6. What is the role of cartilage in the human body? Discuss its types and importance in joint health.

Solution: Cartilage is a flexible connective tissue that cushions joints, preventing friction during movement. The main types include hyaline cartilage (found in joints), elastic cartilage (like in the ear), and fibrocartilage (like in intervertebral discs). Damage to cartilage can lead to joint pain and restrict movement, highlighting its importance in maintaining health.

7. Describe how various factors influence muscle movement and strength. What is 'muscle power'?

Solution: Factors influencing muscle movement include muscle size, fiber type, and neural activation. Strength is the maximum force a muscle can exert, while power combines strength with speed (force exerted over time). Activities that require quick bursts of strength, like sprinting or jumping, demonstrate muscle power.

8. What is human anatomy, and how does it differ from physiology? Give examples of each in relation to the musculoskeletal system.

Solution: Human anatomy is the study of the body's structures—like bones, muscles, and organs—focusing on their form and location. Physiology studies how these structures function—like how muscles contract or how joints allow movement. Anatomy might describe the femur's structure, while physiology explains its role in walking.



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Check your answers with the solutions below.

9. Elucidate on the concept of 'range of motion' in joints. How does it relate to physical performance?

Solution: Range of motion refers to the extent a joint can move in specific directions. It is crucial for overall functional capability and performance in sports. A greater range of motion can improve flexibility, reducing the risk of injury. For instance, athletes need full shoulder rotation for swimming or an improved hip range for running speed.

10. Explain the importance of hydration and nutrition in maintaining bodily function during physical activity.

Solution: Hydration is vital for maintaining blood volume and regulating temperature during exercise. Proper nutrition fuels the body, providing energy for muscle contractions. Carbohydrates are crucial for energy, while proteins repair tissues. Vitamins and minerals support metabolism and bone health, impacting overall performance and recovery.



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