

PE Assessment: The Science of Warming Up

Learning objective: To understand the physiological purpose of a warm-up and its importance in physical preparation, injury prevention, and performance enhancement.

Read each question carefully. Use your knowledge of human biology and exercise science to provide detailed answers. Ensure your explanations are clear and use subject-specific terminology.

Max the monkey is preparing for a high-intensity gymnastics session. He knows that jumping straight into complex balances could be risky. Instead, he spends the first ten minutes performing light jogging, side-stepping, and controlled movements like arm circles and leg swings. By the end of this routine, Max feels warmer, his heart is beating faster, and he feels mentally prepared to perform his routines with precision.

Word bank: Pulse raiser · Dynamic stretching · Oxygen · Blood flow · Muscle elasticity · Joint mobility · Adrenaline · Prevention

1. Identify two physiological changes that occur in the body during a pulse-raising activity. (2 marks)

2. Max performs 'dynamic' stretches rather than 'static' stretches during his warm-up. Explain why dynamic movements are more suitable for preparing the body for physical activity. (3 marks)

3. What might happen to a performer's risk of injury if they were to skip a warm-up entirely? Justify your answer using the concept of muscle elasticity. (3 marks)

4. Compare and contrast the heart rate of a student at rest versus a student who has completed a five-minute warm-up. Why does this difference occur? (4 marks)

5. Nova the owl is designing a warm-up for a team sport. Describe the three essential phases of a structured warm-up and explain the primary goal of each phase. (4 marks)

6. Explain why a warm-up is considered a form of 'mental preparation' as well as physical preparation. (2 marks)

7. Imagine you are coaching a group of younger children. Create a 5-minute warm-up routine. List the activities and explain why each activity is effective for a Year 5 student. (5 marks)

Draw: Draw a diagram of a human body highlighting two major muscle groups that should be targeted during a warm-up. Use labels to explain how moving these muscles benefits the athlete.



Extension challenge: Total: /25. Extension Task: Research the term 'EPOC' (Excess Post-exercise Oxygen Consumption). Write a short paragraph explaining how a proper warm-up allows the body to transition more efficiently into intense exercise compared to starting from a resting state.