Pearson BTEC Level 3 National Sport – Revision Booklet

Units Covered: Unit 1 (Anatomy and Physiology) and Unit 2 (Fitness Training and Programming for Health, Sport and Well-being)

Unit 1: Anatomy and Physiology

Key Topics:
- Skeletal System
- Muscular System
- Respiratory System
- Cardiovascular System
- Energy Systems
- Effects of Exercise

Skeletal System Revision

Functions: support, protection, movement, blood cell production, mineral storage.
Know the major bones and the types of synovial joints (hinge, ball-and-socket, pivot, condyloid, saddle, gliding).

Muscular System Revision

Know agonist, antagonist, fixator and synergist muscles. Major muscles include biceps, triceps, deltoids, pectorals, latissimus dorsi, abdominals, gluteals, hamstrings, quadriceps and gastrocnemius.

Cardiovascular System Revision

Understand heart structure, cardiac cycle, cardiac output, stroke volume and heart rate. Learn gaseous exchange and blood vessels.

Energy Systems

ATP-PC system, anaerobic glycolytic system and aerobic system. Know fuel source, duration, intensity and sporting examples.

Unit 1 Activities

1. Label a skeleton diagram from memory.
2. Create flashcards for major muscles and actions.
3. Compare the three energy systems using a table.
4. Explain cardiovascular adaptations to regular exercise.

Unit 1 Exam-Style Questions

1. Identify two functions of the skeletal system. (2 marks)

2. Explain the difference between a hinge joint and a ball-and-socket joint. (4 marks)

3. Describe the role of the antagonist muscle during elbow flexion. (3 marks)

4. Explain how the cardiovascular system responds during exercise. (6 marks)

5. Assess the importance of the aerobic energy system for a marathon runner. (8 marks)

6. Evaluate the long-term physiological adaptations to endurance training. (10 marks)

Unit 1 Quick Quiz

• What type of joint is the knee?

• Which muscle is the agonist during elbow flexion?

• What does ATP stand for?

• Which chamber pumps oxygenated blood around the body?

• Which energy system is dominant in a 100m sprint?

Unit 2: Fitness Training and Programming for Health, Sport and Well-being

Key Topics:
• Components of Fitness
• Fitness Testing
• Training Methods
• Training Principles
• Lifestyle Factors
• Training Programme Design

Components of Fitness

Health-related: muscular endurance, muscular strength, flexibility, body composition, cardiovascular fitness.
Skill-related: agility, balance, coordination, power, reaction time, speed.

Fitness Testing

Know suitable tests including: Cooper Run, Multistage Fitness Test, Sit and Reach, Illinois Agility Test, Grip Dynamometer and Vertical Jump Test.

Training Methods

Continuous, Fartlek, Interval, Circuit, Resistance, Plyometric and Flexibility training. Understand advantages and disadvantages of each.

Training Principles

SPORT and FITT principles: Specificity, Progression, Overload, Reversibility, Tedium, Frequency, Intensity, Time and Type.

Unit 2 Activities

1. Match each fitness component to an appropriate fitness test.
2. Design a 4-week training programme for a football player.

3. Compare continuous and interval training.
4. Analyse strengths and weaknesses from a fitness profile.

Unit 2 Exam-Style Questions

1. Define cardiovascular fitness. (2 marks)

2. Describe how to conduct the Illinois Agility Test. (4 marks)

3. Explain one advantage and one disadvantage of circuit training. (4 marks)

4. Analyse the importance of the FITT principles when planning a training programme. (6 marks)

5. Design a suitable training programme for improving aerobic endurance. (8 marks)

6. Evaluate the effectiveness of fitness testing when developing a training programme. (10 marks)

Unit 2 Quick Quiz

• Which fitness test measures flexibility?

• What does the I in FITT stand for?

• Which training method improves both aerobic and anaerobic fitness?

• Name one skill-related fitness component.

• What is overload?

Answer Section

Quick Quiz Answers:
Unit 1: Hinge joint; Biceps brachii; Adenosine Triphosphate; Left ventricle; ATP-PC system.
Unit 2: Sit and Reach Test; Intensity; Fartlek training; e.g. agility; Increasing the demands placed on the body.