1 Health, training and exercise

Fitness testing example

1 a) Girl 2. (1)
b) Four. (1)

2 See graph below. (6)

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<table>
<thead>
<tr>
<th>Level achieved</th>
<th>Test participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Boy 1</td>
</tr>
<tr>
<td>12</td>
<td>Boy 2</td>
</tr>
<tr>
<td>10</td>
<td>Boy 3</td>
</tr>
<tr>
<td>8</td>
<td>Boy 4</td>
</tr>
<tr>
<td>6</td>
<td>Boy 5</td>
</tr>
</tbody>
</table>
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3 Two reasons from:
- Highly motivated.
- Excellent cardiovascular endurance.
- Perform lots of continuous training. (2)

Training regime example 1

1 a) Mixed training. (1)
b) Weight training once a week. (1)

2 Reasons for the most common training routine (mixed training) could be that:
- The group values the need to develop different aspects of fitness.
- Differing aspects of fitness can assist with many activities, e.g. team games, racket sports etc.
- Exercising regularly helps with all aspects of health and well-being (physical, mental and social).
- More likely to meet the demands of daily life (fitness). (4)

3 Consequences of not taking part in any training could include:
- Sedentary lifestyle
- Negative effects on physical, mental and social health and well-being
- Increased weight gain
- Obesity
- Potential side effects of a sedentary lifestyle including heart disease
- Few friends or social opportunities. (4)

Training regime example 2

1 a) Cardiovascular endurance.
b) Muscular endurance.
c) Strength.
d) Performer 1, because they are:
- Working in the aerobic training zone
- To improve cardiovascular endurance
- Which is what an endurance runner would do.
- Long-distance running requires a developed aerobic system and sustained heart rate intensity

NB Could be Performer 2 as working on muscular endurance – also needed in long-distance running. (5)

2 Any two from:
- Spotter
- Correct technique
- Not lifting a weight that causes injury
- Need to warm up and cool down. (2)

3 Performer 1 is doing aerobic training/continuous training.

Football requires cardiovascular endurance, as it is 90 minutes long.
This (cardiovascular endurance) is being trained by Performer 1.
However, other fitness components are also needed (e.g. strength, power, agility).
Perhaps it would be better to use fartlek as it has a changing intensity, as football has. (4)

4 Fartlek training to improve their fitness for basketball:
- Is appropriate as it can have a long duration like basketball.
- It mimics the changing intensity of a game of basketball.
- Can be sport-specific, i.e. running, like in basketball.
- Basketball player may need more than just fartlek – as they need power, strength, agility etc. (3)

2 Exercise physiology

Weight training example

1 b (10kg). (1)

2 Improved tone; increased size (hypertrophy). (2)

3 Increased bone density. (1)

4 Short-term effects as shown in the table below. (4)
Muscular
- Muscle elasticity increases
- Increase in temperature within the muscle

Skeletal
- Joint mobility improves – easier movement

Cardiovascular
- Stroke volume increases slightly
- Cardiac output increases slightly
- Heart rate increases
- Blood pressure changes

Cardiorespiratory
- Breathing becomes more frequent
- Tidal volume increases
- Minute ventilation increases

Energy systems
- Lactic acid will be produced

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### Physiological analysis example

1. The most likely to be:
   a) Athlete 3
   b) Athlete 2
   c) Athlete 1

2. a) A discus throw is the most explosive, short, powerful event requiring the most fast twitch fibres.
   b) A sprinter requires the fast twitch fibres but a sprint lasts longer than a discus throw.
   c) The 10,000m is an aerobic, enduring event requiring slow twitch fibres. (3)

3. Reasoning to support the answer, for example:
   - They have a lot of fast twitch fibres which are required for sprinting.
   - But, they are likely to be trained to do a very quick, explosive event and sprinting lasts slightly longer.
   - They may also not have speed of running as discus does not require this.
   - They may be too heavy for sprinting as discus throwers often carry a lot of weight/bulk.
   - Speed and power are different components of fitness. (3)

### 3 Movement analysis

#### Cricket case study

1. Midwicket.
2. Thirdman.
3. Examples include:
   - Understanding where runs have been scored.
   - Understanding where runs haven’t been scored.
   - Understanding areas to improve.

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### Cycling example 1

![Heart rate (bpm)]

1. Approximately 149 bpm.
2. Could have been increased effort; could have been a steep incline (hill); could have been increased pedal speed.
3. Maximal heart rate = 220 minus age
   - 200 - 25 = 195
   - 60 per cent = 117
   - 80 per cent = 156
   Therefore heart rate was in this zone for much of the race.

4. No, it did not rise above 150 bpm.
5. Increase in energy demand; sprint at the start; incline at the start – hill; went off too hard and had to slow down later on.
6. Maximal heart rate = 220 minus age
   - 200 - 25 = 195
   - 60 per cent = 117
   - 80 per cent = 156
   Thus 117–156 bpm (aerobic training zone)

### 4 Psychology of sport and physical activity

#### Sources of motivation example

1. The main ‘source of motivation’ is pride and this is intrinsic (2)
2. This may have proved to be the most popular answer as:
   - Intrinsic tends to be more powerful than extrinsic.
   - The group may not be particularly motivated to win a tangible reward.
   - The group may be doing a task that they would feel pride or self-satisfaction in accomplishing. (2)
3 The extrinsic sources: trophy/praise. (1)
4 Suggesting whether intrinsic or extrinsic motivational sources tend to be more powerful could include:
   - Intrinsic sources tend to be more powerful.
   - The desire to achieve something internal is powerful as it means something.
   - Extrinsic sources can be very motivational and can undermine intrinsic.
   - Some performers care only for extrinsic. (3)

Skill development example
1 Student 9. (1)
2 Three characteristics of skillful performance:
   - Fluency – the performance is fluent (not jerky)
   - Accuracy – the performance tends to be accurate
   - Aesthetic – the performance looks pleasing to watch
   - Consistency – the performance is consistent
   - Confidence – the performance is done with confidence
   - Control – the performance includes high levels of control
   - Effectiveness – the performance is effective
   - Efficiency – the performance uses energy efficiently
   - Decision making – the performance includes appropriate and clever decision making
   - Technical – the performance makes use of appropriate technique
   - Tactical – the performance follows appropriate tactics and strategies. (3)
3 Student 8. (1)
4 Whole practice was used, i.e. the full throw. (1)
5 Bar chart below. (6)

Guidance types example: performer 1
1 Verbal. (1)
2 – Because the performer was autonomous.
   - Because the performer could safely perform the skill without any manual/mechanical help.
   - The performer may be fine-tuning their performance. (2)
3 Guidance types used:
   - Probably autonomous.
   - Definitely not cognitive.
   - There is no issue with safety.
   - Can perform the main aspects of the skill movement without guidance.
   - Is able to interpret detailed verbal advice.
   - Any manual/mechanical help is minimal.
   - May be trying to improve an already proficient performance. (6)

5 Socio-cultural issues in sport and physical activity

Premier League example
1 Five. (1)
2 Crystal Palace. (1)
3 They may have committed: fouls, shirt pulling, hand ball, breaking the rules. (2)
4 – May have used sportsmanship rather than deviance
   - Covered by the media.
   - Portrayed as positive role models.
   - Fans may be inspired to copy their behaviour. (4)
5 Gamesmanship: gaining an advantage by bending the rules/pushing them to the limit.
   Sportsmanship: behaviour that is appropriate, fair, polite and respectful. Often called ‘fair play’.
   Deviance: behaviour deemed to be outside of the norms. Can be negative which is against the rules. (3)

Participation example
1 2014–15. (1)
2 a) Taking part at least once a month: risen. (1)
   b) Taking part at least once a week: risen. (1)
   c) Taking part at least twice a week: risen. (1)
   d) Taking part at least three times a week: risen. (1)
3 Reasons may include:
   - lack of provision available
   - choosing a sedentary lifestyle
   - lack of motivation
   - lack of time
   - lack of income
   - lack of mobility
   - travel times to get to facilities etc. (6)
4 Reasons may include:
   - as a result of campaigns
   - better awareness/education
   - more clubs and facilities
   - more volunteers
   - more activities available
   - government initiatives, e.g. This Girl Can
   - subsidies from Welsh Government for activities like swimming. (4)