



Government of **Western Australia**  
School Curriculum and Standards Authority

## SAMPLE ASSESSMENT TASKS

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PHYSICAL EDUCATION STUDIES  
ATAR YEAR 12

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## Sample assessment task

### Physical Education Studies – ATAR Year 12

#### Task 2 – Unit 3 and Unit 4

**Assessment type:** Practical assessment

**Conditions:** the assessment will be completed during Week 12

**Task weighting:** 5.25% of the school mark for this pair of units

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#### Soccer skill performance

**(36 marks)**

Perform the following skills from the School Curriculum and Standards Authority (the Authority) *Physical Education Studies support materials for practical examinations - Soccer*:

1. short pass
2. dribbling
3. shooting
4. control – low ball
5. long lofted pass
6. heading (defence).

All skills are assessed on a scale of 0–6, taking into consideration the observation points of each skill, as outlined in the practical examination specifications.

#### Resources from the Authority

- Physical Education Studies Soccer DVD
- *Physical Education Studies support materials for practical examinations - Soccer* (available from [https://senior-secondary.scsa.wa.edu.au/\\_data/assets/pdf\\_file/0019/131257/Physical-Education-Studies-practical-examination-support-material-Soccer.pdf](https://senior-secondary.scsa.wa.edu.au/_data/assets/pdf_file/0019/131257/Physical-Education-Studies-practical-examination-support-material-Soccer.pdf) )

Note: this assessment is a sample only and includes an assortment of basic soccer skills. Teachers are advised to select skills congruent with content that is taught.

## Marking key for sample assessment task 2

### Skill 1: Short pass

**A. Skill** – combination of four elements of an action, i.e. efficiency, smoothness (coordination), accuracy and rate.

**B. Context** – game pressure, pace, skill and intensity of opponent, etc. will all affect performance and should be taken into account when marking.

### C. Key skill components

#### Preparation

- player balanced in anticipation on the balls of the feet
- the ball is approached in fluid motion, knees slightly bent with body fluent and balanced
- the supporting foot is placed next to and level with the centre of the ball, with knee slightly bent for balance
- supporting foot facing towards the intended target

#### Execution

- supporting leg slightly flexed to provide balance
- head is down and over the ball
- kicking leg swings forward towards the centre of the ball
- as the foot meets the ball, the foot is turned to the outside, parallel to the ground with ankle locked (firm)
- instep makes contact with the ball, striking through the centre of the ball
- timing of the pass – the foot 'meets' the ball central to the body – not reaching for the ball

#### Completion

- kicking foot follows through in the direction of the ball
- the body is still and balanced
- ball moves, rolling along the ground

#### Outcome

- ball hits the intended target

### D. MARK ALLOCATION

Mark	Observable key skill components described in C: Preparation, Execution, Completion, and Outcome
6	Consistently displays all of the selected observation points, performing skills with fluency and precision achieving the desired outcome
5	Demonstrates fluency and control while consistently displaying most of the selected observation points, performance usually achieves intended outcome
4	With some fluency and control, displays most of the selected observation points but achievement of the intended outcome is inconsistent
3	Demonstrates some control and some of the selected observation points, occasionally achieves the intended outcome
2	With some control, displays some of the selected observation points but performance and achievement of intended outcomes are inconsistent
1	Demonstrates minimal control and performance reflects a few of the selected observation points with minimal achievement of the intended outcome

## Skill 2: Dribbling

**A. Skill** – combination of four elements of an action, i.e. efficiency, smoothness (coordination), accuracy and rate.

**B. Context** – game pressure, pace, skill and intensity of opponent, etc. will all affect performance and should be taken into account when marking.

### C. Key skill components

#### Preparation

- ball is positioned close and central to the body
- dribbling knee is positioned up and over the ball
- body is balanced
- head is positioned over the ball
- body facing the defender
- ball is kept central to the body

#### Execution

- dribbling foot pushes the ball forward in a controlled manner
- knee is over the ball as it is touched forward
- ball is always kept within control-distance of the foot
- uses both inside and outside of the foot to move the ball forward
- eyes are kept up to assess further play options
- player simultaneously dribbles and scans the field

#### Completion/Outcome

- player controls the ball and is able to utilise further options

### D. MARK ALLOCATION

Mark	Observable key skill components described in C: Preparation, Execution, Completion, and Outcome
6	Consistently displays all of the selected observation points, performing skills with fluency and precision achieving the desired outcome
5	Demonstrates fluency and control while consistently displaying most of the selected observation points, performance usually achieves intended outcome
4	With some fluency and control, displays most of the selected observation points but achievement of the intended outcome is inconsistent
3	Demonstrates some control and some of the selected observation points, occasionally achieves the intended outcome
2	With some control, displays some of the selected observation points but performance and achievement of intended outcomes are inconsistent
1	Demonstrates minimal control and performance reflects a few of the selected observation points with minimal achievement of the intended outcome

### Skill 3: Shooting

**A. Skill** – combination of four elements of an action, i.e. efficiency, smoothness (coordination), accuracy and rate.

**B. Context** – game pressure, pace, skill and intensity of opponent, etc. will all affect performance and should be taken into account when marking.

#### C. Key skill components

##### Preparation

- ball is positioned between, or level with, the kicker and the target
- ball is approached at a slight angle
- ideally, approach is to be no longer than three metres

##### Execution

- supporting leg is positioned next to the ball and is slightly flexed to provide balance
- head is down over the ball
- knee and body are positioned slightly over the ball
- arms are out to maintain balance
- shooting leg swings forward with knee flexed, foot extended, ankle firm
- contact is made with the top of the foot (laces) moving through the ball

##### Completion

- shooting foot swings 'through' the ball, along with body weight
- appropriate power is applied to the ball and is consistent with position of goalkeeper

##### Outcome

- ball hits the intended target

#### D. MARK ALLOCATION

Mark	Observable key skill components described in C: Preparation, Execution, Completion, and Outcome
6	Consistently displays all of the selected observation points, performing skills with fluency and precision achieving the desired outcome
5	Demonstrates fluency and control while consistently displaying most of the selected observation points, performance usually achieves intended outcome
4	With some fluency and control, displays most of the selected observation points but achievement of the intended outcome is inconsistent
3	Demonstrates some control and some of the selected observation points, occasionally achieves the intended outcome
2	With some control, displays some of the selected observation points but performance and achievement of intended outcomes are inconsistent
1	Demonstrates minimal control and performance reflects a few of the selected observation points with minimal achievement of the intended outcome

#### Skill 4: Control – low ball

**A. Skill** – combination of four elements of an action, i.e. efficiency, smoothness (coordination), accuracy, and rate.

**B. Context** – game pressure, pace, skill and intensity of opponent, etc. will all affect performance and should be taken into account when marking.

#### C. Key skill components

##### Preparation

- body is balanced in anticipation on the balls of the feet
- hips and knees are flexed
- body moves into position behind the path of the approaching ball
- eyes are kept on the ball

##### Execution

- receiving foot is parallel to the ground and slightly raised
- supporting foot is positioned alongside the ball, with knee flexed and arms out to maintain balance
- head is over the ball
- the centre of the ball is ‘cushioned’ using the middle of the inside of foot

##### Completion/Outcome

- ball is in a position to be used effectively after it has been controlled

#### D. MARK ALLOCATION

Mark	Observable key skill components described in C: Preparation, Execution, Completion, and Outcome
6	Consistently displays all of the selected observation points, performing skills with fluency and precision achieving the desired outcome
5	Demonstrates fluency and control while consistently displaying most of the selected observation points, performance usually achieves intended outcome
4	With some fluency and control, displays most of the selected observation points but achievement of the intended outcome is inconsistent
3	Demonstrates some control and some of the selected observation points, occasionally achieves the intended outcome
2	With some control, displays some of the selected observation points but performance and achievement of intended outcomes are inconsistent
1	Demonstrates minimal control and performance reflects a few of the selected observation points with minimal achievement of the intended outcome

### Skill 5: Long lofted pass

**A. Skill** – combination of four elements of an action, i.e. efficiency, smoothness (coordination), accuracy, and rate.

**B. Context** – game pressure, pace, skill and intensity of opponent, etc. will all affect performance and should be taken into account when marking.

### C. Key skill components

#### Preparation

- ball is positioned between the kicker and the target
- approach to the ball made at an angle of approximately 30°
- ball is approached in a fluid and balanced motion
- as the ball is approached, the supporting foot reaches toward and is placed next to and level with the centre of the ball; the knee is slightly bent for balance
- supporting foot faces towards the intended target
- kicking leg then moves toward the ball, with knee slightly bent

#### Execution

- supporting leg slightly flexed to provide balance
- head over the ball, looking towards the intended target
- kicking leg swings forward towards the bottom part of the ball
- as the foot meets the ball, the foot is turned to the outside, parallel to the ground with ankle locked (firm)
- instep makes contact with the ball, striking through the centre of the ball
- timing – the kicking foot ‘meets’ the ball central to the body, not reaching for the ball

#### Completion

- kicking foot follows through in the direction of the kick
- the body is still and balanced
- ball moves toward the target in the air, ideally reaching approximately 2 metres above the ground at its highest point (this demonstrates the ability to play the ‘lofted’ pass over the opposition players – technical execution)
- fluency – the preparation and execution completed in sequence

#### Outcome

- ball hits the intended target

### D. MARK ALLOCATION

Mark	Observable key skill components described in C: Preparation, Execution, Completion, and Outcome
6	Consistently displays all of the selected observation points, performing skills with fluency and precision achieving the desired outcome
5	Demonstrates fluency and control while consistently displaying most of the selected observation points, performance usually achieves intended outcome
4	With some fluency and control, displays most of the selected observation points but achievement of the intended outcome is inconsistent
3	Demonstrates some control and some of the selected observation points, occasionally achieves the intended outcome
2	With some control, displays some of the selected observation points but performance and achievement of intended outcomes are inconsistent
1	Demonstrates minimal control and performance reflects a few of the selected observation points with minimal achievement of the intended outcome



## Skill 6: Heading (defence)

**A. Skill** – combination of four elements of an action, i.e. efficiency, smoothness (coordination), accuracy, and rate.

**B. Context** – game pressure, pace, skill and intensity of opponent, etc. will all affect performance and should be taken into account when marking.

### C. Key skill components

#### Preparation

- balance in anticipation on the balls of feet
- hips and knees are flexed
- shoulders are square to the path of the ball
- eyes track the ball
- torso maintains upright position, not leaning forward or backwards

#### Execution

- moves towards the ball, if necessary
- knees extend to initiate jump as the ball approaches
- arms lift up to assist in getting height, generating power and balance
- body arches backward from the torso
- head reaches upward and toward the ball (neck extended) and in the direction where the ball is intended to travel
- timing – the head meets the approaching ball during the forward momentum before the head and torso becomes linear
- ball contacts on the middle section of the forehead

#### Completion

- fluency – the preparation and execution completed in sequence
- upper body continues in direction of headed ball

#### Outcome

- flight and direction successfully clears ball from danger zone

### D. MARK ALLOCATION

Mark	Observable key skill components described in C: Preparation, Execution, Completion, and Outcome
6	Consistently displays all of the selected observation points, performing skills with fluency and precision achieving the desired outcome
5	Demonstrates fluency and control while consistently displaying most of the selected observation points, performance usually achieves intended outcome
4	With some fluency and control, displays most of the selected observation points but achievement of the intended outcome is inconsistent
3	Demonstrates some control and some of the selected observation points, occasionally achieves the intended outcome
2	With some control, displays some of the selected observation points but performance and achievement of intended outcomes are inconsistent
1	Demonstrates minimal control and performance reflects a few of the selected observation points with minimal achievement of the intended outcome

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## Sample assessment task

### Physical Education Studies – ATAR Year 12

#### Task 10 – Unit 3 and Unit 4

**Assessment type:** Investigation

**Conditions:** the task will be completed over two weeks

**Task weighting:** 7% of the school mark for this pair of units

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Watch the film *Remember the Titans*.

**(27 marks)**

Prepare and submit responses to the following:

1. Identify the leadership styles used by the coaches Yoast and Boone. (2 marks)
2. Compare the leadership styles of Yoast and Boone and provide an example to support your comparison. (3 marks)
3. Describe **three** factors which initially prevented the Titans from working together as a team. (6 marks)
4. Name the **four** factors that Carron believes affect the cohesiveness of a team. For each factor, provide **one** example from the film. (8 marks)
5. Describe **three** strategies that coach Boone implements in his attempt to bring the team together as a cohesive unit. (6 marks)
6. Outline **two** ways in which coach Boone could measure the cohesiveness of his team. (2 marks)

## Marking key for sample assessment task 10

1. Identify the leadership styles used by Yoast and Boone.

Description	Marks
<b>One</b> mark for each of: <ul style="list-style-type: none"> <li>correctly identifies leadership style of Yoast</li> <li>correctly identifies leadership style of Boone</li> </ul>	1–2
<b>Subtotal</b>	<b>/2</b>

2. Compare the leadership styles of Yoast and Boone and provide an example to support your comparison.

Description	Marks
<ul style="list-style-type: none"> <li>compares accurately and with detail, referring to the similarities and differences between leadership styles of coaches</li> </ul>	2
<ul style="list-style-type: none"> <li>compares in a general sense, referring to the similarities and differences between leadership styles of coaches</li> </ul>	1
<ul style="list-style-type: none"> <li>provides a relevant example to support their comparison</li> </ul>	1
<b>Subtotal</b>	<b>/3</b>

3. Describe **three** factors which initially prevented the Titans from working together as a team.

Description	Marks
For each of <b>three</b> appropriate factors: <ul style="list-style-type: none"> <li>provides a thorough description with appropriate detail that is relevant to the situation</li> <li>provides a description that contains some detail that is relevant to the situation</li> </ul>	2 1
<b>Subtotal</b>	<b>/6</b>

4. Name the **four** factors that Carron believes affect the cohesiveness of a team. For each factor, provide **one** example from the film.

Description	Marks
Naming each factor: <ul style="list-style-type: none"> <li>environmental</li> <li>personal</li> <li>leadership</li> <li>team</li> </ul>	1–4
Provides an appropriate example for each factor	1–4
<b>Subtotal</b>	<b>/8</b>

5. Describe **three** strategies that coach Boone implements in his attempt to bring the team together as a cohesive unit.

Description	Marks
For each of <b>three</b> appropriate strategies: <ul style="list-style-type: none"> <li>provides a thorough description with appropriate detail relevant to the situation</li> <li>provides a description that contains some detail relevant to the situation</li> </ul>	2 1
<b>Subtotal</b>	<b>/6</b>

6. Outline **two** ways in which coach Boone could measure the cohesiveness of his team.

Description	Marks
<b>One</b> mark for each of the two ways outlined	1–2
<b>Subtotal</b>	<b>/2</b>
<b>Total</b>	<b>/27</b>

Sample assessment task

Physical Education Studies – ATAR Year 12

Task 1 – Unit 3 and Unit 4

**Assessment type:** Response

**Conditions:** time for the task: 60 minutes

**Task weighting:** 10.5% of the school mark for this pair of units

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**Topic test: Functional anatomy and biomechanics**

**(62 marks)**

**Question 1**

- (a) For a punt kick, identify **two** biomechanical principles a player can apply to produce maximum velocity on the ball. (2 marks)

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- (b) Outline **three** reasons why the biomechanical principles identified above do not apply to the golf putt or the netball goal shot. (3 marks)

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- (c) Using the sliding filament theory, provide **three** factors that explain how contraction occurs in skeletal muscle. Include a diagram in your answer and label **four** parts of the sliding filament. (7 marks)

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## Question 2

- (a) A rugby league player is about to tackle an oncoming opponent. Outline **three** actions the player (tackler) could take to increase his stability just before the impact of the tackle. (3 marks)

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- (b) A stable position for a wicketkeeper in cricket would be crouched, feet shoulder width apart, gloves touching (palms facing upwards) and placed in front of the body – slightly above the ground. To allow quick lateral movement, some sports require low levels of stability. Outline **two** ways in which a cricket wicketkeeper could reduce stability in order to improve sideways movement. (2 marks)

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**Question 4**

With reference to the application of forces and spin, explain the following scenarios.

Select one of the scenarios then draw and label a diagram indicating: direction of travel; direction of spin; Magnus force; location of turbulent air flow; low pressure area.

- (a) A tennis player wants to hit a ball deep into the opponent's court with a large error margin at the net. (2 marks)

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- (b) A volleyball player wants to hit a float serve (a serve where the ball does not rotate). (2 marks)

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- (c) A soccer player is taking a free kick 25 m out from goal. The opposition has formed a wall and the player wants to curl the ball around the wall from right to left to score. (2 marks)

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Diagram

(6 marks)

**Question 5**

An Australian test cricketer wishes to increase the force with which he can strike a cricket ball. He purchases a bat with a longer handle which is also heavier. Describe **three** factors that account for how each of these bat characteristics affects his objective.

(a) Bat with longer handle

(6 marks)

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(b) Bat that is heavier

(6 marks)

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**Question 6**

- (a) Define the principle of conservation of angular momentum. Use a sporting example to illustrate the principle. (2 marks)

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- (b) A high platform diver takes off and goes into a tuck position and rotates before straightening in preparation for a hands-first entry into the water. Outline **three** factors that describe the relationship between the axis of rotation, moment of inertia and angular velocity when the diver moves into the tuck position. (3 marks)

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- (c) As a coach, you have identified that your diver is not successfully completing the somersault in time to enter the water vertically. As a result, he is entering the water with a belly flop (landing on his front). Using the principle of levers, explain **two** ways in which moving the fulcrum of the spring board might assist the diver to complete the dive successfully. (4 marks)

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## Acknowledgements

### Question 3

#### Image 1

Seeger, S. (2007). *Pitching 2*. Retrieved April, 2015, from [www.flickr.com/photos/stuseeger/434120992/](http://www.flickr.com/photos/stuseeger/434120992/)

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#### Image 2

Seeger, S. (2007). *Pitching 3*. Retrieved April, 2015, from [www.flickr.com/photos/stuseeger/434121357/#](http://www.flickr.com/photos/stuseeger/434121357/#)

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#### Image 3

Seeger, S. (2007). *Pitching 4*. Retrieved April, 2015, from [www.flickr.com/photos/stuseeger/434121246/in/set-72157604583093599](http://www.flickr.com/photos/stuseeger/434121246/in/set-72157604583093599)

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## Marking key for sample assessment task 1

### Question 1

- (a) For a punt kick, identify **two** biomechanical principles a player can apply to produce maximum velocity on the ball.

Description	Marks
Identifies any <b>two</b> of the following:	
<ul style="list-style-type: none"> <li>segmental interaction/summation of momentum (or kinematic chaining)</li> <li>force-motion</li> <li>range of motion</li> <li>force-time</li> </ul>	1–2
<b>Subtotal</b>	<b>/2</b>

- (b) Outline **three** reasons why the biomechanical principles identified above do not apply to the golf putt or the netball goal shot.

Description	Marks
Outlines each of the following:	
<ul style="list-style-type: none"> <li>putting and goal shooting require simultaneous summation of force</li> </ul>	1
<ul style="list-style-type: none"> <li>skills require that all body parts move together</li> </ul>	1
<ul style="list-style-type: none"> <li>tasks do not require maximum force or velocity – accuracy is key factor</li> </ul>	1
<b>Subtotal</b>	<b>/3</b>

- (c) Using the sliding filament theory, provide **three** factors that explain how contraction occurs in skeletal muscle. Include a diagram in your answer and label **four** parts of the sliding filament.

Description	Marks
For each of the following:	
<ul style="list-style-type: none"> <li>myofibrils have several sections known as sarcomeres</li> </ul>	1
<ul style="list-style-type: none"> <li>within each myofibril are two myofilaments (myosin and actin)</li> </ul>	1
<ul style="list-style-type: none"> <li>during muscular contraction, the bunching occurs when myosin glides between the actin and the sarcomere shortens and creates movement</li> </ul>	1
or any other appropriate factor	
Correctly labels any <b>four</b> of the following on an appropriate diagram:	
<ul style="list-style-type: none"> <li>sarcomere</li> <li>myofibril</li> <li>myosin</li> <li>actin</li> <li>cross bridges</li> </ul>	1–4
<b>Subtotal</b>	<b>/7</b>

**Question 2**

- (a) A rugby league player is about to tackle an oncoming opponent. Outline **three** actions the player (tackler) could take to increase his stability just before the impact of the tackle.

Description	Marks
For each of the following:	
• increase size of base of support in direction of oncoming player	1
• lower centre of gravity	1
• move line of gravity towards oncoming player	1
or any other appropriate action	
<b>Subtotal</b>	<b>/3</b>

- (b) A stable position for a wicketkeeper in cricket would be crouched, feet shoulder width apart, gloves touching (palms facing upwards) and placed in front of the body – slightly above the ground. To allow quick lateral movement, some sports require low levels of stability. Outline **two** ways in which a cricket wicketkeeper could reduce stability in order to improve sideways movement.

Description	Marks
<b>One</b> mark for outlining any <b>two</b> of the following:	
• raise height of centre of gravity	1
• decrease size of base of support	1
• move hands forwards or to the side to move line of gravity to edge of base of support	1
<b>Subtotal</b>	<b>/2</b>

**Question 3**

With reference to the images below, identify and explain **four** biomechanical principles that apply to the successful performance of the underarm softball pitch for maximum speed and accuracy.

Description	Marks
Identifies any <b>four</b> of:	
• impulse (force-time)	
• summation of force	
• optimal projection	
• balance	
• momentum	
• angular momentum	
• range of motion	
For each of the <b>four</b> principles identified:	
• explanation is clear and comprehensive with appropriate detail included	2
• explanation is simple with some detail included	1
<b>Subtotal</b>	<b>/12</b>

**Question 4**

With reference to the application of forces and spin, explain the following scenarios.

(a) A tennis player wants to hit a ball deep into the opponent's court with a large error margin at the net.

Description	Marks
<ul style="list-style-type: none"> <li>hit a top spin shot – increases margin for error at net, drops quickly after passing net</li> <li>apply eccentric force</li> </ul> or any other appropriate response	1–2
<b>Subtotal</b>	<b>/2</b>

(b) A volleyball player wants to hit a float serve (a serve where the ball does not rotate).

Description	Marks
<ul style="list-style-type: none"> <li>there is no spin on the ball</li> <li>apply concentric force</li> </ul> or any other appropriate response	1–2
<b>Subtotal</b>	<b>/2</b>

(c) A soccer player is taking a free kick 25 m out from goal. The opposition has formed a wall and the player wants to curl the ball around the wall from right to left to score.

Description	Marks
<ul style="list-style-type: none"> <li>kick ball on right-hand side of ball to make ball swerve from right to left</li> <li>apply eccentric force</li> </ul> or any other appropriate response	1–2
<b>Subtotal</b>	<b>/2</b>

(d) Select one of the scenarios then draw and label a diagram indicating: direction of travel; direction of spin; Magnus force; location of turbulent air flow; low pressure area.

Description	Marks
Draws diagram appropriate to the scenario selected	1
Correctly labels diagram with	
<ul style="list-style-type: none"> <li>direction of travel</li> </ul>	1
<ul style="list-style-type: none"> <li>direction of spin</li> </ul>	1
<ul style="list-style-type: none"> <li>Magnus force</li> </ul>	1
<ul style="list-style-type: none"> <li>location of turbulent air flow</li> </ul>	1
<ul style="list-style-type: none"> <li>low pressure area</li> </ul>	1
<b>Subtotal</b>	<b>/6</b>

**Question 5**

An Australian test cricketer wishes to increase the force with which he can strike a cricket ball. He purchases a bat with a longer handle which is also heavier. Describe **three** factors that account for how each of these bat characteristics affects his objective.

(a) Bat with longer handle

Description	Marks
For each of the <b>three</b> appropriate factors:	
<ul style="list-style-type: none"> <li>provides a comprehensive description, with relevant links between the length of the bat and the force produced</li> </ul>	2
<ul style="list-style-type: none"> <li>provides a description with a simple link between the length of the bat and the force produced</li> </ul>	1
Responses may include:	
<ul style="list-style-type: none"> <li>increased lever length increases velocity at the end of the bat</li> <li>increased radius of rotation increases velocity at the end of the bat</li> <li>may be a loss of control with increased length</li> </ul>	
or any other appropriate response	
<b>Subtotal</b>	<b>/6</b>

(b) Bat that is heavier

Description	Marks
For each of the <b>three</b> appropriate factors:	
<ul style="list-style-type: none"> <li>provides a comprehensive description, with relevant links between the length of the bat and the force produced</li> </ul>	2
<ul style="list-style-type: none"> <li>provides a description with a simple link between the length of the bat and the force produced</li> </ul>	1
Responses may include:	
<ul style="list-style-type: none"> <li>increased mass of bat means increased moment of inertia, as greater amount of weight is distributed away from axis of rotation</li> <li>heavier bat may be harder to swing – decreased angular velocity</li> <li>force = mass. If the mass is larger, then the amount of force is greater if acceleration remains constant</li> </ul>	
or any other appropriate response	
<b>Subtotal</b>	<b>/6</b>

**Question 6**

- (a) Define the principle of conservation of angular momentum. Use a sporting example to illustrate the principle.

Description	Marks
Correctly defines the principle of conservation of angular momentum <ul style="list-style-type: none"> <li>a rotating body continues to rotate about its axis of rotation, unless acted upon by an external force</li> </ul>	1
Provides an appropriate example	1
<b>Subtotal</b>	<b>/2</b>

- (b) A high platform diver takes off and goes into a tuck position and rotates before straightening in preparation for a hands-first entry into the water. Outline **three** factors that describe the relationship between the axis of rotation, moment of inertia and angular velocity when the diver moves into the tuck position.

Description	Marks
<ul style="list-style-type: none"> <li>tuck decreases the moment of inertia</li> <li>tuck results in an increase in angular velocity</li> <li>action makes it easier for the diver to rotate</li> </ul> or any other appropriate response	1–3
<b>Subtotal</b>	<b>/3</b>

- (c) As a coach, you have identified that your diver is not successfully completing the somersault in time to enter the water vertically. As a result, he is entering the water with a belly flop (landing on his front). Using the principle of levers, explain **two** ways in which moving the fulcrum of the spring board might assist the diver to complete the dive successfully.

Description	Marks
For any <b>two</b> appropriate ways: <ul style="list-style-type: none"> <li>provide a comprehensive description with relevant links between the position of the fulcrum and the amount of rotation produced</li> <li>provide a description with a simple link between the position of the fulcrum and the amount of rotation produced</li> </ul>	2
Answers may include: <ul style="list-style-type: none"> <li>increased length of force arm increases the force generated at the end</li> <li>increased force at end of lever enables diver to get higher into the air</li> <li>increased time in the air allows more time to complete rotation</li> </ul> or any other appropriate response	1
<b>Subtotal</b>	<b>/4</b>
<b>Total</b>	<b>/62</b>