

HEALTH & MOVEMENT

Stage 6



Body and Mind

Skill acquisition and development

Stages of learning

Teacher: Smarter Maths

Exam Equivalent Time: 60 minutes (based on allocation of 1.5 minutes per mark)

Questions

1. HMS, BM EQ-Bank 58060 MC

A tennis coach observes that a beginner player frequently makes large errors when attempting a forehand stroke, struggles to coordinate the footwork with the arm movement, and requires regular demonstrations to understand the technique.

In which stage of skill acquisition is this tennis player most likely to be?

- A. Cognitive stage
- B. Associative stage
- C. Autonomous stage
- D. Refinement stage

2. HMS, BM 2022 HSC 9 MC

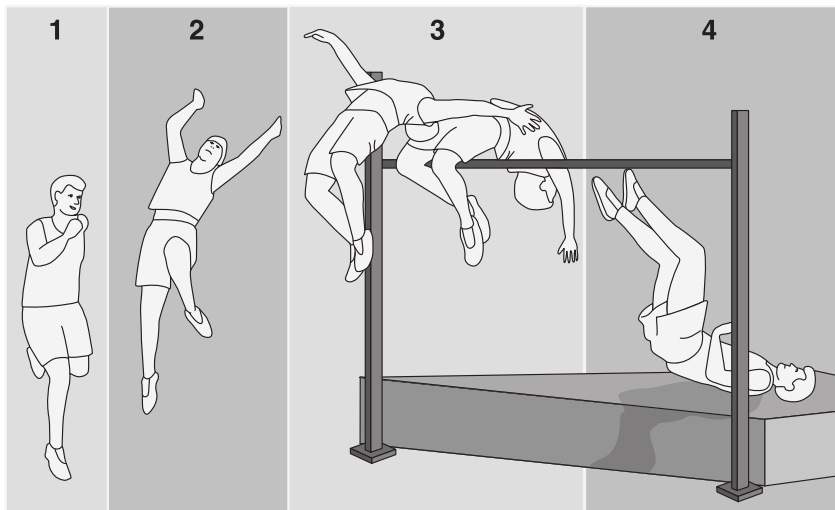
During a game of touch football, a skilled player successfully passes the ball in a high-pressure situation.

Which of the following identifies the types of feedback the player is most likely to have experienced?

- A. Intrinsic, delayed and knowledge of results
- B. Extrinsic, delayed and knowledge of results
- C. Intrinsic, concurrent and knowledge of performance
- D. Extrinsic, concurrent and knowledge of performance

3. HMS, BM 2024 HSC 5 MC

An athlete creates the following sequence of images in their mind as part of their training.



Which psychological strategy best describes the process being used by the athlete?

- A. Goal setting
 - B. Concentration
 - C. Mental rehearsal
 - D. Relaxation techniques
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4. HMS, BM EQ-Bank 63667 MC

An associative stage soccer player feels the impact of their foot against the ball and instantly recognises they've struck it too far to the left. This demonstrates the player's developing:

- A. Knowledge of results
 - B. Kinesthetic awareness
 - C. Augmented feedback processing
 - D. Delayed feedback interpretation
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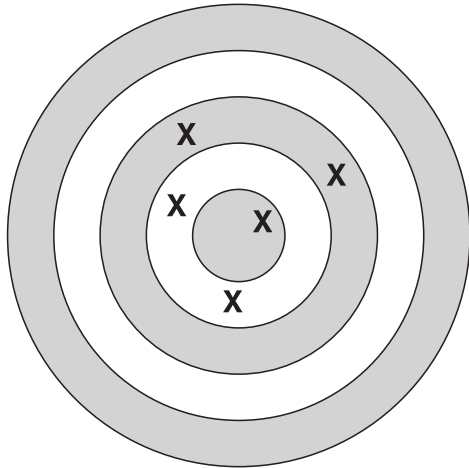
5. HMS, BM 2023 HSC 18 MC

Four Year 7 students on a school camp are participating in archery. Each student had five shots at the target. The centre of the target represents the best possible shot.

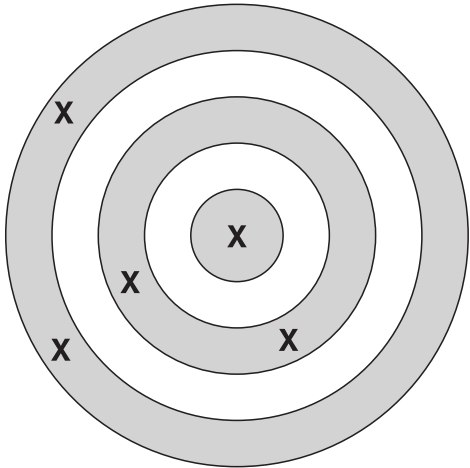
The location of each student's five shots are represented by X on the targets shown.

Which student is most likely to be at the associative stage of skill acquisition?

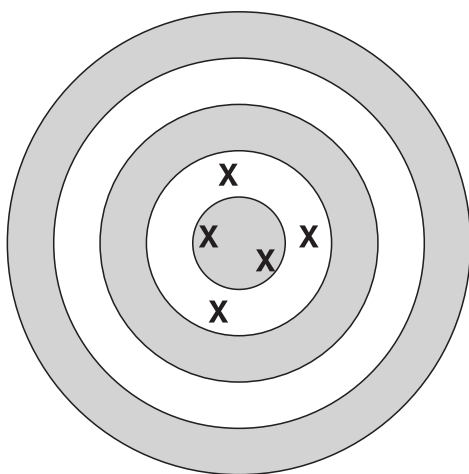
A.



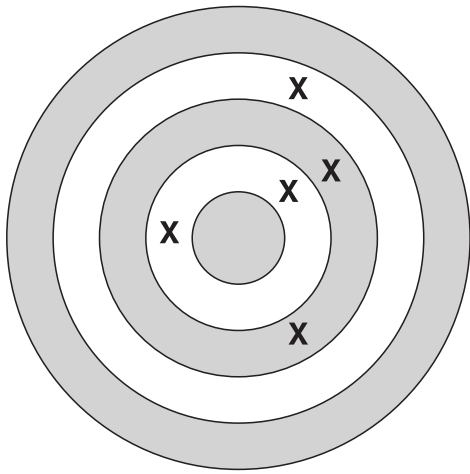
B.



C.



D.



6. HMS, BM 2024 HSC 13 MC

Which of the following traits best represents an athlete in the autonomous stage of skill acquisition?

- A. Consistency of performance, frequent and short periods of skill practice, strong kinaesthetic sense
 - B. Consistency of performance, correction of movement to adjust to oppositional strategy, strong kinaesthetic sense
 - C. Correction of movement to adjust to oppositional strategy, frequent and short periods of skill practice, strong kinaesthetic sense
 - D. Consistency of performance, correction of movement to adjust to oppositional strategy, frequent and short periods of skill practice
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7. HMS, BM 2024 HSC 7 MC

After training, an elite athlete watches a video recording of their gymnastics routine.

Which TWO types of feedback is the athlete receiving from the video?

- A. Internal feedback and concurrent feedback
 - B. External feedback and concurrent feedback
 - C. Internal feedback and knowledge of performance
 - D. External feedback and knowledge of performance
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8. HMS, BM EQ-Bank 63578 MC

A swimming coach films an athlete's technique and reviews it with them after practice, highlighting specific aspects of their stroke that need refinement. This represents:

- A. Concurrent augmented feedback
 - B. Delayed augmented feedback
 - C. Concurrent task-intrinsic feedback
 - D. Delayed task-intrinsic feedback
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9. HMS, BM EQ-Bank 58505

Outline the key characteristics of the cognitive stage of skill acquisition. (6 marks)

10. HMS, BM EQ-Bank 64201

Explain how a swimming coach might modify feedback approaches when working with athletes at different stages of learning the butterfly stroke. Provide specific examples. (4 marks)

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

11. HMS, BM 2024 HSC 24

How can technique be used to appraise an athlete's performance? Provide an example to support your answer. (5 marks)

[illegible]

12. HMS, BM EQ-Bank 64468

Describe how elite coaches might structure feedback differently for team sports versus individual sports. Support your answer with examples. (5 marks)

[illegible]

13. HMS, BM EQ-Bank 58772

Analyse how elite and recreational athletes might progress differently through the stages of skill acquisition when learning a complex movement skill. (8 marks)

[illegible]

14. HMS, BM EQ-Bank 59039

Discuss how the concept of information processing affects progression through the stages of skill acquisition. (6 marks)

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Worked Solutions

1. HMS, BM EQ-Bank 58060 MC

- A is correct: Frequent large errors, coordination difficulties, and reliance on demonstrations are key characteristics of the cognitive stage where learners are understanding what to do.

Other Options:

- B is incorrect: The associative stage would show fewer and smaller errors with improved coordination.
- C is incorrect: The autonomous stage would display automatic execution with minimal errors.
- D is incorrect: "Refinement stage" is not a recognised stage in the three-stage process of skill acquisition.

2. HMS, BM 2022 HSC 9 MC

During a successful pass in touch football:

- Player receives immediate (concurrent) feedback while executing the movement.
- Feedback comes primarily from internal sensory cues (intrinsic).
- Player gets information about their technique/movement quality (knowledge of performance).

⇒ C

3. HMS, BM 2024 HSC 5 MC

- C is correct: The sequence of images shows the steps of performing a high jump, which the athlete is visualising in their mind as a form of mental rehearsal/visualisation/imagery.

Other Options:

- A is incorrect: Images show visualisation, not establishing performance targets.
- B is incorrect: Concentration involves focusing attention, not mentally rehearsing a sequence.
- D is incorrect: Relaxation involves tension reduction methods, not skill visualisation.

4. HMS, BM EQ-Bank 63667 MC

- B is correct: Kinesthetic awareness is the “feel” for movement that develops through proprioception, allowing athletes to detect errors in their movements—exactly what the soccer player demonstrates by sensing the incorrect foot strike.

Other Options:

- A is incorrect: Knowledge of results relates to outcome information, not the sensory awareness during execution.
 - C is incorrect: Augmented feedback comes from external sources, not internal sensations like feeling the impact.
 - D is incorrect: Delayed feedback occurs after completion, not during the skill as described.
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5. HMS, BM 2023 HSC 18 MC

- A is correct: The associative stage shows improved consistency (grouping of shots) but not perfect accuracy, indicating the learner is refining their technique.

Other Options:

- B is incorrect: Target B shows shots scattered widely across the target (cognitive stage – inconsistent and inaccurate).
 - C is incorrect: Target C shows shots clustered around the centre (late associative/early autonomous).
 - D is incorrect: Target D shows shots widely dispersed (cognitive stage).
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6. HMS, BM 2024 HSC 13 MC

- B is correct: An athlete in the autonomous stage demonstrates consistent performance, can make adjustments based on opposition, and has developed strong kinaesthetic awareness.

Other Options:

- A, C and D all incorrect: Autonomous performers need less frequent practice.
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7. HMS, BM 2024 HSC 7 MC

- D is correct: The video recording provides external feedback (comes from outside the athlete) and knowledge of performance (information about how the skill was performed, not just the result).

Other Options:

- A and C are incorrect: Video is external feedback, not internal.
 - B is incorrect: The feedback is delayed (after training), not concurrent.
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8. HMS, BM EQ-Bank 63578 MC

- B is correct: Delayed augmented feedback is provided after performance (not during) and comes from an external source (the coach and video replay).

Other Options:

- A is incorrect: Concurrent feedback happens during performance, not after practice as described.
 - C is incorrect: Task-intrinsic feedback comes from internal sensory mechanisms, not external sources like a coach or video.
 - D is incorrect: Task-intrinsic feedback is internal, not external like coach feedback and video review.
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9. HMS, BM EQ-Bank 58505

Keyword - "Outline": Sketch in general terms; indicate the main features of.

Sample Answer

- The cognitive stage is characterised by the learner developing initial understanding of what the skill requires, with frequent large errors and inefficient movement patterns.
 - Learners in this stage need clear demonstrations and explicit instructions focusing on key aspects of the skill rather than complex details to avoid information overload.
 - Success experiences are essential during this stage to build confidence, often requiring modified practice environments or breaking skills into smaller components.
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10. HMS, BM EQ-Bank 64201

Keyword - "Explain": Relate cause and effect, make the relationships between things evident, provide why and/or how.

Sample Answer

- For cognitive stage learners, the coach should provide delayed knowledge of performance feedback focusing on fundamental technique.
 - Example: demonstrating correct arm movement pattern after swim attempt rather than during swimming.
 - Associative stage swimmers benefit from more specific augmented feedback addressing rhythm and timing elements.
 - Example: using video analysis to show coordination between kick and pull phases.
 - Autonomous stage swimmers can effectively utilise concurrent feedback for fine-tuning.
 - Example: coach calling out breathing timing cues during swim sets which the athlete can process without disrupting stroke.
 - All stages benefit from progressive transition toward task-intrinsic feedback to develop self-assessment abilities.
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11. HMS, BM 2024 HSC 24

Keyword - "How": Not an official keyword. Explain the process, cause and effect. Make relationships between steps or ideas clear, and support your answer with evidence or examples.

Sample Answer

- A qualified sports biomechanist can appraise an athlete's performance quality. They use technique criteria and systematic observation to assess movement patterns.
 - For example, high jumpers' Fosbury Flop technique is evaluated based on specific elements that include:
 - curved approach speed,
 - appropriate lean on takeoff,
 - extended takeoff leg, horizontal to vertical conversion, and
 - efficient back arch over the bar.
 - These observations help coaches identify technical efficiency in movement. They provide a structured method to appraise the athlete's performance against established biomechanical principles.
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12. HMS, BM EQ-Bank 64468

Keyword - "Describe": Provide characteristics and features.

Sample Answer

- Team sports require balancing individual feedback with collective performance considerations.
 - Example: basketball coach provides delayed group feedback on defensive rotations while offering concurrent individual technique cues.
 - Individual sports allow more personalised concurrent feedback during practice sessions.
 - Task-intrinsic feedback development is crucial in individual sports where athletes compete without coach input.
 - Example: tennis players must develop proprioceptive awareness to self-correct during matches when coaching is limited.
 - Team sports often emphasise knowledge of results at team level while providing knowledge of performance at individual level.
 - Example: soccer team reviews match outcomes collectively but receives individual technique feedback in position groups.
 - Elite coaches in individual sports can provide more immediate augmented feedback during practice.
 - Team sport coaches must consider how individual feedback affects team dynamics and confidence.
 - Example: providing critical feedback privately versus team-wide praise publicly to maintain motivation.
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13. HMS, BM EQ-Bank 58772

Keyword - "Analyse": Identify components and the relationship between them, draw out and relate implications.

**PEEL – Solution is structured using the PEEL method; [P] Identify the point, [E] expand on the point with a link to question asked, [Ev] apply evidence/examples, [L] linking sentence back to question.*

- [P] Elite athletes move through cognitive stage faster due to superior learning abilities.
 - [E] Their advanced information processing helps them understand movement requirements quickly and translate instructions into action.
 - [Ev] An elite gymnast learning a new vault grasps the technique after few demonstrations while recreational gymnasts need multiple sessions.
 - [L] This faster cognitive processing accelerates initial skill acquisition for elite performers.

 - [P] Transfer of learning creates major differences between elite and recreational progression.
 - [E] Elite athletes apply existing movement patterns to new skills while recreational athletes start from scratch.
 - [Ev] Professional dancers learning martial arts adapt their body control skills, but recreational learners lack this foundation.
 - [L] Therefore, previous experience significantly impacts learning speed across skill levels.

 - [P] Practice quality and quantity separate elite from recreational skill development.
 - [E] Elite athletes engage in deliberate practice daily with expert coaching while recreational athletes practice irregularly.
 - [Ev] Elite swimmers train 20+ hours weekly with video analysis versus recreational swimmers' 2-3 casual sessions.
 - [L] This practice difference compounds over time, widening the skill gap.

 - [P] Final skill levels differ dramatically between groups.
 - [E] Elite athletes achieve autonomous stage for complex skills while recreational athletes plateau at associative stage.
 - [Ev] Professional basketball players shoot automatically under pressure while recreational players still think about technique.
 - [L] Thus, ceiling effects limit recreational athletes' ultimate skill development compared to elite performers' mastery.
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14. HMS, BM EQ-Bank 59039

Keyword - "Discuss": Identify issues and provide points for and/or against.

Sample Answer

- During the cognitive stage, learners use most of their mental capacity just to understand basic movements. This creates a bottleneck that stops them from noticing other things around them.
- Working memory is limited in the cognitive stage. Learners need simple instructions and feedback. In the autonomous stage, athletes can handle complex tactical information while performing skills.
- Attentional narrowing happens in the cognitive stage. Learners must focus only on their own movements. They cannot watch opponents or think about strategy at the same time.
- Motor programs develop through repeated practice in the associative stage. This gradually reduces the mental effort needed for basic movements. More mental resources become available for decision making.
- Chunking happens as learners reach the autonomous stage. Complex movement sequences become single units in the brain. They no longer think about separate parts of the movement.
- Automatic processing occurs in the autonomous stage. Athletes can process multiple things at once like technique, opponent position, and strategy. This parallel processing is impossible in the cognitive stage where learners handle one thing at a time.