

Topic 5: Skill in Sport

Content Area: **Science**

Course(s): **IB Sports, Exercise & Health Science**

Time Period: **3rd Marking Period**

Length: 5 weeks

Unit Overview

Characteristics and classification of skill: Students will learn to distinguish between skills, ability and technique in order to characterize each as well as the relationship between them.

Information processing: Students will learn to apply various models of information processing in terms of input, feedback and various stages and forms of memory.

Principles of skill learning: Students will learn the phases of learning as well as different types of learning curves in order to identify factors that contribute to different rates of learning. This will help students to identify different types of transfer, practice presentation and teaching styles.

STAGE 1- DESIRED RESULTS

2020 New Jersey Student Learning Standards- Science

DCI: HS-LS1-2, HS-LS1-3, HS-LS1-6

CCC: Cause & Effect, Systems and System Models, Energy and Matter, Structure and Function, Stability and Change

S&EP: Asking questions/defining problems, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations, engaging in argument from evidence, obtaining, evaluating & communicating information

Essential Questions

How do we learn new skills?

Enduring Understanding

Students will learn to distinguish between types of skill, identify optimal ways of learning them and how information is processed during learning. This is helpful not only for athletes but for students as well.

Students will know...

Vocabulary: skill, gross, discrete, serial, continuous, interaction continuum, coactive, proficiency, perceptual, ability, technique, novice, information processing, Welford's model, sensory input, exteroceptors, proprioceptors, interoceptors, short-term sensory store, short-term memory, long-term memory, selective attention, rehearsal, coding, brevity, clarity, chunking, organization, association, practice, response time, psychological refractory period (PRP), motor programme, feedback, intrinsic, extrinsic, concurrent, terminal, reinforcement, motivation, adaption of performance, punishment, learning, performance, cognitive, verbal, associative, motor, autonomous, learning curve, plateau, acceleration, motivation, bilateral, transfer, practice, presentation, teaching style,

Students will be able to...

- 5.1.1 define the term *skill*
- 5.1.2 describe the different types of skill
- 5.1.3 outline the different approaches to classifying motor skills
- 5.1.4 compare skill profiles for contrasting sports
- 5.1.5 outline ability
- 5.1.6 distinguish between Fleishman's physical proficiency abilities (physical factors) and perceptual motor abilities (psychomotor factors)
- 5.1.7 define the term *technique*
- 5.1.8 state the relationship between ability, skill and technique
- 5.1.9 discuss the differences between a skilled and a novice performer
- 5.2.1 describe a simple model of information processing
- 5.2.2 describe Welford's model of information processing
- 5.2.3 outline the components associated with sensory input
- 5.2.4 explain the signal-detection process
- 5.2.5 distinguish between the characteristics of short-term sensory store, short-term memory and long-term memory
- 5.2.6 discuss the relationship between selective attention and memory
- 5.2.7 compare different methods of memory improvement
- 5.2.8 define the term *response time*
- 5.2.9 outline factors that determine response time
- 5.2.10 evaluate the concept of the psychological refractory period (PRP)
- 5.2.11 describe a motor programme

- 5.2.12 compare motor programs from both open- and closed-loop perspectives
- 5.2.13 outline the role of feedback in information processing models
- 5.2.14 outline the role of feedback with the learning process
- 5.3.1 distinguish between *learning* and *performance*
- 5.3.2 explain the factors that affect projectile motion at take-off and release
- 5.3.3 outline the different types of learning curves
- 5.3.4 discuss factors that contribute to the different rates of learning
- 5.3.5 define the concept of *transfer*
- 5.3.6 outline the types of transfer
- 5.3.7 outline the different types of practice
- 5.3.8 explain the different types of presentation
- 5.3.9 outline the spectrum of teaching styles

STAGE 2 - EVIDENCE OF LEARNING

Formative Assessment

- 3- Minute Pause
- A-B-C Summaries
- Analogy Prompt
- Choral Response
- Debriefing
- Exit Card / Ticket
- Hand Signals
- Idea Spinner
- Index Card Summaries
- Inside-Outside Circle Discussion (Fishbowl)
- Journal Entry
- Misconception Check
- Observation
- One Minute Essay
- One Word Summary
- Portfolio Check
- Questions & Answers
- Quiz
- Self-Assessment
- Student Conference
- Think-Pair-Share
- Web or Concept Map

Authentic Assessments

Define – skill and identify examples of each type in daily life and in a specific sport

Classify – different types of motor skills, identify examples in different sporting activities

Identify – the relationship among skill, ability and technique in terms of a mathematical equation; predict changes based on manipulating each variable

Compare & Contrast – skilled vs novice performer in the same sport; each student picks a sport they are familiar with

Draw or Act out – simple model of information processing

Draw – a diagram/flowchart of Welford's model of information processing

Compare & Contrast – sensory receptors

Explain – in a FlipGrid to a new athlete, the signal-detection process (limit to background noise, intensity of the stimulus, efficiency of the sense organs, early signal detection and improving signal detection)

Create – a graphic organizer to compare characteristics of different types of memory in terms of capacity, duration, retrieval

Research/Jigsaw – memory method improvement techniques

Investigation – response time lab activity after calculating times brainstorm factors that affect response time and research

Explain – a motor program from the open- and closed-loop perspective in the form of an open-ended response

Research/Jigsaw – role of feedback (intrinsic/extrinsic, knowledge of results/knowledge of performance, positive/negative, concurrent/terminal)

Compare/Contrast – with a brain buddy distinguish between learning and performing

Draw – a diagram/flowchart of the phases of learning then overlay different learning curves

Research/Jigsaw – factors that contribute to different rates of learning

Research – types of transfer (positive and negative) and identify examples of each

Compare/Contrast – different types of practice, identifying a sporting example of each

Research – types of presentation styles and identify examples (personal examples from

teachers/coaches are encouraged)

Research – types of teaching styles and identify examples (personal examples from teachers/coaches are encouraged)

Benchmark Assessments

5.1 Quiz

5.2 Quiz

5.3 Quiz

UNIT 5 TEST (comprised of Paper 1 & Paper 2 type questions)

STAGE 3- LEARNING PLAN

Instructional Map

Preview “I can” statements to identify learning objectives

Learn characteristics and classifications skill

Learn Information processing and principals of skill learning

Apply knowledge of skills and skill learning to develop a coaching plan

Practice identifying ideal means to learn a skill and with learning curves and different learning styles in mind

Review “I can” statements to self-assess knowledge

Modification/Differentiation of Instruction

Differentiation Strategies for Special Education Students

- Remove unnecessary material, words, etc., that can distract from the content
- Use of off-grade level materials
- Provide appropriate scaffolding
- Limit the number of steps required for completion
- Time allowed
- Level of independence required
- Tiered centers, assignments, lessons, or products
- Provide appropriate leveled reading materials
- Deliver the content in “chunks”
- Varied texts and supplementary materials
- Use technology, if available and appropriate
- Varied homework and products
- Varied questioning strategies
- Provide background knowledge
- Define key vocabulary, multiple-meaning words, and figurative language.
- Use audio and visual supports, if available and appropriate

- Provide multiple learning opportunities to reinforce key concepts and vocabulary
- Meet with small groups to reteach idea/skill
- Provide cross-content application of concepts
- Ability to work at their own pace
- Present ideas using auditory, visual, kinesthetic, & tactile means
- Provide graphic organizers and/or highlighted materials
- Strategy and flexible groups based on formative assessment
- Differentiated checklists and rubrics, if available and appropriate

Differentiation Strategies for Gifted and Talented Students

- Increase the level of complexity
- Decrease scaffolding
- Variety of finished products
- Allow for greater independence
- Learning stations, interest groups
- Varied texts and supplementary materials
- Use of technology
- Flexibility in assignments
- Varied questioning strategies
- Encourage research
- Strategy and flexible groups based on formative assessment or student choice
- Acceleration within a unit of study
- Exposure to more advanced or complex concepts, abstractions, and materials
- Encourage students to move through content areas at their own pace
- After mastery of a unit, provide students with more advanced learning activities, not more of the same activity
- Present information using a thematic, broad-based, and integrative content, rather than just single-subject areas

Differentiated Strategies for ELL Students

- Remove unnecessary materials, words, etc., that can distract from the content
- Provide appropriate scaffolding
- Limit the number of steps required for completion
- Gradually increase the level of independence required
- Tiered centers, assignments, lessons, or products
- Provide appropriate leveled reading materials
- Deliver the content in “chunks”
- Varied texts and supplementary materials, including visuals
- Use technology, if available and appropriate
- Differentiate homework and products
- Varied questioning strategies
- Provide background knowledge
- Define key vocabulary, multiple-meaning words, and figurative language.

- Use audio and visual supports, if available and appropriate
- Provide multiple learning opportunities to reinforce key concepts and vocabulary
- Meet with small groups to reteach idea/skill
- Provide cross-content application of concepts
- Allow students to work at their own pace
- Presenting ideas through auditory, visual, kinesthetic, & tactile means
- Role play
- Provide graphic organizers, highlighted materials
- Strategy and flexible groups based on formative assessment

Differentiation Strategies for At Risk Students

- Remove unnecessary materials, words, etc., that can distract from the content
- Provide appropriate scaffolding
- Limit the number of steps required for completion
- Gradually increase the level of independence required
- Tiered centers, assignments, lessons, or products
- Provide appropriate leveled reading materials
- Deliver the content in “chunks”
- Varied texts and supplementary materials
- Use technology, if available and appropriate
- Differentiate homework and products
- Varied questioning strategies
- Provide background knowledge
- Define key vocabulary, multiple-meaning words, and figurative language
- Use audio and visual supports, if available and appropriate
- Provide multiple learning opportunities to reinforce key concepts and vocabulary
- Meet with small groups to reteach idea/skill
- Provide cross-content application of concepts
- Presenting ideas through auditory, visual, kinesthetic, & tactile means
- Provide graphic organizers and/or highlighted materials
- Strategy and flexible groups based on formative assessment

504 Plans

Students can qualify for 504 plans if they have physical or mental impairments that affect or limit any of their abilities to:

- walk, breathe, eat, or sleep
- communicate, see, hear, or speak
- read, concentrate, think, or learn
- stand, bend, lift, or work

Examples of accommodations in 504 plans include:

- preferential seating
- extended time on tests and assignments
- reduced homework or classwork
- verbal, visual, or technology aids
- modified textbooks or audio-video materials
- behavior management support
- adjusted class schedules or grading
- verbal testing
- excused lateness, absence, or missed classwork
- pre-approved nurse's office visits and accompaniment to visits
- occupational or physical therapy

Peer Tutoring

Repeated Drill and Practice

Cooperative Grouping

Teacher notes

Use of additional reference materials

Modification Strategies

- Cooperative Grouping
- Extended Time
- Frequent Breaks
- Highlighted Text
- Interactive Notebook
- Modified Test
- Oral Directions

- Peer Tutoring
- Preferential Seating
- Re-direct
- Repeated Drill and Practice
- Shortened Assignment
- Teacher Notes
- Tutorials
- Use of Additional Reference Materials
- Use of Audio Resources

Differentiation Strategies

High Preparation

- Alternative Assessments
- Choice Boards
- Games and Tournaments
- Group Investigations
- Guided Reading
- Independent Research / Project
- Interest Groups
- Learning Contracts
- Leveled Rubrics
- Literature Circles
- Multiple Intelligence Options
- Multiple Texts
- Personal Agendas
- Project Based Learning (PBL)
- Stations / Centers
- Think-Tac-Toe
- Tiered Activities / Assignments
- Varying Graphic Organizers

Low Preparation

- Choice of Book / Activity
- Cubing Activities
- Exploration by Interest (using interest inventories)
- Flexible Grouping
- Goal Setting With Student
- Homework Options
- Jigsaw
- Mini Workshops to Re-teach or Extend Skills
- Open-ended Activities
- Think-Pair-Share by Readiness, Interest, or Learning Style
- Use of Collaboration
- Use of Reading Buddies
- Varied Journal Prompts
- Varied Product Choice
- Varied Supplemental Materials
- Work Alone / Together

Horizontal Integration- Interdisciplinary Connections

See Appendix

Vertical Integration- Discipline Mapping

9th grade – Biology
 10th grade – Chemistry
 11th grade – Anatomy & Physiology
 12th grade – Physics

Additional Materials

Sports, Exercise and Health Science by Oxford University Press (classroom set and PDF in Canvas)

