DE Exercise Science Curricular Document

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Course Information

DE Exercise Science	
CURRICULUM/CONTENT AREA	**COURSE LENGTH**
Physical Education	1 term
GRADE LEVEL	**DATE LAST REVIEWED**
10-12	2016 Program Evaluation 2023
PREREQUISITE(s) ***if applicable***	**BOARD APPROVAL DATE**
Biology and PE 9	04/2024

Desired Results

COURSE DESCRIPTION

This is an elective course designed for students considering careers in the medical field. Students will explore several concepts in the field of kinesiology related to careers in physical or occupational therapy, sports medicine, nursing, athletic training, coaching, physical education, recreation, recreational therapy, and corporate fitness. Students will study the skeletal structure and function of muscle use, efficient movement techniques, and training techniques. The course will include laboratory work and on-site field trips for first –hand health related career experiences. At the conclusion of this course, students will know the skeletal system, the major muscles of voluntary control, structure of striated muscle tissue, the physiology of muscular function, the effects of exercise on the nervous, circulatory, and cardiorespiratory systems and the overall nutritional and metabolic impact of exercise and training.

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
1. The human body is composed of many body systems that are interdependent. 2. The human body responds in a variety of ways to acute exercise.	• What are the major bones and muscles of the musculoskeletal system? • What do you know about the physiological effects of exercise on the human body?

3. During chronic exercise, the human body undergoes several physiological adaptations that influence performance. 4. Nutrition and metabolism directly impact exercise and training. 5. Personal goal-setting and fitness programs are an important component of achieving and maintaining a healthy lifestyle. 6. Exercise science is a dynamic field that continually evolves through emerging research that requires critical thinking and analysis. 7. Exercise science includes concepts that serve as the basis for many health-related careers.	• What short-term and long-term effects does exercise have on you? • How does exercise affect the systems? • How do you improve technique of a sports specific skill and prevent injury? • What is personal fitness? How fit am I? • What are the important steps to creating a training program? • What are possible careers related to the field of exercise science?

Physical Education Standards by Unit	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Standard 1: The student will demonstrate competency in a variety of motor skills and movement patterns.							
Standard 2: The student will apply knowledge of concepts, principles, strategies and tactics related to movement and performance.	x				x	x	
Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	x	x	x	x	x	x	x
Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	x	x	x	x	x	x	x
Standard 5: The student will recognize the value of physical activity for health, enjoyment, challenge, self-expression, and social interaction.			x	x	x	x	

Unit 1: Skeletal System and Structure/Function of Exercising Muscle

Topics:

A. Major bones of the skeletal system

B. Terms of skeletal movement

C. Functional anatomy of the skeletal muscle, specifically: muscle fibers (transverse tubules, sarcoplasmic reticulum, myofibrils, etc)

D. Muscle fiber types

E. Major muscles of the muscular system

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering…*

- ➔ What are the major bones and muscles of the musculoskeletal system?
- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ How do you improve technique of a sports specific skill and prevent injury?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can…*	***Level 2*** **LEARNING TARGETS:** *I can…*	***Level 3*** **LEARNING TARGETS:** *I can…*
Standard 2: The student will apply knowledge of concepts, principles, strategies and tactics related to movement and performance.	PE.S2.H1 Movement Concepts, Principles, and Knowledge PE.S2.H2 Movement Concepts, Principles, and Knowledge	PE.S2.H2.L1 • Identify terminology associated with exercise and participation in selected individual performance activities, dance, net/wall games, target games, aquatics, and outdoor pursuits appropriately.	PE.S2.H2.L2 • Use terminology associated with exercise and participation in selected individual performance activities, dance, net/wall games, target games, aquatics, and outdoor pursuits appropriately.	PE.S2.H1.L3 • Use movement concepts and principles (e.g., force, motion, rotation) to analyze and improve performance of self and others in a selected skill.
Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H1 Physical Activity Knowledge PE.S3.H6 Fitness Knowledge PE.S3.H8.L2 Fitness Knowledge	PE.S3.H2.L1 • Evaluate the validity of claims made by commercial products and programs pertaining to fitness and a healthy, active lifestyle. PE.S3.H6.L1 • Demonstrate appropriate technique of functional fitness, using body weight exercises, resistance-training, and free weights. PE.S3.H8.L1 • Identify the structure of skeletal muscles and fiber types as they relate to muscle development.	PE.S3.H1.L2 • Investigate the relationships among physical activity, nutrition, and body composition as it relates to lifetime well-being and productivity. PE.S3.H6.L2 • Compare and contrast advantages and disadvantages of functional fitness, using body weight exercises, resistance-training, and free weights. PE.S3.H8.L2 • Analyze types of strength exercises (isometric, concentric, eccentric) and stretching exercises (static, proprioceptive neuromuscular facilitation (PNF), dynamic) for personal fitness	PE.S3.H1.L3 • Develop a plan for physical activity beyond high school that relates to lifetime well-being and productivity.

			development (e.g., strength,endurance, range of motion).	
Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 ● Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 ● Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 ● Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future. PE.S4.H7.L2 ● Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 ● Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3 ● Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)

ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance-Based Task Description(s):

- ➔ Case Studies
- ➔ Article & Video Analysis
- ➔ Charts
- ➔ Labs
- ➔ Vocabulary and Concept Test
- ➔ Healthy Snack Project
- ➔ Quickwrites

The above assessment types are used to demonstrate understanding of the following:

- ◆ Compare the structures of the skeletal system and its relationship to movement.
- ◆ Compare the structures of the muscular system and its relationship to movement.
- ◆ Analyze and synthesize a gross motor movement.
- ◆ Identify the main functions and structural features of different types of muscle fibers..
- ◆ Evaluate and interpret muscle fiber type as it relates to anaerobic movement.
- ◆ Demonstrate understanding the reflex action and the involvement of the Muscle Spindles and Golgi Tendon Organs in performance.

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

- ➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log,*

etc)

- ➔ *Feedback targeted to skill student is working towards*
- ➔ *Small group or individual skill work as needed*
- ➔ *Quick write or oral discourse on essential questions or unit specific topic*
- ➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
- ➔ *Formative skills checks*
- ➔ *Key vocabulary checks*
- ➔ *peer observation & feedback*
- ➔ *Coaching students during activity - correct form, following expectations and performing tasks as expected/improving skills*
- ➔ *Positive reinforcement to application of feedback , redirection when application does not occur.*
- ➔ Case Studies, Article & Video Analysis, Charts, Labs, Vocabulary and Concept Test, Healthy Snack Project

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is played on).	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other:

Unit 2: Fuel for Exercise

Topics:
A. Nutrients (Energy Substrates)
B. The Basic Energy Systems
C. Pre and Post-Competition Meals
D. Carbohydrate loading
E. Hydration
F. Sports drinks

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering…*

- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ What short-term and long-term effects does exercise have on you?
- ➔ How does exercise affect the systems?
- ➔ What are possible careers related to the field of exercise science?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can…*	***Level 2*** **LEARNING TARGETS:** *I can…*	***Level 3*** **LEARNING TARGETS:** *I can…*
Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H7.L1 Fitness Knowledge PE.S3.H12 Nutrition	PE.S3.H7.L1 ● Relate physiological responses to individual levels of fitness and nutritional balance. PE.S3.H12.L1 ● Explore nutritional program options available to consumers and compare and contrast the impact the choice may have on oneself.	PE.S3.H7.L2 ● Identify the different energy system used in a selected physical activity (e.g. adenosine triphosphate and phosphocreatine, anaerobic glycolysis, aerobic). PE.S3.H12.L2 ● Design and implement a nutrition plan to maintain an appropriate energy balance for a healthy, active lifestyle.	PE.S3.H7.L3 ● Analyze the impact of the principle of adaptation and its relation to exercise. PE.S3.H12.L3 ● Create a snack plan for before, during, and after exercise that addresses nutrition needs for each phase.

Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 ● Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 ● Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 ● Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future. PE.S4.H7.L2 ● Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 ● Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3 ● Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)

ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance-Based Task Description(s):

- ➔ Case Studies
- ➔ Article & Video Analysis
- ➔ Charts
- ➔ Labs
- ➔ Vocabulary and Concept Test
- ➔ Healthy Snack Project

The above assessment types are used to gather evidence on the following:

- Understanding of the main nutrients, their function, and a variety of food sources.
- Analyze how nutrition affects performance.
- Determine how ATP is used for muscle contraction and demonstrate my understanding of the energy continuum.

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

- ➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log, etc)*
- ➔ *Feedback targeted to skill student is working towards*
- ➔ *Small group or individual skill work as needed*
- ➔ *Quick write or oral discourse on essential questions or unit specific topic*
- ➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
- ➔ *Formative skills checks*
- ➔ *Key vocabulary checks*

➔ *peer observation & feedback*

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is played on).	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other:

Unit 3: Energy Expenditure and Fatigue

Topics:

A. VO2Max

B. Fatigue

C. Lactate threshold

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering…*

- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ What short-term and long-term effects does exercise have on you?
- ➔ What is personal fitness? How fit am I?
- ➔ What are possible careers related to the field of exercise science?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can…*	***Level 2*** **LEARNING TARGETS:** *I can…*	***Level 3*** **LEARNING TARGETS:** *I can…*
Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H1 Physical Activity Knowledge PE.S3.H4 Physical Activity Knowledge PE.S3.H7 Fitness Knowledge	PE.S3.H4.L1 • Identify risks and safety factors that might affect physical activity preferences throughout the life cycle. PE.S3.H7.L1 • Relate physiological responses to individual levels of fitness and nutritional balance.	PE.S3.H1.L2 • Investigate the relationships among physical activity, nutrition, and body composition as it relates to lifetime well-being and productivity. PE.S3.H4.L2 • Analyze the impact of life choices, economics, motivation, and accessibility on exercise adherence and participation in physical activity beyond high school (in college or career settings). PE.S3.H7.L2 • Identify the different energy systems used in a selected physical activity (e.g., adenosine triphosphate and phosphocreatine, anaerobic glycolysis, aerobic).	PE.S3.H1.L3 • Develop a plan for physical activity beyond high school that relates to lifetime well-being and productivity. PE.S3.H7.L3 • Analyze the impact of the principle of adaptation and its relation to exercise.

Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 ● Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 ● Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 ● Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future. PE.S4.H7.L2 ● Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 ● Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3 ● Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)
Standard 5: The student will recognize the value of physical activity for health, enjoyment, challenge, self-expression, and social interaction.	PE.S5.H2 Self-awareness Self-management: Challenge and Growth Mindset		PE.S5.H2.L2 ● Recognize barriers to succeeding and identify supports to help overcome the barriers. (WSELC 11)	PE.S5.H2.L3 ● Demonstrate perseverance when dealing with challenges and diversity. (WSELC 11)

ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance-Based Task Description(s):

- ➔ Article Analysis
- ➔ Labs
- ➔ Vocabulary and Concept Test

The above assessment types are used to gather evidence on:

- ○ Understanding of how VO2Max can be a predictor of aerobic fitness and performance potential.
- ○ Estimate VO2Max by means of several field tests.
- ○ Identify and explain factors that are associated with maximal exercise performance and muscle fatigue.
- ○ Develop skills and aptitudes required for a health-related career.

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

- ➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log, etc)*
- ➔ *Feedback targeted to skill student is working towards*
- ➔ *Small group or individual skill work as needed*
- ➔ *Quick write or oral discourse on essential questions or unit specific topic*

- ➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
- ➔ *Formative skills checks*
- ➔ *Key vocabulary checks*
- ➔ *peer observation & feedback*

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is played on).	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other:

Unit 4: The Respiratory System Response to Exercise

Topics:

A. Pathway of Air

B. Gas Exchange

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering…*

- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ What short-term and long-term effects does exercise have on you?
- ➔ What is personal fitness? How fit am I?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can…*	***Level 2*** **LEARNING TARGETS:** *I can…*	***Level 3*** **LEARNING TARGETS:** *I can…*
Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H7 Fitness Knowledge PE.S3.H13 Stress Management	PE.S3.H7.L1 ● Relate physiological responses to individual levels of fitness and nutritional balance. PE.S3.H13.L1 ● Identify stress-management strategies (e.g., mental imagery, relaxation techniques, deep breathing, aerobic exercise, meditation) to reduce stress.	PE.S3.H7.L2 ● Identify the different energy systems used in a selected physical activity (e.g., adenosine triphosphate and phosphocreatine, anaerobic glycolysis, aerobic). PE.S3.H13.L2 ● Apply stress-management strategies (e.g., mental imagery, relaxation techniques, deep breathing, aerobic exercise, meditation) to reduce stress.	PE.S3.H7.L3 ● Analyze the impact of the principle of adaptation and its relation to exercise.
Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 ● Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 ● Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 ● Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future. PE.S4.H7.L2 ● Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 ● Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3

				• Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)
Standard 5: The student will recognize the value of physical activity for health, enjoyment, challenge, self-expression, and social interaction.	PE.S5.H2 Self-awareness Self-management: Challenge and Growth Mindset		PE.S5.H2.L2 • Recognize barriers to succeeding and identify supports to help overcome the barriers. (WSELC 11)	PE.S5.H2.L3 • Demonstrate perseverance when dealing with challenges and diversity. (WSELC 11)

ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance-Based Task Description(s):

- ➔ Charts
- ➔ Technique Analysis
- ➔ Labs
- ➔ Vocabulary and Concept Test

The above assessment types are used to gather evidence on:

- ○ Demonstrate understanding of the basic structure and function of the lung and how it relates to the respiratory system.
- ○ Explore how negative feedback regulations of CO2 and O2 influence the rate and depth of breathing.

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

- ➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log, etc)*
- ➔ *Feedback targeted to skill student is working towards*
- ➔ *Small group or individual skill work as needed*
- ➔ *Quick write or oral discourse on essential questions or unit specific topic*
- ➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
- ➔ *Formative skills checks*
- ➔ *Key vocabulary checks*
- ➔ *peer observation & feedback*

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.

played on).		
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other:

Unit 5: The Cardiovascular System Response to Exercise

Topics:

A. Heart

B. Circulation

C. Blood Vessels

D. Blood

E. Blood Pressure

F. Heart Rate (Pulse)

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering...*

- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ What short-term and long-term effects does exercise have on you?
- ➔ How does exercise affect the systems?
- ➔ What is personal fitness? How fit am I?

UNIT PRIORITY STANDARDS: *Students will know and be able to...*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can...*	***Level 2*** **LEARNING TARGETS:** *I can...*	***Level 3*** **LEARNING TARGETS:** *I can...*
Standard 2: The student will apply knowledge of concepts, principles, strategies and tactics related to movement and performance.	PE.S2.H2 Movement Concepts, Principles, and Knowledge	PE.S2.H2.L1 ● Identify terminology associated with exercise and participation in selected individual performance activities, dance, net/wall games, target games, aquatics, and outdoor pursuits appropriately.	PE.S2.H2.L2 ● Use terminology associated with exercise and participation in selected individual performance activities, dance, net/wall games, target games, aquatics, and outdoor pursuits appropriately.	
Standard 3: The student will demonstrate the knowledge and skills	PE.S3.H1 Physical Activity Knowledge	PE.S3.H1.L1 ● Discuss the benefits of a physically active lifestyle as it relates to lifetime well-being and productivity.	PE.S3.H1.L2 ● Investigate the relationships among physical activity, nutrition, and body composition as it relates to lifetime well-being	PE.S3.H7.L3 ● Analyze the impact of the principle of adaptation and its relation to exercise.

to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H1 Physical Activity Knowledge PE.S3.H7 Fitness Knowledge	PE.S3.H3.L1 • Identify issues associated with exercising in heat, humidity, and cold. PE.S3.H7.L1 • Relate physiological responses to individual levels of fitness and nutritional balance.	and productivity. PE.S3.H7.L2 • Identify the different energy systems used in a selected physical activity (e.g., adenosine triphosphate and phosphocreatine, anaerobic glycolysis, aerobic).	
Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 • Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 • Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 • Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future. PE.S4.H7.L2 • Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 • Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3 • Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)
Standard 5: The student will recognize the value of physical activity for health, enjoyment, challenge, self-expression, and social interaction.	PE.S5.H4 Self-expression and Enjoyment PE.S5.H5 Social Interaction	PE.S5.H4.L1 • Explore and participate in enjoyable activities that promote individual self-expression in a variety of environments and seasons (e.g., indoor/outdoor/water/snow/ice). PE.S5.H5.L1 • Identify verbal, physical, and environmental cues to help and encourage others in various physical Activities.	PE.S5.H4.L2 • Select and participate in enjoyable activities that promote individual self-expression in a variety of environments and seasons (e.g., indoor/outdoor/water/snow/ice). PE.S5.H5.L2 • Apply verbal, physical, and environmental cues to express emotions in a positive manner during various physical activities.	PE.S5.H4.L3 • Create, participate in, and modify physical activities or dance to meet the need for self-expression and enjoyment in a variety of environments and seasons (e.g., indoor/outdoor/water/snow/ice). PE.S5.H5.L3 • Model verbal, physical, and environmental cues to express emotions and help others in a positive manner during various physical activities.

ASSESSMENT EVIDENCE

Performance is evaluated in terms of... Students will show their learning by...

Performance-Based Task Description(s):

- ➔ Charts
- ➔ Article Analysis
- ➔ Human Heart Rate Experiment
- ➔ Labs
- ➔ Vocabulary and Concept Test

The above assessment types are used to gather evidence on…

- ◆ Explain a variety of ways the cardiovascular system and respiratory system respond to acute and chronic exercise.
- ◆ Explain the role the cardiovascular system plays in guaranteeing an adequate blood supply.
- ◆ Explain how the human heart rate responds to a variety of activity/stimuli.
- ◆ Decide how much data is needed to produce reliable measurements and consider any limitations on the precision of the data.
- ◆ Analyze data systematically, to test whether data is consistent with a hypothesis.
- ◆ Evaluate the strength of the conclusion that can be inferred from any data set.

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

- ➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log, etc)*
- ➔ *Feedback targeted to skill student is working towards*
- ➔ *Small group or individual skill work as needed*
- ➔ *Quick write or oral discourse on essential questions or unit specific topic*
- ➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
- ➔ *Formative skills checks*
- ➔ *Key vocabulary checks*
- ➔ *peer observation & feedback*

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is played on).	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other:

Unit 6: Principles of Exercise Training

Topics:

A. Components of Fitness

B. Muscle Spindles and Golgi Tendon Organs

C. Training Principles

D. Types of Resistance Training

E. Types of Anaerobic and Aerobic Training

F. Rate of Perceived Exertion

G. Target Heart Rate

H. FITT Principle

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering…*

- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ What short-term and long-term effects does exercise have on you?
- ➔ How does exercise affect the systems?
- ➔ What is personal fitness? How fit am I?
- ➔ What are the important steps to creating a training program?
- ➔ What are possible careers related to the field of exercise science?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can…*	***Level 2*** **LEARNING TARGETS:** *I can…*	***Level 3*** **LEARNING TARGETS:** *I can…*
Standard 2: The student will apply knowledge of concepts, principles, strategies and tactics related to movement and performance.	PE.S2.H2 Movement Concepts, Principles, and Knowledge	PE.S2.H2.L1 • Identify terminology associated with exercise and participation in selected individual performance activities, dance, net/wall games, target games, aquatics, and outdoor pursuits appropriately.	PE.S2.H2.L2 • Use terminology associated with exercise and participation in selected individual performance activities, dance, net/wall games, target games, aquatics, and outdoor pursuits appropriately.	

Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H1 Physical Activity Knowledge PE.S3.H4 Physical Activity Knowledge PE.S3.H8 Fitness Knowledge PE.S3.H9 Fitness Knowledge: Cardio-respiratory PE.S3.H11 Assessment and Program Planning	PE.S3.H1.L1 ● Discuss the benefits of a physically active lifestyle as it relates to lifetime well-being and productivity. PE.S3.H9.L1 ● Calculates heart rate training zones using different heart rate formulas (220-age, Karvonen, and other evidence-based formulas), and uses zones to explore how various physical activities impact heart rate. PE.S3.H11.L1 ● Identify the components of skill-related fitness and health-related fitness in relation to life and career goals.	PE.S3.H1.L2 ● Investigate the relationships among physical activity, nutrition, and body composition as it relates to lifetime well-being and productivity. PE.S3.H4.L2 ● Analyze the impact of life choices, economics, motivation, and accessibility on exercise adherence and participation in physical activity beyond high school (in college or career settings). PE.S3.H8.L2 ● Analyze types of strength exercises (isometric, concentric, eccentric) and stretching exercises (static, proprioceptive neuromuscular facilitation (PNF), dynamic) for personal fitness development (e.g., strength, endurance, range of motion). PE.S3.H9.L2 Uses personalized target heart rate zones to create and implement a plan to meet target heart rate goals using various physical activities. PE.S3.H11.L2 ● Analyze the components of skill-related fitness and health-related fitness in relation to life and career goals, and employ fitness principles (SPORT, FITT, HIIT, and SAID) to design an appropriate fitness program for those goals.	PE.S3.H1.L3 ● Develop a plan for physical activity beyond high school that relates to lifetime well-being and productivity. PE.S3.H4.L3 ● Create a plan for physical activity participation based on personal life choices, economics, motivation, and accessibility in a college or career setting. PE.S3.H8.L3 ● Design a fitness workout focusing on strength exercises (isometric, concentric, eccentric) and stretching exercises (static, proprioceptive neuromuscular facilitation (PNF), dynamic) for a specific area of personal fitness development (e.g., strength, endurance, range of motion). PE.S3.H9.L3 Apply fitness principles (SPORT, FITT, HIIT, and SAID) and personalized heart rate zones to evaluate and critique progress towards physical activity goals encompassing multiple components of fitness. PE.S3.H11.L3 ● Apply fitness principles (SPORT, FIT, HIIT, and SAID) in designing a fitness program, including all components of skill-related fitness and health-related fitness, for

				a college student or an employee in the learner's chosen field of work.
Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 ● Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 ● Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 ● Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future PE.S4.H7.L2 ● Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 ● Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3 ● Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)
Standard 5: The student will recognize the value of physical activity for health, enjoyment, challenge, self-expression, and social interaction.	PE.S5.H4 Self-expression and Enjoyment PE.S5.H5 Social Interaction	PE.S5.H4.L1 ● Explore and participate in enjoyable activities that promote individual self-expression in a variety of environments and seasons (e.g., indoor/outdoor/water/snow/ice).	PE.S5.H4.L2 ● Select and participate in enjoyable activities that promote individual self-expression in a variety of environments and seasons (e.g., indoor/outdoor/water/snow/ice). PE.S5.H5.L2 ● Apply verbal, physical, and environmental cues to express emotions in a positive manner during various physical activities.	PE.S5.H4.L3 ● Create, participate in, and modify physical activities or dance to meet the need for self-expression and enjoyment in a variety of environments and seasons (e.g., indoor/outdoor/water/snow/ice). PE.S5.H5.L3 ● Model verbal, physical, and environmental cues to express emotions and help others in a positive manner during various physical activities.

ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance-Based Task Description(s):

- ➔ Formative: Article Analysis
- ➔ Formative: Charts
- ➔ Summative: Labs
- ➔ Summative: Design Fitness Program

The above assessment types are used to gather evidence on:

- Identify and describe the health-related components of physical fitness (cardiorespiratory endurance, muscular strength and endurance, flexibility, body composition) as well as skill related fitness (agility, balance, power, reaction time, coordination and speed).
- Utilize strategies to facilitate behavior changes and promote exercise adherence by creating a personal fitness plan.

Success Criteria Rubrics

➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log, etc)*
➔ *Feedback targeted to skill student is working towards*
➔ *Small group or individual skill work as needed*
➔ *Quick write or oral discourse on essential questions or unit specific topic*
➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
➔ *Formative skills checks*
➔ *Key vocabulary checks*
➔ *peer observation & feedback*

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is played on).	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other:

Unit 7: Current Trends and Topics in Exercise Science

Topics:

A. Determined by student interest

UNIT DESIRED RESULTS

UNIT ESSENTIAL QUESTION: *In this unit, students will keep considering…*

- ➔ What do you know about the physiological effects of exercise on the human body?
- ➔ What short-term and long-term effects does exercise have on you?
- ➔ What is personal fitness? How fit am I?
- ➔ What are possible careers related to the field of exercise science?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*	**LEARNING PRIORITY**	***Level 1*** **LEARNING TARGETS:** *I can…*	***Level 2*** **LEARNING TARGETS:** *I can…*	***Level 3*** **LEARNING TARGETS:** *I can…*
Standard 3: The student will demonstrate the knowledge and skills to achieve a health-enhancing level of physical activity and fitness.	PE.S3.H1 Physical Activity Knowledge PE.S3.H4 Physical Activity Knowledge	PE.S3.H1.L1 ● Discuss the benefits of a physically active lifestyle as it relates to lifetime well-being and productivity. PE.S3.H4.L1 ● Identify risks and safety factors that might affect physical activity preferences throughout the life cycle.	PE.S3.H1.L2 ● Investigate the relationships among physical activity, nutrition, and body composition as it relates to lifetime well-being and productivity. PE.S3.H4.L2 ● Analyze the impact of life choices, economics, motivation, and accessibility on exercise adherence and participation in physical activity beyond high school (in college or career settings).	●
Standard 4: The student will exhibit responsible personal and social behavior that respects self and others.	PE.S4.H6 Relationship Skills: Conflict Resolution PE.S4.H7 Decision-making	PE.S4.H6.L1 ● Use communication skills and strategies that promote positive outcomes. PE.S4.H7.L1 ● Apply decision-making steps with consideration of well-being for self and others.	PE.S4.H6.L2 ● Analyze personal role in a conflict to resolve differences and promote positive outcomes in the future. PE.S4.H7.L2 ● Evaluate decisions and analyze various factors that inform decision-making.	PE.S4.H6.L3 ● Apply strategies to consistently resolve conflicts in a variety of settings (e.g.,school, work, community, and personal relationships). (WSELC 19) PE.S4.H7.L3 ● Exhibit decision-making skills that promote a positive well-being and environment.(WSELC 20)

ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance-Based Task Description(s):

- ➔ Formative: Article & Video Analysis
- ➔ Formative: Socratic Seminars

The above assessment types are used to gather evidence on:

- Formulate opposing viewpoint responses on a controversial topic involved in sports science by:
  - Analyzing media
  - Citing evidence that supports my opinion
  - Listing evidence that oppose my opinion
  - Convey my viewpoint in a discussion using specific evidence to support my response

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback.

Key Assessment Strategies to inform Feedback & Instruction:

- ➔ *Goal-setting, self-assessment & reflection unit skills and life-long fitness plan (game play analysis, nutrition analysis tasks, daily fitness log, etc)*
- ➔ *Feedback targeted to skill student is working towards*
- ➔ *Small group or individual skill work as needed*
- ➔ *Quick write or oral discourse on essential questions or unit specific topic*
- ➔ *Analysis and reflection on fitness assessment data (e.g.- heart rate),*
- ➔ *Formative skills checks*
- ➔ *Key vocabulary checks*
- ➔ *peer observation & feedback*

Strategies for Varied Level Learners

☐ Vary equipment & environment (i.e.-net height, speed, size of ball, field game is played on).	☐ Vary activities and assessment methods.	☐ Vary the activity/exercise length of time or intensity.e.
☐ Vary level of prompting, communication method, or reflection questioning used.	☐ Vary goal creation, self assessments, and fitness plan.	☐ Establish clear expectations and vary reinforcement.
☐ Vary method of recording physical activity.	☐ Vary interactions and group makeup.	☐ Other: