

SPRING GROVE AREA SCHOOL DISTRICT

PLANNED COURSE OVERVIEW



Course Title: Strength Training for Sports Level 2 Spring Length of Course: 15 cycles

Grade Level(s): 10 - 12 Periods Per Cycle: 6

Units of Credit: .50 Length of Period: 43 minutes

Classification: Elective Total Instructional Time: 64 hours

Course Description

Strength Training for Sports Level 2 is a course designed to build on skills learned in level 1 class. During this class, students expand on personal fitness program development. This course will emphasize sport specific training and require that students perform various cardiovascular and strength training techniques during class meetings. Students learn advanced biological and anatomical principles through classroom experiences. Level 2 students use prior program design early in this course to develop personalized programs for physical performance improvements. Participants have altered days of strength/endurance and speed/agility training. Students spend most class times in active sports specific training.

Instructional Strategies, Learning Practices, Activities, and Experiences		
Development of Personalized Program Prescription of Exercise Technique Summary of Data	Internet Weight and Cardio Equipment Fitness Technology	Demonstration/Evaluation of Performance Application of Scientific Research
	Assessments	
Journals Test/Quiz	Physical Testing Article Reviewed Summary	Video and Audio Documentation
	Materials/Resources	
Books	Videos	

Adopted: 5/16/16 **Revised:** 10/2020

Departmental Review: 10/2017; 10/2018

Understanding Health-Related Fitness and Wellness	
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Understand the five components of fitness	10.3.12.D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities.
Use performance test to develop baseline data of present levels of fitness	10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.
Develop basic protocols to improve overall fitness levels and examine sport specific skills of fitness	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
Naval Academy Fitness Level Evaluation	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.
Related Vocabulary	10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults.
cardiovascular endurance flexibility muscular strength muscular endurance	10.4.12.E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.
agility	10.4.12.F - Assess and use strategies for enhancing adult group interaction in physical activities.
speed balance coordination	10.5.12.A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
spotting goal setting overtraining	10.5.12.B - Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.
periodization	10.5.12.C - Evaluate the impact of practice strategies on skill development and improvement.
	10.5.12.D - Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.
	10.5.12.E - Evaluate movement forms for appropriate application of scientific and biomechanical principles.

Personalized Program Design	T
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Overload principle	10.3.12.B - Analyze and apply strategies for the management of injuries.
Principle of progression	10.3.12.D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities.
Principle of reversibility Components of the exercise prescription	10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.
Develop an exercise program tailored to meet the objectives of the individual while considering the	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
individuals age, health, fitness status, musculoskeletal condition and body composition	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.
Establish the minimum levels of physical activity required to achieve some of the health benefits of	10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults.
exercise	10.4.12.E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.
Related Vocabulary overload	10.4.12.F - Assess and use strategies for enhancing adult group interaction in physical activities.
progression reversibility warm-up	10.5.12.A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
cool down exercise goals	10.5.12.B - Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.
modes of exercise fitness status	10.5.12.C - Evaluate the impact of practice strategies on skill development and improvement.
musculoskeletal condition body composition exercise threshold	10.5.12.D - Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.
exercise the short exercise prescription individualized recuperation	10.5.12.E - Evaluate movement forms for appropriate application of scientific and biomechanical principles.

Cardiorespiratory Fitness			
CONTENT/KEY CONCEPTS	Objectives/Standards		
Understand the benefits of cardiorespiratory fitness Lower risk of disease Reduce risk of type II diabetes Lower blood pressure Increased bone density Increased energy Increased feeling of well-being Improved self-esteem Increased muscle tone and endurance Easier weight control Improved sleep	 10.3.12.D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities. 10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation. 10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities. 10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity. 10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults. 		
Adenosine triphosphate (ATP) – Required for muscular contraction, can be produced by two systems • Anaerobic • Aerobic	10.4.12.E ~ Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities. 10.4.12.F ~ Assess and use strategies for enhancing adult group interaction in physical activities.		
Definine cardiorespiratory system Understand cardiac output, systolic blood pressure, and heart rate increase as a function of exercise intensity Understand initial health status for improving present	 10.5.12.A ~ Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation. 10.5.12.B ~ Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills. 		
levels of fitness Understand three phases of cardiorespiratory fitness Starter phase Low progression phase Maintenance phase	10.5.12.C ~ Evaluate the impact of practice strategies on skill development and improvement. 10.5.12.D ~ Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use. 10.5.12.E ~ Evaluate movement forms for appropriate application of scientific and biomechanical principles. 10.5.12.F ~ Analyze the application of game strategies for different categories of physical activities.		

CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS	
Understanding that aerobic exercise results in improvement of cardiorespiratory fitness and muscular endurance that can result in reduction in percent of body fat		
Related Vocabulary aerobic anaerobic cardiorespiratory fitness cardiovascular fitness blood pressure adenosine triphosphate (ATP) diabetes systolic blood pressure heart rate circulatory system VO ₂ max (maximal oxygen consumption) muscular contraction muscular endurance muscular strength		

Strength Training	
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Strength training can Reduce low back pain	10.3.12.D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities.
Reduce the incidence of exercise-related injuries	10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.
 Decrease the incidence of osteoporosis Aid in the maintenance of functional capacity 	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
Muscular Strength – the amount of weight that an individual can lift during one maximal effort	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.
Skeletal Muscles	10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults.
 attached by bones by tendons Muscular contraction results in the tendons pulling on the bone, causing movement 	10.4.12.E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.
Two primary physiological factors determine the amount	10.4.12.F – Assess and use strategies for enhancing adult group interaction in physical activities.
of force that can be generated by a muscle	10.5.12.A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
Muscle Size – increased primarily because of an increase in fiber size (hypertrophy)	10.5.12.B – Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.
Research has shown that strength training can also	10.5.12.C – Evaluate the impact of practice strategies on skill development and improvement.
promote the formation of new muscle fibers (hyperplasia).	10.5.12.D – Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.
Overload Principal – a muscle will increase in strength and/or endurance only when it works against a	10.5.12.E – Evaluate movement forms for appropriate application of scientific and biomechanical principles.
workload such as free weights or weight machines	10.5.12.F – Analyze the application of game strategies for different categories of physical activities.

CONTENT/KEY CONCEPTS	Objectives/Standards
Isokinetic Exercises – require use of machines that govern the speed of movement during the muscle contraction throughout the range of motion Strength training programs • Starter phase	
Slow progression phaseMaintenance phase	
Related Vocabulary muscular strength muscular endurance muscle fiber contraction tendon bone muscles of the human body isometric isokinetic isokonic hypertrophy hyperplasia free weight	

Flexibility	
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Flexibility – the range of motion of a joint	10.3.12. D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities.
Improved flexibility results in Increased joint mobilityPrevention of low back pain problems	10.4.12. A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.
Efficient body movementImproved posture	10.4.12. B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
Personal appearance Five structural and physiological limits to flexibility	10.4.12. C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.
BoneMuscle structures within the joint capsule	10.4.12. D - Evaluate factors that affect physical activity and exercise preferences of adults.
 Tendons that connect muscle to bones Connective tissue that surrounds joints and skin 	10.4.12. E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.
If muscle spindles are suddenly stretched, they respond	10.4.12. F - Assess and use strategies for enhancing adult group interaction in physical activities.
by initiating a stretch reflex that causes the muscle to contract. However, if muscles and tendons are stretched slowly, the stretch reflex can be avoided.	10.5.12. A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
Static vs. Dynamic	10.5.12. B - Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.
Proprioceptive neuromuscular facilitation (PNF) combines stretching with alternative contraction and	10.5.12. C - Evaluate the impact of practice strategies on skill development and improvement.
relaxation of muscles to improve flexibility. Functional movement screening	10.5.12. D - Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.
T distribution of contrag	10.5.12. E - Evaluate movement forms for appropriate application of scientific and biomechanical principles.
	10.5.12. F - Analyze the application of game strategies for different categories of physical activities.

CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS	
Related Vocabulary		
flexibility		
oint		
posture		
static		
dynamic pallistic		
proprioceptive neuromuscular facilitation (PNF)		
mobility		
reflex		
functional movement systems (FMS)		

Nutrition and Fitness	
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Nutrition - The study of food and its relationship to health and disease	10.1.12.A - Evaluate factors that impact growth and development during adulthood and late adulthood.
	10.1.12.B - Evaluate factors that impact the body systems and apply protective/preventive strategies.
A well-balanced diet - composed of a variety of nutrients	10.1.12.C - Analyze factors that impact nutritional choices of adults.
The basic goals of developing good nutritional habits are to maintain ideal body weight.	10.1.12.E - Identify and analyze factors that influence the prevention and control of health problems.
, ,	10.2.12.A - Evaluate health care products and services that impact adult health practices.
Intensity of exercise dictates the relative proportions of fat and carbohydrates that are consumed as fuel during exercise. The lower the intensity of the exercises, the	10.2.12.B - Assess factors that impact adult health consumer choices.
more fat is used as fuel; the greater the intensity, the	10.2.12.D - Examine and apply a decision-making process to the development of short and long-term health goals.
more carbohydrates are used as fuel.	10.2.12.E - Analyze the interrelationship between environmental factors and community health.
Related Vocabulary nutrient	10.3.12.D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities.
carbohydrate fat	10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.
water protein supplement	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
calorie vitamin diet	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.

Fitness Activities	
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Specific exercises that build cardiorespiratory endurance	10.3.12.D - Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities. 10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal
Specific exercises/workouts that build muscular strength and endurance	fitness and activity goals and promotes life-long participation.
Specific exercises that increase flexibility	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
How to combine exercise to develop a cross-training program working on all forms of health related fitness	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.
Related Vocabulary	10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults.
free weight movement exercises • bench press • squat	10.4.12.E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.
cleancurl	10.4.12.F - Assess and use strategies for enhancing adult group interaction in physical activities.
 military press weight loaded matching exercises 	10.5.12.A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
chest pressoverhead pressleg extension	10.5.12.B - Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.
 leg curl body weight exercises 	10.5.12.C - Evaluate the impact of practice strategies on skill development and improvement.
pull upsit-upknee raise	10.5.12.D - Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.
	10.5.12.E - Evaluate movement forms for appropriate application of scientific and biomechanical principles.
	10.5.12.F - Analyze the application of game strategies for different categories of physical activities.

CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS	
cardiorespiratory endurance machines		
• treadmill		
stationary bike		
• rower		
arc trainer		
elliptical		
olyometric exercises		
dumb bell		
barbell		
target heart rate		

CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Specific programs presently advertised through popular media	10.2.12.A - Evaluate health care products and services that impact adult health practices. 10.2.12.B - Assess factors that impact adult health consumer choices.
Examine cost vs. effectiveness	·
Explore data support of specific popular programs	10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.
Related Vocabulary Power 90 Extreme (P90X)	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.
cost effectiveness ` interval training medicine ball	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.
kettle bell stability ball	10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults.
resistance bands yoga pilates	10.4.12.E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.
insanity training TRX training aids	10.4.12.F - Assess and use strategies for enhancing adult group interaction in physical activities.
· ·	10.5.12.A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
	10.5.12.B - Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.
	10.5.12.C - Evaluate the impact of practice strategies on skill development and improvement.
	10.5.12.D - Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.
	10.5.12.E - Evaluate movement forms for appropriate application of scientific and biomechanical principles.
	10.5.12.F - Analyze the application of game strategies for different categories of physical activities.

Sport Specific Training Programming and Practice		
CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS	
Sport specific exercises and movements should be incorporated into fitness programming.	10.4.12.A - Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.	
Adapt programming to meet the needs of in-season competitions	10.4.12.B - Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities.	
Cycling to prevent plateauing - how to best modify a rogram over time	10.4.12.C - Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.	
Develop bench marks for improvement.	10.4.12.D - Evaluate factors that affect physical activity and exercise preferences of adults.	
Goal setting with sport specific testing protocols	10.4.12.E - Analyze the interrelationships among regular participation in physical activity, motor skill improvement and the selection and engagement in lifetime physical activities.	
Related Vocabulary		
sport or activity choice	10.4.12.F - Assess and use strategies for enhancing adult group interaction in physical activities.	
speed		
agility	10.5.12.A - Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate	
coordination	physical activities that promote personal lifelong participation.	
strength		
endurance	10.5.12.B - Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor	
body composition	skills.	
overload		
progression	10.5.12.C - Evaluate the impact of practice strategies on skill development and improvement.	
plateau		
reps	10.5.12.D - Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related	
sets	fitness components to create a fitness program for personal use.	
movement type		
frequency	10.5.12.E - Evaluate movement forms for appropriate application of scientific and biomechanical principles.	
intensity		
time	10.5.12.F - Analyze the application of game strategies for different categories of physical activities.	
volume		
pacing		
overtraining		