

Boonton School District

Course Title:	Exercise Science and Sports Nutrition	Grade Level(s):	11-12		
Curriculum Area / Level:	Science, Health Science, Physical education	Credits:	5		
Course prerequisites and/or co-requisites:	N/A				
Course Description:	<p>Exercise Science and Nutrition is a full-year course designed and implemented to teach high school juniors and seniors various topics of nutrition and sports science. This class caters to students that may be interested in entering a career field that works with and around athletes, analysis of athletic performance and/or diet and nutrition. This class will cover the broad spectrums of Nutrition and Exercise Science through specific components of nutrients and their effects in the human body, exercise, careers, injury/injury prevention, anatomy and physiology, medical terminology, and performance enhancement. Students will learn up-to-date requirements and recommendations for healthy living, using a variety of teaching tools and methods.</p>				
Created by:	Devon Engelberger	Date:	August 2016	BOE Approval:	9/26/16
District Equity Statement:	<p>As required by state law, it is the policy of Boonton School District not to discriminate on the basis of race, color, creed, religion, sex, ancestry, national origin, social or economic status, pregnancy, or physical handicap in its educational programs or activities and to maintain a learning environment that is free from sexual harassment. Courses of study and instructional materials shall be designed and selected in order to eliminate discrimination and promote understanding, sex equity, and mutual respect among people. No course offering, including but not limited to physical education, health, technology education, vocational, home economics, music and adult education, shall be limited on the basis of race, color, creed, religion, sex, ancestry, national origin, social or economic status, pregnancy, or physical handicap. Furthermore, there shall be no discrimination against students as to any educational activity or program because of pregnancy, childbirth, pregnancy-related disabilities, actual or potential parenthood, or family or marital status. If a student requests to be excluded or a physician certifies that such is necessary for her physical, mental, or emotional well-being, she must be provided with adequate and timely opportunity for instruction to continue or make up her schoolwork without prejudice or penalty.</p>				

Division of Umbrella & Mini Units

Umbrella Unit 1 Topic / Name: Food and Nutrients and the Human Body

Mini Unit(s) *(Add to the list of mini units as necessary)*

1A. Nutrition and Nutrients

1B. Influences and Choices

1C. Guideline and Food Labels

Umbrella Unit 2 Topic / Name: Nutrition and Culture

Mini Unit(s) *(Add to the list of mini units as necessary)*

2A. BMI and Obesity

2B. Fad Diets and Cultural Trends

2C. Marketing Techniques and Lunch Programs

Umbrella Unit 3 Topic / Name: Anatomy and Physiology

Mini Unit(s) *(Add to the list of mini units as necessary)*

3A. Body Systems and Organs

3B. Movements

3C. Injuries (Prevention, Repair)

Umbrella Unit 4 Topic / Name: Exercise Science and Sport

Mini Unit(s) *(Add to the list of mini units as necessary)*

4A. Careers

4B. Sport, Performance Enhancement and Steroids

4C. Weight Training, Cardio and Heart Rate

UMBRELLA UNIT 1	
Title:	Food, Nutrients and the Human Body
Duration:	8 Weeks
Essential Questions:	<p>How are food choices influenced by culture and tradition? What drives our food choices?</p> <p>What is nutrition and why is good nutrition important?</p> <p>What are the essential nutrients and why do we need them?</p> <p>What role does family, culture and media have on food choices?</p> <p>How can following dietary guidelines affect the body positively and negatively?</p> <p>Why is it important for children to learn and understand healthy eating habits at a young age?</p> <p>How can you obtain accurate nutrition information?</p> <p>What are dietary reference intakes and dietary guidelines?</p> <p>What is a food label, what information does it provide and why is it important?</p>
Summative Assessments: (Assessment at the end the learning period)	Benchmark Post Test covering nutrients, jobs and food sources, guidelines and Dietary Standards
Formative Assessments: (Ongoing assessments during the learning period)	<p>3 quizzes</p> <p>3 current events (relating to corresponding units)</p> <p>Week Food Journal</p> <p>Food Label Analysis</p>
Differentiation:	<p>Incorporate computers into lessons for students that thrive with technology.</p> <p>Provide alternate assessments for students that struggle with material/language</p> <p>Allow students to type assignments rather than handwrite.</p> <p>Make extra-credit assignments available</p>

	<p>Allow extra time for quizzes and long term assignments</p> <p>Allow for group work and partners if individuals find subject matter too challenging</p> <p>Spread lesson material; out over longer period of time (extra days) to gain best feedback</p>	
TECHNOLOGY STANDARD (STANDARD 8)		
CPI #	CUMULATIVE PROGRESS INDICATOR (CPI)	
8.1.12.C.1	Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.	
21ST CENTURY LIFE AND CAREER (STANDARD 9)		
CPI #	CUMULATIVE PROGRESS INDICATOR (CPI)	
9.1.12.E.5	Evaluate business practices and their impact on individuals, families, and societies.	
9.2.12.C.3	Identify transferable career skills and design alternate career plans.	
9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business	
9.3.12.AG.1	Analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster.	
9.3.12.AG.5	Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.	
9.3.12.AG.6	Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.	

MINI UNIT 1A		
Title:	Nutrition and Nutrients	
Duration:	15 days	
Overview:	Students will have a strong understanding of the 6 essential nutrients, what foods they are found in, and what they do for the body. Course will cover best ways to take in each nutrient and explore side effects of a diet lacking in particular nutrients such as water and proteins.	
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards	
What each of the essential nutrients provide the body	2.1.12.B.3 Analyze the unique contributions of each nutrient class (fats, carbohydrates, protein, water, vitamins, and minerals) to one's health.	
What is difference between digestion and metabolism	2.1.6.A.2 Relate how personal lifestyle habits, environment, and heredity influence growth and development in each life stage.	
What are common digestive disorders	2.1.12.C.1 Determine diseases and health conditions that may occur during one's lifespan and identify prevention and treatment strategies.	
The difference between simple and complex carbohydrates	2.1.6.B.2 Summarize the benefits and risks associated with nutritional choices, based on eating patterns.	
What happens to the fat you eat?	2.1.6.B.2 Summarize the benefits and risks associated with nutritional choices, based on eating patterns.	
What are protein-rich food sources?	2.1.2.B.1 Explain why some foods are healthier to eat than others.	

Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
How to get each nutrient throughout a balanced diet	<p style="text-align: center;">2.1.2.B.2</p> <p style="text-align: center;">Explain how foods on MyPlate differ in nutritional content and value.</p>
How can you improve/speed up metabolism	<p style="text-align: center;">2.1.8.A.2</p> <p style="text-align: center;">Compare and contrast the impact of genetics, family history, personal health practices, and environment on personal growth and development in each life stage.</p>
How should you get your vitamins?	<p style="text-align: center;">2.1.2.B.2</p> <p style="text-align: center;">Explain how foods on MyPlate differ in nutritional content and value.</p>
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
How can you supplement various nutrients in a diet?	<p style="text-align: center;">2.1.8.A.3</p> <p style="text-align: center;">Relate advances in technology to maintaining and improving personal health.</p>
How can you decrease your risk of heart disease?	<p style="text-align: center;">2.1.12.A.1</p> <p style="text-align: center;">Analyze the role of personal responsibility in maintaining and enhancing personal, family, community, and global wellness.</p>
What is best way to re-hydrate?	<p style="text-align: center;">2.6.8.A.4</p> <p style="text-align: center;">Determine ways to achieve a healthy body composition through healthy eating, physical activity, and other lifestyle behaviors.</p>
Resources Mini Unit 1A:	<i>Nutrition and You</i> book

MINI UNIT 1B	
Title:	Influence and Choices
Duration:	10 days
Overview:	Students will look into and analyze what things influences the choices people make when deciding what and when to eat.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
Analyze ways and reasons we chose the food we eat?	2.1.8.B.1 Analyze how culture, health status, age, and eating environment influence personal eating patterns and recommend ways to provide nutritional balance.
What drives food choices?	
What are effects on energy balance?	2.1.12.B.1 Determine the relationship of nutrition and physical activity to weight loss, weight gain, and weight maintenance.
What are food choices influenced by culture and tradition?	2.1.8.B.1 Analyze how culture, health status, age, and eating environment influence personal eating patterns and recommend ways to provide nutritional balance.
What role does family, peers and media have on choices?	2.1.8.B.1 Analyze how culture, health status, age, and eating environment influence personal eating patterns and recommend ways to provide nutritional balance.
Who is responsible for keeping our foods safe?	2.1.12.C.2 Develop strategies that will impact local, state, national, and international public health efforts to prevent and control diseases and health conditions.
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards

How can you balance calories taken and calories used?	<p style="text-align: center;">2.1.12.B.1 Determine the relationship of nutrition and physical activity to weight loss, weight gain, and weight maintenance.</p>
How can you determine energy needs?	
Create a balance chart for calories taken in and calories burned	
Take action to address food-related issues in your own life	<p style="text-align: center;">2.1.12.C.2 Develop strategies that will impact local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
How are nutritional needs different for adolescents than adults?	<p style="text-align: center;">2.1.12.B.2 Compare and contrast the dietary trends and eating habits of adolescents and young adults in the United States and other countries.</p>
Why would someone chose to be a vegetarian/vegan?	<p style="text-align: center;">2.1.12.B.2 Compare and contrast the dietary trends and eating habits of adolescents and young adults in the United States and other countries.</p>
How does cost and efficiency drive our food choices?	<p style="text-align: center;">2.1.6.B.1 Determine factors that influence food choices and eating patterns.</p>
What changes would you make in regards to the FDA and animals quality of life?	<p style="text-align: center;">2.1.12.C.2 Develop strategies that will impact local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>
Resources Mini Unit 1B:	<i>Nutrition and You</i> book, <i>Food Inc.</i> documentary, <i>Vegucate</i> documentary, <i>Food Inc.</i> discussion guide

MINI UNIT 1C	
Title:	Guidelines and Food Labels
Duration:	3 weeks
Overview:	Students will discuss and understand various food guidelines over the years and analyze why /some systems are better than others. Class will cover what food labels tell us about how we should be eating. Understand how food labels contain both truths and falseties.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What are the pieces involved in MyPyramid?	2.1.12.A.2 Debate the social and ethical implications of the availability and use of technology and medical advances to support wellness.
What are the pieces involved in MyPlate?	
What is the daily recommended intake of each nutrient?	
What are dietary guidelines for Americans ?	
How many calories do you need daily from each food group?	2.1.6.B.3 Create a daily balanced nutritional meal plan based on nutritional content, value, calories, and cost.
What do the terms mean that are found on food labels?	2.1.2.B.3 Summarize information about food found on product labels.
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
Compare and contrast, through a Venn Diagram, the differences of MyPyramid and MyPlate.	2.1.12.A.1 Analyze the role of personal responsibility in maintaining and enhancing personal, family, community, and global wellness.
Analyze the advantages and disadvantages to both eating guide.	
How to use Dietary Reference Intakes	

How to read a food label and see how they can lead to healthy choices.	2.1.2.B.3 Summarize information about food found on product labels.
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
How can a menu-planning tool be effective for promoting healthy living?	2.1.12.A.1 Analyze the role of personal responsibility in maintaining and enhancing personal, family, community, and global wellness.
How would you redesign a new food guide system and what factors would you emphasize?	2.1.8.B.3 Design a weekly nutritional plan for families with different lifestyles, resources, special needs, and cultural backgrounds.
Legally, how can food companies alter their labels to make them seem healthier?	2.1.8.A.4 Determine the impact of marketing techniques on the use of personal hygiene products, practices, and services.
Resources Mini Unit 1C:	<p><i>Nutrition and You</i> book <i>Ingredients</i> documentary</p> <p>Websites www.healthypeople.gov www.choosemyplate.gov www.mypyramid.gov http://www.slideshare.net/bethecatalyst/eat-this-not-that</p>

UMBRELLA UNIT 2

Title:	Nutrition and Culture
Duration:	8 weeks
Essential Questions:	<p>How does American Diet stack up to the rest of the world?</p> <p>How is BMI calculated and what factors go into determining a healthy weight?</p> <p>What traits go into putting someone into the category of “obese” and overweight?</p> <p>How do trends and culture affect food choices and health concerns?</p> <p>What are ‘fad diets’? What are strengths and weaknesses of “crash diets”?</p> <p>How can someone be overweight and still be considered “malnourished” ?</p> <p>How are food company marketing techniques dishonest and misleading?</p> <p>What are standards set for marketing companies when advertising unhealthy foods?</p> <p>How can school lunch programs be more effective ?</p>
Summative Assessments: (Assessment at the end the learning period)	Post Benchmark Test (trends, BMI, diets, marketing)
Formative Assessments: (Ongoing assessments during the learning period)	<p>3 Current Events</p> <p>BMI Project</p> <p>Movie Review Analysis</p> <p>School Lunch Program Survey and Modification</p> <p>Foreign Nation Nutrition Review</p>
Differentiation:	<p>Incorporate computers into lessons for students that thrive with technology.</p> <p>Provide alternate assessments for students that struggle with material/language</p> <p>Allow students to type assignments rather than handwrite.</p> <p>Make extra-credit assignments available</p> <p>Allow extra time for quizzes and long term assignments</p> <p>Allow for group work and partners if individuals find subject matter too challenging</p> <p>Spread lesson material; out over longer period of time (extra days) to gain best feedback</p>

TECHNOLOGY STANDARD (STANDARD 8)	
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21ST CENTURY LIFE AND CAREER (STANDARD 9)	
CPI #	CUMULATIVE PROGRESS INDICATOR (CPI)
9.1.12.E.5	Evaluate business practices and their impact on individuals, families, and societies.
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9.3.12.AG.1	Analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster.
9.3.12.AG.5	Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.
9.3.12.AG.6	Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.

MINI UNIT 2A	
Title:	BMI and Obesity
Duration:	2 weeks
Overview:	Class will understand what BMI is and how it is used to determine healthy weight. Compare BMI to

	other health factors such as body fat and height/weight scales. Analyze the growing trend of obesity and the nationwide epidemic. Consider various weight management techniques.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What is the difference between overweight and obese?	<p style="text-align: center;">2.6.6.A.5 Relate physical activity, healthy eating, and body composition to personal fitness and health.</p>
What factors go into determining if you are at a healthy weight?	
What health problems arise with obesity?	<p style="text-align: center;">2.6.12.A.1 Compare the short- and long-term impact on wellness associated with physical inactivity.</p>
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
Calculate your BMI and know where you stand on BMI chart	<p style="text-align: center;">2.1.8.A.2 Compare and contrast the impact of genetics, family history, personal health practices, and environment on personal growth and development in each life stage.</p>
How to limit intake of sugar and other unneeded empty calories	<p style="text-align: center;">2.1.8.B.2 Identify and defend healthy ways for adolescents to lose, gain, or maintain weight.</p>
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
Describe more accurate ways to determine healthy/unhealthy body weight rather than using BMI charts	<p style="text-align: center;">2.1.8.C.2 Analyze local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>
Resources Mini Unit 2A:	<i>Nutrition and You</i> book Documentaries- Fed Up and/or Sugar Film

MINI UNIT 2B	
Title:	Cultural Trends and Diets
Duration:	3 weeks
Overview:	Class will study how cultural trends affect food choices and health epidemics. Students will examine various countries and look into how their food and diets differ from United States. Analyze fad diets and strength and weaknesses of crash diets.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
How does USA's obesity epidemic compare to other countries?	2.1.12.B2 Compare and contrast the dietary trends and eating habits of adolescents and young adults in the United States and other countries.
What is the carnivore diet?	2.1.12.B.2 Compare and contrast the dietary trends and eating habits of adolescents and young adults in the United States and other countries.
What is the guidelines for Atkin's diet?	
What is benefit of South Beach Diet?	
How do diets that lack certain food groups affect the body?	5.3.12.B.3 Predict what would happen to an ecosystem if an energy source was removed.
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
What to consider if you were to set up a new fad diet.	2.1.8.A.3 Relate advances in technology to maintaining and improving personal health.
Analyze the cultural differences of food intake between United States and other leading nations.	2.1.8.B.1 Analyze how culture, health status, age, and eating environment influence

Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
What is the disadvantage of using crash diets?	<p style="text-align: center;">2.1.12.B.1</p> <p>Determine the relationship of nutrition and physical activity to weight loss, weight gain, and weight maintenance.</p>
What is it that leads other countries to being underweight or overweight?	<p style="text-align: center;">2.1.12.B.2</p> <p>Compare and contrast the dietary trends and eating habits of adolescents and young adults in the United States and other countries.</p>
With America being so well-off, why are so many Americans hungry every day?	<p style="text-align: center;">2.1.12.B.2</p> <p>Compare and contrast the dietary trends and eating habits of adolescents and young adults in the United States and other countries.</p>
Can liquid diets be effective long term?	<p style="text-align: center;">2.1.6.B.2</p> <p>Summarize the benefits and risks associated with nutritional choices, based on eating patterns.</p>
Resources Mini Unit 2B:	Documentaris <i>Fat, Sick, Nearly Dead</i> and <i>Place At the Table Nutrition and You</i> book

MINI UNIT 2C	
Title:	Marketing Techniques and Lunch Programs
Duration:	3 weeks
Overview:	<p>After looking into cultural trends and dietary fads, students will look into how advertising agencies and marketing techniques change the way we see food. Analyze how ads can show you only what they want you to see and not what they should see. Examine the current school lunch program at BHS, local schools and schools and communities around the country.</p>

Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
Analyze a food company and the techniques they use to target a certain audience.	<p style="text-align: center;">2.2.12.E.1 Analyze a variety of health products and services based on cost, availability, accessibility, benefits, and accreditation.</p> <p style="text-align: center;">2.1.8.E.4 Determine the impact marketing techniques has on the use of products and services.</p>
Analyze a specific food advertisement and understand what the ideas and concepts they are selling besides just food.	
How can marketing agencies sell a product by selling an idea.	
What is wrong with the current trends of school lunch programs in Morris County? In NJ? In USA?	<p style="text-align: center;">2.1.8.C.2 Analyze local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
Create a survey to ask the student body regarding what their usage of the current school lunch program and how it can be improved and what is most important when deciding to buy school lunch or not	<p style="text-align: center;">2.1.8.E.4 Determine the impact of marketing techniques on the use of personal hygiene products, practices, and services.</p>
Create an advertisement for a food that can sell a concept without describing the item.	<p style="text-align: center;">2.1.6.A.3 Determine factors that influence the purchase of healthcare products and use of personal hygiene practices.</p>
How can you improve the school lunch program in the school to make it more sustainable and more healthy	<p style="text-align: center;">2.1.12.C.2 Develop strategies that will impact local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
Using information found online, find a new company to branch off to use for a new school lunch provider.	<p style="text-align: center;">2.1.12.C.2 Develop strategies that will impact local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>

<p>How do school lunch program reflect the things you and your peers are concerned about?</p>	<p style="text-align: center;">2.1.8.C.2 Analyze local, state, national, and international public health efforts to prevent and control diseases and health conditions.</p>
<p>Resources Mini Unit 2C:</p>	<p><i>Nourish Curriculum Guide</i> <i>Hungry For Change</i> Documentary http://www.fns.usda.gov/nslp/national-school-lunch-program-nslp</p>

UMBRELLA UNIT 3

Title:	Anatomy and Physiology
Duration:	8 weeks
Essential Questions:	<p>What are the major muscle groups and what specific muscles make up these groups?</p> <p>What are the roles of the 3 different types of muscles?</p> <p>How do muscles contract and extend?</p> <p>How do different body systems work together and affect each other in exercise?</p> <p>What are the different joints present throughout the human body and what are their jobs?</p> <p>What are the various body positions and planes and why are they used to determine movements?</p> <p>What muscles and muscle groups are present in each joint?</p> <p>What injuries can be suffered to each body tissue?</p> <p>How can environmental factors affect or lead to injuries?</p> <p>What are basic First Aid and safety procedures?</p>
Summative Assessments: (Assessment at the end the learning period)	Pre/Post Benchmark Test
Formative Assessments: (Ongoing assessments during the learning period)	<p>3 Current Events</p> <p>Muscle and Muscle Group Quiz</p> <p>Skeletal System Label Quiz</p> <p>Injury Prevention Presentation</p> <p>Safety Guidelines Quiz</p>
Differentiation:	<p>Incorporate computers into lessons for students that thrive with technology.</p> <p>Provide alternate assessments for students that struggle with material/language</p> <p>Allow students to type assignments rather than handwrite.</p> <p>Make extra-credit assignments available</p> <p>Allow extra time for quizzes and long term assignments</p>

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MINI UNIT 3A	
Title:	Body Systems and Organs
Duration:	3 weeks
Overview:	Throughout this unit of the course, class will look into body systems including the pulmonary, cardiovascular, and neuromuscular.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What specific muscles are located in such muscle “groups” as ‘shoulder’, ‘legs’, ‘back’ and ‘arms’.	5.3.6.A.1 Model the interdependence of the human body’s major systems in regulating its internal environment.
The difference between muscles classification such as skeletal, visceral and cardiac.	5.3.6.A.1 Model the interdependence of the human body’s major systems in regulating its internal environment.
Properties of muscle groups such as contractibility, extensibility, elasticity and tonicity.	2.5.8.A.2 Apply the concepts of force and motion (weight transfer, power, speed, agility, range of motion) to impact performance.
The anatomy of a muscle and the difference between isotonic and isometric contractions	2.5.8.A.2 Apply the concepts of force and motion (weight transfer, power, speed, agility, range of motion) to impact performance.
How muscle contractions differ in different body parts such as abdomen, fingers and legs	2.5.8.A.2 Apply the concepts of force and motion (weight transfer, power, speed, agility, range of motion) to impact performance.
Important functions of cardiovascular system	5.3.6.A.1 Model the interdependence of the human body’s major systems in regulating its internal environment.
Identify the major structural components of central nervous system	

Essential Outcomes - Upon completion of this course students will know (procedural):		Alignment to Standards
Identify majors factors that regulate pulmonary ventilation.	How to measure blood pressure and heart rate and how it relates to overall health	<p style="text-align: center;">2.1.12.C.1</p> <p style="text-align: center;">Determine diseases and health conditions that may occur during one’s lifespan and identify prevention and treatment strategies.</p>
Explain factors associated with neuromuscular fatigue		
Label muscle fiber’s components and parts		
		<p style="text-align: center;">5.3.6.A.1</p> <p style="text-align: center;">Model the interdependence of the human body’s major systems in regulating its internal environment.</p>
Essential Outcomes - Upon completion of this course students will know (conceptual):		Alignment to Standards
Graph relationships between ventilation and lactate buildup.	Describe the sequence of events between muscle contraction and relaxation	<p style="text-align: center;">2.6.12.A.2</p> <p style="text-align: center;">Design, implement, and evaluate a fitness plan that reflects knowledge and application of fitness-training principals. <u>(FITT and additional training principles)</u></p>
Explain how exercise and resistance or aerobic training can modify muscle fibers.		
		<p style="text-align: center;">2.6.12.A.4</p> <p style="text-align: center;">Compare and contrast the impact of health-related fitness components as a measure of fitness and health.</p>
Resources Mini Unit 3A:	<i>Essentials of Exercise Physiology</i> textbook <i>Fitness Professional’s Guide to Muskuloskeletal Anatomy and Human Movement</i> <i>Strength Training Anatomy</i> <i>ACE Personal Trainer Manual</i>	

MINI UNIT 3B	
Title:	Body Movements
Duration:	2 weeks
Overview:	Through this unit, we will study the joints in the human body and explore body actions. Understand medical terms in relation to anatomical position and planes.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What is the anatomical position for the human body?	<p style="text-align: center;">2.5.8.A.1 Explain and demonstrate transition of movement skills from isolated settings into applied settings.</p> <p style="text-align: center;">2.5.8.A.2 Apply the concepts of force and motion to impact performance.</p> <p style="text-align: center;">2.5.12.A.2 Analyze application of force and motion and modify movement to impact performance.</p>
How the sagittal, frontal and transverse planes split the body in half.	
The difference in directions of body movements such as superior, inferior, anterior, posterior, medial and lateral.	
The location of position of body parts and body movements such as ventral, dorsal and superficial.	
What are the classifications for body joints and know where they are located on the human body? (hinge, joint, pivot, etc.)	
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
How to manipulate body in specific ways and directions such as flexion, extension and hyperextension.	<p style="text-align: center;">2.5.4.A.1 Explain and perform essential elements of movement skills in both isolated settings and applied settings.</p>

How to label joint movements as retraction, rotation and inversion.	<p style="text-align: center;">2.5.8.A.2 Apply the concepts of force and motion to impact performance.</p> <p style="text-align: center;">2.5.12.A.2 Analyze application of force and motion (weight, power, speed, range of motion) and modify to impact performance.</p>
Label a human diagram with the type of joint located in specific areas (shoulder, elbow, fingers)	
Group bones and muscle groups with their corresponding joint.	
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
How to set up a movement routine that can keep body aligned without moving in set/specific ways.	<p style="text-align: center;">2.5.12.A.3 Design and lead a rhythmic activity that includes variations in time, space, force, flow, and relationships (creative, cultural, social, and fitness dance).</p>
How to set up an exercise routine or movement pattern that can be used with given limitations due to injury.	<p style="text-align: center;">2.5.12.A.3 Design and lead a rhythmic activity that includes variations in time, space, force, flow, and relationships (creative, cultural, social, and fitness dance).</p>
Resources Mini Unit 3B:	<p><i>Fitness Professional's Guide to Musculoskeletal Anatomy and Human Movement</i> <i>ACE Personal Training Manual</i> textbook <i>Strength Training Anatomy</i> book</p>

MINI UNIT 3C	
Title:	Injuries, Prevention and Repair
Duration:	2.5 weeks
Overview:	Through this unit, class will cover possible injuries that can take place through sport and activity.

	Students will have a working knowledge of anatomy and body parts (muscle groups, bones and joints) and will understand what minor and major injuries can affect each body part. Students will
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What are possible injuries that can be suffered to specific body tissue such as bones, ligaments and muscles.	2.1.6.D.1 Summarize common causes of unintentional injuries in adolescents and preventative strategies.
What are signs and symptoms of of muscle and joint inflammation ?	2.1.12.D.1 Determine the causes and outcomes of intentional and unintentional injuries in adolescents and young adults and propose prevention strategies.
How is flexibility related to musculoskeletal injuries?	2.1.8.D.1 Assess the degree of risk in a variety of situations and identify strategies to reduce intentional and unintentional injuries to self and others.
How to pinpoint upper and lower-extremity conditions based on strength and movement.	2.1.12.C.1 Determine diseases and health conditions that may occur during one's lifespan and identify prevention and treatment strategies.
How environmental conditions such as temperature and humidity can make impact on body and injuries.	2.1.12.C.1 Determine diseases and health conditions that may occur during one's lifespan and identify prevention and treatment strategies.
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
How to follow basic guidelines for standard musculoskeletal injuries (RICE)	2.1.12.D.6 Demonstrate first-aid procedures, including Basic Life Support and automatic external defibrillation, caring for head trauma, bone and joint emergencies, caring for cold and heat injuries, and responding to medical emergencies.
To apply ice and heat correctly to help with pain and swelling	
To tell the difference between specific wounds such as abrasion, avulsion and punctures	

<p>To complete simple First Aid measure such as splinting an injury</p>	
<p>Essential Outcomes - Upon completion of this course students will know (conceptual):</p>	<p>Alignment to Standards</p>
<p>How to develop educated hypotheses to determine possible injuries.</p>	<p>2.1.8.D.4</p>
<p>How to determine pre-existing injuries by recognizing conditions.</p>	<p>Demonstrate first-aid procedures, including victim and situation assessment, Basic Life Support, and the care of head trauma, bleeding and wounds, burns, fractures, shock, and poisoning.</p>
<p>Resources Mini Unit 3C:</p>	<p>https://medlineplus.gov/sportsinjuries <i>ACE Personal Training Manual</i></p>

UMBRELLA UNIT 4

Title:	Exercise Science and Sport
Duration:	8 weeks
Essential Questions:	<p>What are possible careers/jobs that are available in the the field of Exercise Science and Sport Medicine?</p> <p>What is needed to ensure a career path for</p> <p>What are advantages and disadvantages to steroid use?</p> <p>Should steroids be legal or illegal?</p> <p>What is the difference between lifting for size or lifting for tone and definition?</p> <p>How can you increase muscle mass?</p> <p>What factors should be considered when developing an exercise program?</p> <p>What is the difference between weight lifting and body building?</p> <p>What kind of fitness plan can be used to improve aerobic capacity?</p> <p>What are the major fitness components and how can they be tested?</p> <p>What sports/activities are used to test and measure each component?</p> <p>Why is stretching so important before exercise?</p>
Summative Assessments: (Assessment at the end the learning period)	<p>Pre/Post Benchmark Test</p> <p>Weight Room Test</p>
Formative Assessments: (Ongoing assessments during the learning period)	<p>3 Current Events</p> <p>Athlete Steroid Presentation</p> <p>Sport Enhancement Quiz</p> <p>Weight Room Quiz</p> <p>Resistance Training Quiz</p> <p>Career Questionnaire and Resume</p>
Differentiation:	<p>Incorporate computers into lessons for students that thrive with technology.</p> <p>Provide alternate assessments for students that struggle with material/language</p>

	<p>Allow students to type assignments rather than handwrite.</p> <p>Make extra-credit assignments available</p> <p>Allow extra time for quizzes and long term assignments</p> <p>Allow for group work and partners if individuals find subject matter too challenging</p> <p>Spread lesson material; out over longer period of time (extra days) to gain best feedback</p>
TECHNOLOGY STANDARD (STANDARD 8)	
CPI #	CUMULATIVE PROGRESS INDICATOR (CPI)
8.1.12.C.1	Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
21ST CENTURY LIFE AND CAREER (STANDARD 9)	
CPI #	CUMULATIVE PROGRESS INDICATOR (CPI)
9.1.12.E.5	Evaluate business practices and their impact on individuals, families, and societies.
9.2.12.C.3	Identify transferable career skills and design alternate career plans.
9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business
9.3.12.AG.1	Analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster.
9.3.12.AG.5	Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.
9.3.12.AG.6	Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.

MINI UNIT 4A	
Title:	Careers in Exercise
Duration:	2 weeks
Overview:	Discuss career paths related to areas covered in class such as dietician, personal trainer, athletic trainer, speed trainer.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What are possible careers in the field of exercise science and sport nutrition?	2.2.8.E.1 Evaluate various health products, services, and resources from different sources, including the Internet.
What degrees or certifications are needed to succeed in various fields?	2.1.12.C.4 Relate advances in medicine and technology to the diagnosis and treatment of mental illness.
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
How to create a resume to make yourself attractive in the field of exercise science and nutrition	2.2.6.D.2 Develop a position about a health issue in order to inform peers.
Develop a presentation that analyzes job structure and day to day requirements in a chosen field	2.2.8.D.2 Defend a position on a health or social issue to activate community awareness and responsiveness.
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
What are some moral issues that can arise with careers in the field of exercise science and nutrition?	2.2.12.D.1 Determine the benefits for oneself and others of participating in a class or school service activity.

Resources Mini Unit 4A:	Guest speakers Fitness Factory Rockaway http://www.academicinvest.com/science-careers/exercise-science-careers
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MINI UNIT 4B	
Title:	Exercise, Weight Room and Techniques
Duration:	3 weeks
Overview:	<p style="text-align: center;">Students will know their way around a weight room and have a working knowledge of standard equipment and machines. Students will understand the benefits of stretching and warm-up and the importance of safety measures such as spotting and cool down. Class with cover the difference between lifting for specific goals such as increase mass/size, definition, burning fat or increased strength.</p>
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What resistance training techniques/lifts should be used for each muscle/muscle groups?	2.5.12.A.2 Analyze application of force and motion (weight transfer, power, speed, agility, range of motion) and modify movement to impact performance.
What are several health benefits to resistance training?	2.6.12.A.1 Compare the short- and long-term impact on wellness associated with physical inactivity.
What is the difference between fast and slow twitch muscle fibers?	2.6.6.A.6 Explain and apply the training principles of frequency, intensity, time, and type (FITT) to improve personal fitness.
How do terms such as frequency, intensity, time, repetition and sets relate to training?	2.6.6.A.6 Explain and apply the training principles of frequency, intensity, time, and type (FITT) to improve personal fitness.

Meanings of general fitness concepts and terms	2.6.12.A.4 Compare and contrast the impact of health-related fitness components as a measure of fitness and health.
Essential Outcomes - Upon completion of this course students will know (procedural):	Alignment to Standards
How to develop a weight lifting routine/plan with a goal to increase size and strength	2.6.12.A.2 Design, implement, and evaluate a fitness plan that reflects knowledge and application of fitness-training principals. (FITT and additional training principles)
How to develop a weight lifting routine/plan with a goal to gain muscle tone and definition	
How to demonstrate proper lifting form on basic weight lifting equipment	2.5.8.A.2 Apply the concepts of force and motion (weight transfer, power, speed, agility, range of motion) to impact performance.
How to safely spot a lifter when using free weights	2.1.12.D.1 Determine the causes and outcomes of intentional and unintentional injuries in adolescents and young adults and propose prevention strategies.
Essential Outcomes - Upon completion of this course students will know (conceptual):	Alignment to Standards
Compare and contrast the difference in principles of Overload, Specificity and Progression	2.6.6.A.6 Explain and apply the training principles of frequency, intensity, time, and type (FITT) to improve personal fitness.
Explain how the principles of Overload, Specificity and Progression can relate to you in your sport/activity	
Resources Mini Unit 4B:	http://www.emedicinehealth.com/ <i>ACE's Guide to Exercise Testing and Program Design</i>

MINI UNIT 4C	
Title:	Sport Enhancement, Steroids and Supplements
Duration:	3 weeks
Overview:	Students will understand the importance of hormones and testosterone involvement in growth and muscle gain. This unit will cover how supplements (legal and illegal) can affect physical performance in athletes. Will analyze the dangers of taking certain supplements and steroids and look into how these have affected famous athletes. Class will debate the ethical use of steroids in sport and understand rules set in place to stop the use in various professional sports. Look into supplements and the FDA guidelines they must follow.
Essential Outcomes - Upon completion of this course students will know (declarative):	Alignment to Standards
What are steroids and what do they do to the body?	2.3.8.B.8 Analyze health risks associated with injected drug use.
How can steroids be dangerous for the human body?	
What role can added hormones play in a growing body?	2.6.12.A.5 Debate the use of performance-enhancing substances (i.e., anabolic steroids and other legal and illegal substances) to improve performance.
What are benefits of taking nutritional supplements during exercise	2.1.8.B.4 Analyze the nutritional values of new products and supplements
Current and past instances of athletes being charged with steroid abuse in their respective sports	2.3.12.B.1 Compare and contrast the incidence and impact of commonly abused substances (such as tobacco, alcohol, marijuana, inhalants, anabolic steroids, and other drugs) on individuals and communities in the United States and other countries.
Rules and guidelines in relation to professional sports companies and their substance testing policies	
Why does the FDA put regulations on the use of anabolic steroids	

Essential Outcomes - Upon completion of this course students will know (procedural):		Alignment to Standards
How to analyze nutritional supplements and determine their advantages and disadvantages		2.1.12.B.3 Analyze the unique contributions of each nutrient class (fats, carbohydrates, protein, water, vitamins, and minerals) to one's health.
How to examine FDA guidelines when it comes to vitamins and supplements		2.3.12.A.1 Determine the potential risks and benefits of the use of new or experimental medicines and herbal and medicinal supplements.
How to analyze and interpret labels on nutritional supplements and vitamins		2.3.12.A.1 Determine the potential risks and benefits of the use of new or experimental medicines and herbal and medicinal supplements.
Essential Outcomes - Upon completion of this course students will know (conceptual):		Alignment to Standards
How to make an educated opinion on the legal use of steroids in sport		2.3.12.B.2 Debate the various legal and financial consequences of the use, sale and possession of illegal substances. 2.6.6.A.7 Evaluate the short and long-term effects of anabolic steroids and other performance-enhancing substances on personal health. 2.6.12.A.5 Debate the use of performance-enhancing substances (i.e., anabolic steroids and other legal and illegal substances) to improve performance.
Develop a plan to fix the epidemic of the use of performance enhancers in sports		
Do you think blood doping should be considered the same as steroid usage in sport		
Consider championships won and records set by steroid users		
Resources Mini Unit 4C:	<i>Bigger, Stronger, Faster</i> documentary https://www.drugabuse.gov/publications/drugfacts/anabolic-steroids	