Washington Township School District

The mission of the Washington Township Public Schools *is to provide a safe, positive, and progressive educational environment that provides opportunity for all students to attain the knowledge and skills specified in the NJ Learning Standards at all grade levels, so as to ensure their full participation in an ever-changing world as responsible, self-directed and civic-minded citizens.*

Course Title:	**Careers in Fitness**
Grade Level(s):	**12**

Duration:	*Full Year:*	**X**	*Semester:*		*Marking Period:*	
Course Description:	This course provides students with basic concepts and principles pertaining to nutrition, energy metabolism, and nutritional analysis. It focuses on current and research-based information pertaining to the positive influence of proper nutrition on health, fitness, and sports performance and hands-on experiences for evaluating dietary status and energy balance. This course will also prepare students for careers in fitness-related fields by providing students with a foundation in anatomy, kinesiology, movement dysfunction, and exercise technique which is essential for understanding the basic principles of human movement. It will also prepare students for Personal Training Certification, and introduce them to the business side of health, fitness, and nutrition.					
Grading Procedures:	**Summative (40%) – Tests, Projects, Final** **Formative (30%) – Classwork** **Supportive (30%) – Quiz, Collaborative**					
Primary Resources:	**NJSLS** **Book Resources: Nutrition and Wellness For Life by Dorothy West**					

Washington Township Principles for Effective Teaching and Learning

- Implementing a standards-based curriculum
- Facilitating a learner-centered environment
- Using academic target language and providing comprehensible instruction
- Adapting and using age-appropriate authentic materials
- Providing performance-based assessment experiences
- Infusing 21st century skills for College and Career Readiness in a global society

Designed by:	James Hallinan

Under the Direction of:	Donna Costa
Approved by:	

Written: ___January 2019_____

Revised: _____

BOE Approval: _____

Unit Title: Unit 1 - The Role of Nutrition in Our Health

Unit Description:

This unit focuses on Nutrition and Scientific Research. Students will learn terminology, energy expenditure/intake, energy nutrients, using and applying the Scientific Method, and how to discern reliable and unreliable sources of information.

Topics covered during this unit include:

- The 6 Nutrients
- The 3 Energy Nutrients
- Scientific Method of Research
- Carbohydrates
- Fats
- Proteins
- Alcohol
- Vitamins and Minerals
- Nutrients involved in Energy Metabolism and Blood Health
- Nutrients and Physical Activity

Project: Students will use their own bodies and nutrition intake as an experiment for nutritional research which will take place over the course of 6 weeks. Students will use a Body Fat (BF) Percentage monitor to find their BF. They will track all calories consumed for a one week period and record daily intake, including their Protein, Fat, Carb, and Water consumed. They will calculate Basal Metabolism using this information. Students will then use the scientific method to develop a hypothesis on nutritional intake and BF% and weight management, and test it in order to either reject or develop a theory. Students will write up their findings in a paper due at the end of the marking period. There will be a Rubric attached to this project outlining what is expected.

Unit Duration: 10 Weeks

Desired Results

Standard(s):

2.1 Wellness: All students will acquire health promotion concepts and skills to support a healthy, active lifestyle.

2.2 Integrated Skills: All students will develop and use personal and interpersonal skills to support a healthy, active lifestyle.

Indicators:

Students will be able to define nutrition.

Students will identify and define the 6 nutrients.

Students will have a thorough understanding of the effect of carbohydrates, fats, proteins, and alcohol on the energy expenditure and storage, as well as metabolism.

Students will identify various foods and their primary nutrient.

Students will be able to read nutritional labels for better decision making.

Students will learn the value of measuring energy expenditure and caloric intake.

Students will understand various marketing terms and what they mean legally (i.e. reduced fat, low fat, non GMO, organic, etc.

Students will criticize and analyze modern research and determine it's trustworthiness.

Understandings:
Students will understand that…

- Nutrition is the science that studies food and how food nourishes our bodies and influences our health.
- Nutrition encompasses how we consume, digest, metablize, and store nutrients and how these nutrients affect our bodies.
- "We are what we eat" – everything we consume is broken down and reassembled into your brain cells, bones, muscles, and all other tissue.
- Caloric and nutrient intake will determine body composition.
- A healthful diet can prevent several diseases and reduce the risk of several diseases.
- A healthful diet can have a great effect on daily energy levels and performance.
- The 6 nutrients (carbohydrates, fats, proteins, vitamins, minerals, and water) must be consumed in the proper amounts to achieve body composition and performance goals.
- Basal metabolism is the measure of calories burned at rest.
- Different nutrients have different levels of dietary induced thermogenesis (the amount of calories burned during the digestion of food)
- That nutrition has a drastic effect on athletic performance.
- Nutrition will determine the level that a human body can perform.
- Carbohydrate literally means "hydrated carbon"
- There are simple and complex carbohydrates, and how they are broken down and used in the body
- There are short term and long term effects of moderate and excessive alcohol consumption.
- Alcohol is broken down differently than nutrients and are absorbed directly into the bloodstream, and the effects that has on the body, and how it immediately affects metabolism.
- Fats are part of a group of stubstances called lipids and are not soluble in water.
- The various types of fats that people consume and the many effects they have on the body.
- Proteins are the building blocks to muscle building as well a critical component of all tissue including bones, blood, and hormones.
- Protein provides the essential amino acids that the body requires for healthy living. These essential amino acids are not produced in the body.
- When reading articles on "fad" diets, they must determine the source of the article, so they can determine the trustworthiness of the research.
- If the source of a study has financial gain from the results, then that study can not be completely trusted.

Essential Questions:

What is nutrition?
Why is nutrition important?
How does nutrition effect everyday life?
How does nutrition effect body weight and body fat percentage?
How does nutrition play a role in disease prevention?
How does nutrition effect athletic performance?
What are Carbohydrates?
What are Fats?
What are Proteins?
What is the effect of Alcohol on metabolism and hormone balance?
What is basal metabolism?
How does someone know their basal metabolism?
How does someone change their basal metabolism?
How do scientists research and find the effect of nutrition on the human body?
How does a layperson decipher between reliable and unreliable research?
How does someone criticize resources and use dietary findings for an individuals benefit to achieve specific goals?

- They must cross reference research studies and ask pertinent questions so they can see the whole picture and it's effect on one's health and performance.
- Common sense is required to decipher conflicting nutritional strategies and arguments.

Assessment Evidence

Performance Tasks:

- Students will demonstrate knowledge through a series of assessments created by the teacher.
- Students will produce examples of conflicting research through online current event publications (at least 4 throughout the marking period), and show their navigation of this information to determine truth.
- Students will navigate research publications provided by teacher and illustrate how they navigated to draw a conclusion of accuracy.
- Students will submit a final project of their own showing how they used the scientific method to test a hypothesis and accept or reject a theory.

Other Evidence:

- Informal Observation: Teacher will make random checks for comprehension through questions and answers, study guides, and pop quizzes that won't count towards their grade.
- Teacher Created Test/Quizzes: Students must pass formal quizzes and test on all information discussed and/or presented.
- Homework
- Classwork

Benchmarks:

Project - Above

Nutrition Final Assessment (Mid-Term)

Learning Plan

Learning Activities:
Topic Introduction: Students will learn what nutrition is and the definition and description of variously nutritional terms.

Application: Students will learn how to decipher immediately if a food item is real or manufactured. They will learn to immediately identify a food source as a carbohydrate, fat, or protein. They will learn what foods provide and support muscle growth or fat storage. They will learn the importance of hydration in the functioning of the human body. Students will learn how to read nutritional labels on food products to make informed decisions. They will learn how to research and find peer reviewed research which is reliable.

Reflection: Students will evaluate/reflect traditional health knowledge and compare to a more modern approach. They will learn through current event assignments how truth in nutrition doesn't always come from a source they traditionally trusted. They will learn to question sources and use logic throughout the process. They will use journaling to log how they have used food for emotional reasons in the past and where they think that came from.

Resources:
Online: PubMed.com, GoogleScholar.com, eatright.org, cdc.gov, acsm.org, nutrition.org, crossfit.com, mypyramid.gov, 5aday.gov, diabetes.org, nih.gov, healthfinder.gov, journals.sagepub.com/loi/ajs

Phone/Tablet App Resources: MyFitnessPal

Text: Nutrition: An Applied Approach by Janice Thompson, PhD

Nutrition and Wellness For Life by Dorothy West

Videos: Fed Up (documentary), What the Health? (documentary) Diet Fiction (documentary)

Textbook Online Resources: www.g-w.com/nutrition-wellness-for-life-2019

Unit Learning Goal and Scale *(Level 2.0 reflects a minimal level of proficiency)*	
Standard(s): **2.1 Wellness: All students will acquire health promotion concepts and skills to support a healthy, active lifestyle. (2.1.12.B.1-3)**	
4.0	**Students will be able to:** • **In addition to score 3.0, the student demonstrates in-depth inference and applications that go beyond what was taught.**
3.0	**Students will be able to:** • **Compare and contrast nutrients for energy balance and dietary trends in our society.** • **Analyze uniqueness of macronutrients and vitamins/minerals, and it's contribution towards an individuals health.**
2.0	**Students will be able to:** • **Identify and define macro and micronutrients.**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

Unit Modifications for Special Population Students	
Advanced Learners	• Assign leadership roles in group activities. • Assign outside research pertaining to the unit. Sources may include internet, additional text, and/or video

Struggling Learners	• Locate boldface heads in the sections
	• Explain that boldface heads divide the text by topic
	• Provide reading strategies:
	  • Read boldface headings
	  • Predict what will be covered in the section of the text
	  • Read text section
	  • Review their predictions
	  • Refer to guided questions and comprehension questions
	• Encourage use of glossary of terms and dictionary

English Language Learners	• Locate boldface heads in the sections
	• Explain that boldface heads divide the text by topic
	• Provide reading strategies
	  • Read boldface headings
	  • Predict what will be covered in the section of the text
	  • Read the text section
	  • Review their predictions

	• Refer to guided questions and comprehension questions • Encourage use of glossary of terms and dictionary, as well as Google translate or other translation service. • Utilize the following link for more resources: • http://www.state.nj.us/education/modelcurriculum/ela/ELLSupport.pdf
Learners with an IEP	Each special education student has in Individualized Educational Plan (IEP) that details the specific accommodations, modifications, services, and support needed to level the playing field. This will enable that student to access the curriculum to the greatest extent possible in the least restrictive environment. These include: • Variation of time: adapting the time allotted for learning, task completion, or testing • Variation of input: adapting the way instruction is delivered • Variation of output: adapting how a student can respond to instruction • Variation of size: adapting the number of items the student is expected to complete • Modifying the content, process or product Additional resources are outlined to facilitate appropriate behavior and increase student engagement. The most frequently used modifications and accommodations can be viewed here. Teachers are encouraged to use the Understanding by Design Learning Guidelines (UDL). These guidelines offer a set of concrete suggestions that can be applied to any discipline to ensure that all learners can access and participate in learning opportunities. The framework can be viewed here www.udlguidelines.cast.org
Learners with a 504	Refer to page four in the Parent and Educator Resource Guide to Section 504 to assist in the development of appropriate plans.

Interdisciplinary Connections

Indicators:

Technology: 8.1.5.D.2: Analyze the resource citations in online materials for proper use.
8.1.8.D.4: Assess the credibility and accuracy of digital content
8.2.12.E.1: Demonstrate an understanding of the problem-solving capacity of computers in our world.

Mathematics: 4.MD.A: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
5.MD.B: Represent and interpret data.
7.RP.A: Analyze proportional relationships and use them to solve real-world and mathematical problems.

Integration of 21st Century Skills

Indicators:

9.2.12.C.1: Review career goals and determine steps necessary for attainment.
9.2.12.C.3: Identify transferable career skills and design alternate career plans.
CRP2: Apply appropriate academic and technical skills
CRP3: Attend to personal health and financial well being
CRP4: Communicate clearly and effectively and with reason.
CRP7: Employ valid and reliable research strategies.
CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9: Model integrity, ethical leadership and effective management.
CRP10: Plan education and career paths aligned to personal goals.
CRP11: Use technology to enhance productivity.

Unit Title: Unit 2 – Supplements and Nutrient Timing

Unit Description:

This unit focuses on the various nutrition supplements (nutraceuticals) and ergogenic supplements, as well nutrient timing and functional foods that support body fat composition and exercise performance

Topics covered during this unit include:

- Caffeine use
- Creatine use
- Timing of consuming macronutrients
- Comparison of diets and their effect on body composition and exercise performance
- Various supplements and the validity of their "claims"
- Real food sources v supplements
- Performance enhancing supplements

Project: Students will use everything they have learned to this date to implement a strategy for someone else. This will be an 8 week case study analysis. They will have to update the nutritional "prescription" based on the results between check-ins. Students will also have to address behaviors, habits, and lifestyle for the case study.

Unit Duration: 5 Weeks

Desired Results

Standard(s):

2.1 Wellness: All students will acquire health promotion concepts and skills to support a healthy, active lifestyle.

2.2 Integrated Skills: All students will develop and use personal and interpersonal skills to support a healthy, active lifestyle.

Indicators:

Students will be able to identify truths and myths about supplements including creatine and caffeine use.

Students will identify and describe the the most widely used supplements in the market.

Students will be able to analyze and implement timing of nutrition for performance enhancement.

Students will be able to critique claims from the supplement industry.

Students will be able to identify real food alternatives to popular supplements.

Students will create a nutritional program for an individual based on their specific needs.

Understandings:
Students will understand that…

- Caffeine is the most widely used drug in the world and it benefits individuals mentally and physically.
- Peoples bodies react different to different amounts of caffeine.
- Overconsumption of caffeine can either have a negative effect on an individual, or cease to have a positive effect.
- Creatine is the most tested performance enhancing supplement to date

Essential Questions:

Is caffeine use safe for athletes?
What are the effects of caffeine use on the body and brain?
What are the effects of creatine use?
Is creatine beneficial to use for all athletes?
What is the apparent effectiveness of the most popular supplements on the market?
Does is matter when someone consumes nutrients?
What is the difference between a supplement and an ergogenic aid?
What is considered a supplement?

• Creatine is a safe for consumption in all individuals • Creatine is a naturally occurring in our bodies and can be consumed from foods. • Creatine use can have negative effects for athletes where weight is a concern. • When we consume specific macro and micronutrients can effect body composition and athletic performance. • Nutrient timing for power athletes and endurance athletes will vary. • How to enhance varying athletes performance with a nutrient timing strategy. • Supplement ingredients fall into 3 categories: 1) Apparently/Possibly Effective 2)Too early to tell 3)Apparently Ineffective • They need to be aware of the categories of the most popular supplements. • It is important to know the manufacturing process of foods and supplements to protect themselves and clients. • Micronutrients are best received through real food. • Supplements are not inheritely bad for you. • Creating a nutritional program for someone is not “one size fits all” • A nutritional coach needs to fully understand an individual’s situation, including limitations such as upbringing, family, work, travel, and general food likes/dislikes. • Programming and calorie/macronutrient goals will be different for someone competing. • A nutritional coach should work with a competitive athletes training coach to meet needs. • A non-competitive client needs to be addressed, handled, and spoken to differently.	Do we need supplements? Does is matter where supplements are manufactured? What is third-party testing? What categories do supplements fall into? Is it realistic to get all micronutrients from food only? How are nutritional/supplement programs designed for an individual’s need? How do you better understand your clients needs and goals for a healthy lifestyle? How do you separate nutritional programming for a competitive athlete vs non-competitive individual?

Assessment Evidence

Performance Tasks: • Students will demonstrate knowledge through a series of assessments created by the teacher. • Students will produce examples of conflicting research through online current event publications (at least 4 throughout the marking period), and show their navigation of this information to determine truth. • Students will navigate research publications provided by teacher and illustrate how they navigated to draw a conclusion of accuracy. • Students will submit a final project of their own showing how they used what they have learned to assess and create a nutritional program for a client based on their goals.	**Other Evidence:** • Informal Observation: Teacher will make random checks for comprehension through questions and answers, study guides, and pop quizzes that won’t count towards their grade. • Teacher Created Test/Quizzes: Students must pass formal quizzes and test on all information discussed and/or presented. • Homework • Classwork

Benchmarks:

Project – Comprehensive paper as described above.

Nutrition Final Assessment (Mid-Term)

Learning Plan

Learning Activities

Topic Introduction: Students will learn how to use their knowledge of nutrition to apply it to someone else, specifically the role of supplements and nutritional timing.

Application: Students will learn how to identify truths in the performance enhancing industry. They will challenge their own traditional knowledge with research based information. They will learn how to think critically, constructively, and analytically when faced with new information. They will show their application through assessment and discussion.

Reflection: Students will evaluate/reflect on the importance of learning how to research information.

Resources:

Online: PubMed.com, GoogleScholar.com, eatright.org, cdc.gov, acsm.org, nutrition.org, crossfit.com, mypyramid.gov, 5aday.gov, diabetes.org, nih.gov, healthfinder.gov, journals.sagepub.com/loi/ajs

Phone/Tablet App Resources: MyFitnessPal

Text: Nutrition and Wellness for Life by Dorothy West.
Nutrition: An Applied Approach by Janice Thompson, PhD
Sport Nutrition and Performance Enhancing Supplements by Abbie Smith-Ryan and Jose Antonio

Textbook Resources: www.g-w.com/nutrition-wellness-for-life-2019

Unit Learning Goal and Scale *(Level 2.0 reflects a minimal level of proficiency)*	
Standard(s): **2.2 Integrated Skills: All students will develop and use personal and interpersonal skills to support a healthy, active lifestyle.** **(2.2.12.B1-2)**	
4.0	**Students will be able to:** • **In addition to score 3.0, the student demonstrates in-depth inference and applications that go beyond what was taught.** •
3.0	**Students will be able to:** • **Compare and contrast trends in dietary recommendations** • **Analyze an individuals current nutritional intake and create a plan to reach their goals.**
2.0	**Students will be able to:** • **Identify and define supplements including caffeine, creatine, etc.** • **Identify the difference between a competitive athlete and non competitive healthy individual's needs.**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

Unit Modifications for Special Population Students	
Advanced Learners	• Assign leadership roles in group activities. • Assign outside research pertaining to the unit. Sources may include internet, additional text, and/or video

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	  • Refer to guided questions and comprehension questions
	• Encourage use of glossary of terms and dictionary, as well as Google translate or other translation service.
	• Utilize the following link for more resources:
	  • http://www.state.nj.us/education/modelcurriculum/ela/ELLSupport.pdf

Learners with an IEP	Each special education student has in Individualized Educational Plan (IEP) that details the specific accommodations, modifications, services, and support needed to level the playing field. This will enable that student to access the curriculum to the greatest extent possible in the least restrictive environment. These include: • Variation of time: adapting the time allotted for learning, task completion, or testing • Variation of input: adapting the way instruction is delivered • Variation of output: adapting how a student can respond to instruction • Variation of size: adapting the number of items the student is expected to complete • Modifying the content, process or product Additional resources are outlined to facilitate appropriate behavior and increase student engagement. The most frequently used modifications and accommodations can be viewed here. Teachers are encouraged to use the Understanding by Design Learning Guidelines (UDL). These guidelines offer a set of concrete suggestions that can be applied to any discipline to ensure that all learners can access and participate in learning opportunities. The framework can be viewed here www.udlguidelines.cast.org
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Mathematics: 4.MD.A: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
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Integration of 21st Century Skills

Indicators:

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CRP9: Model integrity, ethical leadership and effective management.
CRP10: Plan education and career paths aligned to personal goals.
CRP11: Use technology to enhance productivity.

Unit Title: Unit 3 – Functional Anatomy

Unit Description:

This unit focuses on regions of the human body as well as bone and muscle anatomy with primary focus on how the body moves. There will be a focus on types of joints, planes of movement, correct form through human movement and identifying incorrect movement patterns.

Topics covered during this unit include:

- Regions of the body
- Planes of movement/Directions and positions
- Skeletal system
- Muscle system
- Shoulder and Arm joint and muscles
- Forearm and Hand joint and muscles
- Spine and Thorax joints and muscles
- Head and Neck joints and muscles
- Pelvis and Thigh joints and muscles
- Leg and Foot joints and muscles

Project: Using the information students have learned throughout the unit, they will identify an incorrect movement pattern in someone's daily living or athletic movement, which is causing a deficiency in that individual. The student will focus on one joint movement and breakdown the incorrect movement, identify over/underactive muscles, and suggest two exercises to help correct the issue. They will have to site peer reviewed academic resources for this project.

Unit Duration: 10 Weeks

Desired Results

Standard(s):

2.1 Wellness: All students will acquire health promotion concepts and skills to support a healthy, active lifestyle.

2.2 Integrated Skills: All students will develop and use personal and interpersonal skills to support a healthy, active lifestyle.

2.5 Motor Skill Development: All students will utilize safe, efficient, and effective movement to develop and maintain a healthy, active lifestyle.

Indicators:

Students will be able to identify major bones and muscles throughout the body.

Students will support their ideas with research based data.

Students will be able to apply concepts to develop corrective measures for individuals with movement deficiencies.

Students will use appropriate terminology based on their audience (layperson vs someone in the profession)

Students will be able to hypothesize through observation why someone is deficient in a certain movement.

Students will be able to create a program to improve movement disfunction.

Understandings:
Students will understand that…

- The various regions of the body and how they all connect and affect each other.
- The planes of motion include the sagittal plane, frontal plane and transverse plane. All motion occurs in at least on of these planes and no other.
- The sagittal plane devides the body into left and right halves
- The frontal plane divides the body into front and back halves.
- The transverse plane divides the body into upper and lower parts
- The directions of movement and location descriptions are specific to eliminate confusion in describing the actual movement.
- They must use the correct terminology when speaking with experts in the field versus speaking with a layperson who is unaware of correct terminology.
- Directions and positions/location include superior, inferior, anterior, posterior, medial, lateral, proximal, distal, superficial, and deep.
- Every movement refers to a joint. (ex: flexion of knee – knee being the joint) There is no movement without joint movement, unless something breaks, which is due to an outside force
- Movement terminology includes extension, flexion, adduction abduction, rotation (including medial and lateral rotation), circumduction, elevation, depression, supination, pronation, inversion, eversion, plantar flexion, and dorsiflexion.
- The types of joints are: ball and socket, hinge, gliding, ellipsoid, saddle, and pivot.
- The movement allowed by each type of joint.
- All the major muscles of the body, excluding the small individual muscles of the hand, feet, and cranium.
- All muscles can only contract, either concentric or eccentric, and serve no other function. You flex a joint, contract a muscle.
- The shoulder joint consists of these bones: scapula, humerus, and clavicle. All muscles attatch to one or more of these bones.
- The muscles which aid in moving the shoulder joint include deltoid, trapezius, latissimus dorsi, teres major, rhomboids, levator scapula, serratus anterior, pectoralis major and minor, biceps brachii, triceps brachii, and coracobrachialis,
- The rotator cuff muscles (also referred to as SITS) supraspinatus, infraspinatus, teres minor, subscapularis.
- The muscles which aid in moving the forearm and hand include brachialis, brachioradialis, flexor and extensor groups of wrist and hand, pronator teres, and supinator.

Essential Questions:

What are the various regions of the body called?
What are the Planes of Movement?
What are the Directions and Positions a body moves?
What are the Types of Joints in the body?
What does the muscular system consists of?
What are the all the major muscles of the human body?
What do all muscles do?
What is the origin and insertion of these muscles?
What are the muscles of the shoulder and arm?
What are the muscles of the forearm and hand?
What are the muscles of the spine and thorax?
What are the muscles of the head and neck?
What are the muscles of the pelvis and thigh?
What are the muscles of the leg and foot?

- The muscles which aid in moving the spine and thorax include erector spinae group, trnsversospinalis group, splenius capitis and cervices, suboccipitals, quadratus lumborum, abdominals, diaphrahm, intercostals, serratus posterior superior and inferior, and interspinalis.
- The muscles which aid in moving the head and neck include sternocleidomastoid (SCM), scalenes, masseter, and temporalis,
- The muscles which aid in moving the pelvis and thigh include quadriceps femoris group, hamstrings, gluteals, adductor group, and iliopsoas.
- The muscles which aid in moving the leg and foot include gastrocnemius, soleus, plantaris, popliteus, peroneus longus and brevis, and extensor/flexors of ankle and toes.
- It is important to know the insertion points of these muscles to have a better understanding of humant movement, which allows for optimal performance while minimizing risk of injury for those engaged in physical activity.

Assessment Evidence

Performance Tasks:

- Students will demonstrate knowledge through a series of assessments created by the teacher.
- Students will produce examples of conflicting research through online current event publications (at least 4 throughout the marking period), and show their navigation of this information to determine truth.
- Students will navigate research publications provided by teacher and illustrate how they navigated to draw a conclusion of accuracy.
- Students will submit a final project of their own showing how they used what they have learned to assess and create a nutritional program for a client based on their goals.

Other Evidence:

- Informal Observation: Teacher will make random checks for comprehension through questions and answers, study guides, and pop quizzes that won't count towards their grade.
- Teacher Created Test/Quizzes: Students must pass formal quizzes and test on all information discussed and/or presented.
- Homework
- Classwork

Benchmarks:

Project – Comprehensive paper as described above.

Functional Anatomy Final Assessment (Final Exam)

Learning Plan

Learning Activities
Topic Introduction: Students will learn terminology of movement first so when the anatomy and kinesiology are discussed, it can be done with a deeper more thorough understanding. Students will learn the muscles for each joint and how they work synergistically.

Application: Students will learn how to enhance movement and reduce injury through understanding the anatomy and kinesiology of the body. They will challenge their own traditional knowledge with research based information. They will learn how to think critically, constructively, and analytically when faced with new information. They will show their application through assessment, discussion, and projects.

Reflection: Students will evaluate/reflect on the importance of learning how to research information.

Resources:
Online: brentbrookbush.com, PubMed.com, GoogleScholar.com, eatright.org, cdc.gov, acsm.org, nutrition.org, crossfit.com, mypyramid.gov

Text: Trail Guide to the Body, 5th ed (2014) by Andrew Biel
Kinesiology: An Applied Approach (2013) by Gregory Biren and Robert Sterner

Unit Learning Goal and Scale
(Level 2.0 reflects a minimal level of proficiency)

Standard(s): 2.5 Motor Skill Development: All students will utilize safe, efficient, and effective movement to develop and maintain a healthy, active lifestyle. (2.5.12.A.2,4)

4.0	**Students will be able to:** • **In addition to score 3.0, the student demonstrates in-depth inference and applications that go beyond what was taught.** • **Develop a corrective exercise program for individuals with deficiencies.**
3.0	**Students will be able to:** • **Analyze bodyweight movements and correct movement patterns.** • **Compare and contrast major muscles for movement and muscles that assist in movement.**
2.0	**Students will be able to:** • **Identify major muscles and planes of movement in which they take place.** • **Explain why understanding insertion points of muscles help to determine efficiency in movement.**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

Unit Modifications for Special Population Students

Advanced Learners	• Assign leadership roles in group activities. • Assign outside research pertaining to the unit. Sources may include internet, additional text, and/or video

Struggling Learners	• Locate boldface heads in the sections
	• Explain that boldface heads divide the text by topic
	• Provide reading strategies:
	  • Read boldface headings
	  • Predict what will be covered in the section of the text
	  • Read text section
	  • Review their predictions

	• Refer to guided questions and comprehension questions • Encourage use of glossary of terms and dictionary

English Language Learners	• Locate boldface heads in the sections
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	  • Read boldface headings
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	  • Read the text section
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	  • Refer to guided questions and comprehension questions
	• Encourage use of glossary of terms and dictionary, as well as Google translate or other translation service.
	• Utilize the following link for more resources:
	  • http://www.state.nj.us/education/modelcurriculum/ela/ELLSupport.pdf

Learners with an IEP	Each special education student has in Individualized Educational Plan (IEP) that details the specific accommodations, modifications, services, and support needed to level the playing field. This will enable that student to access the curriculum to the greatest extent possible in the least restrictive environment. These include: • Variation of time: adapting the time allotted for learning, task completion, or testing • Variation of input: adapting the way instruction is delivered • Variation of output: adapting how a student can respond to instruction • Variation of size: adapting the number of items the student is expected to complete • Modifying the content, process or product Additional resources are outlined to facilitate appropriate behavior and increase student engagement. The most frequently used modifications and accommodations can be viewed here. Teachers are encouraged to use the Understanding by Design Learning Guidelines (UDL). These guidelines offer a set of concrete suggestions that can be applied to any discipline to ensure that all learners can access and participate in learning opportunities. The framework can be viewed here www.udlguidelines.cast.org
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Interdisciplinary Connections

Indicators:

Technology: 8.1.5.D.2: Analyze the resource citations in online materials for proper use.
8.1.8.D.4: Assess the credibility and accuracy of digital content
8.2.12.E.1: Demonstrate an understanding of the problem-solving capacity of computers in our world.

Integration of 21st Century Skills

Indicators:

9.2.12.C.1: Review career goals and determine steps necessary for attainment.
9.2.12.C.3: Identify transferable career skills and design alternate career plans.
CRP2: Apply appropriate academic and technical skills
CRP3: Attend to personal health and financial well being
CRP4: Communicate clearly and effectively and with reason.
CRP7: Employ valid and reliable research strategies.
CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9: Model integrity, ethical leadership and effective management.
CRP10: Plan education and career paths aligned to personal goals.
CRP11: Use technology to enhance productivity.

Unit Title: Unit 4 – Physical Programming for Individuals

Unit Description:

This unit focuses on assessing and programming for clients. This unit will focus on various programming based on individual goals. We will explore paths for individuals who want to reach strength, body composition, endurance, and cardiovascular goals. Students will find peer reviewed information for the various ways for individuals to each specific goals and what training methods are best to meet those goals.

Topics covered during this unit include:

- Cardiovascular Endurance Training
- Muscular Endurance Training
- Muscular Strength Training
- Muscular Hypertrophy Training
- Various Fat Loss Methods
- Fad Diets

Project: Research a "Fad Diet" and compare it to a macronutrient and calorie calorie diet over a 6 week period. Find what works and doesn't work with the fad diet, and explain how and why/why not that nutrition plan is beneficial for healthy longevity.

Unit Duration: 5 Weeks

Desired Results

Standard(s):

2.1 Wellness: All students will acquire health promotion concepts and skills to support a healthy, active lifestyle.

2.2 Integrated Skills: All students will develop and use personal and interpersonal skills to support a healthy, active lifestyle.

2.5 Motor Skill Development: All students will utilize safe, efficient, and effective movement to develop and maintain a healthy, active lifestyle.

Indicators:

Students will be able to describe/prescribe appropriate programming methods for an individual looking for muscular hypertrophy

Students will be able to describe/prescribe appropriate programming methods for an individual looking for muscular strength.

Students will be able to describe/prescribe appropriate programming methods for an individual looking for cardiovascular endurance.

Students will be able to describe/prescribe appropriate programming methods for an individual looking for muscular endurance.

Students will be able to explain and analyze new methods for fat loss and why they may or may not be effective.

Students will be able to create a nutrition and exercise plan for individuals based on their needs and goals.

Understandings:
Students will understand that…

- Cardiovascular endurance is the abililty to exercise for extended periods of time
- Cardiovascular endurance is a skill that can be acquired
- Cardiovascular endurance is developed through a specific training regime
- Muscular endurance is the ability for a specific muscle to endure longer repetition sets at a specific percentage of max load
- Muscular endurance is a skill that can be acquired
- Muscular endurance is developed through a specific training regime
- Muscular strength is the ability to perform a specific movement/lift for a one rep max.
- Muscular strength is a skill that can be acquired
- Muscular strength is developed through a specific training regime
- Muscular hypertrophy is increasing the size of a muscle.
- Muscular hypertrophy can be acquired through varying training programs.
- Muscular hypertrophy is developed through a specific training regime
- Muscular hypertrophy occurs at superficial and deep levels. Different training programs cause different muscle fibers to be engaged for this result.
- Fat loss is a cumulation of specific diet and physical training.
- Weight loss is simply living in a calorie deficit, resulting in either muscle or fat loss
- Fat loss and food choices are a skills that can be learned.
- Fad Diets are new and trendy ways to lose weight and or fat.
- Fad Diets are trends that tend to have celebrity or media interest.
- Fad Diets all have the same thing in common, which is the presentation of ease for the consumer, as well as something that needs to be purchased.
- Peer reviewed research and testing is the best way to base training methodology

Essential Questions:

What is Cardiovascular Endurance?
What are tested and proven methods to increase cardiovascular endurance?
What are training strategies for cardiovascular endurance athletes?
What is Muscular Endurance?
What are tested and proven training methods to increase muscular endurance?
What is Muscular Strength?
What are tested and proven training methods to increase muscular strength?
What is the neurological relationship/connection for muscular strength?
What is hypertrophy training?
What are the different types of hypertrophy/
What are tested and proven training methods to increase muscular hypertrophy?
What are fat loss training methods?
What are the major contributors to fat loss vs weight loss?
What are "fad diets"?
What do "fad diets" have in common?
How can a professional navigate through "fad diets" as they come out?

Assessment Evidence

Performance Tasks:

- Students will demonstrate knowledge through a series of assessments created by the teacher.
- Students will produce examples of conflicting research through online current event publications (at least 4 throughout the marking period), and show their navigation of this information to determine truth.
- Students will navigate research publications provided by teacher and illustrate how they navigated to draw a conclusion of accuracy.

Other Evidence:

- Informal Observation: Teacher will make random checks for comprehension through questions and answers, study guides, and pop quizzes that won't count towards their grade.
- Teacher Created Test/Quizzes: Students must pass formal quizzes and test on all information discussed and/or presented.
- Homework
- Classwork

• Students will submit a final project of their own showing how they used what they have learned to assess and create a nutritional program for a client based on their goals.	

Benchmarks:

Project – Comprehensive paper as described above.

Functional Anatomy Final Assessment (Final Exam)

Learning Plan

Learning Activities

Topic Introduction: Students will learn varying training methods based on the goals of a client. They will learn how to listen to the needs of a client and not push their own agenda onto them. They will learn how to connect to clients so they can better help them.

Application: They will learn to describe and prescribe training programs for individuals based on their goals. They will learn how to navigate and identify fad diets versus sustainable ways to a healthy lifestyle. They will challenge their own traditional knowledge with research based information. They will learn how to think critically, constructively, and analytically when faced with new information. They will show their application through assessment, discussion, and projects.

Reflection: Students will evaluate/reflect on the importance of learning how to research information.

Resources:

Online: PubMed.com, GoogleScholar.com, eatright.org, cdc.gov, acsm.org, nutrition.org, crossfit.com, mypyramid.gov, 5aday.gov, diabetes.org, nih.gov, healthfinder.gov, journals.sagepub.com/loi/ajs

Text: Trail Guide to the Body, 5th ed (2014) by Andrew Biel
Kinesiology: An Applied Approach (2013) by Gregory Biren and Robert Sterner

Unit Title: Unit 5 – Assessments and Career Development

Unit Description:

This unit focuses on assessing and programming for clients. This unit will focus on key assessment tools and determining the proper steps to improve strength, mobility, and wellness. This unit will be a culmination of all material to address the best steps in moving forward. This unit will also address what the professional has the certifications to address (i.e. a personal trainer does not diagnose an injury, they help improve a weakness). Possible career futures will also be discussed with guest speakers from a multitude of health, nutrition, and fitness careers.

Topics covered during this unit include:

- Overhead Squat Assessment
- Postural Analysis
- Understanding the concept of overactive and underactive muscles
- The Gait Cycle
- Inner Core Training vs Outer Core Training
- Understanding 6 common mistakes in lower body training
- Understanding professional limitations and responsibilities
- Professional futures in the fields of Health, Wellness, Nutrition, and Fitness

Project: Interview of a Professional in a field of interest which falls in the realm of this class. They will establish their own questions, set up an interview time, record the interview, transcribe the interview, and complete a write up summarizing takeaways from the interview.

Unit Duration: 8 Weeks

Desired Results

Standard(s):

2.1 Wellness: All students will acquire health promotion concepts and skills to support a healthy, active lifestyle.

2.2 Integrated Skills: All students will develop and use personal and interpersonal skills to support a healthy, active lifestyle.

2.5 Motor Skill Development: All students will utilize safe, efficient, and effective movement to develop and maintain a healthy, active lifestyle.

Indicators:

Students will be able to complete an overhead squat assessment of an individual

Students will

Students will be able to apply concepts to develop corrective measures for individuals with movement deficiencies.

Students will use appropriate terminology based on their audience (layperson vs someone in the profession)

Students will be able to hypothesize through observation why someone is deficient in a certain movement.

Students will be able to create a program to improve movement disfunction.

Understandings:
Students will understand that…

- The overhead squat assessment (OSA) is simply observing an individual do a bodyweight squat with their arms straight overhead.
- The OSA is used to find deficiencies in upper and lower body.
- Commonly noted signs of dysfunction include:
    - Feet flatten: often driven by lack of dorsiflexion.
    - Feet turn-out: often driven by lack of dorsiflexion.
    - Knees bow-in: often driven by ankle or hip dysfunction.
    - Knees bow-out: often driven by ankle dysfuction.
    - Excessive lordosis (anterior pelvic tilt): excessive hip flexion and lumbar extension
    - Excessive forward lean: lack of dorsiflexion and excessive hip flexion
    - Arms fall: Overactive latissimus dorsi and other shoulder internal rotators
    - Shoulder girdle elevation: Overactive pectoralis minor and other scapula downward rotators
- Postural dysfunction is anything related to posture that is not ideal
- Correct seated posture includes: feet flat on the ground, knees slightly higher than your hips, core engaged, shoulder blades back, head back (ears in line with shoulders)
- Correct standing posture includes: feet flat with toes gripping the ground, feet torqued into the ground engage glutes to externally rotate feet, core engaged eliminating pelvic tilt, shoulder blades back, head back (ears in line with shoulders)
- Verbal cues to correct posture include: screw your feet into the ground, butt tight, engage core, shoulders back, head back.
- When someone sits for long periods of time, or they have bad posture, an individual develops long and underactive hip extensors, shoulder retractors, neck extensors. They also will develop short and overactive hip flexors, lats, and pecs.
- Physical issues from excessive sitting or from constant poor sitting or standing posture, includes knee pain, hip pain, low back pain, and shoulder and neck pain. It can lead to hip and low back stress, which could lead to bulging and herniated low back vertebral discs.
- Athletic performance can not be optimized when specific muscles or over or underactive. Power and speed come from properly functioning hip extensors, and poor posture reduces this. Strong torque when throwing and swinging

Essential Questions:
What is the Overhead Squat Assessment?
What deficiencies does the OSA reveal?
What corrective exercises can one do to correct deficiencies revealed from OSA?
What is correct seated posture?
What is correct standing posture?
What are verbal cues to correct improper posture?
What muscles become long and underactive because of poor posture?
What muscles become short and overactive because of poor posture?
What physical issues can result from poor posture?
How can athletic performance be affected by poor posture?
What is the Gait Cycle?
What is the difference between outer core training and inner core training?
Which core muscles are most important to keep trained for longevity?
What are 6 common mistakes made in lower body training?
What are the limitations/responsibilities of a personal trainer?
What are the limitations/responsibilities of a coach?
What are the limitations/responsibilities of a physical therapist?
What are the limitations/responsibilities of a chiropractor?
What are the limitations/responsibilities of a family doctor?
What are the limitations/responsibilities of an athletic trainer?

come from a stable hips and spine, which is lost with postural dysfunction.

- The gait cycle is simply how we walk, and the different phases of walking.
- The phases of the gait cycle are:
    - Stance: when the foot is in contact with the ground
    - Swing: the the foot is not in contact with the ground
- Events of the Stance Phase:
    - Heel Strike
    - Foot Flat
    - Mid-stance
    - Heel-off
    - Toe-off
- Events of the Swing Phase:
    - Initial Swing
    - Mid Swing
    - Heel Strike
- Two important terms that are important to remember in the gait cycle are **stride length** (one complete gait cycle) and **step length** (half of stride length, covering heel strike through toe-off).
- The inner core, according to National Academy of Sports Medicine (NASM), refers to the stabilization system, which includes muscles to maintain a neutral spine.
    - Transverse abdominus
    - Internal obliques
    - Mutifidus
    - Deep erector spinae
- The outer core, according to NASM, refer to muscles that help move the core.
    - Rectus abdominis
    - External obliques
    - Superficial erector spinae
    - Quadratus lumborum
- 6 mistakes of lower body training:
    - Little attention to hamstrings
    - Training primarily on the sagittal plane
    - Insufficient focus on the eccentric phase
    - Training primarily on two legs
    - Lack of balance training
    - Lack of developing proper landing, cutting, and deceleration mechanics
- Personal Trainer:
    - Responsibilities include: listening to goals of client, creating a workout plan/routine, safety, certification and CEU's, proper execution of exercises, monitoring, testing, progressing with client.
    - Limitations include: diagnosing illness or injury, prescribing corrective exercises for pain or injury,
- Coach:
    - Responsibilities include: knowledge of the sport, knowledge of physical training concepts, assess risk, protect athletes, proper insurance, first aid.

- Limitations include: diagnosing illness or injury, prescribing corrective exercises for pain or injury.
- Physical Therapist:
  - Responsibilities include: diagnose and treat individuals with movement dysfunction, restore optimal performance, prevent progression of impairments.
  - Limitations include: diagnosing illness, creating a nutrition plan, creating a sport specific strength and conditioning program.
- Chiropractor:
  - Responsibilities include: manipulation treatment, adjustments, collaborating with physical therapists for treatment plan.
  - Limitations include: diagnosing and treating illness or injury, prescribing corrective exercises for pain or injury.
- Athletic Trainer:
  - Responsibilities include: prevention and treatment of injuries, first aid, prevention of injury by examing practice and playing fields for hazards, advise on nutrition,
  - Limitations include: diagnosing illness and injury.

Assessment Evidence

Performance Tasks:

- Students will demonstrate knowledge through a series of assessments created by the teacher.
- Students will produce examples of conflicting research through online current event publications (at least 4 throughout the marking period), and show their navigation of this information to determine truth.
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Benchmarks:

Project – Comprehensive paper as described above.

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Learning Plan

Learning Activities

Topic Introduction: Students will learn terminology of movement first so when the anatomy and kinesiology are discussed, it can be done with a deeper more thorough understanding. Students will learn the muscles for each joint and how they work synergistically.

Application: Students will learn how to enhance movement and reduce injury through understanding the anatomy and kinesiology of the body. They will challenge their own traditional knowledge with research based information. They will learn how to think critically, constructively, and analytically when faced with new information. They will show their application through assessment, discussion, and projects.

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Becoming a Supple Leopard (2015) by Dr. Kelly Starrett

Unit Learning Goal and Scale *(Level 2.0 reflects a minimal level of proficiency)*	
Standard(s): 2.6 Fitness: All students will apply health-related and skill-related fitness concepts and skills to develop and maintain a healthy, active lifestyle.(2.6.12.A.1-4)	
4.0	**Students will be able to:** • **In addition to score 3.0, the student demonstrates in-depth inference and applications that go beyond what was taught.**
3.0	**Students will be able to:** • **Analyze and individual going through assessments and recognize all deficiencies.** • **Develop a program to correct deficiencies in individuals** • **Explain the compound effect of daily habits for physical longevity.**
2.0	**Students will be able to:** • **Define the various assessments discussed.** • **Identify at least 2 deficiencies in all assessments discussed.**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

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8.1.8.D.4: Assess the credibility and accuracy of digital content
8.2.12.E.1: Demonstrate an understanding of the problem-solving capacity of computers in our world.

Mathematics: 4.MD.A: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
5.MD.B: Represent and interpret data.
7.RP.A: Analyze proportional relationships and use them to solve real-world and mathematical problems.

Integration of 21st Century Skills

Indicators:

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