Camp Hill School District
Planned Course Document Cover Page

Subject: Science Grade Level(s): 3rd Grade

Written by: Stephanie Golihew

Development/Revision Date: Summer 2019

"The Camp Hill School Community strives to prepare every student with the skills and knowledge necessary to thrive in a global society."

CAMP HILL SCHOOL DISTRICT

Motion and Matter

Big Ideas: Interactions between any two objects can cause changes in one or both.
Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.

Essential Question	**Focus for Instruction** (What students should be able to do?)	**Essential Vocabulary**	**Planned Learning Experiences and Instructional Strategies** (How will you adjust instruction to meet the needs of diverse learners?)	**Assessments** (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	**Technology, Materials and Resources** Standards	**Suggested Timeframe** (If applicable)
How can one explain and predict interactions between objects within systems?	**Competency:** Investigate the variables that may affect how objects move across a floor, down a ramp, etc. **Concepts:** Each force acts on one particular object and has both strength and a direction.	Acceleration Force Speed Velocity	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B1 3.2.3.B2 3.2.4.B1 3.2.4.B2 3.2.3.B6	
How can one explain and predict interactions between objects within systems?	**Competency:** Construct an explanation for why an object subjected to multiple pushes and pulls might stay in one place or move **Concepts:** An object at rest	Systems	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.4.B1	

	typically has multiple forces acting on it, but they add to give zero net force on the object.					
How can one explain and predict interactions between objects within systems?	**Competency:** Through the use of objects, design an investigation and demonstrate that forces can cause changes on an object's speed or direction of motion. **Concepts:** Forces that do not sum to zero can cause changes in the object's speed or direction of motion.	Design Direction Investigation Motion Speed	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B1	
How can one explain and predict interactions between objects within systems?	**Competency:** Take measurements of objects in motion and represent the movement of objects in multiple representations. **Concepts:** Patterns of an object's motion in various situations can be observed and measured.	Motion Net Zero Pattern Prediction	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.		3.2.3.B1	
How can one explain and predict interactions between objects within systems?	**Competency:** Investigate the motion of objects to determine observable and measurable patterns to predict future motions. **Concepts:** When past motion	Force Gravity Net force Pattern Predict	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B1 3.2.4.B1	

	exhibits a regular pattern, future motion can be predicted from it.					
How can one explain and predict interactions between objects within systems?	**Competency:** Provide evidence that a pattern can be used to predict future motion. **Concepts:** When past motion exhibits a regular pattern, future motion can be predicted from it.	Force Pattern	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B1 3.2.4.B1	
How can one explain and predict interactions between objects within systems?	**Competency:** Design and implement an investigation to demonstrate that objects in contact exert forces on each other. **Concepts:** Objects in contact exert forces on each other.		Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B1	
How can one explain and predict interactions between objects within systems?	**Competency:** Construct an explanation using data why an object subjected to multiple pushes and pulls might stay in one place or move. **Concepts:** A system can appear to be unchanging when processes within the system are going on at opposite but equal rates (e.g., water behind a dam is at a constant	Pull Push Systems	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.4.B1	

	height because water is flowing in at the same rate that water is flowing out).					
How is energy transferred and conserved?	**Competency:** Use evidence to construct an explanation for the relationship between speed, energy and motion **Concepts:** The faster a given object is moving, the more energy it possesses.	Energy Motion	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B2	
How is energy transferred and conserved?	**Competency:** Construct an investigation to demonstrate the relationship between energy and motion. **Concepts:** When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air. As a result, the air gets heated and sound is produced.	Collision Energy Energy transfer Heat Force Light Motion Sound	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.B2 3.2.4.B6	
How is energy transferred and conserved?	**Competency:** Ask questions and predict outcomes about the changes in energy	Collision Energy Energy transfer Force	Use learning, interest and readiness profiles to differentiate notes, materials, experiments	**Summative:** Unit Test PSSA **Formative:**	3.2.4.B2	

	that occur when objects collide. **Concepts:** When objects collide, the contact forces transfer energy so as to change the motion of each object.	Motion	and assessments.	Quizzes Projects Teacher Observation		

CAMP HILL SCHOOL DISTRICT

Structures of Life

Big Ideas:

- All organisms are made of cells and can be characterized by common aspects of their structure and functioning.
- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.
- Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not identical to, their parents.
- Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.
- All organisms are made of cells and can be characterized by common aspects of their structure and functioning.

Essential Question	Focus for Instruction (What students should be able to do?)	Essential Vocabulary	Planned Learning Experiences and Instructional Strategies (How will you adjust instruction to meet the needs of diverse learners?)	Assessments (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	Technology, Materials and Resources Standards	Suggested Timeframe (If applicable)
How do organisms live, grow, respond to their environment, and reproduce?	**Competency:** Use models to explain how reproduction is essential for every kind of organism. **Concepts:** Reproduction is essential to the continued existence of every kind of organisms.	Life cycle Offspring Parents Reproduce Survival	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.D 4.2.4.C	
How do organisms live,	**Competency:**	Life cycle	Use learning, interest	**Summative:**	3.1.4.A	

grow, respond to their environment, and reproduce?	Develop a model to describe the commonalities of life cycles of different organisms. **Concepts:** Plants and animals have unique and diverse life cycles that include birth, growth, reproduction, and death.	Offspring Parents Reproduce Survival	and readiness profiles to differentiate notes, materials, experiments and assessments.	Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.D 4.2.4.C	
How and why do organisms interact with their environment and what are the effects of these interactions?	**Competency:** Based on observations, construct an argument that some animals form groups that help members survive. **Concepts:** Animals depend on each other and their surroundings to get what they need, including food, water, shelter, and a stable temperature. Groups serve different functions and vary in size.	Basic needs Consumer Heterotroph Representation Stable	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.4.A 3.1.4.C 3.2.4.A 3.2.4.B 3.3.4.B 3.4.4.A 3.4.4.B 3.4.4.E 4.1.4.A 4.1.4.B 4.1.4.C 4.2.4.A 4.2.4.B 4.2.4.C 4.4.4.B 4.5.4.D	
How and why do organisms interact with their environment and what are the effects of these interactions?	**Competency:** Construct an argument with evidence that within a specific habitat, some organisms survive well, some not so well, and others cannot survive at all. **Concepts:**		Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.4.A 3.1.4.B 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.A 3.3.4.B 3.4.4.B 3.4.4.D 3.4.4.E	

	When the environment changes in physical characteristics, temperature, availability of resources, some organisms survive, others move, yet others may die				4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D 4.5.4.A 4.5.4.C	
How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	**Competency:** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms **Concepts:** Different organisms vary in how they look and function because they have different inherited information.	Inheritance Traits	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.3.B1	
How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	**Competency:** Use evidence to support an explanation that the environment can influence traits. **Concepts:** The environment also affects the traits that an organism develops.	Environment Evidence Influence	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.3.B1	
How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings	**Competency:** Use evidence to compare characteristics inherited from parents, characteristics caused by the environment,	Characteristics Environmental factors Generation Inherited Siblings	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects	3.1.4.A 3.1.4.B 3.1.4.C 4.5.4.D 4.2.4.C	

have different characteristics?	and those resulting from both. **Concepts:** Many characteristics involve both inherited traits and environmental factors.	Traits Variation		Teacher Observation		
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	**Competency:** Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. **Concepts:** Sometimes differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.		Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation		
How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	**Competency:** Use evidence to explain how some characteristics that vary among individuals of the same kind of organism can provide advantages to survive, find mates, and reproduce. **Concepts:**	Reproduce Survive	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.3.C1 3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	

	Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.					
How do organisms live, grow, respond to their environment, and reproduce?	**Competency:** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. **Concepts:** Plants and animals have internal and external structures that serve various functions to survive.	Behaviors Cause and effect Function Offspring Reproduce Structure Survival System System Models	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.C 4.2.4.C 3.1.3.A.1	

CAMP HILL SCHOOL DISTRICT

Water and Climate

Big Ideas: The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.

Essential Question	**Focus for Instruction** (What students should be able to do?)	**Essential Vocabulary**	**Planned Learning Experiences and Instructional Strategies** (How will you adjust instruction to meet the needs of diverse learners?)	**Assessments** (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	**Technology, Materials and Resources** Standards	**Suggested Timeframe** (If applicable)
How and why is Earth constantly changing?	**Competency:** Organize simple weather data sets to record local weather data and identify day-to-day variations, as well as, long-term patterns of weather. **Concepts:** Scientists record patterns of the weather across different times and areas of the weather so that they can make predictions about what kind of weather might happen next.	Atmosphere Data Weather	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.3.3.A4 3.3.3.A5	
How and why is Earth constantly changing?	**Competency:** Record and communicate	Climate Conditions Weather	Use learning, interest and readiness profiles to differentiate notes,	**Summative:** Unit Test PSSA	3.3.3.A4 3.3.3.A5	

	information to describe climates in different regions of the world. **Concepts:** Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over a period of many years.		materials, experiments and assessments.	**Formative:** Quizzes Projects Teacher Observation		
How and why is Earth constantly changing?	**Competency:** Display simple data sets in tables and graphs to display previous weather conditions to make predictions for future seasons. **Concepts:** Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over a period of many years.	Climate Weather	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.3.3.A4 3.3.3.A5	

CAMP HILL SCHOOL DISTRICT

Water and Climate

Big Ideas: Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms. The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.

Essential Question	Focus for Instruction (What students should be able to do?)	Essential Vocabulary	Planned Learning Experiences and Instructional Strategies (How will you adjust instruction to meet the needs of diverse learners?)	Assessments (How will you know if students have learned? List Summative [S], Formative [F], Benchmark [B], Diagnostic [D])	Technology, Materials and Resources Standards	Suggested Timeframe (If applicable)
How can one explain the structure, properties, and interactions of matter?	**Competency:** Observe, describe, and classify matter by properties and uses (e.g., size, shape, weight, solid, liquid, gas). **Concepts:** Different kinds of matter exist in various states.	Classify Describe Gas Liquid Matter Patterns Solid Weight	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.3.A1 3.2.4.A1 3.2.3.A2	
How can one explain the structure, properties, and interactions of matter?	**Competency:** Observe, describe, and classify matter by properties and uses (e.g., size, shape,	Color Flexibility Gas Liquid Matter	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes	3.2.3.A1 3.2.4.A1 3.2.3.A2 3.2.K.A.1	

	weight, texture, flexibility, hardness, cPlan and carry out investigations to test **Concepts:** Matter can be described and classified by its observable properties	Properties Solid Texture Weight		Projects Teacher Observation		
How can one explain the structure, properties, and interactions of matter?	**Competency:** Plan and carry out investigations to test the idea that warming some materials causes them to change from solid to liquid and cooling causes them to change from liquid to solid. **Concepts:** Different kinds of matter exist in various states, depending on temperature.	Investigations Liquid Solid	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.2.1.A.1 3.2.1.A.3 3.2.2.A.3 3.2.3.A.3.	
How and why is Earth constantly changing?	**Competency:** Investigate and represent the various forms of water in their local environment, on Earth, and also on other planets and moons. Use observations to construct explanations that water exists in different forms in natural landscapes. **Concepts:** Water is found in the ocean, rivers, lakes, ponds, and as	Accumulation Condensation Earth Evaporation Groundwater Lake Liquid Ocean Pond Precipitation River Solid/ice Types of Clouds Vapor/Gas	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.3.3.A4 3.3.4.A4	

	groundwater beneath the surface. Water exists as solid ice, in liquid form, and as a vapor					
How can one explain the structure, properties, and interactions of matter?	**Competency:** Identify various types of water environments in Pennsylvania. **Concepts:** Water occurs underground, above ground, and in the atmosphere.	Lakes Lentic Lotic Ponds Rivers Streams Watersheds	Use learning, interest and readiness profiles to differentiate notes, materials, experiments and assessments.	**Summative:** Unit Test PSSA **Formative:** Quizzes Projects Teacher Observation	3.3.4 A5	