Forward Education

Autonomous Electric Vehicles of the Future

South Carolina Standards & Learning
Mathematics
Grade **11** - Adopted: **2015**

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.1.	Make sense of problems and persevere in solving them.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1b.	Recognize there may be multiple entry points to a problem and more than one path to a solution.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1c.	Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1d.	Evaluate the success of an approach to solve a problem and refine it if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.2.	Reason both contextually and abstractly.
PERFORMANCE DESCRIPTOR / STANDARD	PS.2d.	Connect the meaning of mathematical operations to the context of a given situation.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.3.	Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3a.	Construct and justify a solution to a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3b.	Compare and discuss the validity of various reasoning strategies.

PERFORMANCE DESCRIPTOR / STANDARD	PS.3d.	Reflect on and provide thoughtful responses to the reasoning of others.

STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.4.**	**Connect mathematical ideas and real-world situations through modeling.**

PERFORMANCE DESCRIPTOR / STANDARD	PS.4a.	Identify relevant quantities and develop a model to describe their relationships.

PERFORMANCE DESCRIPTOR / STANDARD	PS.4b.	Interpret mathematical models in the context of the situation.

PERFORMANCE DESCRIPTOR / STANDARD	PS.4d.	Evaluate the reasonableness of a model and refine if necessary.

STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.7.**	**Identify and utilize structure and patterns.**

PERFORMANCE DESCRIPTOR / STANDARD	PS.7b.	Recognize mathematical repetition in order to make generalizations.

STANDARD / COURSE	**SC.9-12.A1.**	**Algebra 1**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**A1.ACE.**	**Creating Equations**

PERFORMANCE DESCRIPTOR / STANDARD	A1.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.)

STANDARD / COURSE	**SC.9-12.A1.**	**Algebra 1**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**A1.FIF.**	**Interpreting Functions**

PERFORMANCE DESCRIPTOR / STANDARD	A1.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.)

PERFORMANCE DESCRIPTOR / STANDARD	A1.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. (Limit to linear; quadratic; exponential only in the form y=(a^x)+k.)

STANDARD / COURSE	SC.9-12.A1.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**A1.FLQE.**	**Linear, Quadratic, and Exponential**
PERFORMANCE DESCRIPTOR / STANDARD	**A1.FLQE.1.**	**Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. (Note: A1.FLQE.1a is not a Graduation Standard.)**

GRADE LEVEL EXAMPLE / STAGE	A1.FLQE.1a.	Prove that linear functions grow by equal differences over equal intervals and that exponential function grow by equal factors over equal intervals.

STANDARD / COURSE	SC.9-12.A1.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**A1.SPID.**	**Interpreting Data**

PERFORMANCE DESCRIPTOR / STANDARD	A1.SPID.7.	Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**FA.ACE.**	**Creating Equations**

PERFORMANCE DESCRIPTOR / STANDARD	FA.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.)

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**FA.FIF.**	**Interpreting Functions**

PERFORMANCE DESCRIPTOR / STANDARD	FA.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.)
PERFORMANCE DESCRIPTOR / STANDARD	FA.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. (Limit to linear; quadratic; exponential only in the form y=a^x+k.)

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	FA.FLQE.	Linear, Quadratic, and Exponential
PERFORMANCE DESCRIPTOR / STANDARD	FA.FLQE.1.	Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. (Note: FA.FLQE.1a is not a Graduation Standard.)
GRADE LEVEL EXAMPLE / STAGE	FA.FLQE.1a.	Prove that linear functions grow by equal differences over equal intervals and those exponential functions grow by equal factors over equal intervals.

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	FA.SPID.	Interpreting Data
PERFORMANCE DESCRIPTOR / STANDARD	FA.SPID.7.	Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.

STANDARD / COURSE	SC.9-12.IA.	Intermediate Algebra
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	IA.ACE.	Creating Equations
PERFORMANCE DESCRIPTOR / STANDARD	IA.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

STANDARD / COURSE	SC.9-12.IA.	Intermediate Algebra
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	IA.FIF.	Interpreting Functions
PERFORMANCE DESCRIPTOR / STANDARD	IA.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
PERFORMANCE DESCRIPTOR / STANDARD	IA.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.

STANDARD / COURSE	SC.9-12.A2.	Algebra 2
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A2.ACE.	Creating Equations

PERFORMANCE DESCRIPTOR / STANDARD	A2.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

STANDARD / COURSE	SC.9-12.A2.	Algebra 2
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A2.FIF.	Interpreting Functions

PERFORMANCE DESCRIPTOR / STANDARD	A2.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.

PERFORMANCE DESCRIPTOR / STANDARD	A2.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.

STANDARD / COURSE	SC.9-12.G.	Geometry
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	G.GGPE.	Expressing Geometric Properties with Equations

PERFORMANCE DESCRIPTOR / STANDARD	G.GGPE.5.	Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither. Write the equation of a line passing through a given point that is parallel or perpendicular to a given line. Solve geometric and real-world problems involving lines and slope.

STANDARD / COURSE	SC.9-12.PC.	Pre-Calculus
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PC.FIF.	Interpreting Functions

PERFORMANCE DESCRIPTOR / STANDARD	PC.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.

South Carolina Standards & Learning
Mathematics
Grade **12** - Adopted: **2015**

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.1.	Make sense of problems and persevere in solving them.

PERFORMANCE DESCRIPTOR / STANDARD	PS.1b.	Recognize there may be multiple entry points to a problem and more than one path to a solution.

PERFORMANCE DESCRIPTOR / STANDARD	PS.1c.	Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1d.	Evaluate the success of an approach to solve a problem and refine it if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.2.	Reason both contextually and abstractly.
PERFORMANCE DESCRIPTOR / STANDARD	PS.2d.	Connect the meaning of mathematical operations to the context of a given situation.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.3.	Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3a.	Construct and justify a solution to a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3b.	Compare and discuss the validity of various reasoning strategies.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3d.	Reflect on and provide thoughtful responses to the reasoning of others.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.4.	Connect mathematical ideas and real-world situations through modeling.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4a.	Identify relevant quantities and develop a model to describe their relationships.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4b.	Interpret mathematical models in the context of the situation.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4d.	Evaluate the reasonableness of a model and refine if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PS.7.	Identify and utilize structure and patterns.
PERFORMANCE DESCRIPTOR / STANDARD	PS.7b.	Recognize mathematical repetition in order to make generalizations.

STANDARD / COURSE	SC.9-12.A1.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A1.ACE.	Creating Equations
PERFORMANCE DESCRIPTOR / STANDARD	A1.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.)

STANDARD / COURSE	SC.9-12.A1.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A1.FIF.	Interpreting Functions
PERFORMANCE DESCRIPTOR / STANDARD	A1.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.)
PERFORMANCE DESCRIPTOR / STANDARD	A1.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. (Limit to linear; quadratic; exponential only in the form $y=(a^x)+k$.)

STANDARD / COURSE	SC.9-12.A1.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A1.FLQE.	Linear, Quadratic, and Exponential
PERFORMANCE DESCRIPTOR / STANDARD	A1.FLQE.1.	Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. (Note: A1.FLQE.1a is not a Graduation Standard.)
GRADE LEVEL EXAMPLE / STAGE	A1.FLQE.1a.	Prove that linear functions grow by equal differences over equal intervals and that exponential function grow by equal factors over equal intervals.

STANDARD / COURSE	SC.9-12.A1.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A1.SPID.	Interpreting Data

PERFORMANCE DESCRIPTOR / STANDARD	A1.SPID. 7.	Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**FA.ACE.**	**Creating Equations**

PERFORMANCE DESCRIPTOR / STANDARD	FA.ACE. 2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.)

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**FA.FIF.**	**Interpreting Functions**

PERFORMANCE DESCRIPTOR / STANDARD	FA.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.)
PERFORMANCE DESCRIPTOR / STANDARD	FA.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. (Limit to linear; quadratic; exponential only in the form y=a^x+k.)

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**FA.FLQE .**	**Linear, Quadratic, and Exponential**
PERFORMANCE DESCRIPTOR / STANDARD	**FA.FLQE.1.**	**Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. (Note: FA.FLQE.1a is not a Graduation Standard.)**

GRADE LEVEL EXAMPLE / STAGE	FA.FLQE. 1a.	Prove that linear functions grow by equal differences over equal intervals and those exponential functions grow by equal factors over equal intervals.

STANDARD / COURSE	SC.9-12.FL.	Algebra 1
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**FA.SPID .**	**Interpreting Data**

PERFORMANCE DESCRIPTOR / STANDARD	FA.SPID. 7.	Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.

STANDARD / COURSE	SC.9-12.IA.	Intermediate Algebra
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	IA.ACE.	Creating Equations
PERFORMANCE DESCRIPTOR / STANDARD	IA.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

STANDARD / COURSE	SC.9-12.IA.	Intermediate Algebra
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	IA.FIF.	Interpreting Functions
PERFORMANCE DESCRIPTOR / STANDARD	IA.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
PERFORMANCE DESCRIPTOR / STANDARD	IA.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.

STANDARD / COURSE	SC.9-12.A2.	Algebra 2
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A2.ACE.	Creating Equations
PERFORMANCE DESCRIPTOR / STANDARD	A2.ACE.2.	Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

STANDARD / COURSE	SC.9-12.A2.	Algebra 2
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	A2.FIF.	Interpreting Functions
PERFORMANCE DESCRIPTOR / STANDARD	A2.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
PERFORMANCE DESCRIPTOR / STANDARD	A2.FIF.7.	Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.

STANDARD / COURSE	SC.9-12.G.	Geometry

KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	G.GGPE.	Expressing Geometric Properties with Equations
PERFORMANCE DESCRIPTOR / STANDARD	G.GGPE. 5.	Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither. Write the equation of a line passing through a given point that is parallel or perpendicular to a given line. Solve geometric and real-world problems involving lines and slope.

STANDARD / COURSE	SC.9-12.PC.	Pre-Calculus
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	PC.FIF.	Interpreting Functions
PERFORMANCE DESCRIPTOR / STANDARD	PC.FIF.4.	Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.

South Carolina Standards & Learning
Science
Grade **11** - Adopted: **2021**

STANDARD / COURSE		Biology (LS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Ecosystems: Interactions, Energy, and Dynamics (LS2)
PERFORMANCE DESCRIPTOR / STANDARD	B-LS2-7.	Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.

STANDARD / COURSE		Chemistry (PS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Matter and Its Interactions (PS1)
PERFORMANCE DESCRIPTOR / STANDARD	C-PS1-4.	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

STANDARD / COURSE		Physics (PS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Energy (PS3)
PERFORMANCE DESCRIPTOR / STANDARD	P-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

STANDARD / COURSE		Physics (PS)

KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Waves and Their Applications in Technologies for Information Transfer (PS4)
PERFORMANCE DESCRIPTOR / STANDARD	P-PS4-2.	Design, evaluate, and refine a solution for improving how digital devices store and transmit information.

STANDARD / COURSE		Earth and Space Science (ESS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Earth's Systems (ESS2)
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS2-4.	Use a model to describe how causes of short and long-term variations in the flow of energy into and out of Earth's systems result in changes to climate.

STANDARD / COURSE		Earth and Space Science (ESS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Earth and Human Activity (ESS3)
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-1.	Construct an explanation based on evidence for how the availability of natural resources and occurrence of natural hazards have influenced human activity.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-2.	Evaluate competing design solutions that address the impacts of developing, managing, and using Earth's energy and mineral resources.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-3.	Use computational representation to illustrate the relationships among the management of Earth's resources, the sustainability of human populations, and biodiversity.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-4.	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-6.	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-7.	Create an argument, based on evidence that describes how changes in climate on Earth have affected human activity.

STANDARD / COURSE		Biology (LS)

KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Ecosystems: Interactions, Energy, and Dynamics (LS2)
PERFORMANCE DESCRIPTOR / STANDARD	B-LS2-7.	Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.

STANDARD / COURSE		Chemistry (PS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Matter and Its Interactions (PS1)
PERFORMANCE DESCRIPTOR / STANDARD	C-PS1-4.	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

STANDARD / COURSE		Physics (PS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Energy (PS3)
PERFORMANCE DESCRIPTOR / STANDARD	P-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

STANDARD / COURSE		Physics (PS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Waves and Their Applications in Technologies for Information Transfer (PS4)
PERFORMANCE DESCRIPTOR / STANDARD	P-PS4-2.	Design, evaluate, and refine a solution for improving how digital devices store and transmit information.

STANDARD / COURSE		Earth and Space Science (ESS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Earth's Systems (ESS2)
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS2-4.	Use a model to describe how causes of short and long-term variations in the flow of energy into and out of Earth's systems result in changes to climate.

STANDARD / COURSE		Earth and Space Science (ESS)
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		Earth and Human Activity (ESS3)

PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-1.	Construct an explanation based on evidence for how the availability of natural resources and occurrence of natural hazards have influenced human activity.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-2.	Evaluate competing design solutions that address the impacts of developing, managing, and using Earth's energy and mineral resources.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-3.	Use computational representation to illustrate the relationships among the management of Earth's resources, the sustainability of human populations, and biodiversity.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-4.	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-6.	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.
PERFORMANCE DESCRIPTOR / STANDARD	E-ESS3-7.	Create an argument, based on evidence that describes how changes in climate on Earth have affected human activity.

South Carolina Standards & Learning
Technology Education
Grade **11** - Adopted: **2018**

STANDARD / COURSE		Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		A computer science literate student can:
PERFORMANCE DESCRIPTOR / STANDARD	3	Recognize, define, and analyze computational problems.
GRADE LEVEL EXAMPLE / STAGE	3.a.	Recognize when it is appropriate to solve a problem computationally.
GRADE LEVEL EXAMPLE / STAGE	3.b.	Make sense of computational problems and persevere in solving them.
GRADE LEVEL EXAMPLE / STAGE	3.c.	Relate computational problems to prior knowledge.
GRADE LEVEL EXAMPLE / STAGE	3.d.	Recognize that there may be multiple approaches to solving a problem.

GRADE LEVEL EXAMPLE / STAGE	3.e.	Approach problem solving iteratively, using a cyclical process.

STANDARD / COURSE		Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		A computer science literate student can:
PERFORMANCE DESCRIPTOR / STANDARD	4	Create, test, and refine computational artifacts.

GRADE LEVEL EXAMPLE / STAGE	4.b.	Recognize when to use the same solution for multiple problems.

GRADE LEVEL EXAMPLE / STAGE	4.c.	Test computational artifacts systematically by considering multiple scenarios and using test cases.

STANDARD / COURSE		Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		A computer science literate student can:
PERFORMANCE DESCRIPTOR / STANDARD	5	Communicate about computing.

GRADE LEVEL EXAMPLE / STAGE	5.a.	Select and use appropriate technological tools to convey solutions to computing problems.

STANDARD / COURSE		Computing Systems
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 1:	Examine how hardware and software contribute to computing devices solving relevant problems.
PERFORMANCE DESCRIPTOR / STANDARD		Level 2

GRADE LEVEL EXAMPLE / STAGE	HS2.CS.1.1.	Investigate how a problem is systematically solved through the selection and integration of hardware and software components.

STANDARD / COURSE		Computing Systems
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 1:	Examine how hardware and software contribute to computing devices solving relevant problems.

PERFORMANCE DESCRIPTOR / STANDARD		**Level 4**

GRADE LEVEL EXAMPLE / STAGE	HS4.CS.1.1.	Develop a solution to a given problem using appropriate hardware and software (e.g., sensor devices, Wi-Fi capabilities, specialized displays, runtime modules, operating systems, application programming interfaces (APIs)).

STANDARD / COURSE		**Data and Analysis**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 3:**	**Create various ways to visually represent data.**
PERFORMANCE DESCRIPTOR / STANDARD		**Level 3**

GRADE LEVEL EXAMPLE / STAGE	HS3.DA.3.2.	Evaluate possible computational models for data visualizations that aid in solving a variety of problems.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1:**	**Design algorithms that can be adapted to express an idea or solve a problem.**
PERFORMANCE DESCRIPTOR / STANDARD		**Level 1**

GRADE LEVEL EXAMPLE / STAGE	HS1.AP.1.1.	Create flowcharts and/or pseudocode to express a problem or idea as an algorithm.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1:**	**Design algorithms that can be adapted to express an idea or solve a problem.**
PERFORMANCE DESCRIPTOR / STANDARD		**Level 2**

GRADE LEVEL EXAMPLE / STAGE	HS2.AP.1.1.	Create algorithms to solve computational problems that have an application in the real world (e.g., local community, church, civic organization, school, home life).

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 4:**	**Plan, build, test, refine, and document programs using text-based coding languages to solve problems with varying degrees of difficulty.**

PERFORMANCE DESCRIPTOR / STANDARD		Level 3

GRADE LEVEL EXAMPLE / STAGE	HS3.AP.4.4.	Develop a systematic solution that incorporates licensed resources.

STANDARD / COURSE		Algorithms and Programming
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 4:	Plan, build, test, refine, and document programs using text-based coding languages to solve problems with varying degrees of difficulty.
PERFORMANCE DESCRIPTOR / STANDARD		Level 4

GRADE LEVEL EXAMPLE / STAGE	HS4.AP.4.2.	Implement version control to track program refinements.

STANDARD / COURSE		Impact of Computing
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 3:	Understand the importance of access and equity in computing.
PERFORMANCE DESCRIPTOR / STANDARD		Level 1

GRADE LEVEL EXAMPLE / STAGE	HS1.IC.3.3.	Identify the advantages and disadvantages of diverse perspectives and backgrounds when solving computational problems.

South Carolina Standards & Learning
Technology Education
Grade **12** - Adopted: **2018**

STANDARD / COURSE		Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		A computer science literate student can:
PERFORMANCE DESCRIPTOR / STANDARD	3	Recognize, define, and analyze computational problems.

GRADE LEVEL EXAMPLE / STAGE	3.a.	Recognize when it is appropriate to solve a problem computationally.

GRADE LEVEL EXAMPLE / STAGE	3.b.	Make sense of computational problems and persevere in solving them.

GRADE LEVEL EXAMPLE / STAGE	3.c.	Relate computational problems to prior knowledge.

GRADE LEVEL EXAMPLE / STAGE	3.d.	Recognize that there may be multiple approaches to solving a problem.

GRADE LEVEL EXAMPLE / STAGE	3.e.	Approach problem solving iteratively, using a cyclical process.

STANDARD / COURSE		Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		A computer science literate student can:
PERFORMANCE DESCRIPTOR / STANDARD	4	Create, test, and refine computational artifacts.

GRADE LEVEL EXAMPLE / STAGE	4.b.	Recognize when to use the same solution for multiple problems.

GRADE LEVEL EXAMPLE / STAGE	4.c.	Test computational artifacts systematically by considering multiple scenarios and using test cases.

STANDARD / COURSE		Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		A computer science literate student can:
PERFORMANCE DESCRIPTOR / STANDARD	5	Communicate about computing.

GRADE LEVEL EXAMPLE / STAGE	5.a.	Select and use appropriate technological tools to convey solutions to computing problems.

STANDARD / COURSE		Computing Systems
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 1:	Examine how hardware and software contribute to computing devices solving relevant problems.
PERFORMANCE DESCRIPTOR / STANDARD		Level 2

GRADE LEVEL EXAMPLE / STAGE	HS2.CS.1.1.	Investigate how a problem is systematically solved through the selection and integration of hardware and software components.

STANDARD / COURSE		Computing Systems
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 1:	Examine how hardware and software contribute to computing devices solving relevant problems.
PERFORMANCE DESCRIPTOR / STANDARD		Level 4

GRADE LEVEL EXAMPLE / STAGE	HS4.CS.1.1.	Develop a solution to a given problem using appropriate hardware and software (e.g., sensor devices, Wi-Fi capabilities, specialized displays, runtime modules, operating systems, application programming interfaces (APIs)).

STANDARD / COURSE		Data and Analysis
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 3:	Create various ways to visually represent data.
PERFORMANCE DESCRIPTOR / STANDARD		Level 3

GRADE LEVEL EXAMPLE / STAGE	HS3.DA.3.2.	Evaluate possible computational models for data visualizations that aid in solving a variety of problems.

STANDARD / COURSE		Algorithms and Programming
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 1:	Design algorithms that can be adapted to express an idea or solve a problem.
PERFORMANCE DESCRIPTOR / STANDARD		Level 1

GRADE LEVEL EXAMPLE / STAGE	HS1.AP.1.1.	Create flowcharts and/or pseudocode to express a problem or idea as an algorithm.

STANDARD / COURSE		Algorithms and Programming
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 1:	Design algorithms that can be adapted to express an idea or solve a problem.
PERFORMANCE DESCRIPTOR / STANDARD		Level 2

| GRADE LEVEL EXAMPLE / STAGE | HS2.AP.1 .1. | Create algorithms to solve computational problems that have an application in the real world (e.g., local community, church, civic organization, school, home life). |

STANDARD / COURSE		Algorithms and Programming
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 4:	Plan, build, test, refine, and document programs using text-based coding languages to solve problems with varying degrees of difficulty.
PERFORMANCE DESCRIPTOR / STANDARD		Level 3

| GRADE LEVEL EXAMPLE / STAGE | HS3.AP.4 .4. | Develop a systematic solution that incorporates licensed resources. |

STANDARD / COURSE		Algorithms and Programming
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 4:	Plan, build, test, refine, and document programs using text-based coding languages to solve problems with varying degrees of difficulty.
PERFORMANCE DESCRIPTOR / STANDARD		Level 4

| GRADE LEVEL EXAMPLE / STAGE | HS4.AP.4 .2. | Implement version control to track program refinements. |

STANDARD / COURSE		Impact of Computing
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	Standard 3:	Understand the importance of access and equity in computing.
PERFORMANCE DESCRIPTOR / STANDARD		Level 1

| GRADE LEVEL EXAMPLE / STAGE | HS1.IC.3. 3. | Identify the advantages and disadvantages of diverse perspectives and backgrounds when solving computational problems. |