Main Criteria: Forward Education

Secondary Criteria: Wisconsin Academic Standards

Subjects: Mathematics, Science, Technology Education

Grades: 11, 12, Key Stage 4

Forward Education

Autonomous Electric Vehicles of the Future

Wisconsin Academic Standards

Mathematics

Grade 11 - Adopted: 2021

DOMAIN		Standards for Mathematical Practice
CONTENT STANDARD	Math Practice 1:	Make sense of problems and persevere in solving them.
CONTENT STANDARD	Math Practice 2:	Reason abstractly and quantitatively.
CONTENT STANDARD	Math Practice 3:	Construct viable arguments, and appreciate and critique the reasoning of others.
CONTENT STANDARD	Math Practice 4:	Model with mathematics.
CONTENT STANDARD	Math Practice 8:	Look for and express regularity in repeated reasoning.
DOMAIN		Algebra Content Standards
CONTENT STANDARD	M.A.CED	Creating Equations (A-CED)
PERFORMANC E STANDARD / LEARNING PRIORITY	M.A.CE D.A.	Create equations that describe numbers or relationships. (M)
DESCRIPTOR / FOCUS AREA	M.A.CED. A.2.	(F2Y) Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
DOMAIN		Algebra Content Standards
CONTENT ST AND ARD	M.A.REI.	Reasoning with Equations and Inequalities (A-REI)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	M.A.REI. A.	Understand solving equations as a process of reasoning and explain the reasoning.
DESCRIPTOR /		(E2Y) Explain each sten in solving a simple equation as following from the equality of numbers asserted at the

FOCUS AREA .1.

previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

DOMAIN		Functions
CONTENT STANDARD	M.F.IF.	Interpreting Functions (F-IF)
PERFORMANC E STANDARD / LEARNING PRIORITY	M.F.IF.C	Analyze functions using different representations. (M)
DESCRIPTOR / FOCUS AREA	M.F.IF.C. 7.	(F2Y) Graph functions expressed symbolically and show key features of the graph using an efficient method.

LEARNINGM.F.IF.C.Graph linear and quadratic functions and show intercepts, maxima, and minima; and exponential functions, showingCONTINUUM7.a.intercepts and end behavior.

DOMAIN		Functions
CONTENT STANDARD	M.F.LE.	Linear, Quadratic, and Exponential Models (F-LE)
PERFORMANC E STANDARD / LEARNING PRIORITY	M.F.LE. A.	Construct and compare linear, quadratic, and exponential models and solve problems. (M)
DESCRIPTOR / FOCUS AREA	M.F.LE.A .1.	(F2Y) Distinguish between situations that can be modeled with linear functions and with exponential functions.
LEARNING	M.F.LE.A.	Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by

CONTINUUM	1a	equal factors	over equal	intervals
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DOMAIN		Geometry
CONTENT STANDARD	M.G.GP E.	Expressing Geometric Properties (G-GPE)
PERFORMANC E ST ANDARD / LEARNING PRIORITY	M.G.GP E.B.	Use coordinates to prove simple geometric theorems algebraically.

DESCRIPTOR /M.G.GPE.(F2Y) Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g.,FOCUS AREAB.5.find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Wisconsin Academic Standards

Mathematics

Grade 12 - Adopted: 2021

DOMAIN		Standards for Mathematical Practice
CONTENT STANDARD	Math Practice 1:	Make sense of problems and persevere in solving them.
CONTENT STANDARD	Math Practice 2:	Reason abstractly and quantitatively.
CONTENT STANDARD	Math Practice 3:	Construct viable arguments, and appreciate and critique the reasoning of others.

CONTENT	Math Practice	Model with mathematics.
	4:	

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CONTENT Math Look for and express regularity in repeated reasoning.
STANDARD Practice
8:
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DOMAIN		Algebra Content Standards
CONTENT STANDARD	M.A.CED	Creating Equations (A-CED)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	M.A.CE D.A.	Create equations that describe numbers or relationships. (M)

DESCRIPTOR /M.A.CED.(F2Y) Create equations in two or more variables to represent relationships between quantities; graph equations onFOCUS AREAA.2.coordinate axes with labels and scales.

DOMAIN		Algebra Content Standards
CONTENT STANDARD	M.A.REI.	Reasoning with Equations and Inequalities (A-REI)
PERFORMANC E STANDARD / LEARNING PRIORIT Y	M.A.REI. A.	Understand solving equations as a process of reasoning and explain the reasoning.

DESCRIPTOR /
 M.A.REI.A
 (F2Y) Explain each step in solving a simple equation as following from the equality of numbers asserted at the

 FOCUS AREA
 .1.
 previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

DOMAIN		Functions
CONTENT STANDARD	M.F.IF.	Interpreting Functions (F-IF)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	M.F.IF.C	Analyze functions using different representations. (M)
DESCRIPTOR / FOCUS AREA	M.F.IF.C. 7.	(F2Y) Graph functions expressed symbolically and show key features of the graph using an efficient method.
		Crank linear and quadratic functions and chargintergents, maying, and minimal and superpetial functions, showing

LEARNINGM.F.IF.C.Graph linear and quadratic functions and show intercepts, maxima, and minima; and exponential functions, showingCONTINUUM7.a.intercepts and end behavior.

DOMAIN		Functions
CONTENT STANDARD	M.F.LE.	Linear, Quadratic, and Exponential Models (F-LE)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	M.F.LE. A.	Construct and compare linear, quadratic, and exponential models and solve problems. (M)
DESCRIPTOR /	M.F.LE.A	(F2Y) Distinguish between situations that can be modeled with linear functions and with exponential

FOCUS AREA .1. functions.

LEARNINGM.F.LE.A.Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow byCONTINUUM1.a.equal factors over equal intervals.

DOMAIN		Geometry
CONTENT STANDARD	M.G.GP E.	Expressing Geometric Properties (G-GPE)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	M.G.GP E.B.	Use coordinates to prove simple geometric theorems algebraically.

DESCRIPTOR /M.G.GPE.(F2Y) Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g.,FOCUS AREAB.5.find the equation of a line parallel or perpendicular to a given line that passes through a given point).

Wisconsin Academic Standards

Science

Grade 11 - Adopted: 2017

DOMAIN	WI.SCI.	Science	
CONTENT STANDARD	SCI.CC.	rosscutting Concepts (CC)	
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.CC4	Students use science and engineering practices, disciplinary core ideas, and an understanding of systems and models to make sense of phenomena and solve problems.	
DESCRIPTOR / FOCUS AREA		Systems and System Models	
LEARNING CONTINUUM	SCI.CC4. h.	Students investigate or analyze a system by defining its boundaries and initial conditions, as well as its inputs and outputs. They use models (e.g., physical, mathematical, computer models) to simulate the flow of energy, matter, and interactions within and between systems at different scales. They also use models and simulations to predict the behavior of a system, and recognize that these predictions have limited precision and reliability due to the	

assumptions and approximations inherent in the models. They also design systems to do specific tasks.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 2.	Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 2.A.	Developing Models – Students use, synthesize, and develop models to predict and show relationships among variables and between systems and their components in the natural and designed world. This includes the following:
LEARNING CONTINUUM	SCI.SEP2 .A.h.1.	Evaluate merits and limitations of two different models of the same proposed tool, process, mechanism, or system in order to select or revise a model that best fits the evidence or design criteria.
LEARNING CONTINUUM	SCI.SEP2 .A.h.2.	Design a test of a model to ascertain its reliability.
LEARNING CONTINUUM	SCI.SEP2 .A.h.3.	Develop, revise, and use models based on evidence to illustrate and predict the relationships between systems or between components of a system.
LEARNING CONTINUUM	SCI.SEP2 .A.h.4.	Develop and use multiple types of models to provide mechanistic accounts and predict phenomena. Move flexibly between these model types based on merits and limitations.

LEARNING	SCI.SEP2 Develop a complex model that allows for manipulation and testing of a proposed process or system.
CONTINUUM	.A.h.5.

LEARNING CONTINUUM

.A.h.6.

SCI.SEP2 Develop and use a model (including mathematical and computational) to generate data to support explanations, predict phenomena, analyze systems, and solve problems.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 3.	Students plan and carry out investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 3.A.	Planning and Conducting Investigations – Students plan and carry out investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models: This includes the following:
LEARNING CONTINUUM	SCI.SEP3 .A.h.4.	Select appropriate tools to collect, record, analyze, and evaluate data.
LEARNING CONTINUUM	SCI.SEP3 .A.h.6.	Manipulate variables and collect data about a complex model of a proposed process or system to identify failure points, or to improve performance relative to criteria for success.
DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 5.	Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 5.A.	Qualitative and Quantitative Data – Students use algebraic thinking and analysis, a range of linear and nonlinear functions (including trigonometric functions, exponentials, and logarithms), and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. This includes the following:
LEARNING CONTINUUM	SCI.SEP 5.A.h.2.	Create and/or revise a computational model or simulation of a phenomenon, designed device, process, or system.
LEARNING CONTINUUM	SCI.SEP 5.A.h.3.	Use mathematical, computational, and algorithmic representations of phenomena or design solutions to describe and support claims and explanations.
LEARNING CONTINUUM	SCI.SEP 5.A.h.5.	Use simple limit cases to test mathematical expressions, computer programs, algorithms, or simulations of a process or system to see if a model "makes sense" by comparing the outcomes with what is known about the real world.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 6.	Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 6.A.	Construct an Explanation – Students create explanations that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:

LEARNING CONTINUUM	SCI.SEP 6.A.h.1.	Make quantitative and qualitative claims regarding the relationship between dependent and independent variables.
LEARNING CONTINUUM	SCI.SEP 6.A.h.2.	Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources, including students' own investigations, models, theories, simulations, and peer review. Explanations should reflect the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
LEARNING CONTINUUM	SCI.SEP 6.A.h.3.	Apply scientific ideas, principles, and evidence to provide an explanation of phenomena taking into account possible, unanticipated effects.
LEARNING CONTINUUM	SCI.SEP 6.A.h.4.	Apply scientific reasoning, theory, and models to link evidence to the claim and to assess the extent to which the reasoning and data support the explanation.
DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 6.	Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 6.B.	Design Solutions – Students create designs that are supported by multiple and independent student- generated sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:
LEARNING CONTINUUM	SCI.SEP 6.B.h.1.	Design, evaluate, and refine a solution to a complex real-world problem, based on scientific knowledge, student- generated sources of evidence, and prioritized criteria. Consider trade-offs.
LEARNING CONTINUUM	SCI.SEP 6.B.h.2.	Apply scientific ideas, principles, and evidence to solve design problems, taking into account possible unanticipated effects.
DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 8.	Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 8.A.	Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following:
LEARNING CONTINUUM	SCI.SEP 8.A.h.1.	Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions, and to obtain scientific and technical information. Summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LEARNING CONTINUUM	SCI.SEP 8.A.h.5.	Communicate scientific and technical information in multiple formats, including orally, graphically, textually, and mathematically. Examples of information could include ideas about phenomena or the design and performance of a proposed process or system.
DOMAIN	WI.SCI.	Science
CONTENT ST AND ARD	SCI.PS.	Disciplinary Core Idea: Physical Science (PS)

PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.PS1	Students use science and engineering practices, crosscutting concepts, and an understanding of matter and its interactions to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.PS1. B.	Chemical Reactions

LEARNINGSCI.PS1.Chemical processes are understood in terms of collisions of molecules, rearrangement of atoms, and changes in
energy as determined by properties of elements involved.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ESS.	Disciplinary Core Idea: Earth and Space Sciences (ESS)
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.ESS 2.	Students use science and engineering practices, crosscutting concepts, and an understanding of Earth's systems to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ESS 2.D.	Weather and Climate
LEARNING	SCI.ESS2	The role of radiation from the sun and its interactions with the atmosphere, ocean, and land are the foundation for the

CONTINUUM .D.h. global climate system. Global climate models are used to predict future changes, including changes influenced by human behavior and natural factors.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ESS.	Disciplinary Core Idea: Earth and Space Sciences (ESS)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.ESS 3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the Earth and human activity to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ESS 3.C.	Human Impacts on Earth Systems
LEARNING	SCI.ESS3	Sustainability of human societies and the biodiversity that supports them requires responsible management of

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CONTINUUM	.C.h.	natural resources, including the development of technologies.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.ET S 1.	Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS 1.B.	Developing Possible Solutions
LEARNING CONTINUUM	SCI.ETS1 .B.h.1.	When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.
LEARNING CONTINUUM	SCI.ETS1 .B.h.2.	Both physical models and computers can be used in various ways to aid in the engineering design process. Computers are useful for a variety of purposes, such as running simulations to test different ways of solving a problem or to see which one is most efficient or economical. They are also useful in making a persuasive presentation to a client about how a given design will meet his or her needs.
DOMAIN	WI.SCI.	Science

CONTENT STANDARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)	
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.ET S 2.	Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.	
DESCRIPTOR / FOCUS AREA	SCI.ETS 2.A.	Interdependence of Science, Engineering, and Technology	
LEARNING CONTINUUM	SCI.ETS2 .A.h.1.	Science and engineering complement each other in the cycle known as research and development (R&D).	
LEARNING CONTINUUM	SCI.ETS2 .A.h.2.	Many research and development projects may involve scientists, engineers, and others with wide ranges of expertise.	
DOMAIN	WI.SCI.	Science	
CONTENT STANDARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)	
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.ETS 2.	Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.	
DESCRIPTOR / FOCUS AREA	SCI.ETS 2.B.	Influence of Engineering, Technology, and Science on Society and the Natural World	
LEARNING CONTINUUM	SCI.ETS2 .B.h.1.	Modern civilization depends on major technological systems, such as agriculture, health, water, energy, transportation, manufacturing, construction, and communications.	
LEARNING CONTINUUM	SCI.ETS2 .B.h.2.	Engineers continuously modify these systems to increase benefits while decreasing costs and risks.	
LEARNING CONTINUUM	SCI.ETS2 .B.h.3.	New technologies can have deep impacts on society and the environment, including some that were not anticipated.	
LEARNING CONTINUUM	SCI.ETS2 .B.h.4.	Analysis of costs and benefits is a critical aspect of decisions about technology.	
DOMAIN	WI.SCI.	Science	
CONTENT STANDARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)	
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.ETS 3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.	
DESCRIPTOR / FOCUS AREA	SCI.ETS 3.A.	Science and Engineering Are Human Endeavors	
LEARNING CONTINUUM	SCI.ETS3 .A.h.4.	Scientists and engineers embrace skepticism and critique as a community. Deliberate deceit in science is rare and is likely exposed through the peer review process. When discovered, intellectual dishonesty is condemned by the scientific community.	
DOMAIN	WI.SCI.	Science	
CONTENT STANDARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)	

PERFORMANC E ST ANDARD / LEARNING PRIORITY	SCI.ETS 3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ET S 3.C.	Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems
LEARNING CONTINUUM	SCI.ETS3 .C.h.3.	Engineers use a variety of approaches, tools, and techniques to define problems and develop solutions to those problems. Successful engineering solutions meet stakeholder needs and safety requirements, and are economically viable. Trade-offs in design aspects balance competing demands.

Wisconsin Academic Standards

Science

Grade 12 - Adopted: 2017

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.CC.	Crosscutting Concepts (CC)
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.CC4	Students use science and engineering practices, disciplinary core ideas, and an understanding of systems and models to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA		Systems and System Models
LEARNING CONTINUUM	SCI.CC4. h.	Students investigate or analyze a system by defining its boundaries and initial conditions, as well as its inputs and outputs. They use models (e.g., physical, mathematical, computer models) to simulate the flow of energy, matter, and interactions within and between systems at different scales. They also use models and simulations to predict the behavior of a system, and recognize that these predictions have limited precision and reliability due to the assumptions and approximations inherent in the models. They also design systems to do specific tasks.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 2.	Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 2.A.	Developing Models – Students use, synthesize, and develop models to predict and show relationships among variables and between systems and their components in the natural and designed world. This includes the following:
LEARNING CONTINUUM	SCI.SEP2 .A.h.1.	Evaluate merits and limitations of two different models of the same proposed tool, process, mechanism, or system in order to select or revise a model that best fits the evidence or design criteria.
LEARNING CONTINUUM	SCI.SEP2 .A.h.2.	Design a test of a model to ascertain its reliability.
LEARNING CONTINUUM	SCI.SEP2 .A.h.3.	Develop, revise, and use models based on evidence to illustrate and predict the relationships between systems or between components of a system.
LEARNING CONTINUUM	SCI.SEP2 .A.h.4.	Develop and use multiple types of models to provide mechanistic accounts and predict phenomena. Move flexibly between these model types based on merits and limitations.
LEARNING CONTINUUM	SCI.SEP2 .A.h.5.	Develop a complex model that allows for manipulation and testing of a proposed process or system.

LEARNING CONTINUUM SCI.SEP2 Develop and use a model (including mathematical and computational) to generate data to support explanations, .A.h.6. predict phenomena, analyze systems, and solve problems.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.SEP 3.	Students plan and carry out investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 3.A.	Planning and Conducting Investigations – Students plan and carry out investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models: This includes the following:
LEARNING CONTINUUM	SCI.SEP3 .A.h.4.	Select appropriate tools to collect, record, analyze, and evaluate data.

LEARNING CONTINUUM

.A.h.6.

SCI.SEP3 Manipulate variables and collect data about a complex model of a proposed process or system to identify failure points, or to improve performance relative to criteria for success.

DOMAIN	WI.SCI.	Science
CONTENT ST AND ARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 5.	Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 5.A.	Qualitative and Quantitative Data – Students use algebraic thinking and analysis, a range of linear and nonlinear functions (including trigonometric functions, exponentials, and logarithms), and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. This includes the following:
LEARNING CONTINUUM	SCI.SEP 5.A.h.2.	Create and/or revise a computational model or simulation of a phenomenon, designed device, process, or system.
LEARNING CONTINUUM	SCI.SEP 5.A.h.3.	Use mathematical, computational, and algorithmic representations of phenomena or design solutions to describe and support claims and explanations.
LEARNING CONTINUUM	SCI.SEP 5.A.h.5.	Use simple limit cases to test mathematical expressions, computer programs, algorithms, or simulations of a process or system to see if a model "makes sense" by comparing the outcomes with what is known about the real world.
DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 6.	Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 6.A.	Construct an Explanation – Students create explanations that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:
LEARNING CONTINUUM	SCI.SEP 6.A.h.1.	Make quantitative and qualitative claims regarding the relationship between dependent and independent variables.

LEARNING CONTINUUM	SCI.SEP 6.A.h.2.	Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources, including students' own investigations, models, theories, simulations, and peer review. Explanations should reflect the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
LEARNING CONTINUUM	SCI.SEP 6.A.h.3.	Apply scientific ideas, principles, and evidence to provide an explanation of phenomena taking into account possible, unanticipated effects.
LEARNING CONTINUUM	SCI.SEP 6.A.h.4.	Apply scientific reasoning, theory, and models to link evidence to the claim and to assess the extent to which the reasoning and data support the explanation.
DOMAIN	WI.SCI.	Science
CONT ENT ST AND ARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.SEP 6.	Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 6.B.	Design Solutions – Students create designs that are supported by multiple and independent student- generated sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:
LEARNING CONTINUUM	SCI.SEP 6.B.h.1.	Design, evaluate, and refine a solution to a complex real-world problem, based on scientific knowledge, student- generated sources of evidence, and prioritized criteria. Consider trade-offs.
LEARNING CONTINUUM	SCI.SEP 6.B.h.2.	Apply scientific ideas, principles, and evidence to solve design problems, taking into account possible unanticipated effects.
DOMAIN	WI.SCI.	Science
DOMAIN CONTENT STANDARD	WI.SCI. SCI.SEP.	Science Science and Engineering Practices (SEP)
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY	WI.SCI. SCI.SEP. SCI.SEP 8.	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORIT Y DESCRIPTOR / FOCUS AREA	WI.SCI. SCI.SEP. SCI.SEP 8. SCI.SEP 8.A.	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following:
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORIT Y DESCRIPTOR / FOCUS AREA LEARNING CONTINUUM	WI.SCI. SCI.SEP 8. SCI.SEP 8.A. SCI.SEP 8.A.h.1.	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following: Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions, and to obtain scientific and technical information. Summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORIT Y DESCRIPTOR / FOCUS AREA LEARNING CONTINUUM LEARNING CONTINUUM	WI.SCI. SCI.SEP 8. SCI.SEP 8.A. SCI.SEP 8.A.h.1. SCI.SEP 8.A.h.5.	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following: Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions, and to obtain scientific and technical information. Summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. Communicate scientific and technical information in multiple formats, including orally, graphically, textually, and mathematically. Examples of information could include ideas about phenomena or the design and performance of a proposed process or system.
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY DESCRIPTOR / FOCUS AREA LEARNING CONTINUUM LEARNING CONTINUUM DOMAIN	WI.SCI. SCI.SEP 8. SCI.SEP 8.A. SCI.SEP 8.A.h.1. SCI.SEP 8.A.h.5. WI.SCI.	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following: Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions, and to obtain scientific and technical information. Summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. Communicate scientific and technical information in multiple formats, including orally, graphically, textually, and mathematically. Examples of information could include ideas about phenomena or the design and performance of a proposed process or system. Science
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY DESCRIPTOR / FOCUS AREA LEARNING CONTINUUM LEARNING CONTINUUM DOMAIN CONTENT STANDARD	WI.SCI. SCI.SEP 8. SCI.SEP 8.A. SCI.SEP 8.A.h.1. SCI.SEP 8.A.h.5. WI.SCI. SCI.PS.	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following: Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions, and to obtain scientific and technical information. Summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. Communicate scientific and technical information in multiple formats, including orally, graphically, textually, and mathematically. Examples of information could include ideas about phenomena or the design and performance of a proposed process or system. Science Disciplinary Core Idea: Physical Science (PS)
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORIT Y DESCRIPTOR / FOCUS AREA LEARNING CONTINUUM LEARNING CONTINUUM DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORIT Y	WI.SCI. SCI.SEP 8. SCI.SEP 8.A. SCI.SEP 8.A.h.1. SCI.SEP 8.A.h.5. WI.SCI. SCI.PS1	Science Science and Engineering Practices (SEP) Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. Obtain, Evaluate, and Communicate Information – Students evaluate the validity and reliability of claims, methods, and designs. This includes the following: Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions, and to obtain scientific and technical information. Summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. Communicate scientific and technical information in multiple formats, including orally, graphically, textually, and mathematically. Examples of information could include ideas about phenomena or the design and performance of a proposed process or system. Science Disciplinary Core Idea: Physical Science (PS) Students use science and engineering practices, crosscutting concepts, and an understanding of matter and its interactions to make sense of phenomena and solve problems.

LEARNING CONTINUUM

B.h.

SCI.PS1. Chemical processes are understood in terms of collisions of molecules, rearrangement of atoms, and changes in energy as determined by properties of elements involved.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ESS.	Disciplinary Core Idea: Earth and Space Sciences (ESS)
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.ESS 2.	Students use science and engineering practices, crosscutting concepts, and an understanding of Earth's systems to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ESS 2.D.	Weather and Climate
LEARNING	SCI.ESS2	The role of radiation from the sun and its interactions with the atmosphere, ocean, and land are the foundation for the

LEARNING CONTINUUM

.D.h. global climate system. Global climate models are used to predict future changes, including changes influenced by human behavior and natural factors.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ESS.	Disciplinary Core Idea: Earth and Space Sciences (ESS)
PERFORMANC E STANDARD / LEARNING PRIORITY	SCI.ESS 3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the Earth and human activity to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ESS 3.C.	Human Impacts on Earth Systems
LEARNING CONTINUUM	SCI.ESS3 .C.h.	Sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources, including the development of technologies.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ET S	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.ETS 1.	Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS 1.B.	Developing Possible Solutions
LEARNING CONTINUUM	SCI.ETS1 .B.h.1.	When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.
LEARNING CONTINUUM	SCI.ETS1 .B.h.2.	Both physical models and computers can be used in various ways to aid in the engineering design process. Computers are useful for a variety of purposes, such as running simulations to test different ways of solving a problem or to see which one is most efficient or economical. They are also useful in making a persuasive presentation to a client about how a given design will meet his or her needs.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.ETS 2.	Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.

DESCRIPTOR / FOCUS AREA	SCI.ETS 2.A.	Interdependence of Science, Engineering, and Technology
LEARNING CONTINUUM	SCI.ETS2 .A.h.1.	Science and engineering complement each other in the cycle known as research and development (R&D).
LEARNING CONTINUUM	SCI.ETS2 .A.h.2.	Many research and development projects may involve scientists, engineers, and others with wide ranges of expertise.
DOMAIN	WI.SCI.	Science
CONTENT ST AND ARD	SCI.ETS	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.ETS 2.	Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS 2.B.	Influence of Engineering, Technology, and Science on Society and the Natural World
LEARNING CONTINUUM	SCI.ETS2 .B.h.1.	Modern civilization depends on major technological systems, such as agriculture, health, water, energy, transportation, manufacturing, construction, and communications.
LEARNING CONTINUUM	SCI.ETS2 .B.h.2.	Engineers continuously modify these systems to increase benefits while decreasing costs and risks.
LEARNING CONTINUUM	SCI.ETS2 .B.h.3.	New technologies can have deep impacts on society and the environment, including some that were not anticipated.
LEARNING CONTINUUM	SCI.ETS2 .B.h.4.	Analysis of costs and benefits is a critical aspect of decisions about technology.
DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ET S	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	SCI.ETS 3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS 3.A.	Science and Engineering Are Human Endeavors
CONTINUOU	SCI.ETS3 .A.h.4.	Scientists and engineers embrace skepticism and critique as a community. Deliberate deceit in science is rare and is likely exposed through the peer review process. When discovered, intellectual dishonesty is condemned by the scientific community.
DOMAIN	SCI.ETS3 .A.h.4. WI.SCI.	Scientists and engineers embrace skepticism and critique as a community. Deliberate deceit in science is rare and is likely exposed through the peer review process. When discovered, intellectual dishonesty is condemned by the scientific community.
DOMAIN CONTENT STANDARD	SCI.ETS3 .A.h.4. WI.SCI. SCI.ETS	Scientists and engineers embrace skepticism and critique as a community. Deliberate deceit in science is rare and is likely exposed through the peer review process. When discovered, intellectual dishonesty is condemned by the scientific community. Science Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)

 DESCRIPTOR / FOCUS AREA
 Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems

LEARNING
CONTINUUM

.C.h.3.

SCI.ETS3 Engineers use a variety of approaches, tools, and techniques to define problems and develop solutions to those problems. Successful engineering solutions meet stakeholder needs and safety requirements, and are economically viable. Trade-offs in design aspects balance competing demands.

Wisconsin Academic Standards Technology Education Grade 11 - Adopted: 2017

DOMAIN	wi.cs.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP1.	Students will recognize and define computational problems using algorithms and programming.
DESCRIPTOR / FOCUS AREA	CS.AP1. a.	Develop algorithms.

LEARNING CS.AP1.a Analyze a problem, and then design and implement an algorithmic solution using sequence, selection and iteration. CONTINUUM .8.h.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP2.	Students will create computational artifacts using algorithms and programming.
DESCRIPTOR / FOCUS AREA	CS.AP2. a.	Develop and implement an artifact.
LEARNING CONTINUUM	CS.AP2.a .11.h.	Integrate grade-level appropriate mathematical techniques, concepts, and processes in the creation of computational artifacts.
DOMAIN	WI.CS.	Computer Science
DOMAIN CONTENT STANDARD	WI.CS. CS.AP.	Computer Science Content Area: Algorithms and Programming (AP)
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY	WI.CS. CS.AP. CS.AP3.	Computer Science Content Area: Algorithms and Programming (AP) Students will communicate about computing ideas.
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY DESCRIPTOR / FOCUS AREA	WI.CS. CS.AP. CS.AP3. CS.AP3. b.	Computer Science Content Area: Algorithms and Programming (AP) Students will communicate about computing ideas. Communicate about technical and social issues.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP4.	Students will develop and use abstractions.

DESCRIPTOR /	CS.AP4.	Create and use abstractions (representations) to solve complex computational problems.	
FOCUS AREA	a.		

LEARNINGCS.AP4.(+) Critically analyze and evaluate classic algorithms (e.g., sorting, searching) and use in different contexts, adaptingCONTINUUMa.8.h.as appropriate.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.KC.	Content Area: Knowledge Constructor (KC)
PERFORMANC E STANDARD / LEARNING PRIORITY	ITL.KC1	Students OcriticallyO OcurateO 0a0 OvarietyO 0of0 OdigitalO OtoolsO 0and0 OdiverseO Oresources.
DESCRIPTOR / FOCUS AREA	ITL.KC1. a.	Plan® @and® @employ effective® @research® @strategies.

LEARNINGITL.KC1.aUtilize@lan@linquiry-based process@lto@ldeepen@lcontent knowledge@lconnect academic@learning@lwith@ltheCONTINUUM.12.h.real@world@lpersonalinterests@land@linvestigate opportunities@lfor@lpersonal growth.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.KC.	Content Area: Knowledge Constructor (KC)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.KC1	Students Ocritically® Ocurate® 0a® Ovariety® 0of® 0digital® 0tools® 0and® 0diverse® 0resources.
DESCRIPTOR / FOCUS AREA	ITL.KC1. b.	DEvaluateD 0the accuracy,0 0perspective, credibility,0 0and0 0relevance0 0of information,0 0media,0 0data0 0 or other0 0resources.
LEARNING CONTINUUM	ITL.KC1.b .8.h.	SelectD DinformationD OthatD Dis relatedD DtoD DaD OproblemD Dor questionD OwhileD Dusing formatsD DandD OgenreD Omost appropriateD DtoD OtheD Ocontent. EstablishD OcriteriaD Dind Djudging theD DinformationD DinD Othis process.

CONTENT STANDARD ITL.KC. Content Area: Knowledge Constructor (KC) PERFORMANC ITL.KC2 Students produce: Icreative: Iartifacts: Iand: Imake: Imeaningful: Ilearning: Iexperiences: Ifrom: I	DOMAIN	WI.IT L.	Information and Technology Literacy
PERFORMANC ITL.KC2 Students produce: Ocreative: Oartifacts: Dand: Omake: Omeaningful: Olearning: Dexperiences: Ofrom: O	CONTENT STANDARD	ITL.KC.	Content Area: Knowledge Constructor (KC)
E STANDARD / . curated knowledge0 0for0 0themselves0 0and0 0others. LEARNING PRIORITY	PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.KC2	Students produce0 0creative0 0artifacts0 0and0 0make0 0meaningful0 0learning0 0experiences0 0from0 0 curated knowledge0 0for0 0themselves0 0and0 0others.
DESCRIPTOR / ITL.KC2. Build@lknowledge@lby.actively@lexploring real-world@lissues@land problems. FOCUS AREA b.	DESCRIPTOR / FOCUS AREA	ITL.KC2. b.	Build® ©knowledge® ©by actively® ©exploring real-world® ©issues® ©and problems.

LEARNINGITL.KC2.bBuild@@knowledge@@by@@actively exploring@@real-world@@issues and@@problems, independently@@developing ideas@CONTINUUM.8.h.@and@@theories@@and pursuing@@answers@@and solutions.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	IT L.ID.	Content Area: Innovative Designer (ID)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.ID1.	Students BuseB BaB BvarietyB BofB BdigitalB BtoolsB BandB BresourcesB BtoB BidentifyB BandB BsolveB B authenticB BproblemsB Busing designB Bthinking.
DESCRIPTOR / FOCUS AREA	ITL.ID1. b.	Exhibit: Dtolerance: Dfor ambiguity,: Dperseverance and: Dthe: Dcapacity: Dto: Dwork with: Dauthentic,: Dopen-ended problems.

 LEARNING
 ITL.ID1.b.
 Apply0 @abstract0 @concepts0 @to solve0 @authentic, open-ended0 @problems0 @for0 @a group0 @of0 @stakeholders.

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DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	IT L.ID.	Content Area: Innovative Designer (ID)
PERFORMANC E STANDARD / LEARNING PRIORITY	IT L.ID2.	Students use: 0a0 0variety0 0of0 0technologies0 0within0 0a0 0design0 0process0 0to0 0create0 0new,0 0 useful,0 0and imaginative0 0solutions.
DESCRIPTOR / FOCUS AREA	ITL.ID2. b.	Select® 0and0 0use0 0digital resources0 0to0 0plan0 0and manage0 0a0 0design0 0process0 0that considers0 0 design0 0constraints and0 0calculated0 0risks.

LEARNING ITL.ID2.b. Select a CONTINUUM 4.h. and 0 C

 ITL.ID2.b.
 Select and use digital resources to plan and manage0 0a0 0design0 0process that0 0considers0 0design constraints0 0

 4.h.
 and0 0calculated risks0 0as0 0they0 0apply0 0to authentic0 0problems.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.CT.	Content Area: Computational Thinker (CT)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.CT1	Students develop0 0and0 0employ0 0strategies0 0for0 0understanding0 0and0 0solving0 0problems.
DESCRIPTOR / FOCUS AREA	ITL.CT1. a.	Identify,0 0define,0 0and0 0interpret problems0 0where0 0digital0 0tools can0 0assist0 0in0 0finding0 0 solutions.

LEARNINGITL.CT1.a.Createl landl larticulatel la precisel landl lthorough descriptionIofi la liproblem designed lto lutilizel idigitalCONTINUUM4.h.tools, latal lanalysis, abstract lmodeling, lor algorithmic lthinking lto facilitate la lsolution.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.CT.	Content Area: Computational Thinker (CT)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.CT1	Students develop® @and0 @employ® @strategies® @for® @understanding® @and® @solving® @problems.
DESCRIPTOR / FOCUS AREA	ITL.CT1. c.	Break[] []problems[] []into[] []smaller parts,[] []identify[] []key information,[] []and[] []develop descriptive[] [] models.
LEARNING CONTINUUM	ITL.CT1.c. 4.h.	Evaluate: 0 the0 0 problem solving: 0 process: 0 and algorithms: 0 of0 0 others,0 0 and synthesize: 0 this0 0 information to0 0 create: 0 the0 0 most effective: 0 and 0 efficient: 0 way to0 0 solve: 0 and 0 authentic problem.
DOMAIN	WI.IT L.	Information and Technology Literacy
DOMAIN CONTENT STANDARD	WI.ITL. ITL.GC.	Information and Technology Literacy Content Area: Global Collaborator (GC)
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY	WI.ITL. ITL.GC. ITL.GC2	Information and Technology Literacy Content Area: Global Collaborator (GC) Students use: Digital: Dtools: Dto: Dconnect: Dwith: Da: Dglobal: Onetwork: Dof: Dlearners: Dand: Dengage: Dwith: Dissues: Othat impact: Dlocal: Dand: Dglobal: Dcommunities.
DOMAIN CONTENT STANDARD PERFORMANC E STANDARD / LEARNING PRIORITY DESCRIPTOR / FOCUS AREA	WI.ITL. ITL.GC. ITL.GC2 ITL.GC2 .b.	Information and Technology Literacy Content Area: Global Collaborator (GC) Students use0 0digital0 0tools0 0to0 0connect0 0with0 0a0 0global0 0network0 0of0 0learners0 0and0 0engage0 0with0 0issues0 0that impact0 0local0 0and0 0global0 0communities. Explore0 0local0 0and global0 0issues0 0and0 0use collaborative0 0digital0 0resources to0 0investigate0 0 and0 0develop solutions.

LEARNINGITL.GC2.bExplore and analyze local and I global I issues I and leverage I collaborative digital I tools I too I work I withCONTINUUM.4.h.others I too I investigate, develop, I and I actualize solutions.

Wisconsin Academic Standards

Technology Education

DOMAIN	wi.cs.	Computer Science
CONT ENT ST AND ARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP1.	Students will recognize and define computational problems using algorithms and programming.
DESCRIPTOR / FOCUS AREA	CS.AP1. a.	Develop algorithms.
LEARNING CONTINUUM	CS.AP1.a .8.h.	Analyze a problem, and then design and implement an algorithmic solution using sequence, selection and iteration.
DOMAIN	wi.cs.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)

PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP2.	Students will create computational artifacts using algorithms and programming.
DESCRIPTOR / FOCUS AREA	CS.AP2. a.	Develop and implement an artifact.

LEARNINGCS.AP2.aIntegrate grade-level appropriate mathematical techniques, concepts, and processes in the creation of
computational artifacts.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP3.	Students will communicate about computing ideas.
DESCRIPTOR / FOCUS AREA	CS.AP3. b.	Communicate about technical and social issues.

LEARNING CS.AP3.b (+) Compare a variety of programming languages and identify features that make them useful for solving different CONTINUUM .9.h. types of problems and developing different kinds of systems (e.g., declarative, logic, parallel, functional, compiled, interpreted, real-time).

DOMAIN	wi.cs.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	CS.AP4.	Students will develop and use abstractions.
DESCRIPTOR / FOCUS AREA	CS.AP4. a.	Create and use abstractions (representations) to solve complex computational problems.
LEARNING	CS.AP4.	(+) Critically analyze and evaluate classic algorithms (e.g., sorting, searching) and use in different contexts, adapting

CONTINUUM

a.8.h.

as appropriate.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.KC.	Content Area: Knowledge Constructor (KC)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.KC1	Students OcriticallyD OcurateD DaD OvarietyD DofD DdigitalD OtoolsD DandD DdiverseD Dresources.
DESCRIPT OR / FOCUS AREA	ITL.KC1. a.	Plan III I and III I employ effective III I esearch IIII I strategies.
LEARNING CONTINUUM	ITL.KC1.a .12.h.	Utilize® 0an0 0inquiry-based process® 0to0 0deepen® 0content knowledge,0 0connect academic® 0learning® 0with0 0the real® 0world,0 0pursue® 0personal interests,0 0and0 0investigate opportunities® 0for0 0personal growth.
DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.KC.	Content Area: Knowledge Constructor (KC)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.KC1	Students OcriticallyO OcurateO 0a0 OvarietyO 0of0 OdigitalO OtoolsO 0and0 OdiverseO Oresources.
DESCRIPTOR / FOCUS AREA	ITL.KC1. b.	<code>DEvaluateD</code> Othe accuracy,D Operspective, credibility,D DandD OrelevanceD Dof information,D Omedia,D DdataD D or otherD Dresources.
LEARNING CONTINUUM	ITL.KC1.b .8.h.	Select® @information® @that® @is related® @to® @a0 @problem® @or question® @while® @using formats® @and@ @genre® @most appropriate® @to® @the® @content. Establish® @criteria® @in0 @judging the® @information® @in0 @this process.
DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.KC.	Content Area: Knowledge Constructor (KC)
PERFORMANC E STANDARD / LEARNING PRIORITY	ITL.KC2	Students produce0 0creative0 0artifacts0 0and0 0make0 0meaningful0 0learning0 0experiences0 0from0 0 curated knowledge0 0for0 0themselves0 0and0 0others.
DESCRIPTOR / FOCUS AREA	ITL.KC2. b.	Build® ©knowledge® @by actively® @exploring real-world® @issues® @and problems.
LEARNING CONTINUUM	ITL.KC2.b .8.h.	Build® @knowledge® @by® @actively exploring® @real-world® @issues and@ @problems, independently® @developing ideas@ @and® @theories® @and pursuing® @answers® @and solutions.
DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	IT L.ID.	Content Area: Innovative Designer (ID)
PERFORMANC E STANDARD / LEARNING PRIORITY	IT L.ID1.	Students DuseD DaD OvarietyD DofD OdigitalD OtoolsD DandD DresourcesD OtoD DidentifyD DandD OsolveD D authenticD OproblemsD Dusing designD Othinking.
DESCRIPTOR / FOCUS AREA	ITL.ID1. b.	Exhibit® @tolerance® @for ambiguity,© @perseverance and@ @the® @capacity® @to® @work with® @authentic,© @ open-ended problems.

LEARNINGITL.ID1.b.ApplyDabstractDConceptsDDista on the solveDConceptsDDista on the solveDDista on the solveD</

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CONTENT STANDARD	IT L.ID.	Content Area: Innovative Designer (ID)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.ID2.	Students use: 0a0 0variety0 0of0 0technologies0 0within0 0a0 0design0 0process0 0to0 0create0 0new,0 0 useful,0 0and imaginative0 0solutions.
DESCRIPT OR / FOCUS AREA	ITL.ID2. b.	Select® 0and0 0use0 0digital resources0 0to0 0plan0 0and manage0 0a0 0design0 0process0 0that considers0 0 design0 0constraints and0 0calculated0 0risks.
LEARNING CONTINUUM	ITL.ID2.b. 4.h.	Select and use digital resources to plan and manage0 0a0 0design0 0process that0 0considers0 0design constraints0 0 and0 0calculated risks0 0as0 0they0 0apply0 0to authentic0 0problems.
DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.CT.	Content Area: Computational Thinker (CT)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.CT1	Students develop0 0and0 0employ0 0strategies0 0for0 0understanding0 0and0 0solving0 0problems.
DESCRIPTOR / FOCUS AREA	ITL.CT1. a.	ldentify,0 0define,0 0and0 0interpret problems0 0where0 0digital0 0tools can0 0assist0 0in0 0finding0 0 solutions.
LEARNING CONTINUUM	ITL.CT1.a. 4.h.	Createl landl larticulatel la precisel landl lthorough description loft lal lproblem designed ltol lutilizel ldigital tools, latal lanalysis, abstract lmodeling, lor algorithmic lthinking lto facilitate lal lsolution.
DOMAIN	WI.IT L.	Information and Technology Literacy

CONTENT STANDARD	ITL.CT.	Content Area: Computational Thinker (CT)
PERFORMANC E ST ANDARD / LEARNING PRIORIT Y	ITL.CT1	Students develop® @and0 @employ® @strategies® @for® @understanding® @and0 @solving® @problems.
DESCRIPTOR / FOCUS AREA	ITL.CT1. c.	Break[] []problems[] []into[] []smaller parts,[] []identify[] []key information,[] []and[] []develop descriptive[] [] models.

LEARNING	ITL.CT1.c.	Evaluate 1 1the 1 1problem solving 1 1process 1 1 and algorithms 1 0 ft 1 0 thers, 1 1 and synthesize 1 1this 1 information to 1
CONTINUUM	4.h.	createl lthel lmost effectivel land lefficient lway tol lsolvel land lauthentic problem.

DOMAIN	WI.IT L.	Information and Technology Literacy
CONTENT STANDARD	ITL.GC.	Content Area: Global Collaborator (GC)
PERFORMANC E STANDARD / LEARNING PRIORITY	ITL.GC2	Students use0 0digital0 0tools0 0to0 0connect0 0with0 0a0 0global0 0network0 0of0 0learners0 0and0 0engage0 0with0 0issues0 0that impact0 0local0 0and0 0global0 0communities.
DESCRIPT OR / FOCUS AREA	ITL.GC2 .b.	Explore@ BlocalD Band globalD BissuesD BandB Buse collaborativeD BdigitalD Bresources toD BinvestigateD B andB Bdevelop solutions.
LEARNING	ITL.GC2.b	Explore and analyze local and Iglobal Issues I and leverage Icollaborative digital Itools Itol Iwork Iwith

CONTINUUM .4.h.

others I Ito I Investigate, develop, I Iand I Iactualize solutions.