Comparison between Wisconsin Extended Grade Band Standards and

the Wisconsin Essential Elements (EE) for Science

All students, including students with significant cognitive disabilities, deserve and have a right to a quality educational experience. This right includes, to the maximum extent possible, the opportunity to be involved in and meet the same challenging expectations that have been established for all students. In an effort to maintain high expectations for all students, DPI is moving forward with new alternate achievement standards in science, the Wisconsin Essential Elements for Science.

While the Wisconsin Model Academic Standards (WMAS) in Science are currently our state general education standards, school districts have local control over what standards they choose to adopt and use. DPI recognizes that many districts across the state are moving forward with implementing other standards, such as the Next Generation Science Standards (NGSS), which were built from the NRC Framework for Science Education. A crosswalk of the NGSS and WMAS, developed by Wisconsin Society for Science Teachers, a committee led by Eric Brunsell was used to create this comparison document of the alternate achievement standards in Wisconsin. This document is intended to help Wisconsin educators and districts compare the former Wisconsin Extended Grade Band Standards for Science (aligned to the WMAS) and the Wisconsin Essential Elements for Science (aligned to the NGSS) to reform instructional materials.

The Wisconsin Essential Elements for Science, are aligned with college and career expectations and include rigorous content and application for students with significant cognitive disabilities. These alternate achievement standards provide a more authentic, real-world approach to learning science. The new Wisconsin Essential Elements for Science emphasize the link across disciplines and demonstrates how math, reading, and science work together in education and in everyday life.

Elementary Grades

Extended Grade Band Standard	Wisconsin-EE
A. Science Connections **B. Nature of Science**	
A-B1 Use science resources to gather information.	*Application of knowledge applied throughout grade level standards*
C. Science Inquiry	
C1 Use basic science vocabulary and tools	
D. Physical Science Objectives: Properties of Earth Materials Position and Motion of Objects Light, Heat, Electricity and Magnetism	
D1a Recognize differences in physical characteristics of an object	EE.5-PS1-2 Measure and compare weights of substances before and after heating, cooling, or mixing substances to show that weight of matter is conserved. EE.5-PS1-3 Make observations and measurements to identify materials based on their properties.(e.g. weight, shape, texture, buoyancy, color, or magnetism) EE.5-PS2-1 Demonstrate that the gravitational force exerted by Earth on objects is directed down. EE.5-PS3-1 Create a model to describe that energy in animals' food was once energy from the sun.

E. Earth and Space Science Objectives: Properties of Earth Materials Changes in Earth and Sky	
E1a Recognize properties of earth features	*With the exception of water, earth materials are not strongly evident in NGSS at these grade levels (K-5). However, this can easily be addressed by including earth materials in an NGSS unit focused on properties of materials.*
E2b Recognize changes in earth and sky	EE.5-ESS1-2 Represent and interpret data on a picture, line, or bar graph to show seasonal patterns in the length of daylight hours. EE.5-ESS2-1 Develop a model showing how water (hydrosphere) affects living things (biosphere) found in a region. EE.5-ESS3-1 Use information to describe how people can help protect the Earth's resources and how that affects the environment.
F. Life and environmental Science Objectives: The Characteristics of Organisms Life Cycles of Organisms Organisms and Their Environment	
F1a Recognize what plants and animals need to live and grow	EE.5-LS1-1 Provide evidence that plants need air and water to grow. EE.5-LS2-1 Create a model that shows the movement of matter (e.g. plant growth, eating, composting) through living things.
G. Science Applications **H. Science in Social and Personal Perspectives**	
G-H1 Recognize how science helps your life	*Application of knowledge applied throughout grade level standards*

Middle School

Extended Grade Band Standard	Wisconsin-EE
A. Science Connections **B. Nature of Science**	
A-B1 Use specific materials to represent science concepts	*Application of knowledge applied throughout grade level standards*
C. Science Inquiry	
C1 Identify simple cause and effect relationships	
D. Physical Science Objectives: Properties and Changes of Properties in Matter Motions and Forces Transfer of Energy	
D1a Identify the direction of motion before the object is released.	EE.MS-PS2.2 Investigate and predict the change in motion of objects based on the forces acting on those objects.
D1b Identify two or more physical characteristics of substance.	EE.MS-PS1-2 Interpret and analyze data on the properties (e.g., color, texture, odor, and state of matter) of substances before and after chemical changes have occurred (e.g., burning sugar or burning steel wool, rust, effervescent tablets). EE.MS-PS4-2 Use a model to show how light waves (e.g., light through a water glass, light on colored objects) or sound waves are reflected, absorbed or transmitted through various materials (e.g., water, air, table). EE.MS-PS3-3 Test and refine a device (e.g., foam cup, insulated box, or thermos) to either minimize or maximize thermal energy transfer (e.g., keeping liquids hot or cold, preventing liquids from freezing, keeping hands warm in cold temperatures).

Middle School

E. Earth and Space Science Objectives: Structure of Earth System Earth's History Earth in the Solar System	
E1a Identify changes in the earth.	EE.MS-ESS2-1 Use a model to describe the change within the rock cycle between igneous, metamorphic and sedimentary rock. EE.MS-ESS2-2 Explain how geoscience processes that occur daily (e.g., wind rain, runoff) slowly change the surface of the Earth, while catastrophic events (e.g., earthquakes, tornadoes, floods) can quickly change the surface of Earth. EE.MS-ESS2-6 Interpret basic weather information (e.g., radar, map) to make predictions about future conditions (e.g., precipitation, temperature, wind). EE.MS-ESS3-1 Interpret, based on evidence, how the geoscience processes (e.g., weathering, erosion) create resources. EE.MS-ESS3-3 Develop a plan to monitor and minimize a human impact on the local environment (e.g., water, land, pollution).
E1b Recognize cycles that happen on the earth (e.g., seasons, day/night, etc.)	EE.MS-ESS1-1 Use an Earth-Sun-Moon model to show that Earth's orbit around the Sun corresponds to a calendar year and the orbit of the Moon around the Earth corresponds to a month.

Middle School

F. Life and Environmental Science Objective: Structure and Function in Living Things Reproduction and Heredity Regulation and Behavior Populations and Ecosystems Diversity and Adaptations of Organisms	
F1a Identify characteristics of living things	EE.MS-LS1-3 Make a claim about how a structure (e.g., organs and organ systems) and its related function support survival of animals (circulatory, digestive and respiratory systems). EE.MS-LS1-5 Interpret data to show that environmental resources (e.g. food, light, space, water) influence growth of organisms (e.g., drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, fish growing larger in large ponds than small ponds). EE.MS-LS2-2 Use models of food chains/webs to identify producers and consumers in aquatic and terrestrial ecosystems EE.MS-LS3-2 Make a claim supported by evidence that offspring inherit traits from their parents.
G. Science Applications **H. Science in Social and Personal Perspectives**	
G-H1 Identify technologies and habits that help people learn or work safely.	*Application of knowledge applied throughout grade level standards*

High School

Extended Grade Band Standard	Wisconsin-EE
A. Science Connections **B. Nature of Science**	
A-B1 Use Models to demonstrate knowledge of scientific concepts.	*Application of knowledge applied throughout grade level standards*
C. Science Inquiry	
C1-Follow directions to complete basic steps of science inquiry	
D. Physical Science Objective: Structures of Atoms and Matter Chemical Reactions Motions and Forces Conservation of Energy and Increase in Disorder Interactions of Matter and Energy	
D1a Identify types of energy needed by multiple organisms.	EE.HS-PS3-4 Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution.
D1 b Use principles of force and motion	EE.HS-PS1-2 Make a claim supported by evidence to explain patterns of chemical properties that occur in a substance during a common chemical reaction (e.g., baking soda and vinegar). EE.HS-PS2-3 Evaluate the effectiveness of safety devices and design a solution that could minimize the force of a collision. EE.HS-PS4-5 Make a claim supported by evidence that shows how some devices use light and sound waves to transmit and capture information.

High School standards in the domain area of Life Science may also overlap with those found in Biology.

High School

E. Earth and Space Science Objective: Energy in the Earth System Geochemical Cycles The Origin and Evolution of the earth System The Origin and Evolution of the Universe	
E1a Identify earth's position within the solar system.	EE. HS-ESS1-4 Use a model of Earth and the Sun to show how Earth's tilt and orbit around the sun cause changes in the seasons. EE.HS-ESS2-4 Using a model, recognize how the effects of changes in climate can impact human lives.
E1b Indentify a natural disaster and its consequences.	EE.HS-ESS2-1 Use a model to show how constructive forces (e.g., volcanoes) and destructive mechanisms (e.g., weathering, coastal erosions) change Earth's surface. EE.HS-ESS3-1 Construct an explanation based on evidence for how natural hazards have influenced human activity. EE.HS-ESS3-2 Construct an argument for a strategy to conserve, recycle, or reuse resources. EE.HS-ESS3-3 Analyze data to determine the effects of a conservation strategy on the level of a natural resource.

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High School

F. Life and Environmental Science Objective: The Cell The Molecular Basis of Heredity Biological Evolution The Interdependence of Organisms Matter, Energy, and Organization in Living Systems The Behavior of Organisms	
F1a Recognize that adaptations are part of natural processes.	EE.HS-LS1-2 Use a model to illustrate the organization and interaction of the major organs into systems (e.g., circulatory, respiratory, digestive, sensory) in the body to provide specific functions. EE.HS-LS2-1 Use a graphical representation to explain changes over time in the population size of an animal species (e.g., currently on the endangered list). EE.HS-LS2-2 Use a graphical representation to explain the dependence of an animal population on other organisms for food and their environment for shelter. EE.HS-LS4-2 Explain how the traits of a particular species allow them to survive in their specific environments. EE.HS-LS4-3 Interpret data sets to identify an advantageous heritable trait. EE.HS-LS4-6 Evaluate a strategy to protect a species.

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High School

F1b Recognize that characteristics are transferred from parent (s) to offspring.	EE.HS-LS1-1 Explain how different organs of the body carry out essential functions of life. EE.HS-LS1-3 Collect data from an investigation to show how different organisms react to changes (e.g. heart rate increases with exercise, pupils react to light). EE. HS-LS1-4 Use a model to illustrate how growth occurs when cells multiply. EE.HS-LS3-2 Defend why reproduction may or may not result in offspring with different traits.
G. Science Application **H. Science in Social and Personal Perspectives**	
G-H1 Identify different career options related to science. G-H2 Determine an action that improves quality of life.	*Application of knowledge applied throughout grade level standards*

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