



Alignment Document  
State of Wisconsin and Aventa Learning

**Science 8**

Strand	Common Curriculum Goal	Standard	Lesson Name
A.8 Science Connections	A.8 Science Connections	<b>A.8.1</b> Develop their understanding of the science themes by using the themes to frame questions about science-related issues and problems	Lesson 1: Science Theory and Science in the World
		<b>A.8.2</b> Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems	
		<b>A.8.3</b> Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them	
		<b>A.8.4</b> Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at the time	Lesson 2: Systems and Models

		<b>A.8.5</b> Show how models and explanations, based on systems, were changed as new evidence accumulated (the effects of constancy, evolution, change, and measurement should all be part of these explanations)	
		<b>A.8.6</b> Use models and explanations to predict actions and events in the natural world	Lesson 2: Systems and Models
		<b>A.8.7</b> Design real or thought investigations to test the usefulness and limitations of a model	
		<b>A.8.8</b> Use the themes of evolution, equilibrium, and energy to predict future events or changes in the natural world	
<b>B.8</b> Nature of Science	<b>B.8</b> Nature of Science	<b>B.8.1</b> Describe how scientific knowledge and concepts have changed over time in the earth and space, life and environmental, and physical sciences	
		<b>B.8.2</b> Identify and describe major changes that have occurred over in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and identify the people, cultures, and conditions that led to these developments	
		<b>B.8.3</b> Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications	Lesson 1: Science Theory and Science in the World

		<b>B.8.4</b> Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world	
		<b>B.8.5</b> Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time	
		<b>B.8.6</b> Explain the ways in which scientific knowledge is useful and also limited when applied to social issues	
<b>C.8</b> Science Inquiry	<b>C.8</b> Science Inquiry	<b>C.8.1</b> Identify questions they can investigate using resources and equipment they have available	Lesson 1: Science Theory and Science in the World
		<b>C.8.2</b> Identify data and locate sources of information including their own records to answer the questions being investigated	Lesson 1: Science Theory and Science in the World
		<b>C.8.3</b> Design and safely conduct investigations that provide reliable quantitative or qualitative data, as appropriate, to answer their questions	Lesson 1: Science Theory and Science in the World
		<b>C.8.4</b> Use inferences to help decide possible results of their investigations, use observations to check their inferences	Lesson 1: Science Theory and Science in the World
		<b>C.8.5</b> Use accepted scientific knowledge, models, and theories to explain their results and to raise further questions about their investigations	Lesson 1: Science Theory and Science in the World
		<b>C.8.6</b> State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected	Lesson 1: Science Theory and Science in the World

		<b>C.8.7</b> Explain their data and conclusions in ways that allow an audience to understand the questions they selected for investigation and the answers they have developed	Lesson 1: Science Theory and Science in the World
		<b>C.8.8</b> Use computer software and other technologies to organize, process, and present their data	Lesson 1: Science Theory and Science in the World
		<b>C.8.9</b> Evaluate, explain, and defend the validity of questions, hypotheses, and conclusions to their investigations	Lesson 1: Science Theory and Science in the World
		<b>C.8.10</b> Discuss the importance of their results and implications of their work with peers, teachers, and other adults	
		<b>C.8.11</b> Raise further questions which still need to be answered	Lesson 1: Science Theory and Science in the World
<b>D.8</b> Physical Science	Properties and Changes of Properties in Matter	<b>D.8.1</b> Observe, describe, and measure physical and chemical properties of elements and other substances to identify and group them according to properties such as density, melting points, boiling points, conductivity, magnetic attraction, solubility, and reactions to common physical and chemical tests	Lesson 3: The Atom and Properties of Matter
		<b>D.8.2</b> Use the major ideas of atomic theory and molecular theory to describe physical and chemical interactions among substances, including solids, liquids, and gases	
		<b>D.8.3</b> Understand how chemical interactions and behaviors lead to new substances with different properties	Lesson 5: Formulas and Equations

		<b>D.8.4</b> While conducting investigations, use the science themes to develop explanations of physical and chemical interactions and energy exchanges	
	Motions and Forces	<b>D.8.5</b> While conducting investigations, explain the motion of objects by describing the forces acting on them	Lesson 6: Force and Motion
		<b>D.8.6</b> While conducting investigations, explain the motion of objects using concepts of speed, velocity, acceleration, friction, momentum, and changes over time, among others, and apply these concepts and explanations to real-life situations outside the classroom	Lesson 6: Force and Motion and Lesson 7: Gravity
		<b>D.8.7</b> While conducting investigations of common physical and chemical interactions occurring in the laboratory and the outside world, use commonly accepted definitions of energy and the idea of energy conservation	Lesson 9: Energy Transfer and Lesson 10: Thermodynamics
	Transfer of Energy	<b>D.8.8</b> Describe and investigate the properties of light, heat, gravity, radio waves, magnetic fields, electrical fields, and sound waves as they interact with material objects in common situations	
		<b>D.8.9</b> Explain the behaviors of various forms of energy by using the models of energy transmission, both in the laboratory and in real-life situations in the outside world	
		<b>D.8.10</b> Explain how models of the atomic structure of matter have changed over time, including historical models and modern atomic theory	

E.8 Earth and Space Science	Structure of Earth System	E.8.1 Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems	Lesson 29: Natural Change on Earth
		E.8.2 Describe underlying structures of the earth that cause changes in the earth's surface	Lesson 29: Natural Change on Earth
		E.8.3 Using the science themes during the process of investigation, describe climate, weather, ocean currents, soil movements and changes in the forces acting on the earth	
		E.8.4 Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of rocks	Lesson 31: Habitat Destruction and Pollution and Lesson 34: Environmental Health Project
	Earth's History	E.8.5 Analyze the geologic and life history of the earth, including change over time, using various forms of scientific evidence	
		E.8.6 Describe through investigations the use of the earth's resources by humans in both past and current cultures, particularly how changes in the resources used for the past 100 years are the basis for efforts to conserve and recycle renewable and non-renewable resources	
	Earth in the Solar System	E.8.7 Describe the general structure of the solar system, galaxies, and the universe, explaining the nature of the evidence used to develop current models of the universe	Lesson 35: Astronomy

		<b>E.8.8</b> Using past and current models of the structure of the solar system, explain the daily, monthly, yearly, and long-term cycles of the earth, citing evidence gained from personal observation as well as evidence used by scientists	
<b>F.8</b> Life and Environmental Science	Structure and Function in Living Things	<b>F.8.1</b> Understand the structure and function of cells, organs, tissues, organ systems, and whole organisms	
		<b>F.8.2</b> Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments	Lesson 16: Adaptations and Lesson 17 Adaptations Project
		<b>F.8.3</b> Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism	
	Reproduction and Heredity	<b>F.8.4</b> Investigate and explain that heredity is comprised of the characteristic traits found in genes within the cell of an organism	Lesson 19: Genetics
		<b>F.8.5</b> Show how different structures both reproduce and pass on characteristics of their group	
	Regulation and Behavior	<b>F.8.6</b> Understand that an organism is regulated both internally and externally	
		<b>F.8.7</b> Understand that an organism's behavior evolves through adaptation to its environment	Lesson 16: Adaptation

	Populations and Ecosystems	<b>F.8.8</b> Show through investigations how organisms both depend on and contribute to the balance or imbalance of populations and/or ecosystems, which in turn contribute to the total system of life on the planet	Lesson 31: Habitat Destruction and Pollution, Lesson 32: Introduced Species and Lesson 33: Overpopulation
	Diversity and Adaptations of Organisms	<b>F.8.9</b> Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species	Lesson 18: Natural Selection
		<b>F.8.10</b> Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends.	
<b>G.8 Science Applications</b>	<b>G.8 Science Applications</b>	<b>G.8.1</b> Identify and investigate the skills people need for a career in science or technology and identify the academic courses that a person pursuing such a career would need	
		<b>G.8.2</b> Explain how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers	
		<b>G.8.3</b> Illustrate the impact that science and technology have had, both good and bad, on careers, systems, society, environment, and quality of life	
		<b>G.8.4</b> Propose a design (or re-design) of an applied science model or a machine that will have an impact in the community or elsewhere in the world and show how the design (or re-design) might work, including potential side-effects	

		<b>G.8.5</b> Investigate a specific local problem to which there has been a scientific or technological solution, including proposals for alternative courses of action, the choices that were made, reasons for the choices, any new problems created, and subsequent community satisfaction	Lesson 34: Environmental Health Project
		<b>G.8.6</b> Use current texts, encyclopedias, source books, computers, experts, the popular press, or other relevant sources to identify examples of how scientific discoveries have resulted in new technology	
		<b>G.8.7</b> Show evidence of how science and technology are interdependent, using some examples drawn from personally conducted investigations	
<b>H.8</b> Science in Social and Personal Perspectives	<b>H.8</b> Science in Social and Personal Perspectives	<b>H.8.1</b> Evaluate the scientific evidence used in various media (for example, television, radio, Internet, popular press, and scientific journals) to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of sources	
		<b>H.8.2</b> Present a scientific solution to a problem involving the earth and space, life and environmental, or physical sciences and participate in a consensus-building discussion to arrive at a group decision	Lesson 34: Environmental Health Project
		<b>H.8.3</b> Understand the consequences of decisions affecting personal health and safety	