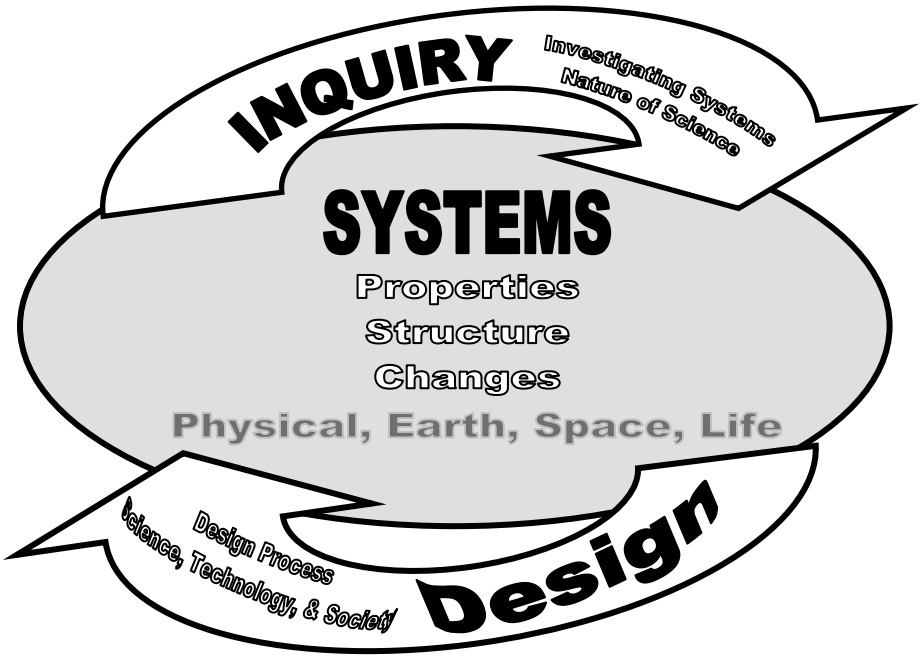
Washington State Science
Essential Academic Learning Requirements

The science standards for Washington State are called the Essential Academic Learning Requirements (EALRs). The science standards describe what all hard working, well-taught students should know and be able to do by grade 10. The measurement of these standards is currently accomplished through the Washington Assessment of Student Learning (WASL) in science. The science standards are organized into three themes: systems, inquiry, and designing solutions to human problems.

Systems: The essential concepts and principles of the physical, earth, space, and life sciences are organized and interwoven by the theme of *systems*. Students connect these *systems* with the understanding of inputs, outputs, and transfers of matter, energy, and information. What science has learned about the universe is described as the properties, structure, and changes in *systems*.

Inquiry: The knowledge and skills necessary to investigate systems are focused upon scientific *inquiry*. Students ask questions and plan valid scientific investigations to answer their questions. In addition, students demonstrate an understanding of the nature of science *inquiry.*

Design: The knowledge and skills of science are applied by *designing* solutions to human problems or challenges. Students use *design* processes to develop and test scientific solutions to these problems. In addition, students recognize that science and technology are human endeavors, interrelated to each other, to society, and to the workplace.



Washington State Science
Essential Academic Learning Requirements

Introduction to Science **"*The important thing is to not stop questioning"*** **Albert Einstein**

Learning in science depends on actively doing science. Active engagement in hands-on, minds-on science learning experiences enables students to make personal sense of the physical world and to solve problems. Toward these ends, the Essential Academic Learning Requirements (EALRs) for science were developed based on the following set of guiding principles.

1. All students should be expected to attain satisfactory achievement and performance on all Essential Academic Learning Requirements.
2. All students should have access to a carefully articulated science program **each year** in kindergarten through tenth grade with opportunities for continued study in grades 11 and 12.
3. All students should receive quality feedback about their performance and achievement in science on a continuous basis.
4. All students, regardless of gender, cultural or ethnic background, physical or learning disabilities, aspirations, or interest and motivation in science, should have the opportunity to attain scientific literacy.
5. All students should have access to effective and appropriate teaching from well-trained teachers who are supported with high quality instructional resources.

If all students attain mastery of the following Essential Academic Learning Requirements for science, Washington State will be much closer to attaining the national goal of being the first in the world in science achievement and performance. The Washington Assessment of Student Learning (WASL) in science will be one measure of student mastery.

1: **Systems** The student understands and uses scientific concepts and principles to understand systems.

- **1.1** **Properties of Systems** (PR, red): Use properties to identify, describe, and categorize substances, materials, and objects, and use characteristics to categorize living things.
- **1.2** **Structure of Systems** (ST, orange): Recognize the components, structure, and organization of systems and the interconnections within and among them.
- **1.3** **Changes in Systems** (CH, yellow): Understand how interactions within and among systems cause changes in matter and energy.

2. Inquiry: The student knows and applies the skills, processes, and nature of scientific inquiry. (IN, green)

- **2.1** **Investigation Systems:** Develop the knowledge and skills necessary to do scientific inquiry.
- **2.2** **Nature of Science:** Understand the nature of scientific inquiry.

3. Design: The student knows and applies the design process to develop solutions to human problems in societal contexts. (DE, blue)

- **3.1** **Designing Solutions:** Apply design processes to develop solutions to human problems or meet challenges using the knowledge and skills of science and technology.
- **3.2** **Science, Technology, and Society:** Know that science and technology are human endeavors, interrelated to each other, to society, and to the workplace.

Washington State Science
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RED

1: **Systems** The student understands and uses scientific concepts and principles to understand systems.

1.1 Properties of Systems (PR): Use properties to identify, describe, and categorize substances, materials, and objects, and use characteristics to categorize living things.

Physical Science: PR01

Properties of Substances PR01 1.1.1 1. Use properties to sort natural and manufactured materials and objects; for example: size, weight, shape, color, texture, and hardness. Grades K, 1, 2, 3, 4, & 5	**Properties of Substances PR01 1.1.1** 1. Use physical and chemical properties to identify and describe substances; for example: density, boiling point, and solubility. Grades 6, 7, & 8	**Properties of Substances PR01 1.1.1** 1. Examine the basis for the structure and use of the periodic table. Grades 9 & 10
Motion of Objects PR01 1.1.2 2. Describe the relative position and motion of objects. Grades K, 1, 2, 3, 4, & 5	**Motion of Objects PR01 1.1.2** 2. Describe the positions, relative speeds, and changes in speed of objects. Grades 6, 7, & 8	**Motion of Objects PR01 1.1.2** 2. Describe the average speed, direction of motion, and average acceleration of objects; for example: increasing, decreasing, or constant acceleration. Grades 9 & 10
Wave Behavior PR01 1.1.3 3. Describe experiences with sound; for example: vibrations, echoes, and pitch. Describe experiences with light in terms of bouncing off, passing through, and changes in path direction. Grades K, 1, 2, 3, 4, & 5	**Wave Behavior PR01 1.1.3** 3. Describe sound, water waves, and light using wave properties, such as wavelength, reflection, refraction, transmission, absorption, scattering, and interference. Grades 6, 7, & 8	**Wave Behavior PR01 1.1.3** 3. Describe water waves and sound relating the ideas of frequency, wavelength, and speed; and by relating energy to amplitude. Grades 9 & 10

Washington State Science
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RED

1.1 Properties of Systems (PR): Use properties to identify, describe, and categorize substances, materials, and objects, and use characteristics to categorize living things. (continued)

Physical Science: PR01 (continued)

Energy Sources and Kinds PR01 1.1.4	Energy Sources and Kinds PR01 1.1.4	Energy Sources and Kinds PR01 1.1.4
4. Understand that energy keeps things running; and comes in many forms.	4. Understand that energy is a property of substances and comes in many forms, including stored energy, energy of motion, heat energy, and other forms of energy.	4. Understand many forms of energy as they are found in common situations on Earth and in the universe.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Earth and Space Science: PR02

Nature and Properties of Earth Materials PR02 1.1.5	Nature and Properties of Earth Materials PR02 1.1.5	Nature and Properties of Earth Materials PR02 1.1.5
5. Observe and examine physical properties of Earth materials such as rocks and soil, water (as liquid, solid, and vapor) and the gases of the atmosphere.	5. Classify rocks and soils into groups based on their chemical and physical properties; describe the processes by which rocks and soils are formed.	5. Correlate the chemical composition of Earth materials (rocks, soils, water, gases of the atmosphere) with their properties.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Life Science: PR03

Characteristics of Living Things PR03 1.1.6	Characteristics of Living Things PR03 1.1.6	Characteristics of Living Things PR03 1.1.6
6. Distinguish living organisms from nonliving objects and use characteristics to sort common organisms into plant and animal groups.	6. Categorize plants and animals into groups according to how they accomplish life processes and/or by similarities and differences in external and internal structures.	6. Classify organisms into distinct groups according to structural, cellular, biochemical, and genetic characteristics.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Washington State Science
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ORANGE

1: **Systems** The student understands and uses scientific concepts and principles to understand systems.

1.2 Structure of Systems (ST): Recognize the components, structure, and organization of systems and the interconnections within and among them.

Systems Approach ST01, STI02, STI03, & STI04	Systems Approach ST01, STI02, STI03, & STI04	Systems Approach ST01, STI02, STI03, & STI04
1. Identify the parts of a system, how the parts go together, and how they depend on each other.	1. Describe how the parts of a system interact and influence each other.	1. Analyze systems, including inputs and outputs, as well as subsystems.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Physical Science: ST01

Energy Transfer and Transformation ST01 1.2.2	Energy Transfer and Transformation ST01 1.2.2	Energy Transfer and Transformation ST01 1.2.2
2. Know that energy can be transferred from one object to another and can be transformed from one type of energy to another**.**	2. Determine factors that affect rate and amount of energy transfer; associate a decrease in one form of energy and an increase in another.	2. Understand that total energy is conserved: analyze decreases and increases of energy during energy transfers and transformations in terms of energy conservation.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Structure of Matter ST01 1.2.3	Structure of Matter ST01 1.2.3	Structure of Matter ST01 1.2.3
3. Know that matter is made of small particles called atoms and molecules.	3. Understand that all matter is made up of atoms, which may be combined in various kinds, ways, and numbers to make molecules of different substances.	3. Relate the structural characteristics of atoms to the principles of atomic bonding.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Washington State Science Essential Academic Learning Requirements

ORANGE

1.2 Structure of Systems (ST): Recognize the components, structure, and organization of systems and the interconnections within and among them. (continued)

Earth and Space Science: ST02

Components and Patterns of Earth Systems **ST02 1.2.4** 4. Recognize that Earth is a spherical planet with a mainly solid interior and a surface composed of landforms, bodies of water, and an atmosphere. Grades K, 1, 2, 3, 4, & 5	**Components and Patterns of Earth Systems** **ST02 1.2.4** 4. Describe the components of the Earth system, including the solid Earth, the hydrosphere, and the atmosphere. Grades 6, 7, & 8	**Components and Patterns of Earth Systems** **ST02 1.2.4** 4. Describe the patterns and arrangements of the Earth system including the solid Earth, hydrosphere, and layers of the atmosphere. Grades 9 & 10
Components of the Solar System and Beyond (Universe) **ST02 1.2.5** 5. Know that Earth is one of several planets that orbits the sun, and the moon orbits Earth. Grades K, 1, 2, 3, 4, & 5	**Components of the Solar System and Beyond (Universe)** **ST02 1.2.5** 5. Describe the relationships of the solar system including Sun, Earth, Moon, the other planets and their moons, and smaller objects, such as asteroids and comets. Grades 6, 7, & 8	**Components of the Solar System and Beyond (Universe)** **ST02 1.2.5** 5. Understand that the solar system is in a galaxy in an expanding universe composed of immense numbers of stars and celestial bodies. Grades 9 & 10

Washington State Science Essential Academic Learning Requirements

ORANGE

1.2 Structure of Systems (ST): Recognize the components, structure, and organization of systems and the interconnections within and among them. (continued)

Life Science: ST03

Structure and Organization of Living Systems ST03 1.2.6 6. Know that living things are composed of parts made of cells. Grades K, 1, 2, 3, 4, & 5	**Structure and Organization of Living Systems ST03 1.2.6** 6. Know that specialized cells within multi-cellular organisms form different kinds of tissues, organs, and organ systems to carry out life functions. Grades 6, 7, & 8	**Structure and Organization of Living Systems ST03 1.2.6** 6. Understand that specific genes regulate the functions performed by structures within the cells of multi-cellular organisms. Grades 9 & 10
Molecular Basis of Heredity ST03 1.2.7 7. Describe the life cycles of plants and animals, and recognize the differences between inherited and acquired characteristics. Grades K, 1, 2, 3, 4, & 5	**Molecular Basis of Heredity ST03 1.2.7** 7. Understand that all living things reproduce and pass on genetic information and that an organism's characteristics are determined by both genetic and environmental influences. Grades 6, 7, & 8	**Molecular Basis of Heredity ST03 1.2.7** 7. Describe how genetic information (DNA) in the cell is controlled at the molecular level and provides genetic continuity between generations. Grades 9 & 10
Human Biology ST03 1.2.8 8. Understand the organization and function of human body structures and internal organs and how they work together. Grades K, 1, 2, 3, 4, & 5	**Human Biology ST03 1.2.8** 8. Identify and describe human life functions and the interconnecting organ systems necessary to maintain human life such as digestion, respiration, reproduction, circulation, excretion, movement, disease prevention, control, and coordination. Grades 6, 7, & 8	**Human Biology ST03 1.2.8** 8. Compare and contrast the specialized structural and functional systems that regulate human growth and development, and maintain health. Grades 9 & 10

Washington State Science Essential Academic Learning Requirements

YELLOW

1. Systems The student understands and uses scientific concepts and principles to understand systems.

1.3 Changes in Systems (CH): Understand how interactions within and among systems cause Changes in matter and energy.

Physical Science: CH01

Nature of Forces **CH01 1.3.1** 1. Describe forces in terms of strength and direction. Grades K, 1, 2, 3, 4, & 5	**Nature of Forces** **CH01 1.3.1** 1. Know the factors that determine the strength and interactions of the various forces. Grades 6, 7, & 8	**Nature of Forces** **CH01 1.3.1** 1. Identify various forces and their relative magnitudes and explain everyday situations in terms of force. Grades 9 & 10
Forces to Explain Motion **CH01 1.3.2** 2. Investigate and recognize factors that determine the effects of a push or pull on the motion of objects. Grades K, 1, 2, 3, 4, & 5	**Forces to Explain Motion** **CH01 1.3.2** 2. Understand the effects of balanced and unbalanced forces on the motion of objects along a straight line. Grades 6, 7, & 8	**Forces to Explain Motion** **CH01 1.3.2** 2. Explain the effects of unbalanced forces in changing the direction of the motion of objects. Grades 9 & 10
Physical and Chemical Changes **CH01 1.3.3** 3. Know that matter can undergo changes of state such as evaporation, condensation, or freezing and thawing. Grades K, 1, 2, 3, 4, & 5	**Physical and Chemical Changes** **CH01 1.3.3** 3. Understand physical and chemical changes at the particle level and know that matter is conserved. Grades 6, 7, & 8	**Physical and Chemical Changes** **CH01 1.3.3** 3. Analyze and explain the various factors that affect physical, chemical, and nuclear changes and how matter and energy are conserved in a closed system. Grades 9 & 10

Washington State Science Essential Academic Learning Requirements

YELLOW

1.3 Changes in Systems (CH): Understand how interactions within and among systems cause Changes in matter and energy. (continued)

Earth and Space Science: CH02

Processes and Interactions in Earth Systems **CH02 1.3.4** 4. Identify processes that slowly change the surface of the earth such as erosion and weathering and those that rapidly change the surface of the earth such as landslides, volcanic eruptions, and earthquakes. Grades K, 1, 2, 3, 4, & 5	**Processes and Interactions in Earth Systems** **CH02 1.3.4** 4. Describe constructive and destructive processes at work and how they continually change landforms on Earth. Grades 6, 7, & 8	**Processes and Interactions in Earth Systems** **CH02 1.3.4** 4. Explain how patterns and arrangements of landforms, oceans, and the atmosphere are determined by natural processes and how plate tectonics accounts for crustal movements over time. Grades 9 & 10
History and Evolution of Earth **CH02 1.3.5** 5. Recognize how fossils provide evidence of plants, animals, and environments that existed long ago. Grades K, 1, 2, 3, 4, & 5	**History and Evolution of Earth** **CH02 1.3.5** 5. Know the importance of fossils and other evidence in documenting life and environmental changes over time. Grades 6, 7, & 8	**History and Evolution of Earth** **CH02 1.3.5** 5. Understand that fossils, radioactive elements, and other evidence can be used to correlate and determine the sequence of geologic events. Grades 9 & 10
Hydrosphere and Atmosphere **CH02 1.3.6** 6. Observe and measure weather indicators such as temperature, wind direction and speed, and precipitation while noting changes and patterns of change from day-to-day and over the seasons. Grades K, 1, 2, 3, 4, & 5	**Hydrosphere and Atmosphere** **CH02 1.3.6** 6. Relate global atmospheric movement and the formation of ocean currents to weather and climate. Grades 6, 7, & 8	**Hydrosphere and Atmosphere** **CH02 1.3.6** 6. Correlate global climates to energy transfer by the sun, cloud cover, Earth's rotation, and the positions of mountain ranges and oceans. Grades 9 & 10

1.3 Changes in Systems (CH): Understand how interactions within and among systems cause changes in matter and energy. (continued)

Earth Science: CH02

Interactions in the Solar System and Beyond (Universe) CH02 1.3.7	Interactions in the Solar System and Beyond (Universe) CH02 1.3.7	Interactions in the Solar System and Beyond (Universe) CH02 1.3.7
7. Observe and describe the patterns of movement of the sun and moon relative to each other and Earth, and relate them to Earth's rotation.	7. Describe how the regular and predictable motions of most objects in the solar system account for such phenomena as the day, year, and phases of the moon, eclipses, seasons, and ocean tides.	7. Understand that Earth, planets, sun, and the rest of the celestial bodies in the universe are continuing to evolve because of the interactions between matter and forces of nature
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

1.3 Changes in Systems (CH): Understand how interactions within and among systems cause changes in matter and energy. (continued)

Life Science: CH03

Life Processes and the Flow of Matter and Energy CH03 1.3.8 8. Recognize that living things need constant energy supplied from food or light and that, in ecosystems, substances such as air, water, nutrients, and the chemicals in food are continually recycled. Grades K, 1, 2, 3, 4, & 5	**Life Processes and the Flow of Matter and Energy CH03 1.3.8** 8. Understand that individual organisms and ecosystems use matter and energy for life processes, and the mechanisms accomplishing these processes are complex, integrated, and regulated. Grades 6, 7, & 8	**Life Processes and the Flow of Matter and Energy CH03 1.3.8** 8. Explain how organisms and ecosystems can sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. Grades 9 & 10
Biological Evolution CH03 1.3.9 9. Know how fossil records show patterns of structural change in species over time. Grades K, 1, 2, 3, 4, & 5	**Biological Evolution CH03 1.3.9** 9. Describe how the theory of biological evolution accounts for species diversity, adaptation, natural selection, extinction, and change in species over time. Grades 6, 7, & 8	**Biological Evolution CH03 1.3.9** 9 Investigate and examine the scientific evidence used to develop the theory of biological evolution, and the concepts of speciation, adaptation, and biological diversity. Grades 9 & 10
Interdependence of Life CH03 1.3.10 10. Describe how an organism's behavior and ability to survive is influenced by its environment, other life forms, and availability of food and/or other resources. Grades K, 1, 2, 3, 4, & 5	**Interdependence of Life CH03 1.3.10** 10. Explain how organisms interact with their environment and with other organisms to acquire energy, cycle matter, influence behavior, and establish competitive or mutually beneficial relationships. Grades 6, 7, & 8	**Interdependence of Life CH03 1.3.10** 10. Compare and contrast the complex factors (biotic and abiotic) that affect living organisms' interactions in biomes, ecosystems, communities, and populations. Grades 9 & 10

Washington State Science
Essential Academic Learning Requirements

GREEN

2. Inquiry (IN): The student knows and applies the skills, processes, and nature of scientific inquiry.

2.1 Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.

Questioning **IN01 2.1.1** 1. Ask questions about objects, organisms, and events in the environment. Grades K, 1, 2, 3, 4, & 5	**Questioning** **IN01 2.1.1** 1. Generate questions that can be answered through scientific investigations. Grades 6, 7, & 8	**Questioning** **IN01 2.1.1** 1. Study and analyze questions and related concepts that guide scientific investigations. Grades 9 & 10
Planning and Conducting Investigations **WASL IN02 2.1.2** 2. Plan and conduct simple investigations, using appropriate tools, measures, and safety rules. Grades K, 1, 2, 3, 4, & 5	**Planning and Conducting Investigations** **IN02 2.1.2** 2. Plan, conduct, and evaluate scientific investigations, using appropriate equipment, mathematics, and safety procedures. Grades 6, 7, & 8	**Planning and Conducting Investigations** **IN02 2.1.2** 2. Plan, conduct, and evaluate systematic and complex scientific investigations, using appropriate technology, multiple measures, and safe approaches. Grades 9 & 10
Explaining **IN03 2.1.3** 3. Use data to construct reasonable explanations. Grades K, 1, 2, 3, 4, & 5	**Explaining** **IN03 2.1.3** 3. Use evidence from scientific investigations to think critically and logically to develop descriptions, explanations, and predictions. Grades 6, 7, & 8	**Explaining** **IN03 2.1.3** 3. Formulate and revise scientific explanations and models using logic and evidence; recognize and analyze alternative explanations and predictions. Grades 9 & 10

Washington State Science Essential Academic Learning Requirements

GREEN

2.1 Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry. (continued)

Modeling IN04 2.1.4	Modeling IN04 2.1.4	Modeling IN04 2.1.4
4. Model objects, events, or processes by representing them with concrete objects, metaphors, analogies, or other conceptual or physical constructs.	4. Correlate models of the behavior of objects, events, or processes to the behavior of the actual things under investigation; test models by predicting and observing actual behaviors or processes.	4. Use mathematics, computers, and/or related technology to model the behavior of objects, events, or processes; analyze advantages and limitations of models.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Communicating IN05 2.1.5	Communicating IN05 2.1.5	Communicating IN05 2.1.5
5. Record and report observations, explanations, and conclusions, using visual, oral, written, and mathematical expression.	5. Communicate scientific procedures, investigations, and explanations visually, orally, in writing, with computer-based technology, and in the language of mathematics.	5. Research, interpret and defend scientific investigations, conclusions, or arguments; use data, logic, and analytic thinking as investigative tools; express ideas through visual, oral, written, and mathematical expression.
Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10

Washington State Science
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GREEN

2.2 Nature of Science: Understand the nature of scientific inquiry

Intellectual Honesty **IN05 2.2.6** 1. Understand that all scientific observations should be reported accurately even when they contradict expectations. Grades K, 1, 2, 3, 4, & 5	**Intellectual Honesty** **IN05 2.2.6** 1. Understand the operational and ethical traditions of science and technology, such as skepticism, cooperation, intellectual honesty, and proprietary discovery. Grades 6, 7, & 8	**Intellectual Honesty** **IN05 2.2.6** 1. Analyze and explain why curiosity, honesty, openness, and skepticism are integral to scientific inquiry. Grades 9 & 10
Limitations of Science and Technology **IN07 2.2.7** 2. Distinguish between questions that can be answered with science and technology and those that cannot. Grades K, 1, 2, 3, 4, & 5	**Limitations of Science and Technology** **IN07 2.2.7** 2. Understand why scientific investigation is limited to the natural world. Grades 6, 7, & 8	**Limitations of Science and Technology** **IN07 2.2.7** 2. Identify and evaluate factors that limit the extent of a scientific investigation. Grades 9 & 10
Evaluating Inconsistencies **IN08 2.2.8** 3. Explain why similar investigations may not produce similar results. Grades K, 1, 2, 3, 4, & 5	**Evaluating Inconsistencies** **IN08 2.2.8** 3. Provide more than one explanation for events or phenomena; defend or refute the explanations using evidence. Grades 6, 7, & 8	**Evaluating Inconsistencies** **IN08 2.2.8** 3. Compare, contrast, and critique divergent results from scientific investigations based on scientific arguments and explanations. Grades 9 & 10

Washington State Science
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GREEN

2.2 Nature of Science: Understand the nature of scientific inquiry

Grades K, 1, 2, 3, 4, & 5	Grades 6, 7, & 8	Grades 9 & 10
Evaluating Methods of Investigations **IN09 2.2.9** 4. Recognize when results of scientific investigations have come from expected and unexpected sources.	**Evaluating Methods of Investigations** **IN09 2.2.9** 4. Describe how methods of investigation relate to the validity of scientific experiments, observations, theoretical models, and explanations.	**Evaluating Methods of Investigations** **IN09 2.2.9** 4. Analyze and evaluate the quality and standards of investigative designs, processes, and procedures.
Evolution of Scientific Ideas **IN10 2.2.10** 5. Know how ideas in science change as new scientific thinking, theories, and evidence arise.	**Evolution of Scientific Ideas** **IN10 2.2.10** 5. Explain how scientific theory, prediction or hypothesis generation, experimentation, and observation are interrelated and may lead to changing ideas.	**Evolution of Scientific Ideas** **IN10 2.2.10** 5. Know why science involves testing, revising, and occasionally discarding theories, how inquiry and investigations lead to better understanding of the natural world, and why inquiry cannot lead to absolute truth.

Washington State Science
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BLUE

3. Design (DE): The student knows and applies the design process to develop solutions to human problems in societal contexts

3.1 Designing Solutions: Apply design processes to develop solutions to human problems or meet challenges using the knowledge and skills of science and technology.

Identifying Problems **DE01 3.1.1** 1. Identify problems found in familiar contexts in which science and technology can be or has been used to design solutions. Grades K, 1, 2, 3, 4, & 5	**Identifying Problems** **DE01 3.1.1** 1. Identify and examine common, everyday challenges or problems in which science and technology can be or has been used to design solutions. Grades 6, 7, & 8	**Identifying Problems** **DE01 3.1.1** 1. Study and analyze challenges or problems from local, regional, national, or global contexts in which science and technology can be or has been used to design a solution. Grades 9 & 10
Designing and Testing Solutions **DE02 3.1.2** 2. Propose, design, and test a solution to a problem. Grades K, 1, 2, 3, 4, & 5	**Designing and Testing Solutions** **DE02 3.1.2** 2. Identify, design, and test alternative solutions to a challenge or problem. Grades 6, 7, & 8	**Designing and Testing Solutions** **DE02 3.1.2** 2. Research, model, simulate, and test alternative solutions to a problem. Grades 9 & 10
Evaluating Potential Solutions **DE03 3.1.3** 3. Evaluate how well a design or a product solves a problem. Grades K, 1, 2, 3, 4, & 5	**Evaluating Potential Solutions** **DE03 3.1.3** 3. Compare and contrast multiple solutions to a problem or challenge. Grades 6, 7, & 8	**Evaluating Potential Solutions** **DE03 3.1.3** 3. Propose, revise, and evaluate the possible constraints, applications, and consequences of solutions to a problem or challenge. Grades 9 & 10

Washington State Science Essential Academic Learning Requirements

BLUE

3.2 Science, Technology, and Society: Know that science and technology are human endeavors, interrelated to each other, to society, and to the workplace.

All Peoples Contribute to Science and Technology **DE04 3.2.4** **Classroom Based Only** 1. Know that science and technology have been practiced by all peoples throughout history. Grades K, 1, 2, 3, 4, & 5	**All Peoples Contribute to Science and Technology** **DE04 3.2.4** **Classroom Based Only** 1. Know that science and technology have been developed, used, and affected by many diverse individuals, cultures, and societies throughout human history. Grades 6, 7, & 8	**All Peoples Contribute to Science and Technology** **DE04 3.2.4** **Classroom Based Only** 1. Analyze how scientific knowledge and technological advances from diverse cultures and individuals contribute to changes in societies. Grades 9 & 10
Relationship of Science and Technology **DE05 3.2.5** 2. Recognize that people have invented tools for everyday life and for scientific investigations. Grades K, 1, 2, 3, 4, & 5	**Relationship of Science and Technology** **DE05 3.2.5** 2. Compare and contrast scientific inquiry and technological design in terms of activities, results, and influence on individuals and society; understand how science supports technological development and vice versa. Grades 6, 7, & 8	**Relationship of Science and Technology** **DE05 3.2.5** 2. Analyze how the scientific enterprise and technological advance influence and are influenced by human activity, for example societal, environmental, economical, political, or ethical considerations. Grades 9 & 10

Washington State Science
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BLUE

3.2 Science, Technology, and Society: Know that science and technology are human endeavors, interrelated to each other, to society, and to the workplace. (continued)

Careers and Occupations using Science, Mathematics, and Technology **DE06 3.2.6** **Classroom Based Only** 3. Identify the knowledge and skills of science, mathematics, and technology used in common occupations. Grades K, 1, 2, 3, 4, & 5	**Careers and Occupations using Science, Mathematics, and Technology** **DE06 3.2.6** **Classroom Based Only** 3. Investigate the use of science, mathematics, and technology within occupational/career areas of interest. Grades 6, 7, & 8	**Careers and Occupations using Science, Mathematics, and Technology** **DE06 3.2.6** **Classroom Based Only** 3. Investigate the scientific, mathematical, and technological knowledge, training, and experience needed for occupational/career areas of interest. Grades 9 & 10
Environmental and Resource Issues **DE07 3.2.7** 4. Know how humans and other living things depend on the natural environment and can cause changes in their environment that affect their ability to survive. Grades K, 1, 2, 3, 4, & 5	**Environmental and Resource Issues** **DE07 3.2.7** 4. Explain how human societies' use of natural resources affects the quality of life and the health of ecosystems. Grades 6, 7, & 8	**Environmental and Resource Issues** **DE07 3.2.7** 4. Analyze the effects of natural events and human activities affect the Earth's capacity to sustain biological diversity. Grades 9 & 10