Board Approved – April 8, 2004

Middle School Science Course Content

	Fall	Winter	Spring
Grade 6	**Topic: Earth History** (Earth/Space Science) Students investigate how the Earth's resources have been used over time. Students study types of rocks found on Earth and the geologic processes that formed them. They investigate the properties of rocks such as sand, sandstone, and shale and how they were formed. Students study fossils, fossil records and geologic time. Students design investigations through the inquiry process to further their understanding of earth systems and make connections between science and societal concerns. **Recommended Field Trip:** Washington Park, Anacortes	**Topic: Aquatic and Terrestrial Ecology** (Life Science) Using an inquiry process, students will study how matter that makes up living things cycles through the environment and is transformed when it passes from one organism to another and between organisms and their physical environments. Students identify living and non-living factors that differentiate aquatic and terrestrial ecosystems. Students investigate living and non-living factors in aquatic and terrestrial ecosystems and how they effect life. Students will make connections between science and societal issues as they investigate and develop their understanding of ecosystems. **Recommended Field Trip:** Conservation Site	**Topic: Energy, Machines and Motion** (Physical Science) Students investigate energy and its transformations. They investigate electricity, heat, light and mechanical energy. Students investigate forces, distance and simple machines such as the inclined plane, pulley and lever. Students explore the concepts of motion, force and gravity. Students design investigations through the inquiry process to further their understanding of energy, machines and motion and make connections between science and societal concerns.

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Grade 7	**Topic: Catastrophic Events** (Earth/Space Science) Students study patterns of landforms, shapes of continents and types of cloud cover as they relate to storms, earthquakes, volcanoes and other catastrophic events. Students investigate atmospheric phenomena that are responsible for thunderstorms, tornadoes and hurricanes. They study wave motion, seismic waves, plate tectonics, volcanoes, magma, igneous rocks, volcanic ash, viscosity, crystallization and the effects of ash on atmosphere and surrounding landscapes. Throughout this unit students will investigate heat as a form of energy. Students will design investigations through the inquiry process to further their understanding of natural catastrophic events on earth. Storms ▪ heat transfer ▪ water cycle Earthquakes ▪ waves ▪ earth's structure ▪ plate tectonics Volcanism ▪ igneous rocks ▪ volcanic ash ▪ land formation	**Topic: Earth in Space** (Earth/Space Science) Students study the solar system and investigate planetary processes such as impact cratering, wind and water erosion, landslides, volcanism and tectonics. Students investigate the relationships between the Sun, Earth and Moon systems. They learn about gravity, orbital motion and tides resulting from gravitational forces. Students compare asteroids, meteoroids and comets and examine the effects of asteroid impact throughout Earth's history. Students will design investigations through the inquiry process to further their understanding of the earth in space. Sun-Moon-Earth System ▪ seasons ▪ moon phases ▪ eclipses ▪ sun's energy Solar System ▪ scale ▪ motion ▪ gravity ▪ planetary processes Earth's History ▪ asteroids, comets, meteors ▪ fossils ▪ uniqueness of earth **Recommended Field Trip:** WWU Planetarium	**Topic: Wave Energy** (Physical Science) Students investigate the properties, uses and behaviors of light. They examine sources of light, its travel in straight lines, shadows and the application of the principles of its travel. They investigate the electromagnetic spectrum, color, reflection and refraction. Students may also investigate other forms of energy including electric, magnetic and sound energy. Students will design investigations through the inquiry process to further their understanding of wave energy. Nature of Light ▪ energy ▪ ray model ▪ spectrum and color ▪ wave model Reflection and Refraction ▪ mirror's ▪ lenses ▪ waves and particles Using Light ▪ optical devices ▪ visual perception ▪ fiber optics

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Grade 8	**Topic: Properties of Matter** (Physical Science) Students study mass, volume, density, heat, chemical change, melting point and other physical properties of matter. They use these properties to separate, classify and identify a variety of substances. Students study the characteristic properties of matter, mixtures and compounds. They also study the concepts of elements, compounds and simple chemical reactions, and the conservation of mass during phase change. Students design investigations through the inquiry process to further their understandings of physical systems. Students make connections between science and societal issues. Systems (Content) Outline ▪ physical and chemical properties ▪ physical and chemical changes ▪ elements, compounds, mixtures, solutions ▪ phase change (states of matter) ▪ classification and identification of substances ▪ simple chemical reactions	**Topic: Organisms-From Macro to Micro** (Life Science) Students study a variety of living organisms as examples of life cycles. They explore the world of cells and life processes of organisms from all living kingdoms. They investigate the relationship between structure and function in vertebrates. Students design investigations through the inquiry process to further their understandings of living systems. Students make connections between science and societal issues. Living Systems ▪ characteristics of living things ▪ life cycles of plants and animals ▪ classification ▪ cell structure and function (plant and animal) ▪ cell division ▪ genetics and heredity	**Topic: Human Body** (Life Science) Through a process of scientific investigation students explore the digestive, respiratory, and muscular-skeletal systems. Students relate knowledge of chemical reactions to processes that occur in the body. Students investigate human body requirements of energy inputs and outputs. Students relate the structure and function of body systems and study the effects of disease. Students design investigations through the inquiry process to further their understandings of living systems. Students make connections between science and societal issues. Science of the Human Body ▪ human body systems ▪ metabolism ▪ chemical reaction in the human body ▪ disease ▪ nutrient requirements