

Year at a Glance – Seventh Grade Science

Guiding Concept: Natural processes and human activities cause energy & matter to flow and cycle through Earth’s systems.

Official 2019-20 Version

What Students Learn

Students in grade seven explore living and nonliving matter in a natural environment that leads to discussion and understandings that **living and nonliving things are made of atoms and molecules**. Students begin constructing an understanding that the interactions and movements of submicroscopic particles result in properties of matter that we observe at the macroscopic level.

Students construct explanations on how **matter cycles and energy flows** in systems of all scales within the Earth System. Students apply their understanding of matter in two different systems, the cycle of rock material in the geosphere and the cycling of biomass between organisms, and that the energy within the system is closely tied to the flow of matter.

Students focus on explaining how natural **processes and human activities have shaped earth's resources and ecosystems** and why things are located where they are, including organisms within an ecosystem and resources and hazards on the planet. Interactions within and between different Earth systems determine these distributions. Humans both depend on these distributions and can dramatically alter them.

Students address how **human activities help sustain biodiversity and ecosystem services in a changing world** in order to address challenges to sustainability by applying their understanding of the natural processes and human activities that shape Earth’s resources and ecosystems. Students research issues related to ecosystem services and design engineering solutions to sustain biodiversity.

Instructional Segment	Overview of Depth of Mastery
Living and Nonliving Things are Made of Atoms	<ul style="list-style-type: none"> Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (MS-PS1-5)
Matter Cycles and Energy Flows in Systems of All Scales within the Earth System	<ul style="list-style-type: none"> Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (MS-LS2-1) Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (MS-LS2-3)
Natural Processes and Human Activities have Shaped Earth's Resources and Ecosystems	<ul style="list-style-type: none"> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. (MS-ESS2-2)
Human Activities Help Sustain Biodiversity and Ecosystem Services in a Changing World	<ul style="list-style-type: none"> Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geoscience processes. (MS-ESS3-1)
Health Education: Healthy students, healthy relationships, and a healthier environment are achievable goals through health education. (9)	<ul style="list-style-type: none"> Evaluate competing design solutions for maintaining biodiversity and ecosystem services and how well they meet the criteria and constraints of the problem. * (MS-LS2-5, MS-ETS1-2) Students will analyze health influences, access valid health information, practice interpersonal communication, make decisions, set goals, practice health-enhancing behaviors, and demonstrate the ability to promote health. (Health)

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What is the YAG? Developed by Irvine Unified teacher committees, the Year at a Glance documents represent these core non-negotiables of learning for all students. All content standards have been examined and prioritized for instructional focus based on whether the standard shows evidence of endurance (the learning will be used for many years), leverage (the learning is applied across content areas) and readiness (the learning is a key foundational piece). ***Although all standards are taught in all content areas, the Year at a Glance identifies the standards which are the most important to focus instruction, reteaching efforts, extension, and reassessment opportunities.*** The essential standards represent the focus of Professional Learning Communities' teamwork throughout the year. This ensures that PLC Teams are able to focus resources on what is most important