

Overview of ESS Unit 4 Earth Materials and Processes

Content Focus	Duration	Instructional Outcomes
Introduction to Project: Geotechnical Report? <i>Geotechnical reports are prepared to determine probable geologic hazards and restrictions when selecting a construction site. Students will be presented with RFP and Project Scoring Tool.</i>	4 Days	- Students will learn to specify criteria and constraints for the design of the project. - Students will identify the geotechnical properties that need to be considered in order to build an aquatic center.
		Geotechnical Report Project Connection: <i>Students will be introduced to the factors needed to successfully complete a Geotechnical Study of their school grounds to assess the land for an aquatic center.</i>
Minerals <i>Earth materials can be classified based on their physical and chemical properties.</i>	5 Days	- Students will identify the origin, texture and mineral composition of common rock groups. - Students will identify the structure of matter. - Students will explain the physical properties and chemical composition of common rock-forming mineral groups.
		Geotechnical Report Project Connection: <i>Students will identify the minerals that are found at their aquatic center site and what implications that may have on their chosen site.</i>
Rocks <i>Every part of the Earth's solid surface displays one or more of the processes associated with the rock cycle.</i>	9 Days	- Students will compare the origin and structure of igneous, metamorphic and sedimentary rocks. - Students will explain how the transfer of energy drives the rock cycle.
		Geotechnical Report Project Connection: <i>Students will identify the rocks that are found at their aquatic center site and what implications that may have on their chosen site. They will use this information to determine the general geological history of the area including the physiographic province.</i>
Weathering/ Erosion/ Deposition <i>The chemical and physical properties of Earth materials are controlling factors in landform changes.</i>	4 Days	Students will identify the destructive processes, constructive processes and landform changes.
		Geotechnical Report Project Connection: <i>In order for students to successfully survey the land and analyze the site selected they will need to investigate the different erosional features, depositional features, and weathering features that could impact their aquatic center.</i>
Geotechnical Report Project Evaluation <i>Final Projects will continue to be developed and evaluated.</i>	5 Days	Students will learn that design is a creative planning process that leads to useful systems and that design usually requires taking constraints into account.
		<i>Students will apply the knowledge they have gained throughout the entire unit sequence to submit a geotechnical investigation for their proposed construction site.</i>