Lesson Title:	**Oil Spill Cleanup**
Subject Area:	Earth Science
Grade Level:	7^{th} Grade
Duration:	7 days
Format (#students/group):	Groups of 4 students
Overview:	Lesson focuses on how engineers use various techniques to provide speedy solutions to oil spills or other threats to natural water resources. Through this lesson, students work in teams to analyze an "oil spill" in the classroom, then design, build, and test a system to first contain, and then remove the oil from the water. Students select from everyday items to build their oil containment and clean-up systems, evaluate the effectiveness of their solution and those of other teams, and present their findings to the class.
Educational Standards:	**E.ES.07.42** Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species. **S.IP.07.11** Generate scientific questions about fluid earth systems and human activities based on observations, investigations, and research. **S.RS.07.12** Describe limitations in personal and scientific knowledge regarding fluid earth systems and human activities. **S.RS.07.18** Describe what science and technology can and cannot reasonably contribute to society when dealing with fluid earth systems
Unit Question:	Why is it important to understand the world we live in from a scientific point of view?
Focus Question/ Purpose:	• Why is it important to understand alternative energy sources? • Which alternative energy source is best? • What is the best way to clean up an oil spill?
Desired Outcomes:	Students will understand: • the issues involved in examining alternative energy sources. • the effects of technology on the environment • role of society in the development and use of technology • trade-offs made in using alternative energy sources Students will be able to: • Evaluate possible solutions to the energy crisis • Describe some of the constraints and tradeoffs that need to be made to clean up an oil spill.
Activity Details/ Instructions:	• Energy Issue team discussions. Discuss objectives and appropriate debate expectations. • Each team receives a packet of 8 issues. Each student reads an issue discussion sheet to the group and then states which solution they believe is the best and explains why. The other members share whether they agree or disagree. Students continue reading and discussing until all issues have been covered. • Whole class discussion. Each group shares thoughts about one issue. • Students will read student information pack “Oil Spill Cleanup” and complete a Sum It Up worksheet • Students discuss and share Sum It Up. • Student Activity: Oil Spill Cleanup Lab part 1 and 2.

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	• Student Activity: Oil Spill Cleanup part 3 – "Designing the Cleanup Plan" (Poster paper) • Student Activity: Oil Spill Cleanup Lab part 4 – "Test Your Plan" • Present poster to the class. Teams share their plan and results. • Class discussion. • Student Activity: Cleaning Up an Oil Spill part 5 – "Constraints and Trade-offs"
Safety:	General safety expectations
Potential Cost:	$15 to $20
Supplies (source):	Meijer, Walmart etc.
Developed by:	Sheri Turner with resource below.
Date:	Fall 2014
Key Words:	STEM, Oil Spill Cleanup
Other Resources:	Using STEM to Investigate Issues in Alternative Energy – ISBN 978-1-58037-578-8