vegetable-based) that are used by people. Ask students what makes these oils different from each other. You may discuss a variety of petroleum products, but this activity focuses primarily liquid oil products.

Activities & Procedures:

Reveal the oil samples. Explain to students that they are going to identify some important characteristics of these compounds. Have students put on rubber gloves. Divide students into lab groups of 3-5 and pass out containers of each oil to students. Then allow them to examine the oils and begin the worksheet. Once initial observations have been completed, instruct students to smell a small whiff of the oil (optional) and put some of it in water. What happens? Students should record these findings on their worksheets.

Create a Venn Diagram on the board to review some of the similarities and differences between the oils. For example:

- both categories of oils do not mix well with water (they are hydrophobic)
- both categories of oils are less dense than water
- both categories can have varied viscosities that makes them good lubricants
- both categories of oils are important sources of energy, but in different ways -- vegetable oils are an important source of fat and calories, petroleum oils are burned for fuel.

Explain to students that an important difference between the two types of oils is that one is toxic and one is edible. Have them complete the worksheet. Review the important characteristics of petroleum oil (can be burned for fuel, don't mix well with water, less dense than water, viscous & slippery, and toxic). How is this important when considering an oil spill?

Wrap-up:

Ask students to revisit their list of oils they use. How many of those oils are petroleum-based? Could they be replaced with something that is less toxic and more renewable? Challenge students to identify at least one petroleum product that they will cut out of their "diet" for the next week.

Evaluation:

Assess student worksheets for completeness and comprehension. Refer to suggested answers as appropriate. Note student cooperation and participation during group work.

Basic Properties of Oil

	Sample A	Sample B
What is this?		
Where did it come from?		
What is its purpose?		
What does it smell like?		
How thick is it?		
What does it look like?		
How does it behave when mixed with water?		
Other observations:		

What are the differences between these two oils? How do they affect people differently?

Why do you think we use oil for the purposes you described rather than another substance? What properties make oil good for this?

Basic Properties of Oil – Suggested Answers

	Sample A	Sample B
What is this?	*Corn oil*	*Motor oil*
Where did it come from?	*Corn plants*	*(Fossilized) Animals and plants buried in the earth for a long time*
What is its purpose?	*Cooking food*	*Making engines work*
What does it smell like?	*Nothing, food*	*Chemicals, cars, exhaust, plastic, glue, sour, rot, etc.*
How thick is it?	*Not very thick – pours quickly*	*Kind of thick – pours at a medium speed*
What does it look like?	*Clear, light yellow*	*Clear, amber, yellow-orange*
How does it behave when mixed with water?	*Stays on the surface*	*Stays on the surface, creates a rainbow sheen*
Other observations:		

What are the differences between these two oils? How do they affect people differently?

Motor oil comes from under the ground, and is fossilized plants and animals. Corn oil is from fresh corn plants. Corn oil is okay for people to eat. Motor oil is toxic and not good for people to eat.

Why do you think we use oil for the purposes you described rather than another substance? What properties make oil good for this?

The fat in corn oil makes food taste good and holds food together. Motor oil is slippery and that makes it good to use in engines so that things don't rub or stick together.

Basic Properties of Oil

Science As Inquiry and Process: Students develop an understanding of the processes and applications of scientific inquiry.

SA1
Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments

The student demonstrates an understanding of the processes of science by:

[3, 4, 5, 6, 7, 8, 9] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating

[3] SA1.2 observing and describing the student's own world to answer simple questions

[4] SA1.2 observing, measuring, and collecting data from explorations and using this information to classify, predict, and communicate

SA2
Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review.

The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:

[3] SA2.1 answering "how do you know?" questions with reasonable answers

Concepts of Physical Science: Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.

SB1
Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.

The student demonstrates an understanding of the structure and properties of matter by:

[3] SB1.1 classifying matter according to physical properties (i.e., color, size, shape, weight, texture, flexibility)