

What is the best way to move oil?

OVERVIEW

Suggested Timing: 5 x 30 minutes or 4 periods

Subject Focus: Science, Environmental Science

21st Century Skills Focus: Critical Thinking, Collaboration, Communication

Context

Every day, nearly 100 million barrels of oil moves from deep below the Earth to the fuel tanks of more than a billion vehicles, furnaces and pieces of machinery. How that oil gets from place to place and the impact that the movement of oil has forms the basis for this case study.

Learning Goals

- Describe the various ways that oil is transported
- Practice forming arguments based on evidence and logic
- Develop an informed opinion about the methods of moving oil
- Articulate an opinion through writing or another medium

Learning Activities

Students will analyze visual images, compare information to determine a position and complete structured research to create viable arguments to support their point of view as to which is the best method for moving oil.

Big Idea

There are four main ways of transporting oil—pipeline, ship, truck and rail. Each method has its advantages and disadvantages in terms of safety, cost, efficiency and potential environmental impacts.

MINDS-ON: First Impressions

Suggested Timing: 30 minutes

As an introduction to this case study, students will examine images related to the transportation of oil to activate prior knowledge and elicit first impressions and questions about how oil is transported.

BLM M1: Moving Oil—Images of Moving Oil [[.ppt](#)] [[.pdf](#)] [[.zip](#)] - 1 per group of students

BLM M2: Moving Oil—Analysis of Images [[.doc](#)] [[.pdf](#)] - 1 per student
Interactive whiteboard or data projector and screen

ACTION 1: Oil - Here to There

Suggested Timing: 30 minutes

Students will use an [Anticipation Guide learning strategy](#) to acquire preliminary background information about the four main methods of transporting oil.

BLM A1: Moving Oil—Anticipation Guide [[.doc](#)] [[.pdf](#)] - 1 per pair of students
Moving Oil—Anticipation Guide Answer Page (for teacher use) [[.pdf](#)]

BLM A2: Moving Oil Around the World [[.pdf](#)] - 1 per student

ACTION 2: Oil Moving Experts

Suggested Timing: 30 minutes

Students will use expert groups to research a specific method of transporting oil as well as consider the pros and cons of the given method using a [Pros & Cons Organizer](#).

BLM A3: Moving Oil—Pros & Cons Organizer [[.doc](#)] [[.pdf](#)] - 1 per student
Moving Oil—Web links [[.doc](#)] [[.pdf](#)]

Highlighter markers for student use

ACTION 3: It's All About the Argument

Suggested Timing: 30 minutes

In this activity, students will begin to prepare arguments and organize their thinking in order to write an opinion piece as part of the Consolidation lesson.

BLM A4: Moving Oil—Constructing an Argument [[.doc](#)] [[.pdf](#)] - 1 per student

CONSOLIDATION: Opinion Piece

Suggested Timing: 30 minutes in class or time outside of class

In this final activity, students will consolidate their learning about transporting oil by organizing and creating a short persuasive opinion piece.

BLM C1: Moving Oil—Opinion Piece Assignment [[.doc](#)] [[.pdf](#)] - 1 per student
Opinion Piece Sample Rubric (for teacher use) [[.doc](#)] [[.pdf](#)]