



LEARNING INQUIRIES

OIL RESERVES AND RESOURCE EXTRACTION

TIME: FOUR 50-MINUTE PERIODS

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OVERVIEW/FOCUS QUESTION

What are the practices for oil extraction in various parts of the world and what is the environmental impact of developing this resource?

SUBJECT/TOPIC

GEOGRAPHY

GRADE LEVEL

INTERMEDIATE

LEARNING GOALS

- Understanding where the Earth's oil deposits are located
- Understanding the environmental impact of oil extraction
- Communicating effectively the ideas synthesized over the course of the lesson

MATERIALS NEEDED

- Chromebooks
- Large blank map of the world for students to mark the locations of oil regions

CONNECTION TO THE CANADIAN GEOGRAPHY FRAMEWORK

CONCEPTS OF GEOGRAPHIC THINKING

- Interrelationship
- Geographic perspective

INQUIRY PROCESS

- Formulate questions
- Interpret and analyze
- Communicate

GEOSPATIAL SKILLS

- Foundational elements
- Technology

LESSON DESCRIPTION

MINDS ON

- A class discussion will activate thinking about oil production, extraction, and regions of the world.
- Students will watch a short video and examine a graph.

ACTION

Students will research a region of the world (chosen at random from a selection of regions determined by the teacher ahead of time). Research needs to include:

- Where in their given region is oil mainly found?
- What are their oil extraction methods?
- How is it impacting the surrounding environment? (There is room for extension on this topic to suit student interests and research skills.)

CONCLUSION

Students will consolidate their research to share with peers and discuss as a class.

LESSON IMPLEMENTATION

MINDS ON

Have students watch the following video and examine the graph:

[World Oil Production](#)

[Oil production by region](#)

Display a world map up on the white board and use the following questions to have a class discussion:

- Where can oil be found in our world?
- What makes those regions potentially rich in oil?
- Why is oil not considered a renewable resource?
- What do we know about the environmental impact of oil extraction?
- How do you use oil products in your life? (Note: students need to understand that, at present, our world is not in a position to simply give up oil.)

ACTION

Using the following website, provide student pairs with a location to research oil production and its environmental impact in that region.

<https://www.worldatlas.com/articles/the-world-s-largest-oil-reserves-by-country.html>

- Students will need to develop three questions about the region they will be studying in a way that doesn't extend judgement for the region (this may be difficult for some). Students may require some guidance.
- Students will need to locate the various oil locations in their given region of the world and research how oil is extracted in that region.

- After this research is completed, and the student pair has done a student-teacher conference, students can then move on to the second part of their project by researching the environmental impact of the oil extraction in their region.
- Students must consolidate their research in a way that they can then present and share with their peers. The finished product must include a map of their region (introduce students to Esri, and Google My Maps as potential options for mapping).

CONCLUSION AND CONSOLIDATION

- Have a discussion with each small group to ensure they feel comfortable enough about the information they have gathered to share their research.
- Have each group share their work.
- Based on the students' research, encourage a class discussion about what region of the world has the most environmentally friendly extraction process.

EXTEND YOUR GEOGRAPHICAL THINKING

After developing an understanding of how oil is extracted around the world, the following options can be pursued to extend the learning process:

- Research where oil is shipped from and its use by various countries (this will help with understanding maps, developing research skills, and communicating ideas).
- Research our daily use of oil-based products or consider examining what your school uses in terms of oil-based products (e.g., shipment of items, busses to/from schools).
- Look at reclamation practices around the world and make comparisons.

MODIFICATIONS

- Provide a structured guideline for those students who are new to research (or share links with them so they can focus on those resources specifically).

- Allow for video/voice recording/one-on-one presentations for those students who are nervous about presenting in front of a group.
- Provide options for how to present the information through a multimedia approach.

ASSESSMENT OPPORTUNITIES

- **Assessment for learning:** Have students create questions prior to their research and the student-teacher conference so that you can check in with the students to see how those questions are being answered and what new questions may be arising as it pertains to their research.
- **Assessment as learning:** Understanding of the growth the student has achieved within the development of their project and understanding of the content in their own words.
- **Assessment of learning:** Assess how the final project is organized and presented (be mindful of where students were at the beginning with their knowledge and what they took away from their research).

SOURCES AND ADDITIONAL RESOURCES

- World Atlas: The World's Largest Oil Reserves By Country
<https://www.worldatlas.com/articles/the-world-s-largest-oil-reserves-by-country.html>
- ArcGIS
<https://livingatlas.arcgis.com/en/browse/#d=2&q=petroleum>
- World Oil Production
https://www.youtube.com/watch?v=47_J5df4Cmc
- Oil production by region
<https://ourworldindata.org/grapher/oil-production-by-region>
- Humans and Energy: Crash Course World History 207
<https://www.youtube.com/watch?v=EM1lylyr-Zc>