TEACHING MATERIAL

BlueOcean: mainstreaming a Blue Education Area in Europe and the Pacific Ocean Schools
project id. nr. 2024-MT01-KA220-SCH-00254518

MODULE TITLE

Marine non-Living Resources and 2 main subsectors, oil and gas - other minerals

HIGH SCHOOL OF SITIA, CRETE-GREECE

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BLUE OCEAN
ERASMUS+ PROJECT

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Lesson NR: ***1***

Duration: 10.34

Goals: 1. Explain in simple, accurate terms how offshore extraction of petroleum and natural gas contributes to the climate crisis and affects marine ecosystems.
2. Identify and discuss key business ethics dilemmas in the fossil fuel industry, especially in relation to environmental responsibility and transparency.
3. Critically evaluate corporate and political decisions not only in terms of economic profit but also in terms of social and intergenerational justice.
4. Formulate and defend their own reasoned position on where the ethical limits of sea exploitation should be set.

Description: This lesson “Petroleum, Natural Gas and the Climate Crisis: Ethical Limits in the Exploitation of the Seas” invites students, aged around 18, to explore the complex relationship between offshore fossil fuel extraction, the climate crisis and business ethics in a way that goes beyond technical data. Starting from a realistic scenario of an oil spill and the boardroom decisions that accompany it, the lesson guides students to connect their everyday lives and energy needs with invisible processes taking place in distant ocean areas. Through teacher-led narrative in the first person, brief input on how petroleum and natural gas are extracted and used, and structured discussion, students examine who benefits and who bears the risks and costs of offshore drilling. They are encouraged to analyze ethical dilemmas faced by companies and decision-makers, such as choosing between safer but more expensive technologies, full transparency versus image protection, and short-term profit versus long-term planetary stability. The lesson places particular emphasis on the idea of shared responsibility between corporations, states and citizens, and on the role of young people as future professionals and voters. By the end, students are asked to articulate their own ethical “red lines” regarding the exploitation of the seas and to reflect on how these lines relate to their personal values and to the broader struggle against the climate crisis.

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Lesson NR: *2*

Duration: 12.06

Goals: 1. Explain in clear, simple terms what desalination is and why it is increasingly used in regions facing water scarcity.

2. Describe and discuss the main social dimensions of desalination, including who gains access to water, who pays the costs and who may remain excluded.

3. Critically evaluate the environmental and climate implications of energy-intensive desalination, connecting local water solutions with global climate justice.

4. Formulate and defend their own argued position on whether desalination can be a fair and sustainable solution for the future of drinking water, outlining conditions and “red lines” for its ethical use.

Description: This lesson “The Future of Drinking Water: Will Desalination Save Us?” invites students to explore desalination not just as a technical fix, but as a social and ethical issue that touches the core question of who has access to safe drinking water. Starting from the everyday experience of turning on the tap and taking water for granted, the lesson contrasts this reality with regions where water scarcity is a daily struggle. Through teacher-led first-person narrative, students are introduced to the basic idea of desalination – turning seawater into drinking water – and to its promise for arid islands and coastal communities. At the same time, they are encouraged to look behind the machines and pipelines and ask who pays the financial and environmental costs: households, local authorities, or private companies seeking profit. The lesson highlights key issues such as affordability for vulnerable groups, the risk of increasing social inequalities, and the climate impact of energy-hungry desalination plants, especially when powered by fossil fuels. Students are invited to consider more just alternatives, such as coupling desalination with renewable energy and designing fair pricing schemes. By the end, they are asked to take a clear position on whether desalination can “save” the future of drinking water, under which conditions, and how their own values about justice, solidarity and sustainability shape that position.

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Lesson NR: *3*

Duration:

Goals: 1. Describe the basic life cycle of the loggerhead sea turtle (Caretta Caretta), with emphasis on nesting behavior, site fidelity and the vulnerability of hatchlings.
2. Explain how offshore activities such as seismic surveys, oil and gas extraction and seabed mining can directly and indirectly impact sea turtles and other marine species (noise, light, pollution, habitat disturbance).
3. Connect local conservation efforts (e.g. protection of nesting beaches, volunteer actions, cooperation with local authorities) with broader pressures from energy and mineral extraction in the wider marine environment.
4. Analyze the ethical and social dilemmas that arise when societies seek energy and raw materials from the sea while claiming to protect biodiversity and endangered species.
5. Formulate and justify their own position on acceptable limits to offshore extraction in turtle habitats, and suggest concrete individual and collective actions to support marine wildlife protection.

Description: This lesson ''Seas Under Extraction, Turtles Under Threat: When Caretta Caretta Meets Oil and Gas'' uses the loggerhead sea turtle, Caretta Caretta, as a living "indicator" to explore the hidden costs of offshore oil, gas and mineral extraction. Through a first-person narrative, students are first guided onto a nesting beach, where they follow the tracks of a female turtle, learn how it digs and covers its nest and discover how vulnerable the eggs and hatchlings are to light, trampling, vehicles and human disturbance. The focus then widens to the open sea and to the long migrations of turtles across the Mediterranean, where they now encounter shipping lanes, seismic surveys, drilling platforms and, potentially, deep-sea mining operations. Students examine how intense underwater noise, chronic pollution, artificial lighting and the risk of oil spills transform the sea from a relatively safe habitat into a landscape of constant threats. At the same time, they learn about local volunteer projects, cooperation with municipalities and education programs that show how communities can protect nesting beaches and change everyday practices. The lesson invites students to confront the ethical tension between energy demand and species survival, asking where society should draw the line when it comes to exploiting the oceans. In the end, they are encouraged to take a clear stance on these issues and to imagine themselves as future professionals and citizens who can influence decisions about marine conservation and offshore development.