

# Appendices

## Accommodations

In order to help you create an inclusive and accessible classroom, included below are vocabulary lists, modified questions, and alternate procedures for each lesson as suggestions in this unit plan. These accommodations are designed to be useful in assisting students with a 504 plan or an IEP (Individualized Education Plan) or ELL (English language learner) students who might benefit from vocabulary support, small-group instruction, oral vs. written answers, and simplified language.

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### Lesson 1

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#### Vocabulary List

##### Part 1 Video

**Gyre** – any large system of circulating ocean currents, particularly those involved with large wind movements

**Vortex** – fluid with a whirling or circular motion

**Coriolis force** – makes things (like planes or currents of air) traveling long distances around Earth appear to move at a curve as opposed to a straight line

##### Part 1 Article

**Mass** – a measurement of how much matter is in an object

**Beseech** – to beg or ask urgently

**Attrition** – loss over time

**Apparatus** – the technical equipment or machinery needed for a particular activity or purpose.

**Flotsam** – the wreckage of a ship or its cargo found floating on or washed up by the sea.

##### Parts 2 and 3

**Computer program** – A computer program is a collection of instructions that performs a specific task when executed by a computer

**Physical model** – a smaller or larger physical copy of an object

**Conceptual model** – a representation of a system that uses concepts and ideas to form said representation

**Mathematical model** – a description of a system using mathematical concepts and language

**Computer model** – a computer program that is designed to simulate what might or what did happen in a situation

#### Modified Questions

1. How many ducks were in the container lost at sea?
2. What made the ducks move?
3. Where would you go today if you wanted to find one of the ducks?
4. What determines where a duck will wash ashore?
5. Why do scientists collect data about the ducks' locations?

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## Lesson 2

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### Vocabulary List

#### Ocean diagram

**Emulsification** – when tiny drops of oil are mixed into the water

**Photo-oxidation** – when the light breaks oil down

**Evaporation** – when molecules of liquid become gas and enter the atmosphere

**Absorption** – when a substance clings to the surface of another substance without going inside

**Dispersion** – when oil becomes tiny drop that mix into the surface layers of the water

**Dissolution** – when one substance dissolves into another

**Biodegradation** – when living organisms break down oil

#### Oil Spill Removal and Cleanup passage

**Vulnerable** – at risk

**Contamination** – when a harmful substance goes into the environment

**Petroleum** – the raw material for oil

**Microbes** – organisms too small to see without a microscope

**Severity** – how harmful an event is

**Ineffective** – not working well

**Igniting** – setting something on fire

**Metabolizing** – breaking down or digesting

### Modified Questions

1. Think of two ways to remove oil from the ocean. Compare and contrast how they work.
2. Read the passage “Oil Spill Removal and Cleanup”. Are any of your ideas being used in real-life oil spills?
3. How well does this model show what happens during an ocean oil spill?
4. What could we add to this model to make it better?

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## Lesson 3

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### Vocabulary List

**Rheoscopic fluid** – liquid with small particles that show movement

**Convection** – the movement of heat because of the movement of warm matter.

**Conduction** – Heat energy moves from one area to a cooler area

**Thermohaline circulation** – movement of water based on temperature and saltiness

**Salinity** – saltiness

**Coriolis effect** – curving the movement of water because the earth is spinning

### Modified Questions

1. What is an eddy?
2. What is the Loop Current?
3. Name three things that put the motion in the ocean.
4. What was happening in the Gulf of Mexico? How is it connected to the rest of the Atlantic Ocean?
5. How do you think understanding currents can help us when oil spills happen?

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## Lesson 4

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### Vocabulary List

**Atlas** – A book of maps or some type of information that includes pictures and/or tables and charts

**Ecosystem** – An ecosystem is made up of all of the living and nonliving things in an area

**Correspondence** – Communication by letters, email, or social media

**Observation** – Any information collected with the senses

Additional accommodations for this lesson can include pairing students with a buddy, highlighting relevant points on the printed maps, reading the correspondence aloud, and allowing for drawings and oral presentations to take the place of written answers in the claim-evidence-reasoning chart.

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## Lesson 5

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This lesson is advanced and may be difficult for students who do not have background knowledge about computers. It would make an excellent enrichment activity for gifted/talented students as well as early finishers to work on as a longer-term project. The work is generally best as a partnered project, but students can work on their own or in larger groups as needed.