

### Lesson 7

# Climate Change



Unit Title: <b>Climate Change</b>	
Theme: <b>Ecosystems &amp; Cycles</b>	Grade Level: <b>9-10</b>
# of sessions for the unit: <b>class period(s) Approximately 3 (~45min each)</b>	Session #7: <b>Causes of Rapid Climate Change</b>
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## Unit Description

Provided in a separate document. *Please see High School Curriculum Overview.*

## Standard(s)

**HS-LS2-5.**

**HS-LS2-7.**

## Unit Goals

Students will understand the causes and effects and possible solutions of climate change with an emphasis on carbon sequestration (capture)

## Lesson Objectives & Essential Vocabulary

Students will understand the various factors that cause a rapid change in global climate.

### Essential vocabulary:

- Carbon Footprint
- Combustion
- Fossil Fuels
- Greenhouse Gases
- Greenhouse Effect
- Deforestation
- Development
- Ice Core
- Manufacturing
- Industrial Revolution
- Transportation

#### NOTE:

If you can predict which students may not be able to achieve the goals, then you need to reduce barriers to maximize learning for all.

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## Note any potential barriers to the lesson — consider variability

vocab/reading ability — provide scaffolding, diagrams to clarify text, vocab assignments: word splash, etc.

Writing skills: solution provide writing prompts or sentence frames

### NOTE:

Provide options — refer to the UDL guidelines as a way to ensure that all learners can demonstrate achievement of goals. For ideas: <http://bit.ly/1d5bjtS>

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## Evaluation/Assessment

(directly linked to the goals, i.e., Formative/Ongoing Assessment or Summative/End of Lesson Assessment)

quiz/test/guiding questions on Easter Island video or reading

Teacher check ins for understanding

rubric to assess project/presentation of different causes of rapid climate change

NOTE: Consider the [UDL Guidelines](#) in selecting methods and materials to ensure that you provide options for engagement, representation, and action and expression.

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## Methods

(e.g., Anticipatory Set, Introduce and Model New Knowledge, Provide Guided Practice, Provide Independent Practice)

1. Preteach vocabulary and activate prior knowledge: see KWL from lesson 6 as many terms are the same
2. Hook: National Geographic Easter Island video: [www.youtube.com/watch?v=4lKIm2r4h9w](http://www.youtube.com/watch?v=4lKIm2r4h9w) (shorten clip) OR
3. Jared Diamond Article Easter's End: <http://discovermagazine.com/1995/aug/eastersend543>
4. Discussion of the various causes of climate change: burning of fossil fuels for human energy use, manufacturing, transportation, deforestation by burning, naturally occurring forest fires
5. Video Link for National Academies of Science, Engineering and Medicine: [https://www.youtube.com/watch?annotation\\_id=annotation\\_863880&feature=iv&src\\_vid=3JX-ioSmNW8&v=nlu21CNd34Q](https://www.youtube.com/watch?annotation_id=annotation_863880&feature=iv&src_vid=3JX-ioSmNW8&v=nlu21CNd34Q)
6. Also see Bozeman Science video in materials as further enrichment
7. Students research causes of rapid climate change (teachers can provide a list to choose from) students will choose to make a poster, powerpoint, google slide, brochure, persuasive essay or video to present their findings to the class in a later lesson (lesson #9)

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## Materials

1. Text materials *Miller & Levine Biology chapter 4: Climate* but any Biology or environmental science text would suffice
2. access to online research (chromebooks, laptop cart, library/media center).
3. Bozeman Science Video: Climate change: [bozemanscience.com/ap-es-034-global-climate-change/?rq=climate%20change/?rq=climate%20change](http://bozemanscience.com/ap-es-034-global-climate-change/?rq=climate%20change/?rq=climate%20change)
4. Rubric for project: [https://docs.google.com/spreadsheets/d/1yS8oXLDmfl4TqZITVTRv7Og4Cw12Ve1ORxC\\_hm03RD0/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1yS8oXLDmfl4TqZITVTRv7Og4Cw12Ve1ORxC_hm03RD0/edit?usp=sharing)
5. ice core link <http://www.antarcticglaciers.org/glaciers-and-climate/ice-cores/ice-core-basics/>
6. The Globe Program, a worldwide science and education program link: [www.globe.gov](http://www.globe.gov)

# Grading Guide

## Lesson 7 Project Rubric

CATEGORY	4	3	2	1
Purpose	The purpose of the project is clearly identified and stated.	The purpose of the project is identified, but is stated in a somewhat unclear manner.	The purpose of the project is partially identified, and is stated in a somewhat unclear manner.	The purpose of the project is erroneous or irrelevant.
Factual Information	Facts are clearly stated and supported by legitimate evidence/data	Facts are clearly stated and supported by some evidence/data	Facts are stated but lack evidence/data to support	No facts nor evidence/data are present
Organization	The project is well organized, easily understood	The project is somewhat organized and understandable	The project shows little organization and is difficult to understand	The project is disorganized and cannot be understood
Neatness, Spelling and Grammar	The project is very neat, contains no spelling nor grammatical errors	The project is neat, and contains few spelling and grammatical errors	The project is somewhat neat and contains some spelling and grammatical errors	The project is not neat and contains many spelling and grammatical errors.