

# **EARTH SCIENCE** Lesson Plan

## Quarter 2, Week 7, Day 1



### **Outcomes for Today**

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Standard Focus: Earth Sciences 5.g and 6.c

#### **PREPARE**

##### **1. Background knowledge necessary for today's reading.**

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While humans do negatively impact the environment, they are not to blame for all climatic changes. The Earth goes through many natural cycles that affect climate.

##### **2. Vocabulary Word Wall.**

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Introduce 3-5 important words from today's reading

**Maunder minimum      sunspot**

- Show, say, explain, expand, explode or buzz about the word briefly.
- Show, say, define the word quickly and add to the word wall.

#### **READ**

##### **3. Review the vocabulary and concepts previously covered in this chapter.**

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##### **4. Read directions for investigation/activity.**

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##### **5. Read text.**

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Ch. 14.3, pp. 371-374

#### **RESPOND**

##### **6. Fix the facts. Clarify what's important.**

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Discuss the reading and add 3-5 events/concepts to the billboard

Students might mention:

- Climatic changes may be triggered by the shape of the Earth's orbit.
- The variance in the tilt of the Earth's axis may cause seasons to be more severe,
- Volcanic dust can remain suspended for several years and interfere with the amount of solar radiation that reaches Earth.

7. Post information on the billboard. Add new information to ongoing projects on the wall.

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### EXPLORE

8. Explore today's investigation with inquiry activities.

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9. Explore today's simulation with inquiry activities.

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10. Collect data and post.

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**One possible activity:** Human Activity and Climate Change

**Procedure:** Students calculate the personal/family/class contribution of carbon dioxide due to vehicle use.

**Discussion:** Discuss the various greenhouse gases.

**Key question:** How might the a reduction in carbon dioxide emissions slow the build-up of greenhouse gases and would might the impact of the reduction on the American lifestyle and /or economy?

**Source:** [http://www.ucar.edu/learn/1\\_4\\_2\\_20t.htm](http://www.ucar.edu/learn/1_4_2_20t.htm)

### EXTEND

11. Prompt every student to write a short product tied to today's reading.

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12. Close with a short summary.

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Extend the reading to the students' lives or to the world.

# EARTH SCIENCE Lesson Plan

## Quarter 2, Week 7, Day 2



### Outcomes for Today

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Standard Focus: Earth Sciences 4.c “students know the different atmospheric gases that absorb the Earth’s thermal radiation and the mechanism and the significance of the greenhouse effect”, 4.d, 5.g, 6.c, 7.a, 7.b, and 8.b.

#### PREPARE

##### 1. Background knowledge necessary for today’s reading.

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Scientists drill long cores of ice from ice sheets in order to analyze the air trapped in glacial samples. As the samples are crushed, air is extracted and the amount of carbon dioxide in the sample of air is measured.

Analysis of these samples have lead scientists to determine that in the period 1750 to 1995 carbon dioxide in the atmosphere has increased from 280parts per million (ppm) to 350 ppm.

##### 2. Vocabulary Word Wall.

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Introduce 3-5 important words from today’s reading

greenhouse effect          greenhouse gases

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say, define the word quickly and add to the word wall.

#### READ

##### 3. Review the vocabulary and concepts previously covered in this chapter.

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##### 4. Read directions for investigation/activity.

---

##### 5. Read text.

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Ch. 14.4, pp. 375-376

## RESPOND

### 6. Fix the facts. Clarify what's important.

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Discuss the reading and add 3-5 events/concepts to the billboard

Students might mention:

- The greenhouse effect is the natural heating of Earth's surface by atmospheric gases.
- Greenhouse gases absorb and re-reflect solar radiation.
- An increase in the amount of greenhouse gases, particularly carbon dioxide, may contribute to warmer ocean temperatures.

### 7. Post information on the billboard. Add new information to ongoing projects on the wall.

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## EXPLORE

### 8. Explore today's investigation with inquiry activities.

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### 9. Explore today's simulation with inquiry activities.

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### 10. Collect data and post.

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**One possible activity:** Understanding Weather

**Procedure:** A multi-day activity in which students design and build a model green house. Students will record and graph temperatures inside an outside their green house.

**Discussion:** Discuss the importance of the greenhouse effect to life on Earth.

**Key question:** What were the results of your observations?

**Source:**

<http://school.discoveryeducation.com/lessonplans/programs/weather/weather.rtf>

## EXTEND

### 11. Prompt every student to write a short product tied to today's reading.

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### 12. Close with a short summary.

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Extend the reading to the students' lives or to the world.

# **EARTH SCIENCE** Lesson Plan

## Quarter 2, Week 7, Day 3



### **Outcomes for Today**

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Standard Focus: Earth Sciences 4.c, 4.d, 5.g, 6.c, 7.a, 7.b, and 8.b.

#### **PREPARE**

##### **1. Background knowledge necessary for today's reading.**

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The causes and effects of global warming are highly debated. Global warming refers to a rise in global temperature. Even a small rise in global temperatures could lead to widespread changes in climate. Warmer oceans could increase the melting of the polar ice caps and cause sea levels to rise resulting in coastal flooding.

Despite mounting evidence, global warming is still a controversial issue. Some scientists believe there may be natural causes for the slight increase of Earth's surface temperature.

##### **2. Vocabulary Word Wall.**

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Introduce 3-5 important words from today's reading

#### **global warming**

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say, define the word quickly and add to the word wall.

#### **READ**

##### **3. Review the vocabulary and concepts previously covered in this chapter.**

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##### **4. Read directions for investigation/activity.**

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##### **5. Read text.**

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Ch. 14.4, p. 376

## RESPOND

### 6. Fix the facts. Clarify what's important.

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Discuss the reading and add 3-5 events/concepts to the billboard

Students might mention:

- Several of the warmest years on record have occurred within the last two decades.
- Many scientists agree that global warming is occurring, but disagree as to the causes.

### 7. Post information on the billboard. Add new information to ongoing projects on the wall.

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## EXPLORE

### 8. Explore today's investigation with inquiry activities.

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### 9. Explore today's simulation with inquiry activities.

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### 10. Collect data and post.

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**One possible activity:** Understanding Weather

**Procedure:** Students will construct model greenhouses

**Discussion:** See Day 2

**Key question:** See Day 2

**Source:** See Day 2

## EXTEND

### 11. Prompt every student to write a short product tied to today's reading.

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### 12. Close with a short summary.

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Extend the reading to the students' lives or to the world.

# **EARTH SCIENCE** Lesson Plan

## Quarter 2, Week 7, Day 4



### Outcomes for Today

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#### **PREPARE**

##### 1. Background knowledge necessary for today's reading.

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Evidence points to the link between human activities and the increase in global temperatures. Activities such as burning fossil fuels in vehicles and power plants release carbon dioxide into the air. In addition, the removal of large tracts of trees, deforestation, increases the levels of carbon dioxide from the air since there are fewer trees to remove carbon dioxide from the air through photosynthesis.

##### 2. Vocabulary Word Wall.

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Introduce 3-5 important words from today's reading

**deforestation**

**fossil fuels**

**photosynthesis**

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say, define the word quickly and add to the word wall.

#### **READ**

##### 3. Review the vocabulary and concepts previously covered in this chapter.

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##### 4. Read directions for investigation/activity.

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##### 5. Read text.

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Ch. 14.4, p. 377

#### **RESPOND**

## 6. Fix the facts. Clarify what's important.

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Discuss the reading and add 3-5 events/concepts to the billboard

Students might mention:

- Auto exhaust and industrial emissions are a prime source of atmospheric carbon dioxide.
- Deforestation may help increase global warming.
- Use alternative means of transportation such as riding bikes is one way to help the environment.

## 7. Post information on the billboard. Add new information to ongoing projects on the wall.

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### EXPLORE

## 8. Explore today's investigation with inquiry activities.

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## 9. Explore today's simulation with inquiry activities.

---

## 10. Collect data and post.

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**One possible activity:** A Coastal Dilemma

**Procedure:** Students demonstrate the effect of melting ice on the water level of a glass of water

**Discussion:** Have the class read and discuss the article "The Warming of Greenland".

**Key question:** What effect might the melting ice have on coastlines around the world?

**Source:**

[http://nytimes.com/learning/teachers/lessons200701116tuesday\\_print.html](http://nytimes.com/learning/teachers/lessons200701116tuesday_print.html)

### EXTEND

## 11. Prompt every student to write a short product tied to today's reading.

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## 12. Close with a short summary.

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Extend the reading to the students' lives or to the world.



# **EARTH SCIENCE** Lesson Plan

## Quarter 2, Week 7, Day 5



### Outcomes for Today

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#### PREPARE

1. Background knowledge necessary for today's reading.
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See Day 4

2. Vocabulary Word Wall.
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Introduce 3-5 important words from today's reading

**energy conservation**

**recycling**

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say, define the word quickly and add to the word wall.

#### READ

3. Review the vocabulary and concepts previously covered in this chapter.
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4. Read directions for investigation/activity.
- 

5. Read text.
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Ch. 14.4, p. 377

#### RESPOND

6. Fix the facts. Clarify what's important.
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Discuss the reading and add 3-5 events/concepts to the billboard

Students might mention:

- Energy conservation is a way to combat global warming.
- Conserving energy reduces consumption of fossil fuels.

7. Post information on the billboard. Add new information to ongoing projects on the wall.

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### EXPLORE

8. Explore today's investigation with inquiry activities.

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9. Explore today's simulation with inquiry activities.

---

10. Collect data and post.

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**One possible activity:** Climate Change and People

**Procedure:** Students working in groups will each read different articles about the social impact of climate change.

**Discussion:** Discuss the effect climate change could have on economic factors, natural resources, and habitats.

**Key question:** Which article topic is the most pressing at this time or the most alarming for the future?

**Source:**

[http://www.worldwildlife.org/climate/seclimatewitness/Climate\\_Curriculum/WWF\\_lesson05People.pdf](http://www.worldwildlife.org/climate/seclimatewitness/Climate_Curriculum/WWF_lesson05People.pdf)

### EXTEND

11. Prompt every student to write a short product tied to today's reading.

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12. Close with a short summary.

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Extend the reading to the students' lives or to the world.