

EARTH SCIENCE Lesson Plan

Quarter 3, Week 9, Day 1



Outcomes for Today

Standard Focus: Earth Science 7.a “students know the carbon cycle of photosynthesis and respiration and the nitrogen cycle”

PREPARE

1. Background knowledge necessary for today’s reading.

The air on Earth is mostly composed of nitrogen (78%) and oxygen (21%), along with carbon dioxide, nitrous oxide, methane, ammonia, and argon. There have always been natural pollutants, particulate matter from volcanoes, forest fires, and decaying organic matter. However, during the last century, pollution created by humans as a result of the use of fuel and industrialization became a concern. Man-made pollution tends to concentrate over large cities and it more dangerous.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today’s reading

pollutants

air pollution

- 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.

4. Read directions for investigation/activity.

5. Read text.

Ch. 25.3, pp. 664-665

RESPOND

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

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

Students might mention:

- Oxygen was not always a part of Earth's atmosphere.
- Life on Earth continues to survive as a result of a balanced exchange of geochemical cycles.
- Human activities like burning fossil fuels and clearing forests by burning, disrupt geochemical cycles by adding pollutants to the air.

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

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Lifestyles and the Environment, Day1

Procedure: Students use data on current and future products, materials and pollutants

Discussion: Discuss how industrialization and consumption has contributed to pollution

Key question: What are the implications for the supply of raw materials

Source: <http://www.epa.gov/region01/students/pdfs/activ1.pdf>

EXTEND

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

12. Close with a short summary.

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

EARTH SCIENCE Lesson Plan

Quarter 3, Week 9, Day 2



Outcomes for Today

Standard Focus: 7.a

PREPARE

1. Background knowledge necessary for today's reading.

When man-made pollutants are added to the air they can chemically react to form other more dangerous pollutants. In addition, they do not remain localized in the area where they formed, but are carried by air currents to other areas, countries, and other parts of the world. Pollutants can also create problems within buildings because of chemicals used in manufacturing of goods and materials.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

radon

- 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.

4. Read directions for investigation/activity.

5. Read text.

Ch. 25.3, pp. 666-668

RESPOND

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

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

Students might mention:

- Air pollution can cause health problems for humans.
- As air moves across Earth's surface, pollutants are transported, diluted. Transformed or removed from the atmosphere.
- Indoor air pollution can also have health consequences for humans.

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

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Lifestyles and the Environment, Day 2

Procedure: Students create graphs on raw materials and their projections for the future

Discussion: Discuss historic trends in consumption of raw materials

Key question: How can we reduce consumption or design products more efficiently?

Source: <http://www.epa.gov/region01/students/pdfs/activ1.pdf>

EXTEND

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

12. Close with a short summary.

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

EARTH SCIENCE Lesson Plan

Quarter 3, Week 9, Day 3



Outcomes for Today

Standard Focus: Earth Sciences 9.c “students know the importance of water to society, the origin of California’s freshwater, and the relationship between supply and need”

PREPARE

1. Background knowledge necessary for today’s reading.

Water in the U.S. is first a local or state issue. Federal agencies are involved when water issues cross state boundaries. The vast majority of the water on Earth (97%) is in the oceans and not readily available for use. Most of the remaining 3% (freshwater) is frozen in ice caps and glaciers or groundwater too deep to access. The management of the surface water and accessible groundwater is critical to meeting the domestic, agricultural, and industrial needs of humans.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today’s reading

No new vocabulary

- 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.

4. Read directions for investigation/activity.

5. Read text.

Ch. 25.4, pp. 669-670

RESPOND

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

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

Students might mention:

- Freshwater is an important resource.
- Water has unique properties that allow life to exist on Earth.

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

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Question and Answer Game

Procedure: Students use cards with questions and answers on water facts

Discussion: Students can add additional questions and answers

Key question: How knowledgeable are you?

Source: http://www.epa.gov/safewater/kids_9-12_gagamee.pdf

EXTEND

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

12. Close with a short summary.

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

EARTH SCIENCE Lesson Plan

Quarter 3, Week 9, Day 4



Outcomes for Today

Standard Focus: Earth Sciences 9.a “students know the resources of major economic importance in California and their relationship to California geology”

PREPARE

1. Background knowledge necessary for today’s reading.

California has many water resources. The northern part of the state receives abundant rainfall and runoff from the mountain snowpack. Yet, the remainder of the state is mostly arid and depends on northern California for their water needs. The most heavily populated region is southern California, and has had a long history of importing water. The fertile valleys of Central California depend on irrigation from the California aqueduct system that has helped make agriculture a multi-billion dollar industry.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today’s reading

aquifers

water table

- 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.

4. Read directions for investigation/activity.

5. Read text.

Ch. 25.4, pp. 670-672

RESPOND

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

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

Students might mention:

- Freshwater resources are not distributed evenly across the world.
- The rate of freshwater withdrawal from surface and groundwater sources is five times greater now than it was 50 years ago.

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

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Decision Making: A mock Town Meeting on a Proposed Tank Farm

Procedure: Students will use a scenario to discuss the potential hazards and weigh the risk and benefit to a community's water supply of a new business

Discussion: Discuss the different interests of the various groups involved

Key question: Can the groundwater be protected?

Source: http://www.epa.gov/safewater/kids/pdfs/activity_grades_9-12_proposedtankfarm.pdf

EXTEND

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

12. Close with a short summary.

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

EARTH SCIENCE Lesson Plan

Quarter 3, Week 9, Day 5



Outcomes for Today

Standard Focus: Earth Sciences 9.a and 9.c

PREPARE

1. Background knowledge necessary for today's reading.

During dry years water shortages can occur because of competing demands of urban areas, agriculture, and environmental concerns. California's system of dams and reservoirs were built to capture and hold water for many uses. The increasing population adds to the demands. The efficiency of water use and its management are necessary to preserving water resources, as are conservation, recycling, and restoring the environment.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

desalination dams reservoirs aqueducts

- 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.

4. Read directions for investigation/activity.

5. Read text.

Ch. 25.4, pp. 672-575

RESPOND

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

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

Students might mention:

- Countries try to manage their freshwater resources by building dams and reservoirs.
- The California Water Project transports water from Northern California to Southern California.
- Desalination of water from the ocean can be a slow and expensive process.

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

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Tracking Pollution: A Hazardous Whodunit

Procedure: Students create a contour map to investigate possible sources of contamination

Discussion: Discuss the cost and consequences of contamination

Key question: Where will the plume move in time?

Source: http://www.epa.gov/safewater/kids/grades_9-12_tracking_pollution.html

EXTEND

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

12. Close with a short summary.

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