EARTH SCIENCE Lesson Plan

Quarter 4, Week 3, Day 1

Outcomes for Today

Standard Focus:

PREPARE

1. Background knowledge necessary for today's reading.

The lifestyle that each individual and each country aspires to impacts their perceptions of what is a qualify lifestyle. Improvements and advances in agriculture and medicine in the last 50 years created challenging opportunities for developing countries in dealing with population growth. Some countries tried to limit family size and reducing fertility rates as a means of raising standards of living and providing better for their citizens. Other countries did not, and face societal difficulties because of over-population.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

exponential growth **carrying capacity**
density-independent factor **density-dependent factor**

- 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. 27.1, pp. 711-715

RESPOND

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

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

Students might mention:

- Some organisms adapt to their immediate environment, others alter their environment to better meet their needs.
- An organism can have an impact on its environment if its population becomes large enough.
- Most populations cannot continue to grow forever because of the limited supply of natural resources.

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: Population Explosion

Procedure: Students use internet resources to explore population growth

Discussion: Discuss possible effects of population growth on the environment

Key question: In what areas of the world is the population increasing most rapidly?

Source: http://www.k12.org/curriculum/popgrowthproj/activity1.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

EARTH SCIENCE Lesson Plan

Quarter 4, Week 3, Day 2

Outcomes for Today

Standard Focus

PREPARE

1. Background knowledge necessary for today's reading.

In developing countries, food and forestry production is dependent on human labor, unlike in the U.S. agriculture where energy resources are used for machinery and equipment. The widespread use of fertilizers and pesticides has contributed to high production levels. Nearly all of the arable land is in production

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

Reclamation biodiversity monoculture deforestation bioremediation

- 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. 27.2, pp. 716-723

RESPOND

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

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

Students might mention:

- Modern societies require large amounts of land and mineral resources.
- Ecosystems with a wide variety of different species are more stable and able to recover quickly from harmful events.
- The expansion of urban and suburban areas impact the environment in negative ways.

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: Protecting Holy Cows

Procedure: Students reflect and research how humans affect the environment due to pollution and industrialization

Discussion: Discuss the definitions of ecology, environment, biome, and ecosystem

Key question: In what ways do humans pollute the environment and in what ways can they protect the environment?

Source:
http://www.nytimes.com/learning/teachers/lessons/19981021wednesday_print.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

EARTH SCIENCE Lesson Plan

Quarter 4, Week 3, Day 3

Outcomes for Today

Standard Focus: Earth Sciences 8.c "*students know the location of the ozone layer in the upper atmosphere, its role in absorbing ultraviolet radiation, and the way in which this layer varies both naturally and in response to human activities"*, 4.c *"students know the different atmospheric gases that absorb Earth's thermal radiation and the mechanism and significance of the greenhouse effect"*, 4.d "*students know the differing greenhouse condition on Earth, Mars, and Venus; the origins of those conditions; and the climatic consequences of each"*, 7.b " *students know the global carbon cycle; the different physical and chemical forms of carbon in the atmosphere, oceans, biomass, fossil fuels, and the movement of carbon among these reservoirs"*, and 8.b *"students know how the composition of Earth's atmosphere has evolved over geologic time and know the effect of outgassing, the variations of carbon dioxide concentration, and the origin of atmospheric oxygen"*

PREPARE

1. Background knowledge necessary for today's reading.

Today many people spend most of their time indoors increasing their risk and possible exposure to indoor air pollution. Often they are the most vulnerable, the elderly, the chronically ill, and infants. New buildings are more likely to be "sick" because materials and construction methods that used to keep heating and cooling costs low and the chemicals used in the production of furniture, carpeting, cleaning products, and building materials.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

smog **ozone** **global warming** **acid precipitation**

- 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. 27.3, pp. 724-729

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 human health problems.
- Many human activities create global atmospheric air pollution such as global warming, ozone depletion, and acid precipitation.

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: Clearing the Air in the Land of Smog

Procedure: Students examine the causes and effects of air pollution

Discussion: Discuss causes of pollution in your local area

Key question: What are the main causes of pollution in California?

Source: **http://link2ed.com/cleanair/resources/nytplan.htm**

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 4, Week 3, Day 4

Outcomes for Today

Standard Focus: Earth Sciences 9.c "*students know the importance of water to society, the origins of California's fresh water, and the relationship between supply and need*"

PREPARE

1. Background knowledge necessary for today's reading.

Water supplies are generally taken for granted. Of the total water used in the U.S. the largest percentages are used agriculture and the cooling of power plants. Public usage of water only accounts for about 10%. As populations and the per capita usage of water increases a strain on surface and groundwater supplies, resulting in the mining of groundwater aquifers.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

point source **nonpoint source**

- 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. 27.4, pp. 730-731

RESPOND

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

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

Students might mention:

- When water supplies are limited, the needs of people and the needs of others, like wildlife conflict.
- There are two main types of water pollution sources, single point where there is one point of origin and nonpoint where the pollution is generated over a widespread area.
- Human activities can pollute freshwater supplies and make them unusable.

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: Mapping GeoLab – Pinpointing a Source of Pollution, text pp. 734-735

Procedure: Students use a scenario to locate pollution sources

Discussion: Potential sources of local pollution

Key question: Are the sources of pollution point or nonpoint?

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 4, Week 3, Day 5

Outcomes for Today

Standard Focus: Earth Sciences 9.c

PREPARE

1. Background knowledge necessary for today's reading.

Because water supplies are not distributed evenly during the year some farmers use deep wells and pumps to reach the groundwater in aquifers to use for irrigation when rainfall is inadequate. Currently, groundwater in some areas is being used at rate higher that it can be replenished. Without adequate water farmlands may be abandoned and food production rates affected.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

Clean Water Act **Safe Drinking Water Act**

- 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. 27.4, pp. 732-733

RESPOND

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

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

Students might mention:

- It is cheaper and more efficient to prevent water pollution than to clean it up later.
- Many water sources still fail to meet the standards consistently of the clean Water Act and the Safe Drinking Water Act, both passed in the early 1970s.
- In times of water shortages, water conservation is a common solution.

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: Mapping GeoLab – Pinpointing a Source of Pollution, text pp. 734-735 continued

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