EARTH SCIENCE Lesson Plan

Quarter 2, Week 2, Day 1

Outcomes for Today

Standard Focus: Earth Sciences 5.a *"Students know how differential heating of Earth results in circulation patterns in the atmosphere and oceans that globally distribute heat".*

PREPARE

1. Background knowledge necessary for today's reading.

Wind is caused by the combined differences in density, temperature, and pressure. Because of unequal heating of the Earth's surface, some masses of air are warmer than others. Warm air being less dense than cool air rises. Wind is the generally horizontal movement of air from areas of higher density to areas of lower density.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

humidity **relative humidity**

- 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. 11.2, pp. 282-284

RESPOND

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

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

Students might mention:

- Near the Earth's surface air motion is disrupted by its contact with trees, buildings, hills, and the surface of water by the resulting friction.
- Humidity refers to the amount of water vapor in the air.
- Relative humidity varies with the temperature and is expressed as a percentage. Warm air holds more moisture that cool 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: Problem-solving Lab – Interpreting Graphs, text p. 283

Procedure: Students use a graph to determine relative humidity

Discussion: discuss the relationship between the air temperature and the amount of water vapor in the air.

Key question: If you wanted to decrease the relative humidity of a room would you increase or decrease the temperature?

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 2, Week 2, Day 2

Outcomes for Today

Standard Focus: Earth Sciences 8.a "*Students know the thermal structure and chemical composition of the atmosphere."*

PREPARE

1. Background knowledge necessary for today's reading.

Air generally contains some amount of water vapor. A cloud begins when warm, moist air rises, expands, and eventually cools to its dew point. It condenses from water vapor to water droplets around particles of dust, pollen, and sea salt.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

condensation **nuclei** **orographic uplifting** **stability** **latent heat**

- 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.11.2, pp. 285-286

RESPOND

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

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

Students might mention:

- Clouds form as warm moist air is forced upward, expands and cools.
- Clouds can also form when warm, moist air is forced to rise over a mountain.
- Also, clouds can form when two air masses of different temperature meet.

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: Latent Heat and Clouds

Procedure: Students observe a demonstration of latent heat

Discussion: Discuss latent heat as a source of atmospheric energy

Key question: What is the relationship between energy transfer and the formation of clouds?

Source:
http://www.windows.ucar.edu/tour/link=/teacher_resources/latent_edu.html&edu=high

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 2, Week 2, Day 3

Outcomes for Today

Standard Focus: Earth Sciences 8.a

PREPARE

1. Background knowledge necessary for today's reading.

Clouds come in many shapes and sizes. Clouds are classified according to a system originally developed in 1803 by English naturalist Luke Howard. Clouds are classified by their shape and the altitude at which they formed.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

fog

- 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.11.3, pp.287-289

RESPOND

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

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

Students might mention:

- Clouds form at different heights and in different shapes.
- Middle clouds can be either all liquid or a mixture of liquids and ice crystals.
- High clouds are made of ice crystals.

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: Classification of Cloud types Through Infrared APT Imagery, Day 1

Procedure: Students classify clouds after viewing slides

Discussion: Discuss the ways clouds are classified

Key question: Are there other ways clouds could be classified?"

Source: http;//asd-www.lare.nasa.gov/edu_act/class_cloud-type.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 2, Week 2, Day 4

Outcomes for Today

Standard Focus: Earth Sciences 8.a

PREPARE

1. Background knowledge necessary for today's reading.

Precipitation describes all forms of water (rain, drizzle, snow, hail and sleet) that falls from clouds.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

coalescence **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.11.3, pp. 289-290

RESPOND

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

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

Students might mention:

- Rain, snow sleet, and hail are the four main types of precipitation.
- Coalescence is the primary process responsible for precipitation from warm clouds.
- When precipitation forms at cold temperatures it takes the form of ice crystals or snow.

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: Classification of cloud Types through Infrared APT Imagery, Day 2

Procedure: Students complete further classification of clouds

Discussion: Discuss the changes in air temperature with altitude

Key question: Which clouds can be found at low, middle, and high altitudes**?**

Source: http://asdwww.lare.nasa.gov/edu_act/class_cloud_type.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 2, Week 2, Day 5

Outcomes for Today

PREPARE

1. Background knowledge necessary for today's reading.

The constant movement of water between the Earth's surface and the atmosphere is called the hydrologic cycle or the water cycle. The movement of water takes place through the processes of evaporation, condensation, and precipitation.

2. Vocabulary Word Wall.

Introduce 3-5 important words from today's reading

water cycle **evaporation**

- 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. 11.3, pp. 290-291

RESPOND

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

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

Students might mention:

- Water continually moves between Earth's surface and the atmosphere through the processes of evaporation, condensation, and precipitation.
- More than 97% of the earth's water is salt water found in the oceans.
- At any one time there is only a small percentage of water present in the atmosphere.

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: The Water Cycle

Procedure: Students observe a demonstration of the water cycle

Discussion: Discuss which elements of the water cycle are and are not represented by the model.

Key question: Why is water considered a renewable resource?

Source: http://www.ucar.edu/learn/1_1_2_4t.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.