Evaporation and Energy Lesson

Applying concepts to phenomena (evaporation, energy and hurricanes)

1. Evaporation and Energy Activity:
   a. Holding the thermometer by the dial read the temperature on the thermometer and record the temperature. (DO NOT hold the metal rod of the thermometer).
   b. Open the alcohol wipe packet, wrap the wipe around the metal rod part of the thermometer and swipe it ONCE down the metal rod of the thermometer.
   c. Watch the dial. What happens to the temperature? Record your data.

• Structured Think-Pair-Share
   A. Write in the **Think** box about whether or not you think the thermometer gained or lost energy and how you know.
   B. Once you have written, share with your partner and then write a summary of what they told you in the **Pair** box.
   C. After you have each filled in the Pair box, collaborate to write what you both can agree on in the **Share** box.

• Now, using your Data and Observation Sheet, draw a labeled magnified view of what is going on with the alcohol molecules.

2. Condensation and Energy Activity:
   a. Place two plastic cups in front of you. Fill one cup about three quarters full with room temperature water. Nearly fill the other one with ice and then pour in water until it is about three quarters full.
   b. Watch what happens on the outside of both cups container. Record your observations.

• Again use the Structured Think-Pair-Share (page 2 of your Data and Observation Sheet)

3. Read the text (adapted from Prentice Hall, Earth Science) – you will read in groups using the **SUMMARY PROTOCOL** technique. When you are done reading think about where do evaporation and condensation occur in a hurricane? (The answer to this question is not specifically mentioned in the text, but you can figure it out from what you read, what you've observed and what you know).

4. How do you think the sea surface temperature will change when a hurricane passes over? Will the sea surface gain or lose energy? How does a hurricane gain or lose energy? Watch the computer animation of the hurricanes from 2005. The color of the ocean is telling you the temperature of the water at the surface (red is warmest, orange is warm, yellow is less warm, blue is cool).

• Engage in a class dialogue about what you observe and think is happening.

5. Writing Prompt: You are a meteorologist writing the script for a news report about how evaporation moves energy around as hurricanes develop and travel across the ocean for the local TV station.

Summary Protocol

1. Form groups of three or four. One person is chosen to keep the group on-task.
2. Read one paragraph silently (leader makes sure all group members know where paragraph starts and ends).
3. After everyone in the group is finished reading the paragraph, the group discusses the main idea(s).
4. The group comes to consensus about one (or two) main idea(s).
5. The group talks about how to write the main idea(s).
6. Each group member writes down the main idea(s).
7. Repeat steps 2 – 6 for each paragraph of the reading.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

Science Literacy Framework Planning Template©

Engaging Science Experience

Interact with data – Hands-on – Lab Activity – Inquiry

Evaporation and Energy Activity – observing temperature change associated with evaporation and thinking about and representing energy relationships.

Condensation and Energy Activity – observing condensation and thinking about energy change.

View the named hurricanes of 2005 video clip

Purposeful Reading

Summary Protocol – using text adapted from Prentice Hall, Earth Science

Productive Dialogue

Structured Think-Pair-Share – after each activity and class dialogue after viewing the video clip (2005 Named Storms)

Meaningful Writing

Writing Prompt – meteorologist writing a script about how evaporation and condensation move energy as hurricanes develop and travel for a local TV station.

Developed by: _____ Revised on: _____