Gold Seal Lesson:

Copernicus Education Gateway

Author(s): *Gail M. Venezio*			***Lesson Title:*** *Clouds*			
Grade Span			***ICLE Application Model***			
K-4 ***X***	***5-8***	***9-12***	***A***	***B***	***C***	***D*** ***X***

Instructional Focus:

Language Arts Integration:
Students synthesize individual language arts skills.

Number Operation and Concepts:
Students use number sense, and number relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.

Basic Concepts and Knowledge:
Students develop an understanding of scientific concepts using facts, theories, principles, and models.

Science as Inquiry:
Students demonstrate knowledge and skills necessary to perform scientific inquiry.
Science: Habits of the Mind: Students develop habits of the mind including, curiosity, open-mindedness, and persistence.

Performance Task

Observe the cloud cover, record data, and establish the type of clouds present. With this information we can begin to predict and see trends of possible precipitation, and air temperature.

- Establish a time daily to record data. Solar Noon is one such possibility. Go out side and observe cloud cover.
- Collect information in these classifications:
  - Clear: sky is cloudless or clouds cover less than 1/10th of sky.
  - Scattered Clouds: 1/10th-5/10ths of the sky.
  - Broken Clouds: clouds cover greater than 5/10ths of the sky.
  - Overcast: clouds cover more than 9/10ths of the sky.
- Record information on spreadsheet:
  - Record and observe the types of clouds present, using Internet sites showing cloud types.
  - Record information on spreadsheet, with current weather events noted: rain, sleet, snow, no precipitation etc.
- After collection of information is recorded, use this information to see if you can predict with any degree of certainty the type of weather event that will follow certain cloud cover and cloud type.
- Collect information for 1 week.
- Break students into 2 person teams. They should be equipped with a daily Cloud Cover journal .
  - Draw a sketch of each type of cloud observed. If there are 3 different types of clouds that day there should be 3 different drawings.
  - Record date and time, and use as many words as possible to describe clouds. ex. Large Black and gray cloud, low in the sky, thick, billowing. One piled on top of another!
- Use a cloud chart and have class discussion, on terms, and classifications. Have class come to a consensus.
- After several types of clouds have been observed over time, discuss:
  - 3 official ways to describe clouds- shape, altitude and precipitation.
    - 3 different shapes:
    - Cumulus- heaped & fluffy
    - Stratus - layered
    - Cirrus- wispy
  - 3 Altitude levels:
    - High-cirrus or cirro - 6,000m, *Cirru/Cirrocumulus, Cirrostratus*

- Middle-alto- 2,000-6,000m *Altocumulus, Alto stratus*
- Low-below-2000m- *Stratus,Nimbostratus, cumulus, Stratocumulus, Cumulonimbus*

Keep a spreadsheet of the different cloud types and weather events.

ICLE Essential Skills

Follow oral or written directions.(ela4)
Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios. (ela40)
Understand the best procedures for statistical ***data collection, organization, and display*** including making estimates and predictions and drawing inferences.*(s5**)***
Know and apply the principles of scientific inquiry. *(Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures.) (s114 Not Ranked)*
Make observations using senses and instruments. Inferences and interpretations are arrived at based on observations. Classify observable properties and organize observations in a meaningful and logical way.(s5)
Exhibit good data management skills by collecting, organizing, and graphing data.(s19)

Scoring Guide:

Rate each of the following characteristic on a 3-0 basis, where
3=Excellent quality
2= Satisfactory quality
1=Unsatisfactory quality
0=Does not attempt or does not show skill/knowledge

Characteristic	**Score**
Students can determine cloud cover and represent it in fractions.	_____
Students can identify 3 different cloud types and name them.	_____
Students can keep daily journals, recording cloud type and cover.	_____
Students can make a simple spreadsheet to show data collection of a week.	_____
Student can use the internet to local solar noon times.	_____

Keywords

English Language Arts	Mathematics	Science
Reading Research Internet	**Algebra**	**Earth Science** Scientific inquiry Seasons Weather
Writing	**Geometry**	**Life Science**
Communications	**Statistics** Charts Data analysis Data collection Graphs Measurements	**Chemistry**
Literature	**Calculus**	**Physics**
Other	**Trigonometry**	**Other**
	Other Technology Spreadsheet	

Picture, Chart, or Graph file name(s):

Name_____Date_____Time_____

Cloud Cover Journal Entry

Sketch of Cloud Cover:

Descriptions of Cloud Cover - Circle One in Each Group :

Cover:

Clear - No Clouds

Scattered Clouds - 1/10th to 5/10ths of Sky Covered

Broken Clouds - Greater than 5/10ths of Sky Covered

Overcast - More than 9/10ths of Sky Covered

Cloud Height - Low Middle High

Cloud Type - Cumulus Stratus Cirrus

Weather - None Rain Sleet Snow Hail Other