

**CCSD CURRICULUM WRITING OBJECTIVE FORMAT 2006**

**DISCIPLINE:** Science **COURSE:** Scientific Inquiry **DATE:** June 2006

**GRADE:** 4 **ID#:** 4s sic1bo6 co 2006 **LESSON LENGTH:** 1-2 days

**4s psc3b3o5 co 2006**

**1. ESSENTIAL SKILLS:**

Access, interpret and process information

**2. CONTENT STANDARD:**

Students understand the nature of scientific knowledge and enterprise and apply the process of scientific inquiry.

**BENCHMARKS:**

Communicate, analyze, and evaluate experimental results through effective writing skills.

**PRIOR LEARNINGS:**

- Knows how to read a thermometer in Fahrenheit
- Understands the concept of absorption

**VOCABULARY:**

Absorption, Fahrenheit

**3. OBJECTIVES/ASSESSMENTS**

**OBJECTIVE (BASIC):**

Content: Analyze by organizing data in a chart (4s sic1bo6 co 2006)

Context: Given jars, colored construction paper, tape, scissors, strong bright lamp, thermometer, and towels or newspapers

- Activity:
  1. Working in groups of 3-5 each group lines the containers with white, black, and other colored material. Make sure each container is lined with the same type of material (construction paper, cloth, cardboard).
  2. Each group creates their hypothesis statement (If a dark lined container is placed in the light, then it will absorb more, less, or the same light as the lighter lined container. (Hypothesis)
  3. Tape or place thermometer inside each container where it can be read easily. If needed, cut a window in the material to see the thermometer. (Procedure)
  4. Leave one container without the lining of material as a control. (Procedure)
  5. Cover each container with a lid. (Procedure)
  6. Place each container in bright sunlight or under a strong lamp. (Procedure)

7. Measure and record the temperature inside each container every 5 minutes for one hour. (Data collection)

Color	Temperature every 5 minutes for 60 minutes										

8. Students self-reflect on the results of the experiment by responding to the following questions:
- Do you think the hypothesis is true? Explain.
  - How would you revise the hypothesis?
  - What else did you observe in the experiment? (Conclusion)

Criteria: Assess data collection and forming/analyzing a hypothesis 1 time each trimester with 85% accuracy. (4s sic1b6 co 2006)

**ASSESSMENT (BASIC / AUTHENTIC)**

Location	Temperature every 10 minutes for 40 minutes			
Closet	60°	59°	59°	58°
On heat vent	60°	62°	64°	65°
Corner of room	60°	60°	60°	61°
In direct sun	60°	65°	66°	68°

What do you predict the temperature of the jar in the direct sun would be if it was measured 10 minutes after the last reading?

- A. 68 degrees
- B. 78 degrees
- C. 67 degrees
- D. 70 degrees

In which location did absorption have the greatest effect?

- A. In direct sun
- B. Closet
- C. On heat vent
- D. Same effect in all locations

- SALL rubric

**OBJECTIVE (COMPLEX):**

- Students will plan and carry out an experiment using one of the variables: aluminum foil, clay, or paper. Students create a chart showing the impact that clay, aluminum foil, or paper has on temperature.

**ASSESSMENT (COMPLEX / AUTHENTIC):**

- Analyze by graphing data in a line graph.
- Write a paragraph explaining the results of the experiment.

**RESOURCES:**

- SALL format
- Critical thinking questions
- Harcourt Science Teacher Edition 2002 Performance Assessment AG93

**4. STRATEGIES****INITIAL STRATEGY:**

- Review using a thermometer
- Review the steps of creating a line graph
- Review absorption

**MODIFYING STRATEGY:**

Reduce the number of colored paper in the basic objective experiment, do experiment 1:1 with peer or adult, and place in close proximity to teacher.

**EXTENDING STRATEGY:**

Refer to the critical thinking questions

**INTERDISCIPLINARY STRATEGY:**

- Reading a thermometer, interpreting and creating a line graph (Math, Social Studies)
- Writing, follow multiple step oral directions, connect information presented in tables and charts, use appropriate listening and observing strategies, make inferences (Language Arts)