

CCSD CURRICULUM WRITING OBJECTIVE FORMAT 2007

DISCIPLINE: Science **COURSE:** Scientific Inquiry **DATE:** June 2007

GRADE: 4 **ID#:** 4si c1b3o3 co 2006 **LESSON LENGTH:** 1-3 days

4s es c4b3o7 co 2007

1. ESSENTIAL SKILLS:

Access, interpret and process information
Communicate, analysis, and evaluate experimental results through effective writing skills.

2. CONTENT STANDARD:

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

BENCHMARKS:

Design and conduct scientific investigations to answer questions about and construct explanations for natural phenomena

PRIOR LEARNINGS:

- Understands the difference between molds, casts, and replacement fossils.

VOCABULARY:

Molds, cast, replacement, fossils, deteriorate, preserved

3. OBJECTIVES/ASSESSMENTS

OBJECTIVE (BASIC):

Content: Compare and contrast different processes of fossilization including fossil formation, fossils, and clues. (4s es c4b3o7 co 2007)

Context:

Given 8 sugar cubes, glue gun (caution), strainer, sink or large bowl, warm water.

- Activity:
 1. Working whole group
 2. Harcourt Science Edition 2002 p.C34 (procedure)
 3. As a class form a hypothesis using an if/then statement (hypothesis)
 4. Glue together four sugar cubes to make one 2 x 2 layer. Make a second 2 x 2 layer with the other four cubes. Let the layers dry for five minutes. (Procedure)
 5. Spread glue on top of one layer, and place the second layer on top of it. Let the glue dry overnight. (Procedure)
 6. Put the two-layered structure in the strainer. Put the strainer in the sink or over a bowl. Pour warm water over the structure and observe what happens. (Procedure)

7. 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?
- What happens to the sugar?
- Does anything happen to the dried glue?
- In the process what did the warm water stand for? Dried glue? Sugar cubes? (Conclusion)

Criteria: Formulate a hypothesis 3 times a year with 85% accuracy (4s si c1b2o1 2007)

ASSESSMENT (BASIC / AUTHENTIC)

What can you infer about how fossils form based on what you learned in the experiment?

- A. Hard parts deteriorate at the same rate as soft parts.
- B. Hard parts are more likely to be preserved than soft parts.
- C. Soft parts are more likely to be preserved than hard parts.
- D. All fossils are made with sugar cubes.

OBJECTIVE (COMPLEX):

Create your own experiment to test different ways fossils can be formed.

Context:

Given sand, dirt, water, leaves, little cars, clay, other small objects/materials.

- Activity:
 1. Working individually
 2. Choose three materials from the above list (Procedure)
 3. Construct a fossil with the three materials (Procedure)
 4. Students self-reflect on the results of the experiment by writing their own hypothesis. (Conclusion)

Criteria: Formulate a hypothesis 3 times a year with 85% accuracy (4s si c1b2o1 2007)

ASSESSMENT (COMPLEX / AUTHENTIC):

- Students write a paragraph to authenticate their hypothesis statement.

RESOURCES:

- Harcourt Science Teacher Edition 2002 C2-1
- SALL format
- Critical thinking questions

4. STRATEGIES

INITIAL STRATEGY:

Review the steps of the scientific inquiry process, and writing process.

MODIFYING STRATEGY:

Give the hypothesis and have the student write the “then” statement.

EXTENDING STRATEGY:

Refer to the critical thinking questions

INTERDISCIPLINARY STRATEGY:

- Writing, follow multiple step oral directions, use appropriate listening and observing strategies.