**LIMSST Blank Lesson Design Template – Science Notebooks**

**Name:** 209\_\_\_\_\_\_ **Course:** \_Earth Science\_\_\_\_\_\_ **Grade:** \_7th & 8th

**Unit:** \_Earth’s Interior**\_\_\_\_\_\_\_\_**

**Big Idea: \_**The Earth’s interior is made of different layers that have unique properties.

**Subconcept:** Geologists use indirect methods to determine the structure of Earth’s Interior.

**Lesson: \_**What’s in the Box?**\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Taught:** 12/01/08**\_\_\_\_\_\_\_\_\_**

**Idaho Standards (or National Standards):** 648.02a and 649.01f\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### I N T E N D E D C U R R I C U L U M

## LESSON CONTENT GOALS GUIDING QUESTIONS (displayed during Making Meaning Conference)

1) Can geologists dig to the center of the earth to see what’s there?

2) What are some tools they can use to test things they can’t get to?

1) Use observations to make conclusions about what is inside a box.

### I M P L E M E N T E D C U R R I C U L U M

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#### OBJECTIVE/FOCUS QUESTION

What’s in the box?

**PREDICTION/HYPOTHESIS**

For this lab the students did not create hypotheses due to the nature of the activity.

**PROCEDURE/PLANNING**

Students create a plan of how they are going to figure out what their box contains. The only restriction is that they are not to open the box until after claims and evidence is completed.

**DATA** **CHART**

Before we conduct your investigation, how will you collect your data?

The students keep track of the information they gain by recording them in the data section.

**CLAIMS AND EVIDENCE (recorded in notebook)**

|  |  |
| --- | --- |
| **Claim** | **Evidence** |
| **1. I think I have \_\_\_\_\_\_\_\_\_\_\_\_ in my box** | **1. Students provide evidence here for their claim.** |

###  CONCLUSION

Please restate the goal/objective of the lab. State what you think/thought you had in the box and the evidence for it. Also state whether you were right or wrong and what lead you to the right or wrong answer.

Earth Science Lab Write-Up Format

Each is Worth 25 Points

**Title: (2 points)**

At the top of the page have a title, date of lab, lab partners names, and your name.

**Objective: (2 points)**

State the purpose of the lab in question form if possible.

**Hypothesis: (3 points)**

Form an explanation that answers the question in the objective (or make a prediction). This should be a statement about what will happen and WHY.

**Materials: (2 points)**

List all the required supplies and the quantities needed of each.

**Lab Procedures: (3 points)**

Outline all steps taken so the lab could be recreated by someone else if they were to read it. Be careful not to skip steps or be too brief.

**Data: (5 points)**

Your results of the lab either in numbers or direct observations. No explanations, just what happened. Present in a graph or table if possible.

**Claims and Evidence: (3 points)**

Make a claim about the answer to the question in the objective based on your results. Support that claim with evidence from your data.

**Conclusion: (5 points)**

Restate your question and hypothesis (paraphrasing is O.K.). State whether your hypothesis was correct or not. Explain why using numbers from your data if possible. Also, report anything that went wrong that might have skewed your results or that you would do differently if you were to do the lab again. Also, report anything that one might have to be careful of avoiding.

**LIMSST Project Literacy Lesson Reflection Form**

**Name: \_209 Date lesson was taught: \_12/01/08\_\_\_\_**

**Lesson Title/Topic Areas:**

What’s in the Box? Lab

**Literacy Strategies Used:**

(Please discuss what literacy strategies you embedded in this lesson. What were your goals in using these strategies?)

I used the Science Notebook strategy in this lesson. By using this strategy I wanted the students to think about their data and present it in a way that was logical. I wanted to see how the students would go about finding out what was in the box and how well they recorded their procedure and data specifically. I also wanted the students to connect how they were finding out what was in the box with how geologists use indirect strategies to determine the properties of the Earth’s Interior.

**Student Response to the Lesson:**

(Was the strategy effective? Were students able to read/write as needed in this lesson? What attitudes were displayed? How did specific

 students and/or the class do? How did the literacy strategy aid in developing student understanding of the topic? Cite specific evidence from the samples of student work)

The students who correctly wrote their lab based on their lab write-up protocol clearly illustrated how they made the conclusions they did about what was in the box (I have attached my write-up requirements). In our lab follow-up discussion we made connections with what the students did and what geologists had to do/use to make conclusion about Earth’s interior. While at first the students were worried about not being able to get the right answer, after trying a few things (as well as talking about how they determine what they have under the Christmas tree) most of the students got the hang of it. They were a bit stingy on their procedure and data sections—these ones I have included as low. I think the notebook strategy presents a logical, clear paper that allows both the student and the teacher to understand what the students did, thought, and concluded

**Lesson Reflection:**

(What worked well with this lesson? What challenges did you encounter in this lesson? Would you change certain aspects of the lesson or the questions that you asked? How does this influence future lesson planning?)

To make this lesson more effective I should be clearer in what I expect of them in the procedure and data sections. The challenges revolved mostly on them recording what they did and what data they got from what actions they performed. I think I would change the objective question to something like “How can we tell what’s in the box?” or “What indirect methods could be used to determine what is in the box?” This would give them a question they could form a hypothesis from. I think if I use more of an inquiry based lab in the future, they should be more guided to get the results desired.

**Relationship to Previous Instruction:**

(Have you taught this lesson/topic prior to the LIMSST project? If so, how did your teaching of this lesson differ from what you taught before? How did students’ reactions to this lesson differ?)

I have taught versions of this lab before in other classes. The main difference was that in the others there was no claims and evidence section. I feel that by doing the claims and evidence the students help to focus their thoughts in order to write a “good” conclusion. The students had similar reactions to those that occurred in this lesson.