**Lesson Plan Template**

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| **Name:** | | **409** | | | |  | **Course:** | | Earth Science | | |  | **Grade:** | 8 | |
| **Unit:** | | The Earth’s Surface | | | | | | | | | | | | | |
| **Big Idea (Key concept):** | | | | How has technology, now used to explore the Earth, changed maps? | | | | | | | | | | |
| **Literacy Strategy(s):** | | | Anticipation Guide, RAFT activity, large and small group discussion. | | | | | | | | | | | | |
| **Lesson:** | | Section 2.3 Reading | | | | | |  | | **Date Taught:** | 9/28/2010 | | | | |
| **Learning Objective(s):** | | | | | | | | | | | | | | | |
|  | Students will be able to | | | | Describe how technologies are used to map the Earth. | | | | | | | | | | |
|  | Students will be able to | | | | Discuss how new technologies have changed how maps are made. | | | | | | | | | | |
| **Idaho Standards (or National Standards if no Idaho Standards exist):** | | | | | | | | | | | | | | | |
| 1.2.2 Develop models to explain concepts or systems.  1.6.4 Formulate scientific explanations and models using logic and evidence.  1.6.5 Analyze alternative explanations and models. | | | | | | | | | | | | | | | |

**Lesson in Context:**

Students have completed instruction on Section 2.1-2.2 involving terms used to describe landforms as well as map projections. They have also done a vocabulary activity on this section.

**Instructional Materials, Resources:**

Anticipation Guide Handout, Textbooks, RAFT Handout, student notebooks.

**Procedures:**

* **Engage/Introduction:** *(approximate time: 10 )*
* Identify how you are going to introduce the task in a way that motivates students and elicits students’ prior knowledge and relevant experiences.

Students will complete their Question of the Day in their notebooks as they enter.

We will discuss what students think are types of technology used to improve maps. We will discuss what maps used to look like, what they look like now and what and how technology has changed maps. This will activate prior knowledge that students have about maps and technology as well as their previous exposure to the vocabulary in this section.

* **Explore/Learning Activities:** *(approximate time: 40 )*
* Give detailed, step-by-step instructions on how you will implement the lesson plan and what students will do during the lesson. Include clear directions for activities.

Students will be given an anticipation guide for the section. They will first mark if they think the statements are true or false. Then they will read their book and find the evidence to support their thinking (or the changing of their mind!). Then they will compare with table partners to determine everyone has the same answer. If not, they will argue for their answer.

A short discussion will follow to make sure everyone has gotten the same information.

Following the reading of pages 49-51, students will be given a RAFT assignment (handout). They will complete this in their notebooks by assuming a role from the section and writing a letter to a character about what their function is, related to the making of maps today. If they write quickly, they will need to include a picture with a caption.

* **Explanation/Closure:** *(approximate time: 5 )*
* Explain how you will guide students to share what they have learned and connect their learning to key concepts.

Revisit the Q.O.D. – Ask students if they have different ideas about this now from what they started with at the beginning of class, and discuss.

**Elements of effective instruction:** (Describe how the lesson addresses each of the following. If not applicable, explain.)

1. Describe how the lesson fosters intrinsic motivation to learn.

Students are asked to think about what they know before completing an activity that allows discussion. Then they are asked to think creatively for a short writing assignment.

1. Describe how the lesson elicits students’ prior knowledge.

As students enter, their Question of the Day asks them to reflect on how maps were made in the past and how technology has changed how maps are made.

1. Describe how the lesson intellectually engages the students in making meaning of the targeted math/science content.

Students have to apply the material in the lesson when they create a written RAFT assignment (role, audience, format, topic) in which they assume a role from the material to communicate the topic to a particular audience. For example, the student may have chosen to be a “pixel” writing a letter to a viewer about their role in creating the picture the viewer was looking at.

1. Describe how students:

* *Science*: Use evidence to support and/or critique claims.
* *Math*: Explain and justify their reasoning.

In the Anticipation Guide, students are asked to support their thinking in answering the question True or False based on evidence they find in their reading.

1. Describe how the students engage in making sense of the material covered in the lesson.

When they need to explain a concept to a particular audience during the RAFT portion of the activity.

**Student Work:**

Include samples of student work from the lesson (include and clearly label examples of high, medium, and low quality). *Remove student names before submitting.*

Attached at end of file.

**LIMSST Project Literacy Lesson Reflection Form**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name:** | **409** |  | **Date lesson was taught:** | **09/28/2010** |
| **Lesson Title/Topic Area(s):** | | | | |
| **How has technology changed how maps are made.** | | | | |

**Literacy Emphasis:**

(Please discuss the literacy strategy(s) you embedded in this lesson. How do the strategies support **student** thinking and meaning making? Be specific and use as much detail as possible.)

The literacy strategies employed were use of an Anticipation Guide and a RAFT activity. The anticipation guide supported student analysis of their reading in the textbook while the RAFT activity support deeper thinking and explanation of the material to an imagined audience.

**Student Response to the Lesson:**

(Describe the nature of student engagement in the math/science content presented in the lesson. How effective was the strategy at supporting student reasoning? Describe evidence that the students were making sense of the content presented.)

Students were very engaged. They seemed to like both pieces – they like the discussion part of the Anticipation Guide as well as the creative part of the RAFT activity. I got no complaints about either part and student work and engagement was more than adequate. I need to make the Anticipation Guide a little bit “harder”; most students were able to agree fairly easily on the correct response.

**Lesson Reflection:**

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

I would like the two “halves” of the lesson to connect a little better. There wasn’t a natural segue between the Anticipation Guide and the RAFT activity. Although students transitioned well, I felt there was a gap that needed to be filled with something.

**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 haven’t addressed the issue of technology and mapmaking before because most students naturally know a lot about it due to GPS’s and computers.

**Maps and Computers Anticipation Guide**

**Directions:** Please read each statement and decide if it is true or false. If you think it is true write a T. If you think it is false, write an F.

Then read pages 49-51. While you read, find evidence to disprove or prove your thoughts.(

Change your answer if desired to reflect the change in your opinion. Write down the page and statement that provided evidence for your answer, changed or not.

Compare your answer with your neighbor’s. If they are not the same, see if you can convince your neighbor that YOUR answer is RIGHT!

1. \_\_\_\_\_\_\_\_\_ Mapmakers used to draw maps by hand from sketches that explorers made from their ships.
2. \_\_\_\_\_\_\_\_\_ In computer mapping, all of the data is written in numbers which are stored on a computer.
3. \_\_\_\_\_\_\_\_\_There are many types of technology used to make maps today, satellites and GPS are only two of them.
4. \_\_\_\_\_\_\_\_ Pixels are little dots of color that only make up a picture when viewed from a distance.
5. \_\_\_\_\_\_\_\_ The United States launched a series of satellites just to collect and store information about the Earth’s surface.
6. \_\_\_\_\_\_\_ GPS allows you to locate your position anywhere on the Earth.

RAFT

Section 2.3 Post-Reading Activity

You have now read section 2.3 in your textbook. You are going to do a short writing activity summarizing part of the information you just read.

You will imagine that you are one of the key terms in the chapter as summarized below. Then, write a letter about your experiences as that item, for the listed audience, making sure that you cover the appropriate factual information for the topic listed.

This is a left-sided assignment for your notebook and should not exceed a page. If you have time and space, you may include a picture of the experience you describe. Include a caption for your picture.

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Audience | Format | Topic |
| A satellite | A map | Letter | How satellite data is used to make maps |
| A map | A satellite | Letter | How maps show satellite data |
| A pixel | A person viewing the picture | Letter | How pixels are used to show a picture |
| A GPS | An old parchment map | Letter | How GPS information has improved maps |