Lesson Plan Template

301

Name: _____ **Course:** Course 3 **Grade:** 8

Unit: Estimating Measurement and Using Measurement Tools

Big Idea (Key concept): Estimating of measurement to real world application using measurement tools

Literacy Strategy(s): Problem Solving through journal writing and group discussion

Lesson: The Penny Challenge **Date Taught:** October 25, 2011

Learning Objective(s):

Students will be able to	Measure width and length of the classroom in order to find area.
Students will be able to	Student will be able to estimate and calculate the total number of pennies it would take to cover the floor (area) of the classroom.

Idaho Standards (or National Standards if no Idaho Standards exist):

Goal 2.1 Objective 1: 8.M.2.1.1 and Objective 2: 8.M.2.1.2

Lesson in Context:

Students practice measuring lines objects to the nearest $^1/_{16}$ of an inch in us customary units and to the nearest mm in metrics. Students found perimeter and area of different quadrilaterals.

Instructional Materials, Resources:

- Worksheet with Journal question prompts.
- 2 Meter sticks per group
- (1) 1ft X 1ft square tiles per group
- 40-50 pennies per group

Procedures:

- **Engage/Introduction:** *(approximate time: 10 min)*

  - Penny for your thoughts on the challenge of the day.
  - Teacher states: I have a challenge for the class today- a Penny Challenge!
  - Teacher asks: Can anyone estimate the diameter of a penny? About how many square inches are in one penny? About how many pennies are in a foot? Square foot?
  - Teacher asks the big question: When I said go, I would like each group to take about 4 minutes to come up with an estimate of how many pennies it would take, placed side by side, to cover the entire floor of the classroom. Write your group names on the piece of paper and turn in to the teacher.
  - We are ready to now begin the Penny Challenge – to find a more exact number of pennies using meter sticks, 1 foot square tiles, and PENNIES.

➢ **Explore/Learning Activities:** *(approximate time: 35)*

- 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.
- Handout worksheets, meter sticks, square tile, and pennies
- Students will first journal different strategies he/she might have to solve this challenge, and then share strategies with the group.
- The group will decide on the best strategy and implement their plan into action.
- Students will use the rest of the class period to measure the penny's dimensions and dimensions of the classroom. Using the measurements of the penny, students will have to figure how many pennies it takes to cover one square foot, how many square feet are in the room.
- The length and width of the room will help students come up with square footage and square inches of the room. Students are to work cooperatively and effectively to get the measurements and calculations done by the end of the class period.

➢ **Explanation/Closure:** **Next day***(approximate time: 45min)*

- Students will get into the Penny Challenge group from the day before and prepare to discuss with the whole class the different strategies they used to come up with their final answer.
- Each group will write their final answer on the whiteboard after all groups have shared their strategies with the class.
- Teacher will then reveal what group has come the closest to the actual answer.
- Teacher will then show his/her measurements with the class and ask student to see how close their answers are. How close was your original estimates?
- Close the lesson with journal writing prompt for reflection on activity and working with a group.

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.

   The students had a real world problem to figure out and they had many different ideas on how to do it.

2. Describe how the lesson elicits students' prior knowledge.

   Students had been practicing measuring objects and shape to find both perimeter and area using different units of measure.

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

   This lesson gave students a challenge and purpose to find accurate measurements using their own strategies and ideas to solve the problem. All students were engaged and active in the quest for total pennies.

4. Describe how students:

   - *Math*: Explain and justify their reasoning.
   - *Students where able to figure out the diameter of a penny and use that to figure how many pennies are in a foot and a square foot.* They where all able the find square feet without much effort, but some wanted to convent it to square inches because it was closer to the size of one penny.

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

   - **Students worked well measuring and double checking each others measuring. Just what I wanted…more practice using a meter stick.**
   - **Some students figure out that 16 pennies measure one foot and then 256 pennies are in one square foot. So if they figure out just square feet, they could multiply that by 256 to find the total numbers of pennies it would take to cover the area of the floor.**

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.*

LIMSST Project Literacy Lesson Reflection Form

Name: 301 **Date lesson was taught:** Oct. 25th-26th

Lesson Title/Topic Area(s): The Penny Challenge

Estimating Measurement and Using Measurement Tools

Literacy Emphasis:

- I introduced a challenge that made students use critical thinking and estimating.
- I used individual journal writing and group discussion to implement the lesson

Student Response to the Lesson:

The students enjoyed this lesson and seemed to be engaged throughout the class period. They were discussing differents strategies and explaining why or why not a strategy would work. They were able to measure the rooms length and width and convert to square footage. They want to keep measuring down the hall….how many pennies in the cafateria…big gym and so on. I want to come up with something for volme when I get to it.

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?)

The lesson went smooth and the students worked well together. Some groups had the measurements down but got in trouble with going from square feet to square inches (only dividing by 12 instead of 144. I think I would cover more on that prior to the lesson. I would maybe have more reflective questioning at the end and maybe ever questions to the students about what they liked about the lesson or didn't like about the lesson. I would like to do more hands-on activities and journal writing about them in the future.

Relationship to Previous Instruction:

Yes, I taught it with just worksheet from the book and students measured lines on the worksheets and then their desks perimeter and area. Not that exciting, right?

Penny Challenge

Now it is time to put your team strategy to work. You have until the bell rings to calculate to the nearest penny the total number of pennies it will take to cover the carpeted area of the classroom. Pennies need to be placed side-by-side in straight rows and columns (as pictured below. Good Luck to each team!

Grade worth 100pt.
Total Pts

_____ Measurements of the room's perimeter. Accuracy counts to the nearest inch. (25 pts)

_____ Area of the room in square feet or inches. (25pts)

_____ Pennies diameter (10pts)

_____ Total pennies in one square foot (15pts)

_____ Total number of pennies it would take to cover the carpet in the math classroom.(25pts)