Scavenger Hunt

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Endeavor STEM Teaching Certificate Project

Two very important third grade math topics are perimeter and area. I spend a lot of time teaching students the difference between these two concepts and how to find perimeter and area of various shapes. I have attached a very basic perimeter and areas lesson in which I define each of the math terms, explain how to solve the problems, guide students in solving problems, and allow for independent practice. I decided to make the concepts of perimeter and area "come to life" by incorporating various forms of art, technology, and engineering. I plan on using flipped lessons to teach area and perimeter. I will teach students songs to remember the difference between perimeter and area. The students will then have time to practice solving area and perimeter problems in class with my guidance. Then students will perform a reader's theater called "The Three Little Pigs" that reinforces the topics of perimeter and area.   Students will use drama to act out the parts, music to sing some of the lines, dance by choreographing some of the scenes, and visual arts by creating props, posters, backgrounds, and costumes. I will extend this by incorporating a follow-up engineering component in which students have to use the engineering process to complete a challenge based on the "Three Little Pigs" story.

The following math standards will be implemented:

CCSS.MATH.CONTENT.3.MD.D.8
> Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

CCSS.MATH.CONTENT.3.MD.C.7.A
> Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.

CCSS.MATH.CONTENT.3.MD.C.7.B
> Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning.

The following art standards will be implemented:

3 TH:Cr1.1.3

    a. Create roles, imagined worlds, and improvised stories in a drama/theatre work.

    b. Imagine and articulate ideas for costumes, props and sets for the environment and characters in a drama/theatre work.

    c. Collaborate to determine how characters might move and speak to support the story and given circumstances in drama/theatre work.

3 VA:Cr1.2.3

    a. Apply knowledge of available resources, tools, and technologies to investigate personal ideas through the art-making process.

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Math Lesson
Perimeter and Area

Common Core math Standards:

CCSS.MATH.CONTENT.3.MD.D.8
> Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

CCSS.MATH.CONTENT.3.MD.C.7.A
> Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.

CCSS.MATH.CONTENT.3.MD.C.7.B
> Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning.

Student Performance-Based Objectives:

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1. Students will be able to define perimeter and areas.
2. Students will be able to identify the difference between perimeter and area.
3. Students will be able to calculate perimeter.
4. Students will be able to calculate area.

Materials/Resources:
1.   Smartboard
2.   Smartboard Notebook lesson
3.   Math Journal
4.   Math Notebooks
5.   Pencils
6.   Pattern blocks
7.   Individual whiteboards
8.   Expo markers
9.   Exit slips

Day 1: Introduction to perimeter:

1)   Call the students to the carpet in front of the Smartboard. Give each student a pattern block. Have students examine the pattern block and ask how they could find the measurement around the block. Students can turn and talk to their partner. Share.

2)   Explain that when they find the distance around an object, they are finding perimeter. Brainstorm examples of when to use perimeter. (fence, wallpaper, etc.)

Procedures:

Teaching Perimeter

1) Do sample problems on the smartboard to find perimeter. Explain that students will add up the sides.
2) Have students try problems on their whiteboards as I walk around and provide assistance.
3) Students will complete the perimeter practice problems in their math books. I will provide support as needed.

Closure:
1) Have the students return to their seats.
2) Review how to calculate perimeter
3) Give each student an exit slip with two perimeter problems.

Assessment:

• Teacher observation of student responses during the Smartboard lesson.
• Teacher observation and conferencing during whiteboard activities and independent work.

- Exit slip at the end of class will be collected and assessed.

Day 2: Introduction to Area

Procedures:

1) Call the students to the carpet in front of the Smartboard. Review the definition of perimeter. Have students do a few practice problems.

2) Ask students to identify when they might use perimeter.

Teaching Area:

1) Explain that sometimes students will need to find the measure of the inside of a figure. Give examples such as buying a rug.

2) Do sample problems on the smartboard to find area. Explain that students can add up the squares inside the figure. Show how to find the areas of a rectangle by multiplying length times width.

3) Have students try problems on their whiteboard as I walk around and provide assistance.

4) Students will complete the area practice problems in their math books. I will provide support as needed.

Closure:
1) Have the students return to their seats.
2) Review how to calculate area.
3) Have student take out their whiteboards and answer with perimeter or area
   For example, if I am building a fence for my garden, would I need to know the perimeter or area?

Assessment:

- Teacher observation of student responses during the Smartboard lesson.
- Teacher observation and conferencing during whiteboard activities and independent work.
- End of lesson whiteboard activity

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