

Mathematics: The Language of STEM  
Painting the Classroom

CONTENT AND TASK DECISIONS

Grade Level(s): 6

Description of the Task: Students are going to find the area of the walls in the classroom and determine how much paint would be needed to paint the walls.

Indiana Mathematics Content Standards: 6.GM.4 Find the area of complex shapes composed of polygons by composing and decomposing into simple shapes; apply this technique to solve real-world and other mathematical problems.

6.C.3 Solve real-world problems with positive fractions and decimals by using one or two operations.

Indiana Mathematics Process Standards: PS.1 Students create a plan on how they will find the area of the walls.

PS.2 Students will have to decide on what units to use when measuring.

PS.3 Students will listen to others as they present their data.

Mathematics Content Goals: Students will be able to find the area of complex shapes by composing and decomposing into simple shapes.

Language Objectives: Students will be able to write out their mathematical plan (process) and prove their reasoning. Students will verbally explain their results.

Materials: iPads, rulers, tape measures, metric rulers, poster paper, markers

THE LESSON

**Before:**

**Student Actions:** Take survey from PollEverywhere to choose their favorite paint color. Read the article on how color affects brain and feelings and have students write down their reflections.

Share their thoughts with a turn and talk.

**Teacher Actions:** Ask students to take survey on paint color.

Give students article on how colors affect brain and feelings.

Ask students to reflect on article and share.

Lay out measuring tools and materials for students to see.

Tell students that with their \*team they are going to figure out how much paint is needed to paint the classroom walls with two coats of paint. (\*teams can be created by teacher preference)

**During:**

**Student Actions:** Look and explore the available tools.

Choose the tools they will need to complete the task.

Make a plan on how they are going to figure out how much wall space there is.

Decide what unit of measure they will use (inches or centimeters).

Begin measuring walls, keeping in mind you have a door frame, cabinets that will not be taken off the wall, and bulletin boards that will not come down.

Research type of paint and figure out how much paint they will need (keep in mind that students will have to remember how paint is measured).

Extension: Teams can figure out how much it would cost for the paint.

**Teacher Actions:** Tell students that you want to paint the classroom and you need to figure out how much paint you're going to need.

Show what tools will be available for team use.

Ask students to write out a plan of how they are going to find out how much wall space there is to paint. Let them know that the space behind the bulletin boards and cabinets will not be painted.

Give them the task to figure out how much wall space will need to be painted and how much paint is going to be necessary if they apply two coats of paint.

Tell them they will have to research a type of paint to figure out how much to buy.

Extension: Let teams who finish before others to research the cost of painting the room.

**After:**

**Student Actions:** Create a mini poster to present team's findings.

Report out to the whole class their process and findings.

**Teacher Actions:** Give instructions on requirements for mini poster. It must show the team's process of gathering measurements, what they found, and anything else they think is important. Select specific order of groups to share their findings.

**ASSESSMENT**

**Observe:** Look for teams that are struggling with how to figure out how to measure the walls. See if they are able to decompose/ compose the complex shapes of the walls. These students will need to know that they are looking at length and width.

Are students using their measuring tools properly? Students will need to make sure that they are measuring to the inch or centimeter, etc.

Are students able to use their walls measurements and figure out how much paint that will require? They will need to make sure they are looking at the cans. Also, they may have paint leftover.

**Ask:** What do you need to do if two coats are needed?

How do you figure out how much paint is in a can?

How do you know how many cans you will need if there is a different amount in a can than what you measured?

If paint is measured in \_\_\_\_\_, how do you convert if you measure in centimeters?

**Extension:** Students can write a persuasive letter to the principal describing this process and why the classroom should be painted.