

PROJECT DESIGN: OVERVIEW_{page 1}

Name of Project: Floorplan Area		Duration: 1 week
Subject/Course: Geometry	Teacher(s): Hitt, Harper, Rich	Grade Level: 10-12
Other subject areas to be included, if any: Graphics 3, Architectural Drafting		

Key Knowledge and Understanding (CCSS or other standards)	Idaho Math Standards G-MG-3 Apply geometric methods to solve design problems. Idaho Drafting and Design Program Standards: 2.1.6 Calculate area, perimeter, and volume using geometric shapes to include circle, square, rectangle, and triangle. 2.2.3 Measure object size, area, and volume using appropriate industry devices. Idaho Graphic Communications Standards: 2.1.2 – Incorporate color, line, shape, texture, size, and value in samples of graphic work. 2.1.6 – Demonstrate the elements of design through digital sketching.			
Success Skills (to be taught and assessed)	Critical Thinking/Problem Solving	X	Self-Management	X
	Collaboration	X	Other:	
Project Summary (include student role, issue, problem or challenge, action taken, and purpose/beneficiary)	Students will create a floorplan of their dream home on graph paper. They will draw the floorplan to scale so that they can then calculate the area of their home. They will be asked before drawing the floorplan, 'How much do you think it would cost to floor your dream home?'. After they have drawn their floor plans, they will again be asked how much they think, after drawing, it will cost to floor your dream home? Once floorplans are drawn up and area is calculated, they will pick flooring options for each room of their home. They will then calculate how much it costs to floor their home. The project will help them to calculate area and it will help them to better plan for projects in the future.			
Driving Question	How can you find the total square footage of your dream home?			
Entry Event	Discussion will start with a question. How much do you think it would cost the school district to retiling this classroom? I will have them give me a low and high estimate and then ask for an estimate they think is the actual cost. Then, in groups, the students will find the area of the room and search for flooring costs to find the actual cost.			

Products	Individual: Detailed floorplan of their dreamhouse	Specific content and competencies to be assessed: MP2- Reason abstractly and quantitatively. MP4- Model with mathematics. MP5- Use appropriate tools strategically. MP6- Attend to precision.
	Team: A list of the total area and cost of flooring the classroom.	Specific content and competencies to be assessed: MP2- Reason abstractly and quantitatively. MP6- Attend to precision.

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Making Products Public (include how the products will be made public and who students will engage with during/at end of project)	When they are done with their final products, we will have a gallery walk in the commons area during our regular class time. We will invite teachers who are on prep, parents, and administration. Students will answer questions from the parents, teachers, admin, etc.
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Resources Needed	On-site people, facilities: Commons area for gallery walk, teachers that have prep hours, parents
	Equipment: computer,
	Materials: Graph paper, ruler, protractor, flooring samples
	Community Resources: Local architect or general contractor

Reflection Methods (how individual, team, and/or whole class will	Journal/Learning Log		Focus Group	

reflect during/at end of project)	Whole-Class Discussion	X	Fishbowl Discussion	
	Survey		Other: Reflection paper	X

Notes: The entry event will include our class discussion. We will also discuss their floorplans after the project. (what would you change, etc) Students will also write a short reflection paper on their projects. Questions answered will be as follows.

1. How does your initial estimate compare with your final cost?
2. What surprised you about the difference between the two?
3. Now that your project is finished, what would you change about your project and why?
4. What is one thing that you either learned for the first time or gained a deeper understanding of?
5. What should I change about the project for next year?

PROJECT DESIGN: STUDENT LEARNING GUIDE

Project: Floorplan Area

Driving Question: How can you find the square footage of your dream home?

Final Product(s) Presentations, Performances, Products and/or Services	Learning Outcomes/Targets knowledge, understanding & success skills needed by students to successfully complete products	Checkpoints/Formative Assessments to check for learning and ensure students are on track	Instructional Strategies for All Learners provided by teacher, other staff, experts; includes scaffolds, materials, lessons aligned to learning outcomes and formative assessments
(individual and team) Floorplan of their dream home	I can use dilations to draw a floorplan to scale.	Quiz on dilations Exit ticket	Note taking on dilations and scale diagrams. Have architect or contractor come and explain how to draw floor plans. Draw a floorplan accurately to scale.
	I can calculate total area of different shapes or composition of shapes.	Quiz on area Peer Editing	Lesson on calculating area of different shapes. Calculate total area of the completed floor plan.
	I can use unit rates to calculate the total cost of a purchase.	Self-assessment checklist Exit ticket	Students research flooring options and determine the unit rate of each flooring option chosen. Calculate the total cost of the flooring by multiplying square footage by unit rate.

Calculations of total area and cost of flooring the classroom	I can use estimation skills to estimate total area.	High/low/middle estimate paper.	Use estimation skills to provide a low/high/middle estimate.
	I can use estimation skills to estimate total cost of a project.	High/low/middle estimate paper.	Use estimation skills to provide a low/high/middle estimate.
	I can calculate area of different shapes and composition of shapes.	Quiz on area	Calculate total area of classroom.
	I can calculate the total cost of a project.	Self assessment checklist	Research cost of classroom tiles. Calculate total cost to retiling classroom.