PROJECT DESIGN: OVERVIEW

Name of Project: Area (Square Footage)		**Duration:** 1 Week
Subject/Course: CADD III: Architectural Drafting	**Teacher(s):** Alisha Harper	**Grade Level:** 10-12
Other subject areas to be included, if any: Geometry (Lisa Hitt), Graphics III (Robyn Rich)		

Key Knowledge and Understanding (CCSS or other standards)	**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. 5.2.5 Produce schedules. **Idaho Math Standards** G-MG-3 Apply geometric methods to solve design problems. **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:	X

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Project Summary (include student role, issue, problem or challenge, action taken, and purpose/beneficiary)	Upon completing the *AutoCAD* layout of their dream house, students will find the total square footage of their main floor. Students will use local resources to make specific flooring selections based on the room and function. Students will create a flooring schedule that includes the total square footage per room, the selected flooring material, the price per square foot, and the total cost of flooring per room. The total cost of flooring must be within the given budget. As they work through this challenge, students will have to apply the area formula to multiple shaped rooms. In turn, discovering that certain shapes are easier to find the area than others. In a real world application, students will be able to make tasteful material selections while keeping within an allocated project budget.	
Driving Question	How can you find the total square footage of your dream home?	
Entry Event	Watching a short clip from *"Flip This House"* that depicts a homeowner measuring a room and then sorting through flooring samples to find a specific flooring type that fits the form and function of that room. The homeowner is on a restricted budget. The goal of this video is to give students an overview of the process they must take to order the proper amount of flooring. Students will brainstorm with their table to discuss whether they think the homeowner will able to stay within budget. They will be asked to find three products online that they think would fit within his budget. (After they learn the process of finding area, they will apply this process to these projects and create a material selection for the homeowner.)	
Products	Individual: Scaled floor plan that lists the total square footage of the main floor, as well as the total square footage per room; Flooring Material Schedule	Specific content and competencies to be assessed: Finding area of different shapes; Producing schedules
	Team: List of flooring possibilities for "homeowner"; Final flooring selection with total cost	Specific content and competencies to be assessed: Problem/solution; Cost analysis

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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)	At the end of the year, when students complete the entire Dream House Project, students will display their final plans, material selections, rendering boards, etc at the Senior Showcase. During the process of this particular lesson, students can call upon local businesses and resources for product knowledge, recommendations, and samples.			
Resources Needed	On-site people, facilities: All content teachers will have resources available within a sample library that students can choose from. Students can also call upon construction related teacher for advice.			
	Equipment: Video Clip, Projector, Computer with *AutoCAD* Software, Large Format Printer			
	Materials: Flooring Sample Library, Sketch Paper, Pen/Pencil			
	Community Resources: Building Material Suppliers, Construction/Design Professionals			
Reflection Methods (how individual, team, and/or whole class will reflect during/at end of project)	Journal/Learning Log	X	Focus Group	
	Whole-Class Discussion		Fishbowl Discussion	
	Survey		Other:	
Notes: Students are required to keep an active blog with daily entries discussing what progress they made on their Dream House Project. They also post screenshots and other images to give a visual on what they are working on. This allows a creative space for students to reflect on their projects and perhaps receive constructive comments from peers.				

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PROJECT DESIGN: STUDENT LEARNING GUIDE

Project: Area

Driving Question: How can you find the total 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
Scaled Floor Plan & Flooring Schedule (Individual) & Flooring List (Team)	I can create a completed floor plan within *Autocad* to illustrate the total flooring area.	● Quiz on area ● Senior Showcase ● Blog/Learning Log	● Students will be instructed on how to find area pertaining to flooring. ● Students will be able to find area using shortcut commands within AutoCAD. They will also learn how to find area manually.
	I can understand how to select materials within an allocated budget.	● Video Clip ● Materials List	● Students will be shown how to find out flooring pricing. ● Students will learn how to look at a product tag to analyze its components and quality. ● Short lesson will be given on form follows function. Example: You wouldn't want to put carpet in a bathroom for multiple reasons. (Not waterproof, mold, etc.)
	I know the importance of keeping an accurate material schedule and the benefits it provides to myself and others working on the project.	● Material Schedule ● Blog/Learning Log	● Sample Template of Material Schedule

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