

1. The "Scale Model" Dream Room

Lets design a 3D floor plan of your "dream bedroom" using a specific scale factor.

- **The Math:** Scale drawings, ratios, and surface area.
- **The Task:** If 1 inch on paper equals 2 feet in real life, how big is that gaming desk?
- **The Creative Twist:** Use a shoe box to build a physical 3D diorama of the room. You must calculate the total cost of "flooring" (carpet or wood) based on the square footage of their model.

This summer I would like you to move from "doing math" to "using math."

"The Scale Model Dream Room."

Project Progression: The 4 Phases

1. **Phase 1: The Blueprint.** Students measure their current room or research standard furniture sizes. They create a 2D bird's-eye view using a scale (e.g., 1 inch : 2 feet).
2. **Phase 2: The Budget.** Students "shop" for flooring and paint. They calculate the total square footage and total surface area of the walls to determine the cost of materials.
3. **Phase 3: The Build.** Using a shoebox or cardboard, students translate their 2D plans into a 3D diorama.
4. **Phase 4: The Showcase.** A final presentation where students explain their scale factor and how they stayed within their "budget."

Summer Math Adventure – Building a Dream Room!

Dear Parents and Guardians,

This summer, our 7th graders are stepping into the roles of architects and interior designers! We are launching the **Scale Model Dream Room Project**, a creative hands-on challenge designed to keep math skills sharp while having fun.

While building a 3D diorama of their ideal bedroom, your child will be mastering:

- **Ratios and Proportions:** Scaling real-world sizes down to model sizes.
- **Geometry:** Calculating area for flooring and surface area for "painting" walls.
- **Financial Literacy:** Budgeting for materials based on square footage.

How you can help: You don't need to be a math expert! Simply help them find a spare shoebox and perhaps a ruler or tape measure. Encourage them to "shop" online for furniture dimensions to ensure their scale remains accurate.

I can't wait to see their designs!

Blessings,

Cindy Jorritsma

Wanted: Lead Architect for the Dream Room Challenge

Hey Designers!

Ever felt like your room needs a total makeover? This summer, you're the boss. You have been hired to design and build a **1:24 scale model** (where 1 inch = 2 feet or 24 inches) of your absolute dream bedroom.

Your Mission:

1. **Draft It:** Create a 2D blueprint of your room. If your real-life dream bed is 6 feet long, how many inches will it be on your paper? (Hint: $6 \div 2 = 3$ inches!)
2. **Budget It:** You need to "buy" flooring. Calculate the area of your floor and find out how much it costs to cover it.
3. **Build It:** Turn that blueprint into a 3D masterpiece using a shoebox. Every piece of furniture must be perfectly to scale.

Don't just build it—math it! If your desk is too big for the room, you'll need to adjust your ratios. Grab a ruler and let's get started.

Happy Designing!

Project Rubric

Category	Emerging (1-2)	Proficient (3)	Mastery (4)
Scale Accuracy	Scale is inconsistent; furniture sizes don't match the blueprint.	Most items are scaled correctly using the 1 in : 2 ft ratio.	Every item is perfectly scaled; calculations are shown for 5+ items.
Area & Surface Area	Calculations for flooring or walls are missing or incorrect.	Area and surface area are calculated with minor errors.	Calculations for floor area and wall surface area are 100% accurate.
The Blueprint	Lacks labels or a clear key; messy.	Neatly drawn bird's-eye view with a clear scale key.	Professional-grade blueprint with precise measurements and labels.
Creativity & Effort	Model is incomplete or lacks detail.	Model is fully built and represents the blueprint well.	High level of detail (textures, colors, 3D furniture) and polished finish.

A formula using division to shrink real-world sizes into model sizes.

Model Dimension = Actual Dimension / Scale Factor

- Actual Dimension: The true size of the object in real life.
- Scale Factor: The number that dictates how many times smaller the model will be compared to reality.
- Model Dimension: The final size you need to draw or build.

Breakdown of the Example

The example states: *If a room is 12 feet long and the scale is 2, the model wall is 6 inches.*

Here is the step-by-step math happening behind that calculation:

1. Identify the variables:
 - Actual Dimension = 12 feet
 - Scale Factor = 2
2. Apply the formula:
 - $12 \text{ feet} / 2 = 6$
3. Unit Conversion:
 - In this specific tip, the scale unit changes from feet to inches.
 - The formula treats the number 2 as a tool to convert "12 feet" directly into "6 inches."