WAMC Lab Template

Math Concept(s): Reading a Floor Plan Source / Text: Cengage Financial Algebra

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Attach the following documents:

- Lab Instructions
- Student Handout(s)
- Rubric and/or Assessment Tool

Short Description (Be sure to include where in your instruction this lab takes place):

Lab Plan

Lab Title: Designing Your Tiny House Floor Plan

Prerequisite skills: Calculating Area; Proportion and scale

Lab objective: Students would be able to design a Floor Plan for a Tiny House that is 23 x 12 feet

<u>Standards:</u> (Note SPECIFIC relationship to Science, Technology, and/or Engineering)

Mathematics K–12 Learning Standards:

• HSG-GMD.B.4 Visualize relationships between 2D and 3D objects

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Standards for Mathematical Practice:

- Model with Mathematics
- Attend to precision

<u>K-12 Learning Standards-ELA</u> (Reading, Writing, Speaking & Listening):

- Speaking and Listening
- Comprehension and collaboration

Engineering

• HS-ETS 2 Design a solution to a real world problem by breaking it down into smaller, more manageable problems that can be solved through engineering

Leadership/21st Century Skills:

	those that apply to the above activity.) ncial/Economic/Business/Entrepreneurial Liter conmental Literacy	racy 🔲 Civic Literacy	
21st Century Skills (Check those that student	s will demonstrate in the above activity.)		
LEARNING AND INNOVATION	INFORMATION, MEDIA &	LIFE & CAREER SKILLS	Productivity and
Creativity and Innovation	TECHNOLOGY SKILLS	Flexibility and Adaptability	<u>Accountability</u>
X Think Creatively	Information Literacy	X Adapt to Change	X Manage Projects
X Work Creatively with Others	☐ Access and Evaluate Information	X Be Flexible	X Produce Results
X Implement Innovations	Use and manage Information	Initiative and Self-Direction	Leadership and
Critical Thinking and Problem Solving	Media Literacy	X Manage Goals and Time	Responsibility
X Reason Effectively	☐ Analyze Media	☐ Work Independently	☐ Guide and Lead
☐ Use Systems Thinking	☐ Create Media Products	☐ Be Self-Directed Learners	Others

- Make Judgments and Decisions
- Solve Problems
- Communication and Collaboration
- Communicate Clearly
- Collaborate with Others
- Information, Communications and
- Technology (ICT Literacy)

 ☐ Apply Technology Effectively
- Social and Cross-Cultural
- X Interact Effectively with Others
 X Work Effectively in Diverse Tea Work Effectively in Diverse Teams
- ☐ Be Responsible to Others

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Teacher Preparation: (What materials and set-up are required for this lab?)

Materials

Each pair to have:

- Tape measure
- Pencil and rulers
- WS Tiny House Floorplan

Set-Up Required:

Mark our 4 areas that are 23 x 12 feet with masking tape

<u>Lab</u>

- 1. Divide students into pairs (or groups of 4). Give each pair a Floor Plan Layout and a tape measure. The tape measure will help them visualize the dimensions of the essential items.
- 2. Have them walk through the areas that have been marked out with masking tape. They have to decide how they want to design the floor plan of their tiny house.
- 3. They will have to use the tape measure to help them visualize the dimensions of the things they have to include in the tiny house to ensure that there is enough room to fit all.
- 4. Once they agree on the floor plan, they will have to draw out their floor plan to scale on the Floor Plan Layout.
- 5. They will have to calculate the area of the essential items in their Tiny House.

Lab Organization Strategies:

Leadership (Connect to 21st Century Skills selected):

Cooperative Learning:

• Students will work in pairs (or groups of 4).

Expectations:

Students will be able to design a floor plan for a tiny house

Timeline:

• This would be a 2hr lab. 1 hour would be for students to agree on the floor plan of the house. The next hour would be for students to draw out their plans to scale on the floor plan and calculate area of essential items.

Post Lab Follow-Up/Conclusions:

Discuss real world application of learning from lab

• Tiny house or living in a camper van are very popular these days. Students have to learn to be creative to balance space, aesthetics and function.

Career Applications

• Construction trade, interior designer

Optional or Extension Activities

Have students build the furniture with popsicle sticks.

- Have students calculate how much it will cost to tile or carpet the house
- Have students calculate how much it will cost to build the house given
- Make it more challenging by changing it to a 9 x 11 feet camper van

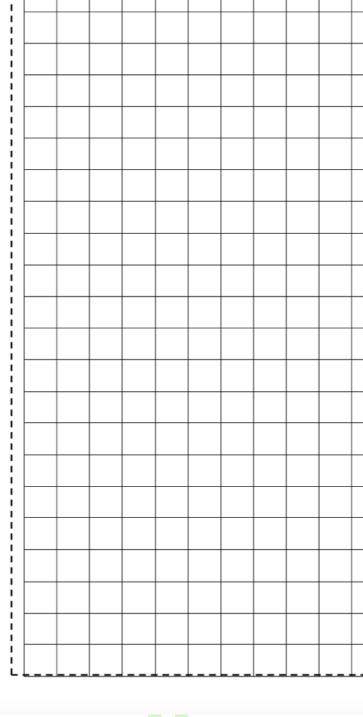
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Part 1- Tiny House Floor Plan Layout







Aloor Plan Layout

Use this page to design the floor plan of your home.

	Items that	HAVE to	be included in	vour Tin	v House:
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Living Room:

- Couch
- table

Bedroom:

- bed
- side table
- some kind of storage (e.g closet / cupboard)

Kitchen:

- sink
- fridge
- stove

Bathroom:

- shower
- toilet
- sink

Part 2 - Area of Essential Items

	Area / sq feet
Couch	
Table	
Bed	
Side table	
Storage	
Kitchen Sink	
Fridge	
Stove	
Shower	
Toilet	
Bathroom Sink	

Rubrics:

	1	2	3
Essential Items	The floor plan is	The floor plan is	The floor plan has all
	missing more than half of the essential items	missing a few essential items	essential items

Scale		Only a few of items in	Most of the items in	The items in the floor
		the floor plan are not		plan are drawn to
		drawn to scale are	drawn and scale and	scale and is
		not reasonable in	are reasonable	reasonable in size
		size		
	Layout	The layout is not	Some of the layout is	The layout is
		reasonable and does	reasonable and	reasonable and
		not provide	provides room for a	provides room for a
		reasonable room for	person to walk	person to walk
		a person to walk		

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