

JUNIOR SEABEE



EA – ENGINEERING AIDE



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Survey, Scale and Structure

The Engineering Aides of the Seabees are responsible for working with architects and engineers to ensure that building project designs are set up appropriately and that things like outlets and pipes are placed in the correct locations within the walls as the buildings go up. Another responsibility for EA's is figuring out exactly where a building should go on a plot of land, Engineering Aides must be really familiar with blueprints and maps.

For our project we'll be looking at the room (or entire home if you're motivated) that you live in, and working on how to make a map of a room or building. We'll also be looking at how a map is scaled, or shrunk to fit on paper, as well as how we indicate doors, windows and electrical outlets in your draft. As an add-on activity, you can build a vertical structure that looks like your room or home (a model).

For this exercise, we will need the following:

- A 15' - 25' tape measure (if you have larger rooms, a larger tape measure will ensure you don't have to measure in sections)
- A 12" ruler
- Pen/pencil and paper for notes
- Poster board or foam board to serve as your foundation/ground
- Tape or glue or hot glue (for add-on activity)
- Cardboard or construction paper (for add-on activity)
- Computer or tablet with internet access for optional activity

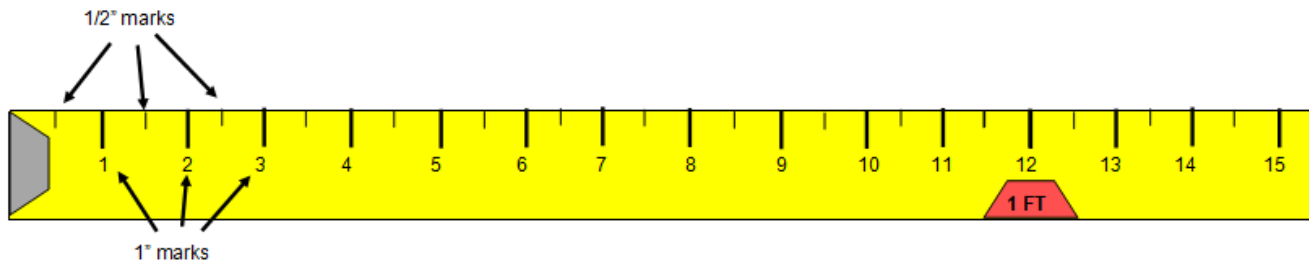
The first thing you'll want to do is decide whether you want to create a draft of your room or your entire home. It might be best to start with just one room, and then go back and add additional rooms.

JUNIOR SEABEES CAN DO TOO!

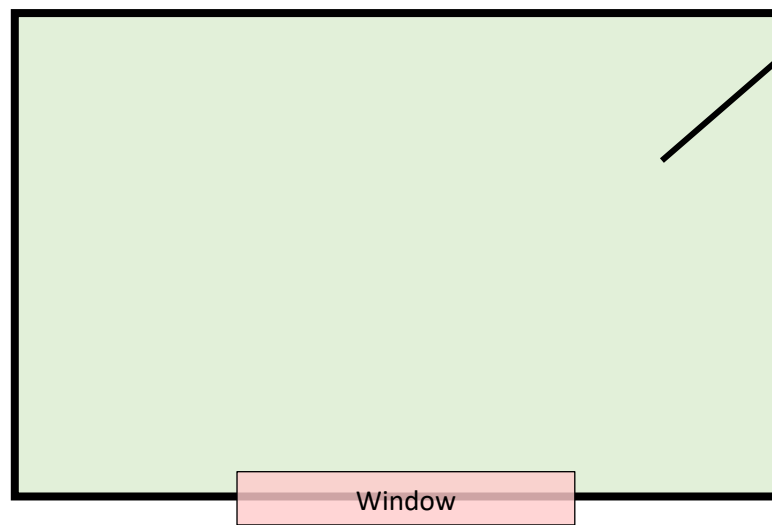


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1) Using the tape measure, pull out the tape at least as long as your ruler and look at the numbers on it. Do you know what they mean? The larger numbers that start at 1 stand for inches. The smaller tick marks in between are $\frac{1}{2}$ inch marks, and the even smaller tick marks are $\frac{1}{4}$ " and maybe even $\frac{1}{8}$ ". At every 12" there will be a notation for FEET.



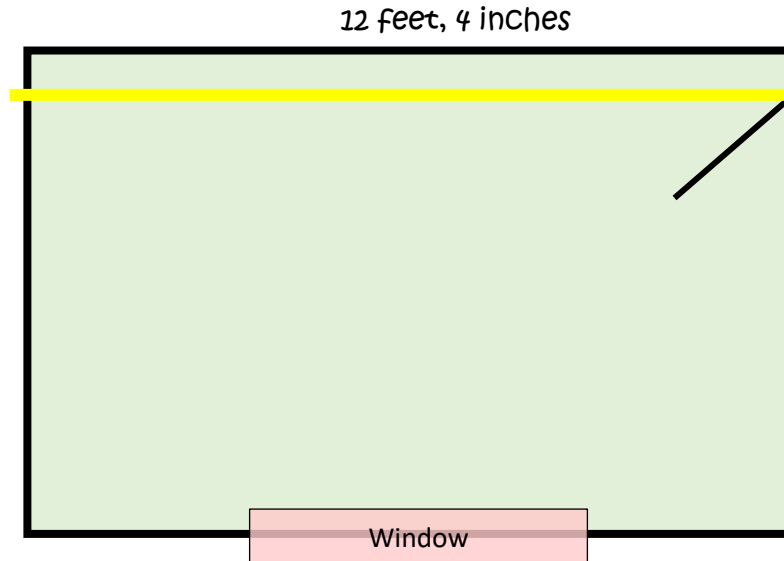
2) Take a piece of paper and draw a rough outline of your room. Is it a rectangle? Does it have unusual cubbies or boxes or angles? Do you have a window (make a small box where it is in your room)? Where is the door (in our picture, we added an angled line to show where the door opens)? Your drawing does not have to be perfect – it is just a place for your notes. Most rooms look something like this:



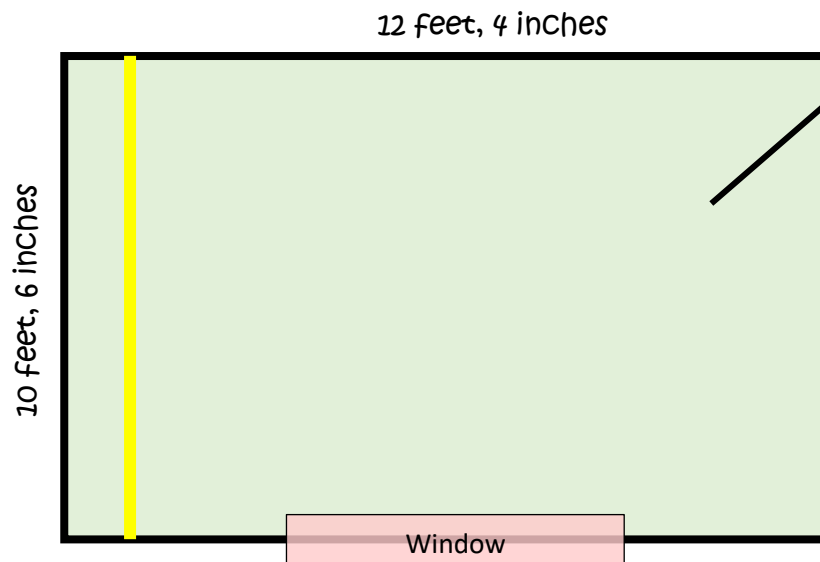


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3) Ask a parent, sibling or friend to hold the end of the tape measure against one wall of your room and walk across to the other side. You want to make sure you are measuring straight, not at an angle, and see if you can determine how long your room is from one end to the other in feet and inches. Write the number on your picture.



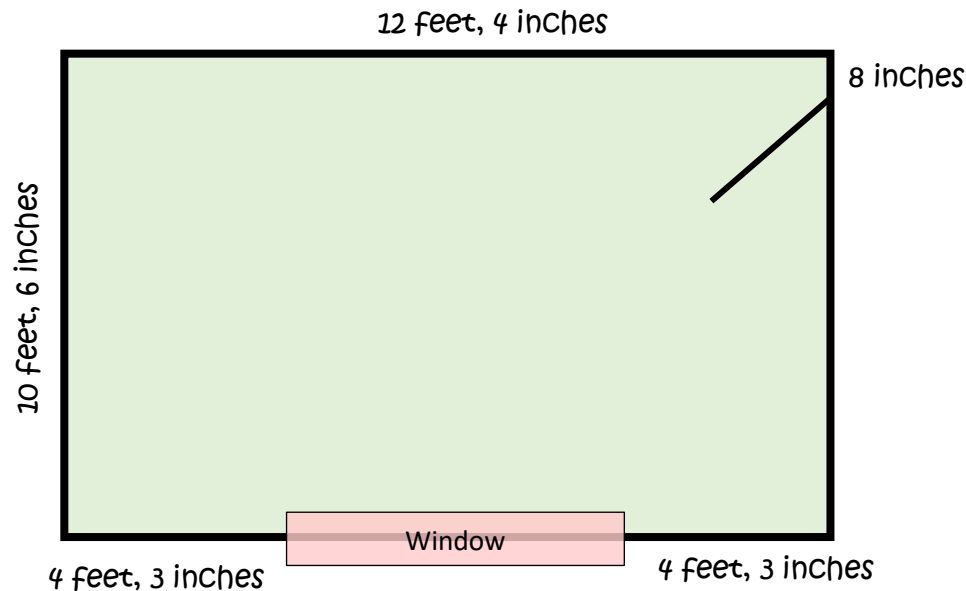
4) Next, measure the other side, from one side to the other and write the measurement on your drawing.





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5) At this point, if you want to go a little more in depth, you can also measure the spaces on each side of your window and door and write those in on your picture, in case you decide to create your room from paper or cardboard.



6) Please remember to post pictures on social media using #JuniorSeabee and #USNSeabeeMuseum so the world can see what you've learned. Share your creations on our Instagram or Facebook pages – tag us at **U.S. Navy Seabee Museum** and don't forget to follow us!