



Unit 1

Scale Drawings



Lesson 13

Draw It to Scale

Learning Goal

Let's draw a floor plan.



Which measurements would you need in order to draw a scale floor plan of your classroom? List which parts of the classroom you would measure and include in the drawing. Be as specific as possible.

Warm-up

- Which parts of the classroom must be included in a scale floor plan? Which parts are less important?
- What measurements do we need?
- Besides lengths of walls and objects, what else would be helpful? (If no one mentioned the positions of objects, ask how we know where to place certain objects on the drawing.)
- Should we include vertical measurements? Why or why not?

Creating a Floorplan (Part 1)



1. On a blank sheet of paper, make a *rough sketch* of a floor plan of the classroom. Include parts of the room that the class has decided to include or that you would like to include. Accuracy is not important for this rough sketch, but be careful not to omit important features like a door.
2. Trade sketches with a partner and check each other's work. Specifically, check if any parts are missing or incorrectly placed. Return their work and revise your sketch as needed.
3. Discuss with your group a plan for measuring. Work to reach an agreement on:
 - Which classroom features must be measured and which are optional.
 - The units to be used.
 - How to record and organize the measurements (on the sketch, in a list, in a table, etc.).
 - How to share the measuring and recording work (or the role each group member will play).
4. Gather your tools, take your measurements, and record them as planned. Be sure to double-check your measurements.
5. Make your own copy of all the measurements that your group has gathered, if you haven't already done so. You will need them for the next activity.

What was challenging about doing the measuring for the floorplan?

Your teacher will give you several paper options for your scale floor plan.

1. Determine an appropriate scale for your drawing based on your measurements and your paper choice. Your floor plan should fit on the paper and not end up too small.
2. Use the scale and the measurements your group has taken to draw a scale floor plan of the classroom. Make sure to:
 - Show the scale of your drawing.
 - Label the key parts of your drawing (the walls, main openings, etc.) with their actual measurements.
 - Show your thinking and organize it so it can be followed by others.

Guiding Questions for the Activity Discussions

- What scale did you use? How did you decide on the scale?
- Do the scaled measurements in each drawing seem accurate? Do they represent actual measurements correctly?
- Did the scale seem appropriate for the chosen paper? Why or why not?
- What was the first thing you drew in your drawing? Why?
- How did you decide on the objects to show in your drawing?
- What aspects of your drawings are different?
- How could each floor plan be revised to better represent the classroom?

1. Trade floor plans with another student who used the same paper size as you. Discuss your observations and thinking.
2. Trade floor plans with another student who used a different paper size than you. Discuss your observations and thinking.
3. Based on your discussions, record ideas for how your floor plan could be improved.

- What are the differences in these drawings?
- How did different scales impact the final drawing?
- How did the size of paper impact the choice of scale?
- What choices were really important when creating the scale drawing?
- Would these choices be the same if you were doing a different room in the school? Or some other building?

- I can create a scale drawing of my classroom.
- When given requirements on drawing size, I can choose an appropriate scale to represent an actual object.

Learning Targets



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