

## Lesson 20: An Exercise in Creating a Scale Drawing

### Classwork

Today you will be applying your knowledge from working with scale drawings to create a floor plan for your idea of the dream classroom.

### Exploratory Challenge: Your Dream Classroom

#### Guidelines

**Take measurements:** All students will work with the perimeter of the classroom as well as the doors and windows. Give students the dimensions of the room. Have students use the table provided to record the measurements.

**Create your dream classroom, and use the furniture catalog to pick out your furniture:** Students will discuss what their ideal classroom will look like with their partners and pick out furniture from the catalog. Students should record the actual measurements on the given table.

**Determine the scale and calculate scale drawing lengths and widths:** Each pair of students will determine its own scale. The calculation of the scale drawing lengths, widths, and areas is to be included.

**Scale Drawing:** Using a ruler and referring back to the calculated scale length, students will draw the scale drawing including the doors, windows, and furniture.

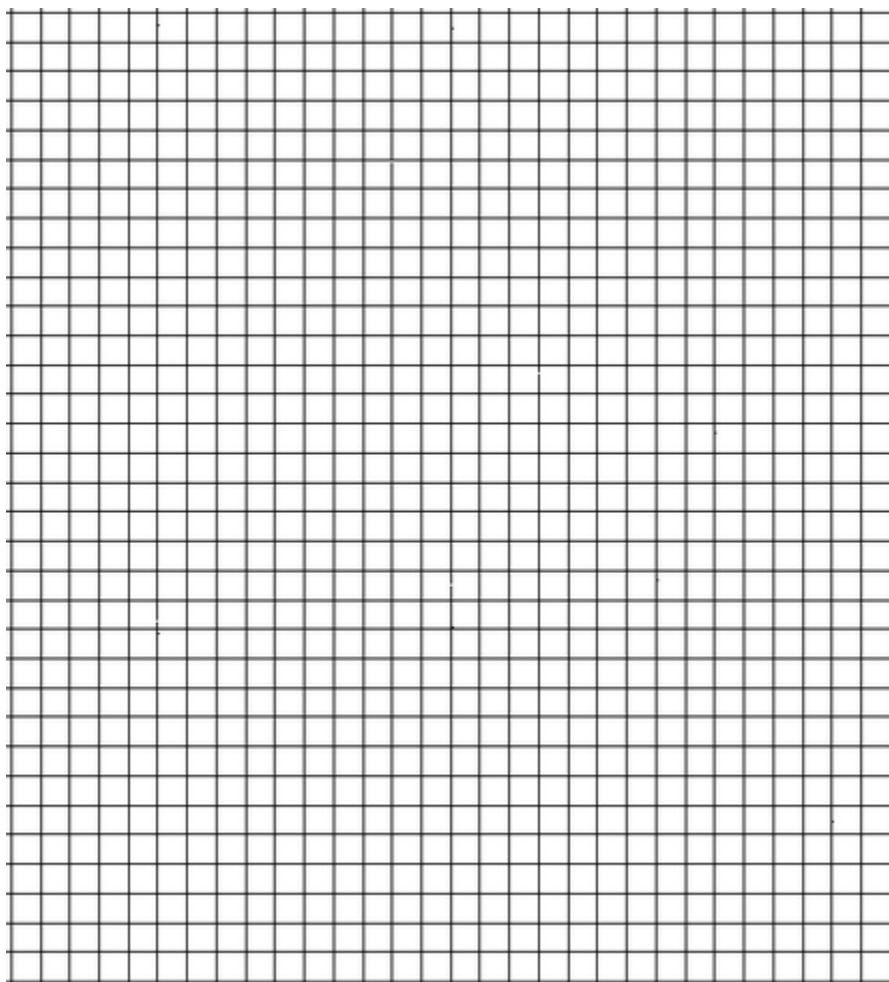
#### Measurements

|                       | Classroom Perimeter | Windows | Door | Additional Furniture |  |  |  |  |  |
|-----------------------|---------------------|---------|------|----------------------|--|--|--|--|--|
| Actual Length:        |                     |         |      |                      |  |  |  |  |  |
| Width:                |                     |         |      |                      |  |  |  |  |  |
| Scale Drawing Length: |                     |         |      |                      |  |  |  |  |  |
| Width:                |                     |         |      |                      |  |  |  |  |  |

Scale: \_\_\_\_\_

**Initial Sketch**

Use this space to sketch the classroom perimeter, draw out your ideas and play with the placement of the furniture.



Area

|                     |           |  |  |  |  |  |  |
|---------------------|-----------|--|--|--|--|--|--|
|                     | Classroom |  |  |  |  |  |  |
| Actual Area:        |           |  |  |  |  |  |  |
| Scale Drawing Area: |           |  |  |  |  |  |  |

### Lesson Summary

Scale Drawing Process:

1. Measure lengths and widths carefully with a ruler or tape measure. Record the measurements in an organized table.
2. Calculate the scale drawing lengths, widths, and areas using what was learned in previous lessons.
3. Calculate the actual areas.
4. Begin by drawing the perimeter, windows and doorways.
5. Continue to draw the pieces of furniture making note of placement of objects (distance from nearest wall).
6. Check for reasonableness of measurements and calculations.

### Problem Set

#### Interior Designer

You won a spot on a famous interior designing TV show! The designers will work with you and your existing furniture to redesign a room of your choice. Your job is to create a top-view scale drawing of your room and the furniture within it.

- With the scale factor being  $\frac{1}{24}$ , create a scale drawing of your room or other favorite room in your home on a sheet of  $8.5 \times 11$  inch graph paper.
- Include the perimeter of the room, windows, doorways, and three or more furniture pieces (such as tables, desks, dressers, chairs, bed, sofa, ottoman, etc.).
- Use the table to record lengths and include calculations of areas.
- Make your furniture “moveable” by duplicating your scale drawing and cutting out the furniture.
- Create a “before” and “after” to help you decide how to rearrange your furniture. Take a photo of your “before.”
- What changed in your furniture plans?
- Why do you like the “after” better than the “before”?

|                       | Entire Room | Windows | Doors | Desk/<br>Tables | Seating | Storage | Bed |  |  |
|-----------------------|-------------|---------|-------|-----------------|---------|---------|-----|--|--|
| Actual Length:        |             |         |       |                 |         |         |     |  |  |
| Actual Width:         |             |         |       |                 |         |         |     |  |  |
| Scale Drawing Length: |             |         |       |                 |         |         |     |  |  |
| Scale Drawing Width:  |             |         |       |                 |         |         |     |  |  |

|                     | Entire Room Length | Desk/Tables | Seating | Storage | Bed |  |  |
|---------------------|--------------------|-------------|---------|---------|-----|--|--|
| Actual Area:        |                    |             |         |         |     |  |  |
| Scale Drawing Area: |                    |             |         |         |     |  |  |

