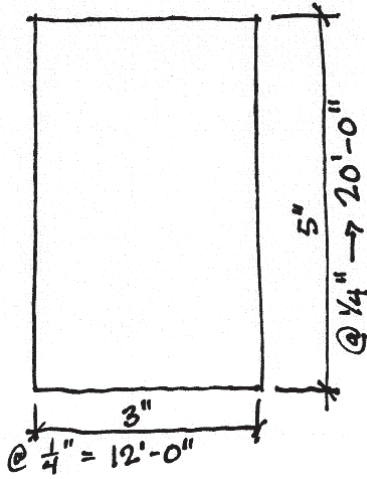


# DRAWING LIKE AN ARCHITECT

## ► DRAWING TO SCALE

• | *Scale can be a tricky concept to get across, but this multi-part activity will help you and your students to understand and be able to create scaled drawings & models.*



### Materials

- Architectural Scales)
- Each Student: standard 12" ruler, blank piece of paper (lined or graph paper OK too)

*Copy the sketch to the right onto the board, large enough for all to read.*

### Part 1 Introducing Dimensions

*Verbal Introduction:*

Architectural drawings show how big things need to be, so they're labeled with the dimensions of all the parts so the builder can build it. (*an example from your architect would be helpful to have on hand*)

This is how we write dimensions on a drawing.

*Walk through the breakdown of the parts of the dimension notation in the drawing you copied onto the board*

1. Ask students to use the ruler to draw a rectangle in the middle of the page that is 3 inches wide and 5 inches tall.

### Part 2 Introducing the Concept of Scale

*Verbal Introduction:*

What does it mean when we say that drawing is "to scale"? Since we can't draw a building as big as it really is (your school building won't fit on even a large piece of paper!), we 'shrink' it down so it fits into a manageable picture, but we still need to be able to measure it as we work on the design. So, we shrink it down by using a ruler in a new way: an inch or a fraction of an inch represents one foot of length. This can be done with a regular ruler (with a bit of mental math), but architects usually use something called an ARCHITECTURAL SCALE. == *pass around your scales* == It's a special kind of ruler that is marked so that when you read 1, 2, 3, etc., instead of inches, they are actually 'feet', just shrunken down like a dollhouse or matchbox car. The smaller the fraction of an inch that is used to equal a foot, the smaller the "scale" of the drawing.

Another example of something 'scaled down' are model train sets. They're labeled differently, (O, H, HO, G, N, etc.), but each of those 'scale' designations represents a fractional scale, so that if you get parts from different places, getting the same scale makes sure it all fits together.

2. Have students measure the box they drew using the 1/4" edge of the Architectural Scale, and have them write down the dimensions in feet and inches. (for younger students, do this larger on the board with them, so they can see and copy). The box will measure 12'-0" wide, and 20'-0" tall at 1/4"=1'-0" scale. Ask students to check out how big the box is at other scales. How big is it at 3"=1'-0" ?

# DRAWING LIKE AN ARCHITECT

## ► DRAWING TO SCALE

### Part 3 Drawing Yourself to Scale

#### Materials:

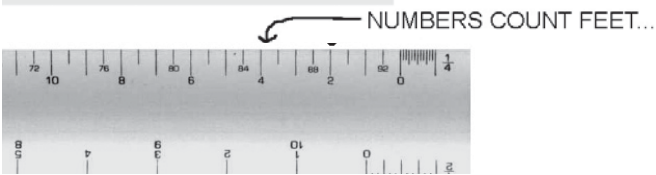
- K-6 Roll-paper for making full-size outline tracings of kids
- K-12 Architectural scales
- Standard 12" ruler
- Tape Measure
- each student: DRAWING TO SCALE HANDOUT, pencil

#### K-6

1. Create full-size outlines of each student on roll paper. Arms should be down to the sides. Feet should be flexed, with the soles of the shoes at the bottom edge. Before they get up, draw horizontal lines at the ankle, knee, wrist, elbow, shoulder, chin, eyes, and top of head, similar to the handout. Have them write their names on their outline's 'shirt'.
2. Hang the tracings on the wall with the "feet" on the floor. (point out now they now have "elevations" of themselves at "full-scale" meaning the drawing is the same size they are. It's a really BIG drawing! Ask, "can you draw the school building or your house at "full scale"?").

$1/4" = 1'-0"$

EVERY 1/4 INCH EQUALS 1 FOOT



END SHOWS SCALED INCHES

$1/2" = 1'-0"$

EVERY 1/2 INCH EQUALS 1 FOOT



#### K-12

(6th grade and up could start here)

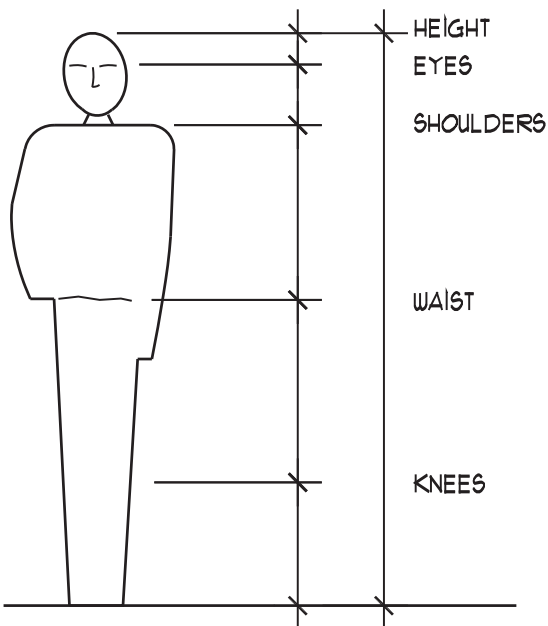
3. Have students pair off and measure themselves (or their full-size elevations) to fill out the DRAWING TO SCALE handout. As they work, check to see that they are writing the dimensions with proper notation (see "Introducing Dimensions" activity).
4. Once the dimensions are filled out, have them draw themselves in the graph paper section of the handout, using the 1/4" side of the architectural scale. You may need to walk through the scale translation of a few dimensions of yourself on the board to show the process.

#### Optional Homework Assignment:

1. Have students measure their rooms at home, and draw a floor plan and the elevation of a wall with a window in it using the conventions on the back of the DRAWING TO SCALE handout.
2. Evaluation — Have students write about their space. Is your room comfortable for the activities you do in it? Would it be too big or too small for other activities? Why?

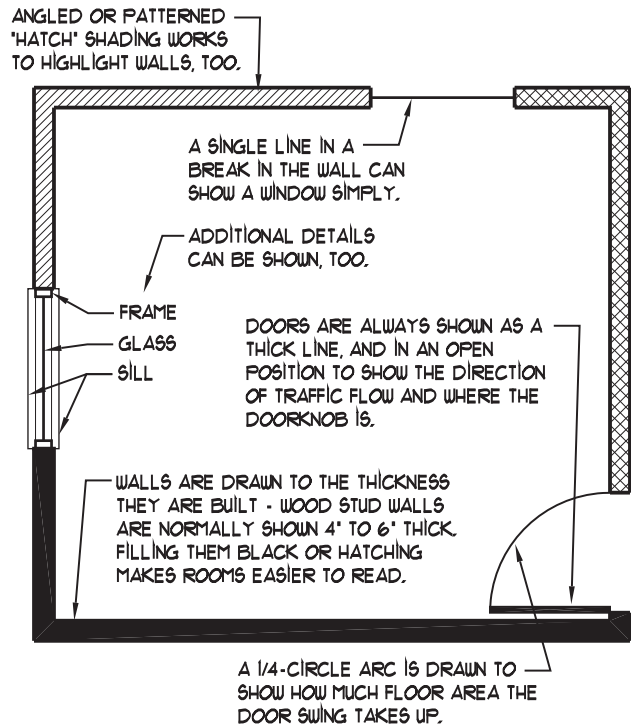
→ **DRAWING TO SCALE**

**YOUR MEASUREMENTS**



MEASURE YOURSELF W/ A TAPE MEASURE, AND FILL IN YOUR DIMENSIONS.

**DRAWING A FLOOR PLAN**



**YOU**

**1/4" = 1'-0"**

**YOUR CLIENT**

1' AFTER YOU HAVE YOUR MEASUREMENTS, SKETCH A SCALE IMAGE OF YOURSELF ON THE LEFT.

6'

5'

4' FOR YOUR CLIENT, RESEARCH OR ESTIMATE THEIR MEASUREMENTS.

3'

2' COPY OR TRACE YOUR SCALED CLIENT TO CARDBOARD AND CREATE A CUTOUT FOR YOUR DRAWING WORK, AND/OR A STAND-UP FIGURE FOR YOUR MODEL.

1'

9"  
3"

**YOUR ROOM**

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