

SCALE DRAWING PROJECT

RATIO AND PROPORTION: Analyze proportional relationships and use them to solve real-world and mathematical problems.

GEOMETRY: Draw construct and describe geometrical figures and describe the relationship between them.

OBJECTIVE: To take a small picture and enlarge it so that the two pictures are accurate scale drawings of each other. Every part of these pictures should be proportionate in size and shape. Proportional Scaling is when both the width and the length of an object are reduced or enlarged according to the same ratio.

SUGGESTED MATERIALS:

- Picture (a more detailed picture is more difficult to reproduce!)
- Poster board (gridded poster board is acceptable and makes your job easier!)
- Graph paper, pencil, coloring utensils, glue, scissors

PROCESS:

1. Find a picture that you would like to use for this project. (clip art, part of a card, sticker, comic)
2. Cut out the picture and attach it to graph paper. Be sure to line up the corner with the lines of the graph paper as best you can, if possible, so your picture will be straight.
3. With a pencil and ruler, draw gridlines across your picture in accordance with the graph paper.
4. Label the grid of your picture like the Quadrant 1 of the Coordinate Plane (the point (0, 0) in the corner and increasing numbers on x- and y-axis)
5. Find the dimension of your picture by finding the length and width using the graph paper squares as your guide and display this on the page with the original picture.

Example: 7 squares by 12 squares

6. Re-create your grid using the same dimensions, but a bigger unit. For instance, if you picture was 7 squares across, your poster should have 7 square across (but larger squares!)

Your re-created picture must be **AT LEAST 3 TIMES LARGER** than your original picture.

- If your graph paper had $\frac{1}{4}$ inch squares (or .25 inch), the squares of your larger picture must be at least $\frac{3}{4}$ inch ($3 \times \frac{1}{4} = \frac{3}{4}$ or .75)

7. Label the grid of your poster board the exact same way as you labeled your picture.
8. Using your smaller picture as a guide, begin to re-create it, square by square. If you focus on each square one at a time, rather than the whole picture, your larger scale drawing should turn out to be very similar to that of your smaller picture.
9. Include the following calculations on your final product
 - a. Scale (example: $\frac{1}{4}$ inch = $1 \frac{1}{2}$ inch)
 - b. Scale Factor by stating "My picture is an enlargement by a factor of _____."
10. Coloring your picture is STRONGLY ENCOURAGED.

ASSESSMENT: Your project will replace lowest MID-CHAPTER QUIZ (30 points). You will be graded on accuracy of reproduction and completion of all steps in the process. Just meeting these basic requirements will earn you 90%. Additional points (90% and above) will be awarded for additional effort and detail.

YOUR PROJECT IS DUE WEDNESDAY, DECEMBER 2. ABSOLUTELY NO LATE PROJECTS WILL BE ACCEPTED.
PLEASE FEEL FREE TO EMAIL ME OVER THE BREAK IF YOU HAVE QUESTIONS...
HAVE A GREAT THANKSGIVING HOLIDAY!