

Create a drawing or painting, rigorously using proportion (this of course means you do the calculations before you do much drawing!). Write an accompanying page or so which begins by describing in broad terms what you are trying to do mathematically, and which then goes in to considerably more detail, with all the appropriate calculations. Think in terms of a description that would accompany your art in an art show – you'd want them to know how you incorporated math into the work, and what mathematical principles are illustrated. To go into greater depth, you might also want to measure your work after you've finished it, and compare the proportions you ended up with to the ones you were aiming for, discussing the error range and whether it was small or large, and how it compared with what you expected

Also title your work.

Some suggestions:

- You may want to use one of the systems of proportions we've learned about – the Vitruvian system, the Modulor, a system of harmonic proportions, or the Sacred Cut system.
- The most obvious way to do this project is to draw two or more versions of the same object, in differing sizes.
  1. One approach would be to have the objects diminish in size by some sort of logical progression of proportions: the second object is half the size of the first in every facet, the third is a third (or a fourth) the size of the first in every facet, the fourth (should you choose to draw so many) is a fourth (or an eighth) the size of the first in every facet, etc.
  2. Another approach would be to draw your original object, and then to purposely use radically different proportions for each facet to distort the object. Doubling the head, quadrupling the arms, etc.
  3. You could just have a series of objects, or you could draw a picture within a picture.

Be careful – remember to use ratios, not differences AND remember to either be consistent or to explain the idea behind being inconsistent AND remember to show all your calculations in a well-labeled and easy to follow way.

And finally, remember – the more deeply and thoroughly you incorporate math into the work, the more points you will receive.

*Possible points:* if you make one drawing, and then, through extensive use of proportion, draw a scale version of it (whether it's accurate or purposely distorted), then you can earn up to 35 points if you use 10-15 measurements and proportions, up to 15 points if you use 5-7 measurements & proportions, and up to 10 points if you use 3-5 measurements. If you are distorting something, then be sure to use some sort of pattern or reason for the different proportions you use – don't just distort first, and then calculate the proportions later.

If instead you use one of our systems of proportions to create a drawing, the extent to which you incorporate and the variety you use or create will determine your score. In general, these tend to earn fewer than 35 points, because there's less scope for measurement and proportion; however they often earn in the 20-25 point range.

A project which begins with drawing something using a system of proportions and then draws a scale or distorted version of the same thing could earn up to 50 points, if there are extensive and correct proportions involved.