



Healing Through The Arts®

Where those who are healing find strength,
hope and inspiration through the arts.

Math, Lesson 2 – *Modeling Quantities*

Lesson goal – To enable and/or illustrate the creation of models of mathematics and real world experiences

Target students – All levels

Learning Objective – Students will model connections between art, statistics, nature, and themselves

Outcome – Students will create a piece of art, photograph, or computer-generated image using symbols to represent data

Standards – The following educational standards are addressed in this lesson:

- PA CC N-Q.1 – N-Q.3
- G-MG.1
- PA M11.D.4.1

Materials / Resources – The following resources will be required for this lesson:

- Research: library, Internet, etc.
- Excel, Numbers, organizational software
- Algebra skills
- Geometer's Sketchpad (optional)

Description of Lesson (recommended duration: 1-2 weeks)

1. Before students begin, have them choose a specific area of interest to pursue.
 - What subject am I interested in, i.e. the environment; health; population explosion; etc.?
 - Within my topic, what specific data could I use for this project?
 - What will I use to represent said data, i.e., a geometric shape; symbol; etc.?
2. Once students choose a topic, they should focus in on a specific data set.

3. What geometric shape or symbol will students use to represent their data?
 - a. What quantity will each symbol stand for?
4. At this point, students should create their project; i.e., a piece of art; a photograph, a computer-generated image, using their symbols of choice to represent the data in their area of interest.

Example Differentiation:

Below Grade

- Arrange the project so that students are more directed.
- Give students a small list of quantities from which to choose.
- For each quantity, give students a limited choice of symbols from which to choose.
- As a class, create quantitative symbolic representations to illustrate the purpose and possibilities inherent in this project.
- Help students choose appropriate quantities for their chosen symbols.
- Allow students to use software; i.e., Geometer's Sketchpad to begin creating their model.

Above Grade

- Once students have chosen their topic of interest, have them choose two different ways to represent data related to their topic; à la Chris Jordan's Caps Seurat and Cans Seurat.
- Have students choose a particular art style they will use for their model(s).
- Have students create their model as a multi-page project using Geometer's Sketchpad, perhaps even including a custom tool or script.