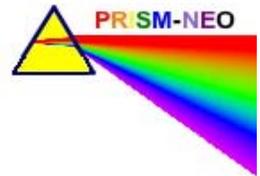


# Building and Using Scatterplots

<---Sketch Title



**Sketch Filename:** Scatterplots.gsp

**Movie Filename:** scatter.mov

**Math Concept(s)**

Graphing

**Suggested Grades**

- 7  
 8  
 9 Applied

**Sketchpad Level**

Easy  
- drag points and click buttons

*Beginner  
Intermediate  
Experienced*

## Learning Goals:

- to develop an understanding of the definition of scatterplots
- to develop an understanding of how to build and use a scatterplot

## “Sketchy” Description:

This 11 page sketch centres around the use of triangular pavers to create a walkway.

- activities 1-3 develop the relationship between a pictorial and a graphical model of one variable data
- activities 4-6 develop the relationship between a pictorial model and a graphical model (Cartesian plane) of two variable data
- activities 7-11 develop the concept of scatterplot; scatterplots are defined and created, extrapolation is used to make predictions, a paper tool is created to help determine the coordinates of points which satisfy the relationship established by the scatterplot

## Lesson Plan Suggestions

- description of how the sketch might be used in each of the three lesson parts - *Minds On, Action!, Consolidate.*
- includes student groupings, instructional strategies, and connections to manipulatives or other technologies.

### Minds On

Have students observe the animation on the lower right of the home page. The animation can be started and stopped by pressing the action button. Have students discuss what the graphic might represent.

### Action

Students work with a partner to complete activities 1 through 11. These activities develop the concept of scatterplot from scratch; start with a number line graph then combine two number line graphs to create a coordinate grid. The concept of extrapolation is also presented.

### Consolidation

Students can practice extrapolating to make predictions using pizza plots. As well they can observe changes in the trend line brought about by changes to the initial condition or the rate of change. Students complete the Frayer -type model activity to review the Cartesian plane. Students could visit the web-link to practice creating a scatterplot on the home page.

## Extensions:

The “Building Block Equations” extension activity presents a visual model, a data chart model and a graphical model of the same scenario. If cube-a-links are brought to class then a concrete model can be constructed as well. The activity allows students to modify the rate of change and observe the impact on the data in the table as well as the trend line. Students are encouraged to find an equation to represent the data thus giving an algebraic model of the relationship.

## Questions or activities for students/parents to explore together:

1. What happens to the trend line as the initial condition (base price of pizza) increases? decreases?
2. What happens to the trend line as the rate of change (# of blocks added to each face, cost of items on the pizza) increases? decreases?
3. What happens to the trend line as you change the scale of both axes?
4. Given an independent value (number of triangles, model number, number of items) , find three different methods for determining the corresponding dependent value (perimeter, number of blocks, cost of pizza)