

Graph Plotting

Instructions for creating a plotted graph with Adobe Photoshop Elements 3.0

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At a Glance

Grade Level: 4rd – 7th

Subjects: math (plotting x,y coordinates), Fine art, technology

Skills addressed: Layers, Opacity, Drawing tools, text tools,

Time Needed: 1 – 3 hours depending on the extent of the project

Materials: Computer, Graph paper, pencil

Products Used: Adobe Photoshop Elements 3.0

Lesson

Overview:

In this project the students will create a Dot to Dot using an already existing image, or a dot to dot that was created in the dot to dot activity.

Objective:

Become proficient in naming x and y coordinates.

Understanding what layers are and how to use them effectively

Using trouble shooting skills to figure out how to plot lines that are not straight

Using creative thinking skills to figure out how to create a picture on a graph

Instructions

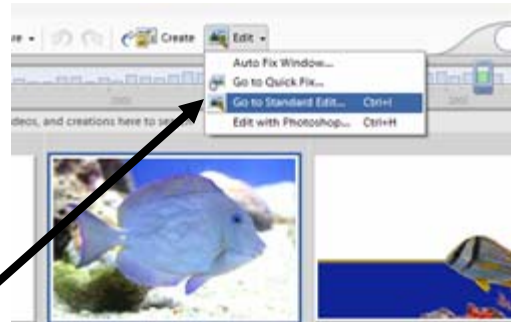
Create coordinates for a graph plotted image

Choosing an image

The first part of this project is the same as the Dot to Dot project, except you will not number the dots, you will figure out the coordinates of the dots.

Let's begin by opening Adobe Photoshop Elements 3.0 and browse for an image to use for your Dot to Dot. For our first one, let's not get too complicated. We want to be able to finish this project in just a few hours.

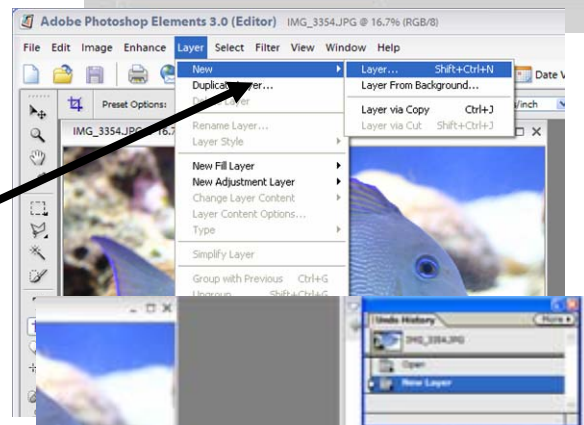
Once you find an image that had clearly defined subject edges, go to **Edit** (the one just above the browser window) then click on **Go To Standard Edit**.



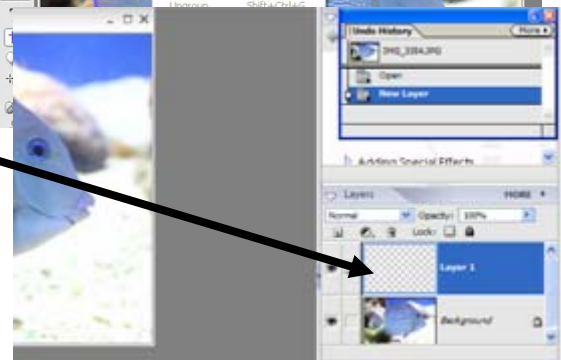
Creating a new layer

In order to create the dot to dot on white paper, we will need to create a white space to draw our dots on.

To do that, click on **Layer, New, Layer**. When it asked you about naming the layer you can just use the default name.



Although you will not be able to tell there is a new layer, you can see it in the layer window. It should be gray. If it is not, undo and try that step again.

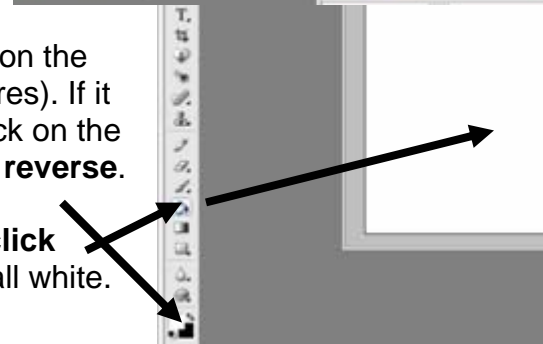


Filling the layer

Now we need to make it into a white paper. Double check to see if the foreground color box is white. If it is Black you will need to click on the **reverse** arrow (just to the top right of the squares). If it is another color completely you will need to click on the **reset** (in the lower left corner) and then on the **reverse**.

Now click on the **Fill Bucket** tool once. Then **click** anywhere inside of your image. It should turn all white.

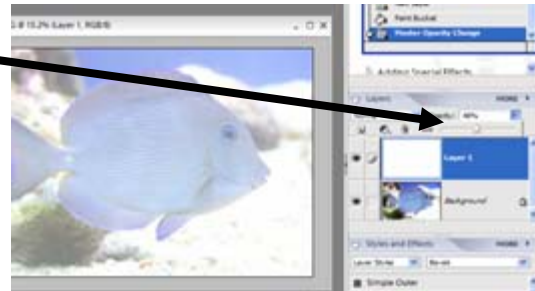
Oh, but wait, now we can't see the picture any more...



Changing the Opacity

In order to create the dot to dot we will need to find a happy medium between image and white.

To do this, click on the **Opacity** box above layer one in the layer window. Drag the bar to the left to see some of the image reappear. Be careful not to make it too much “image” and not enough “white” as we will need the white to draw our dots on.



Resizing the image

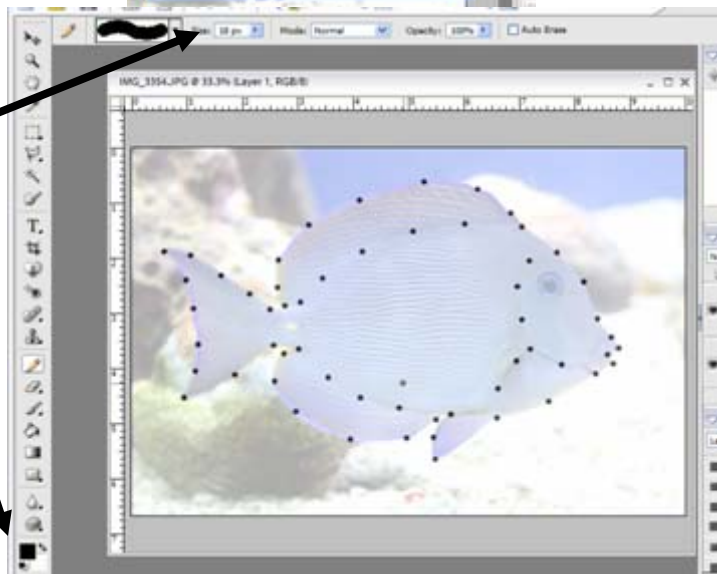
For this project to work, you will need to make your image no bigger than 10 x 8 inches. You can tell what size your image is by click on **Image, Resize, Image size**

In my example I have changed the image width to 10 inches. Click on **OK**



Drawing tool

Now we will need to get our drawing tool to make the dots on the image. You can adjust the size of the tool by dragging the size bar to the right or by click the drop down menu for the line size. Oh ya... You will need to reverse the color pallet back to Black over white, or your dots will not show up.



Drawing dots

You can begin to put the dots on your picture by clicking your mouse on the spots where you want the dots to be. Don't put too many or you will make more work for yourself later, but be sure to put dots where ever the image boarder bends or else you will have a very odd looking (pointy) picture.

Recording the Plots

Now you will need to set up your screen to start recording your coordinates.

You will need to add a Grid view to your image. Click on **View, Grid.**

Now you will need to bring the opacity of the white page back to 100%.

Writing a list of coordinates

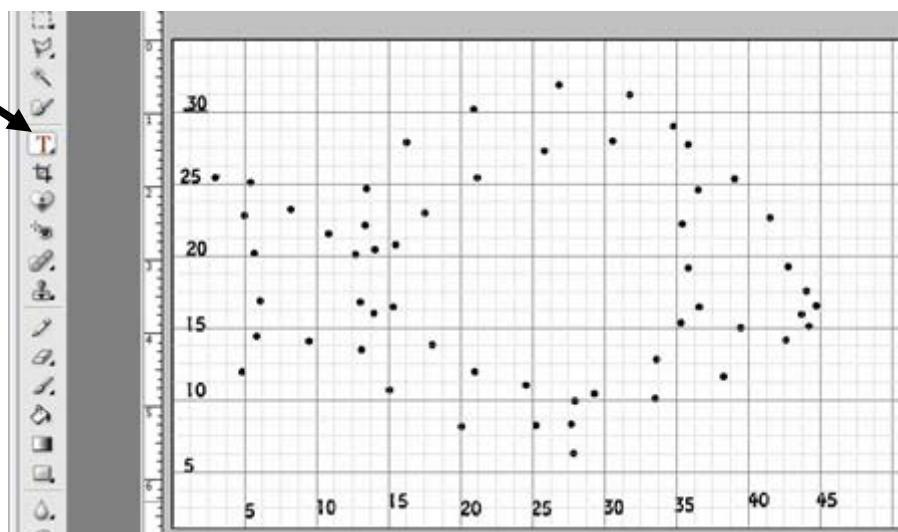
You will now need a piece of paper and a pencils (yes real paper and a real pencil)

As you will see, the dots might not be right on the graph intersecting lines, but they are closer to one than another.

It might be easier to see what number each line represents by adding actual number markers to your screen.

Adding Numbers

To add number click on the **text** tool then **double click** on the image where you want the first number to go, type the number. Repeat this step until you have enough markers to help you with the coordinates. If you can do this without the number, great do to.



Start writing a list of coordinates in an order that you would draw a line along (like a dot to dot). If you need to stop a line and start somewhere else, be sure to write the word **Break**.

My list would look like. 5,11 6,15 6,17 6,20 5,23 3,25 5,25 9,23 11,21 etc.

As you can see this part may take a while, but it is worth it.

Now give your list to a friend along with some graph paper and see what they come up with. (Be sure to save your work just incase you need to come back and fix anything)

Discussion Questions (things to consider):

Did the student select an image with simple lines or outlines that will be easy to plot?

Did the student use an appropriate number of dots to make the image look right?

Evaluation:

4.0 work: Student has chosen an image that is appropriate for the project. There are an appropriate number of dots. All coordinates are correctly listed and in an order that make sense to complete the image. Breaks are included if needed. Student is proud of their creation.

3.0 work: Student has chosen an image that might not be the easiest to create the dot to dot for. There are too many dots or not enough dots to make the image look right in the end. All coordinates are listed and in an order that make sense to complete the image with only two or three mistakes. Student is proud of their creation.

2.0 work: There are too many dots or not enough dots to make the image look right in the end. Coordinates are not correctly listed; it will be difficult to complete the picture. Student agrees that they could have done better.

1.0 work: Image is not complete. Coordinates are not listed. Student agrees that they could have done better.

Supporting Materials**Vocabulary: (as appropriate for this lesson)**

Opacity: To be able to see through a layer

Tools and Resources:

Computer, Adobe Photoshop Elements, Images to use, graph paper and pencil.