Set Up Your Plot Window, Print on 8.5" × 11" Paper (Mechanical and Architectural CAD)

Description
In this activity, students will learn how to print a drawing on 8.5" × 11" paper (letter size) in landscape orientation. Each printer/plotter has its own set paper sizes. You can adjust this activity to suit the printer/plotter that will be used in the school.

Lesson Objectives
The student will be able to:

• Print a drawing
• Understand how to print a drawing to scale

Assumptions
The student will have finished the activity Fill in Your Title Block, Including Scale, to have a completed drawing that can be printed.

Terminology
Application menu: the icon in the top left corner of the screen where functions can be chosen such as New, Open, Save, etc.

Drawing orientation: the orientation (portrait or landscape) of the paper when plotting (printing) a drawing.

Extents: the outer limits of all the objects that you have drawn that will fit on the display or paper.

Paper size: the size of the paper that a printer/plotter can handle. Every printer/plotter will have different paper sizes it can handle.

Plot area: the area selected to plot out on paper (Display, Limits, Extents, Window).

Plot display: only objects in the display will plot. If you have zoomed in to part of a drawing, only what is visible on the display will plot. The plot display is not to scale.

Plot extents: when you select this option, extents of a drawing are plotted and fit to the paper. Plot extents are not to scale.

Plot limits: when you select this option, the “limits of the drawing” will plot. If your limits are 100 × 100 (units) and your drawing is 8.5 × 11 (units), the drawing will be very small on the paper. Plot limits are not to scale.
Plot scale: the scale that a drawing will plot on paper. If you measure off the paper or want the drawing printed/plotted to full size, you must plot to a scale. The plot option “Fit to paper” is not to scale.

Plot window: when you select this function, you are given the option to select what you want plotted in a window. The plot window is not to scale.

Printer/plotter: the device used to plot your drawing. Every printer/plotter will have its own unique settings (paper size, margins, colour settings, etc.). A plotter is a large-format printer.

Estimated Time
15–30 minutes

Recommended Number of Students
20, based on BC Technology Educators’ Best Practice Guide

Facilities
Computer lab installed with CAD software (Google SketchUp, AutoCAD, CADopia, etc.)

Tools
Projector with computer and speakers, Internet access

Materials
Handout for students with instructions

Resources
Instructional video for teacher and students to follow:
  • 10.1 Plotting Your Drawing

Teacher-led Activity
Use a computer with a projector to demonstrate how to:
  • Open the Plot window from the Application menu.
  • Show students which printer/plotter to select on your school network.
  • Show the correct paper size to print on (letter: 8.5” × 11”).
  • Preview Plot Area options (Display, Extents, Limits, Window) to explain the differences among them.
  • Explain the Plot Scale options (Fit to paper, Scale).
  • Explain that to plot for direct measurements of a drawing or use a full-size template, the scale must be correct (1:1 = full size).
  • Preview each drawing before printing.
  • Print/plot a drawing.
Student Activity
Students will follow the Student Activity “Plot Window and Print on 8.5” × 11” (Letter) Paper” and/or the video tutorials to print/plot their own drawing.

Assessment
Students will show the teacher their completed assignment. The teacher can have the assignment printed out or look at it on the computer screen. If the student does not produce exactly what was shown, then an associated mark based on errors can be derived.
Student Activity:  
Plot Window & Print on 8.5" × 11" (Letter) Paper

This activity can be completed at any time you want to print/plot a drawing. Before you complete this activity, it is suggested that you have a border drawn around an object. The video to support this lesson is located in the Resources section.

Procedure

1. Open the drawing orthographic stairs-name.dwg that you completed for the activity Fill in Your Title Block, Including Scale. It should look like the one in Figure 1 below.

![Figure 1](image.png)

2. Go to the Application menu and select Plot (Figure 2). The menu will look slightly different depending on the software you are using. The Plot dialog box will open up and look something like the one in Figure 3. You may also have to expand it to include all the settings, depending on the software you are using. Select Landscape under “Drawing orientation” right away (Figure 4).
Design and Drafting – 2D Drawing

Set Up Your Plot Window, Print on 8.5” × 11” Paper
3. “Printer/plotter” identifies the device that you will print/plot to. Select the printer/plotter that your instructor wants you to use (Figure 5).

![Figure 5](Image)

4. Depending on what “Plot area” you select, you will get different results (Figure 6).

![Figure 6](Image)
5. Selecting the Preview button in the lower left of the Plot dialog box will display the following different results of “What to plot.” (Figures 7–10).

**Figure 7**—Plot area = Display

**Figure 8**—Plot area = Extents

**Figure 9**—Plot area = Limits

**Figure 10**—Plot area = Window
6. Using the “Plot scale” option, set the plot area to Extents. This will show the plot area on the screen when you preview it to get close to what you want. Notice that the “Fit to paper” box is checked and that the scale of 1 inch to every 4.251 units is greyed out (Figure 11).

![Figure 11](image)

7. When you originally scaled the border up in the previous activities, it was by a factor of four—so you’re close, but you are not yet to scale! Uncheck “Fit to paper” to allow you to change the scale. Now, adjust your scale to 1:4 (Figure 12). Remember, what you are really doing is saying that 1 unit of inches on paper is equivalent to 4 inches in real life.

![Figure 12](image)
8. Preview your drawing. You may receive an error message such as the one in Figure 13 IF you are plotting to a scale that is different from your annotation scale. Do not worry about this; just click Continue to preview your drawing. It should look like the one in Figure 14.

![Figure 13](image1.png)

![Figure 14](image2.png)