

EXERCISE 6-A: Map using Adobe Illustrator (CREATING PATTERNS)

GEO352/592M Fall 2023

10/17/2023

Adobe Illustrator is a graphic design software that can be used to create and edit vector graphics, such as maps. GIS mapping software, on the other hand, is a geospatial software that can be used to manage and analyze spatial data, such as geographic features and attributes.

Some of the reasons why Adobe Illustrator is useful for cartography are:

- It offers more graphic design tools and effects than GIS mapping software, such as clipping masks, drop shadows, gradients, brushes, symbols, and more. These tools can help enhance the visual appeal and readability of maps.
- It allows more flexibility and control over the graphic attributes of geographic elements, such as hue, brightness, saturation, transparency, line thickness, text, and more. These attributes can help convey information and meaning on maps.
- It can export maps in various formats that are compatible with web, print, or other media. These formats can help share and distribute maps to different audiences.

Adobe Illustrator is useful for cartography because it can complement GIS mapping software by providing more options and capabilities for map design and production. However, Adobe Illustrator is not a replacement for GIS mapping software, as it does not have the same data management and analysis functions that GIS mapping software does. Therefore, a combination of both software can be beneficial for creating high-quality maps.

1. Getting Started

- a. Open Illustrator and go to the File menu and choose New.
- b. Choose Letter for the size, inches for the Units, and Landscape for the Orientation, then click “OK”.
- c. Under the View menu, click on Show Grid, and put a check mark in front of Snap to Grid.

2. Creating a Pattern

- a. Illustrator will create a pattern of anything that you draw, but you must make sure that whatever you draw has two dimensions – length and width. A horizontal or vertical line, for instance has length but no width. You change the stroke or fill by clicking on the swatches icon (looks like a grid) and then clicking on the Fill box and then on the color you want to use. You can also use the Stroke and Fill icons near the bottom of the left-hand toolbar. NEVER USE A DIAGONAL LINE TO CREATE A PATTERN!
- b. Once you have your pattern created, you can simply drag it to the Swatches window for later use. If you made a box around the pattern (Step 5), you must have

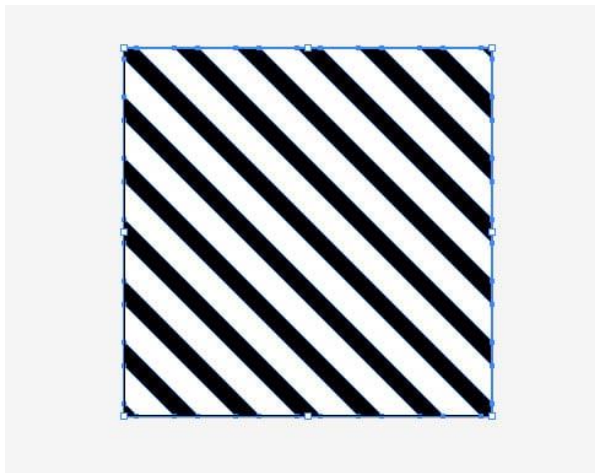
it selected as well as the pattern when you drag it to the Swatches window. Its important that this box does not have a visible outline!

3. Using a Pattern

- a. To use the pattern as a fill, draw the shape you want filled, change to the black pointer, select the fill box either in the lower part of the Tools toolbar or in the Color icon, open the Swatches window and then click on your pattern.
- b. You can adjust the size and rotation of your pattern by right clicking on the shape with the pattern, choosing Transform and then Scale or Rotate and make sure that only Patterns is checked – NOT Objects.

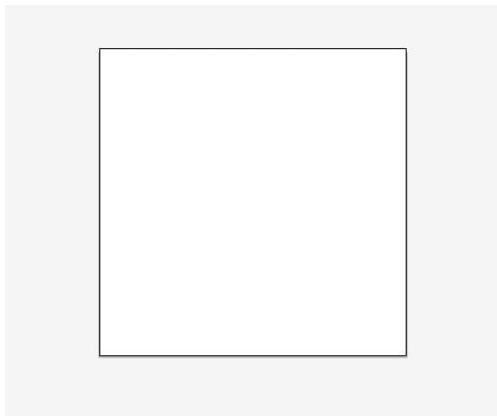
4. Diagonal Pattern Example

Many beginners struggle to create seamless diagonal or other such patterns that cannot be created manually. But once you know how to do it, this approach can be very useful in your design or illustration work.



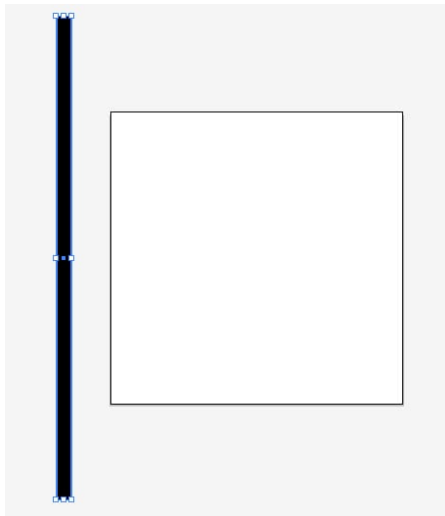
a. Start with a Square Artboard

It doesn't really matter what size but if you want to follow along, I'm using a 600px x 600px [artboard](#) with a white background.



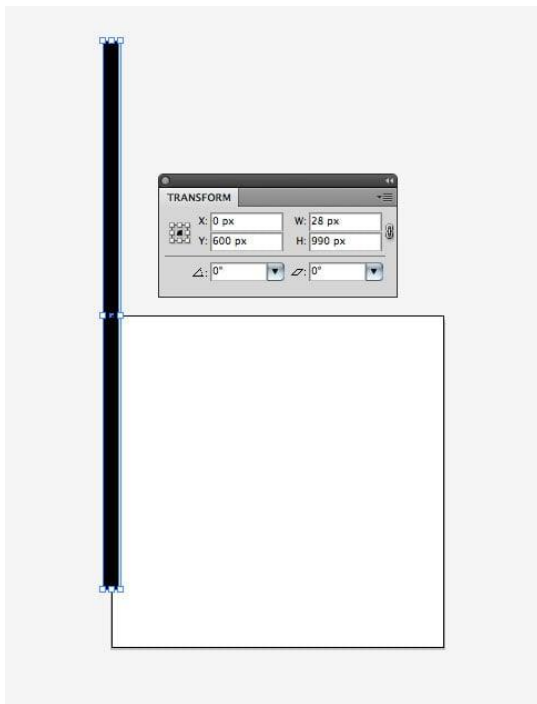
b. Create Your Vertical Line

Again, the size and shape are up to you here.



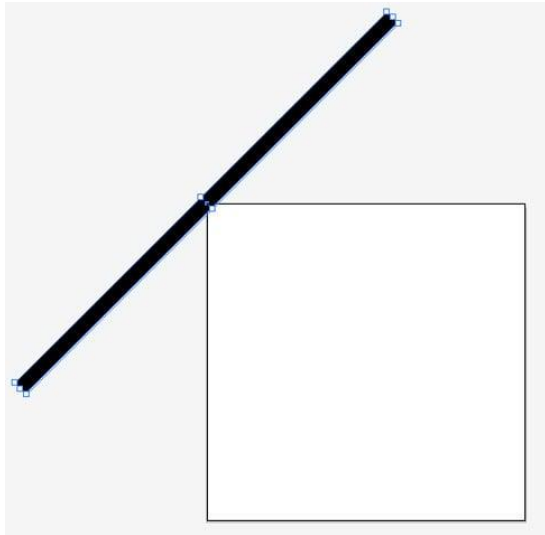
c. Align Your Shape to the Top Right Corner

Here we are going to be using the **Transform** palette to make our shape align exactly to the upper left corner. Select your shape and in the Transform, set the “X” value to 0, and the “Y” value to 600 (or the document size you chose). The middle of your shape should now be aligned exactly to the upper left corner.



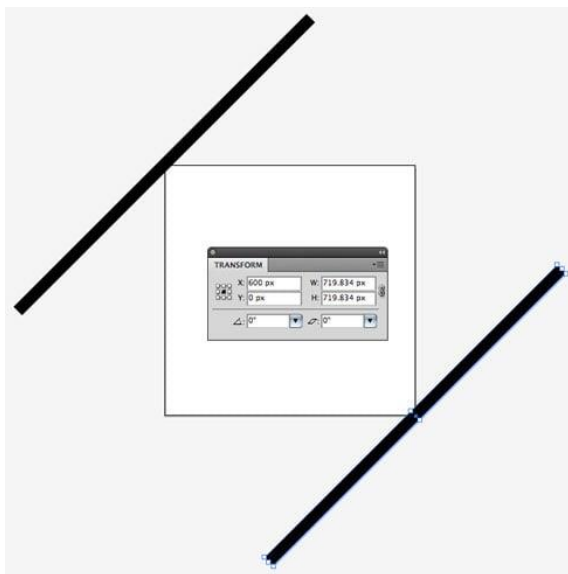
d. Rotate 45 Degrees

Next, rotate your shape 45 degrees either using your mouse and holding Shift, or right-click, and enter the value manually. Now you've got your first diagonal line or stripe.



e. Duplicate Your Shape and Align it to the Opposite Corner

Now we need to duplicate our shape, and align it the same way we did above, but to the opposite corner. Again, select your new shape, and using the Transform palette, set your X value to 600 (or the document size you chose) and the Y value to 0. Now your two shapes should be aligned perfectly to opposite corners of the artboard.

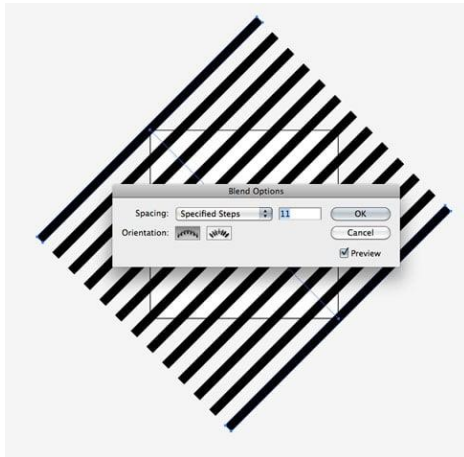


f. Make a Blend Between the 2 Shapes

Using the [Blend Tool](#) click on 1 of your shapes, then immediately click on the other to make a blend.

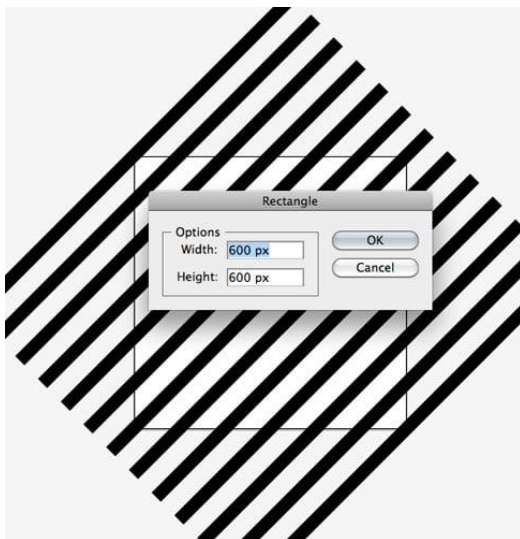
Then double-click on the Blend Tool, and you should see the ‘Blend Options’ dialogue box. Set it to “Specified Steps” and then select a number that you think looks good. I recommend making this an odd number.

Blend it according to the size of the box that you want to sketch. Be specific about all the dimensions so that you get more accurate and precise results in the end. You should have something that resembles the image below.



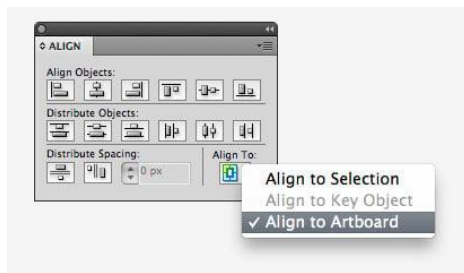
g. Create a Square to Crop With

Select the Rectangle Tool and click once on the artboard. You can now enter the exact dimensions you want your square to be. Set it to 600 x 600px (or the document size you chose), and click “OK.”

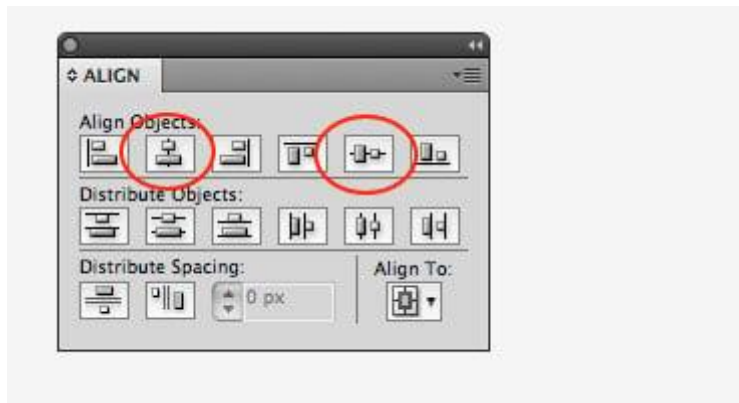


9. Align Your Square to the Artboard

Select your square, and in the **Align** palette, make sure you have “Align to Artboard” selected.

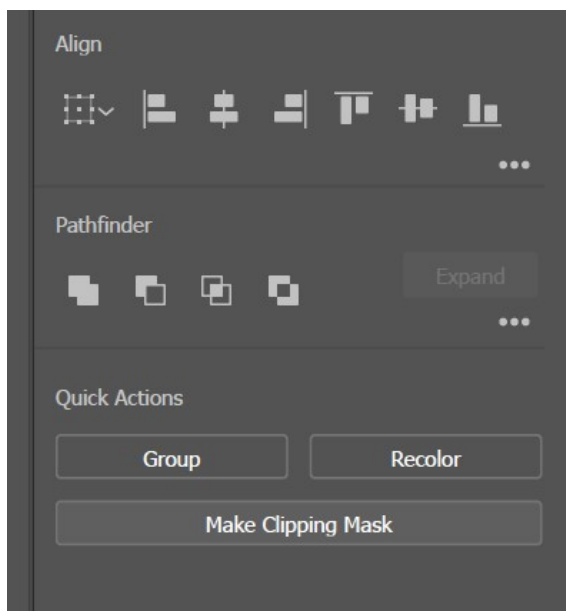


Now hit these two buttons to align your square exactly on top of the artboard.



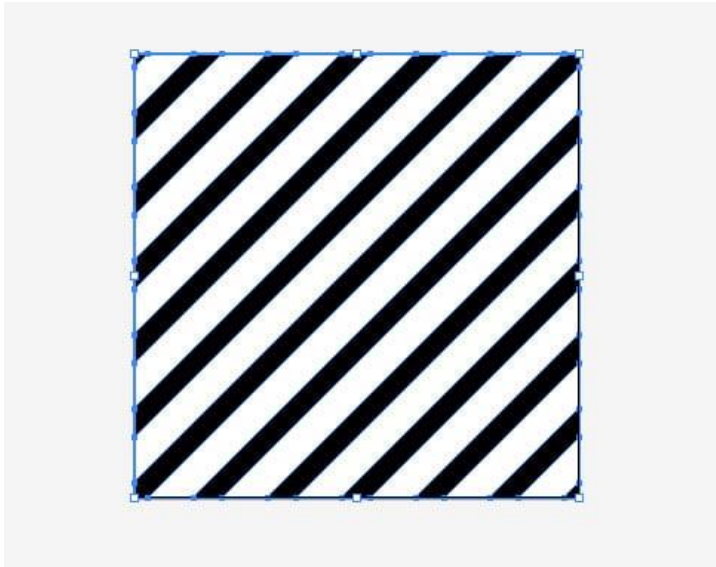
10. Crop.

Do a Select All (Command/Control + A), and then hit the **Make Clipping Mask** button in the **Pathfinder** palette.

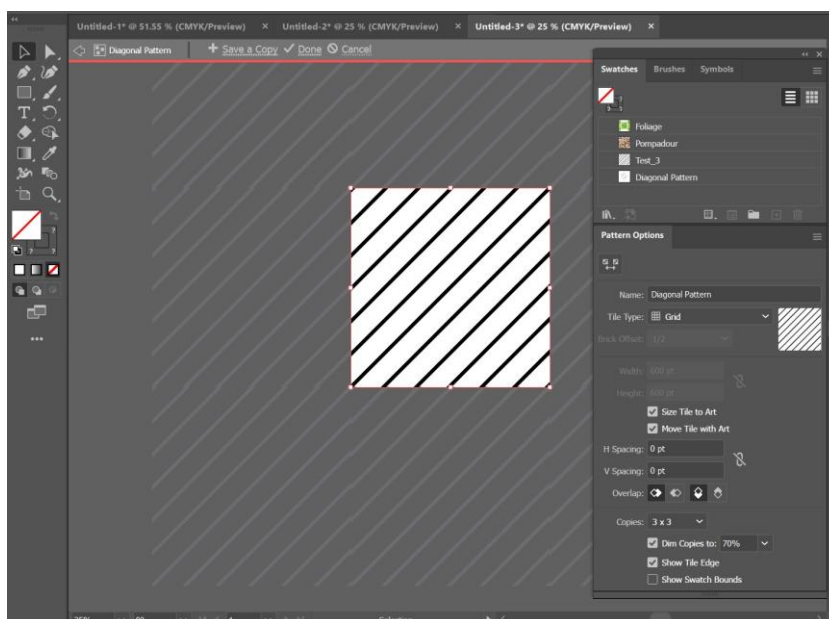


Done!

Now you have a nice, seamless Illustrator diagonal line pattern that can be put to use.



If you want to add this seamless pattern as a **Pattern Swatch**, just select it, and then go to **Object > Pattern > Make**, and it will appear a box like below. You can now name your pattern as “Diagonal”, and then **check** the “**Scale Tile to Art**” check box. If you are ready to save, just click **Done** button located near at the top of your canvas.



Now you will see your diagonal pattern in the **Pattern Swatch**.

5. Create Your Patterns

Other patterns are really easy to create compared to diagonal patterns. Just follow the step 2 and 3 to make following patterns.

- a. Finally, create a pattern that looks like gravel, a brick pattern, and one with horizontal wavy lines – like a sine wave. For the gravel pattern, use randomly spaced black circles and ellipses (with no fill) of different sizes (and different rotations for the ellipses) inside a square. Remember that the pattern will repeat itself over and over, so be careful how you position things near the edges.

6. Compass Rose North Arrows and Scale Bar

To add a north arrow in Illustrator, you can follow these steps:

- a. Open the Adobe Illustrator Symbols panel.
- b. Click its panel options menu and go to **Open Symbol Library > MAP Symbols > Other symbols > North arrows.**
- c. Click and drag a north arrow symbol to the artboard.

Alternatively, you can create an North arrow in Illustrator by drawing a line with the Pen Tool. You can also follow the same procedure for Scale Bar too.

Here is good illustration videos of for creating customized north arrow.

<https://youtu.be/YlWi6LkOc40>

6. Deliverables:

- a. PDF of your patterns from Illustrator
- b. Your patterns should be displayed in rectangles (2" by 2") with an outline. Patterns should include:
 - i. Diagonal Line Pattern
 - ii. Gravel Pattern
 - iii. Brick Pattern
 - iv. Wavy Line Pattern (your best attempt, ungraded)
 - v. Scale bar and North arrow.
 - vi. Make sure that you include a neat line, title (Exercise 6), as well as your name in the bottom right.