

# Surface Design 101

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How to create Surface Designs Using Symbols in Adobe Illustrator

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# Table of Contents

How to create Surface Designs Using Symbols in Adobe Illustrator .....	1
<b>Copyright Information.....</b>	<b>3</b>
<b>Disclaimer .....</b>	<b>4</b>
<b>Audience, Overview and Outline .....</b>	<b>5</b>
Audience .....	5
Overview.....	5
Outline .....	5
<b>Section #1 - History of Surface Design .....</b>	<b>6</b>
Overview of Surface Design .....	6
<i>Introduction to Surface Design</i> .....	6
<i>Pattern Basics</i> .....	6
<b>Section #2 - Adobe Illustrator.....</b>	<b>7</b>
The Right Tools for the Task .....	7
<i>Overview of Tools</i> .....	7
<i>Creating Shapes</i> .....	7
<i>Symbols</i> .....	8
<i>Creating Symbols</i> .....	9
<b>Section #3 - Step by Step Creating Patterns .....</b>	<b>10</b>
Creating a Pattern .....	10
<i>Step by Step</i> .....	10
<i>Pattern Tool</i> .....	10
<b>Section #4 - Applying Pattern to Surfaces .....</b>	<b>13</b>
Surfaces .....	13
<i>Printing Fabric</i> .....	13
<b>Conclusion .....</b>	<b>15</b>
<b>Informational References .....</b>	<b>16</b>
Sites for additional learning .....	16
Resources for printing .....	16
Image References .....	16
<b>Style Sheet – Surface Design 101 .....</b>	<b>17</b>

## Copyright Information

This document was completed as the final requirement for Technical Writing Certificate Program at Bellevue College, [Fall, 2015]. All images used herein are the ©2015 Susan Straub-Martin, illustrator.

## Disclaimer

This document assumes you have a basic understanding of Adobe Illustrator and how the tools work.

# Audience, Overview and Outline

## Audience

- Graphics design students
- Crafters and hobbyists

## Overview

Surface design is an industry that has had marketed growth within the past 5 years. While there are many ways to create patterns, the use of symbols in Adobe Illustrator is one of the easiest for most design students and creative enthusiasts. Symbols are one of powerful tools within Illustrator and one of the most overlooked.

Surface Design 101: How to create patterns for surface design using symbols in Adobe Illustrator, is design to help in the process steps of using symbols to create patterns. By the end of this how to, you will understand the uses for symbols and how they make surface design easier. You will also know how to create symbols, how to create a basic repeat pattern, and final how to prepare the design for print onto fabric.

## Outline

Topic	Description
<b>Section #1 - History Of Surface Design</b>	
Overview or Surface Design	<ul style="list-style-type: none"><li>• Overview/History</li><li>• Introduction to surface design</li><li>• Pattern basics - repeats</li></ul>
<b>Section #2 - Adobe Illustrator</b>	
The Right Tools for the Task	<ul style="list-style-type: none"><li>• Overview of tools</li><li>• Creating shapes</li><li>• Creating symbols</li></ul>
<b>Section #3 - Step by Step Creating A Patterns</b>	
Creating Pattern	<ul style="list-style-type: none"><li>• Step by step</li><li>• Pattern tool</li></ul>
<b>Section #4 - Applying Pattern to Surfaces</b>	
Surfaces	<ul style="list-style-type: none"><li>• Printing Fabric</li></ul>
<b>Section #5- Conclusion Surfaces</b>	

# Section #1 - History of Surface Design

## Overview of Surface Design

Surface design dates back to ancient times and ancient peoples. We have been adorning pottery, paper, fabrics, metal and glass with patterns for years. Most any surface can be adorned with patterns or imagery.

Today's world sees no signs of this trend is slowing down. With the advent of print-on-demand services we can print on almost anything including, fabrics, wallpapers, totes, shoes, ornaments etc. Surface design starts with patterns or images.

The elements of a pattern repeat in a predictable manner. Patterns can be organic in nature or geometric, and be created using a variety of different mediums, for the purpose of this manual we will be using a vector based program on the computer.

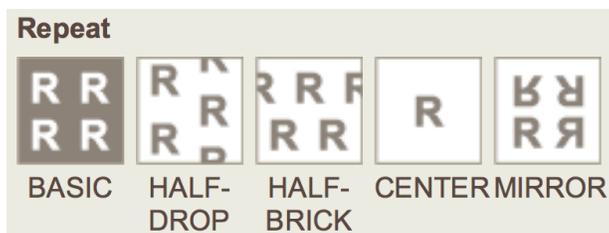
## Introduction to Surface Design

The surface design industry has exploded in the United States in the past ten years. With tradeshows like [Surtex](#) and its 5,500 buyers/manufacturers from 49 countries with 1000+ artists, the industry shows no signs of slowing down. Surtex is one of many licensing shows around the country that license designs from artists for products like wall coverings, patterns, decorative accessories, bed linens, stationery, giftware, apparel and so much more.

The rise of digital printing (print-on-demand services) has also given the industry a boost. Companies like Zazzle, Society 6, Café Press, Spoonflower, and Fabric on Demand have given the hobbyist and professional alike the opportunity to create whatever they can imagine.

## Pattern Basics

There are differing types of repeats in the industry. In this first figure you can see some of the most common repeats. For the purposes of this document we will be working with a basic repeat.



**Tip:** When creating your pattern, it is important to think about how you will design your repeat. Setting your repeat at the time of design will prevent images from issues when repeated multiple times.

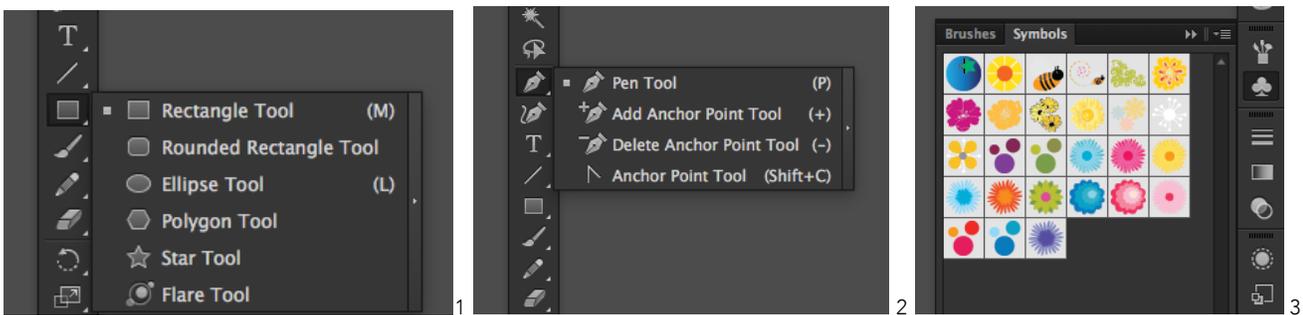
## Section #2 - Adobe Illustrator

### The Right Tools for the Task

When using a computer to create your pattern, it is important to have a vector based program like Adobe Illustrator. A vector based program allows you to easily manipulate imagery; Scaling, Beziers, etc. A vector based program has many points while a raster based program like Adobe Photoshop, has only four points and does not scale as easily. We will learn when a raster based image is needed in section four.

### Overview of Tools

Illustrator and programs like it have a set of tools that allow you to create all types of imagery. The shapes tool palette in Adobe Illustrator lets you create graphic shapes. These shapes can combine to create all types of things. The pen tools will add movement to your illustrations in a more organic way. The symbols palette is where we will be focusing the attention of this document.



**Note:** This document assumes you have a basic understanding of Adobe Illustrator and how the tools work. You must also have an understanding of layers. Should you need further tutorials on the basics of the program Lynda.com or <http://tv.adobe.com>

### Creating Shapes

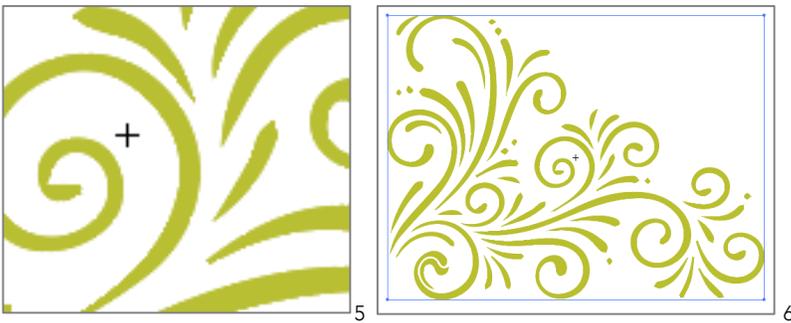
There are a number of different ways in which you can design your pattern. You can hand draw your images, scan them, bring them into Illustrator and then use the pen tool or trace tools to translate the shapes into a digital format. To create a shape directly **Click** on the corner of the shapes tool palette, Choose the desired tool, then create its size by drawing it on your art board. Start your first project using simple shapes.

**Tip:** Geometrics work great for first projects. The images below show shapes using the shapes tools, and the pen tool. The pink flower was a hand drawn image that was scanned in and the image trace tool was used.



## Symbols

A symbol is an art object that you can reuse in a document. For example, if you create a symbol of a flower, you can then add instances of that symbol multiple times to your artwork without actually adding the complex art multiple times. Each symbol instance is linked to the symbol in the symbols library. Using symbols can save you time and greatly reduce file size. In pattern making we use symbols because we can create multiple instances and because they come with a great built in features; alignments and edge guides. Notice the cross mark in the center of the symbol and the blue outlined edges. These guides will help in the creation of your pattern repeats.



Making symbols are multiple pieces that create a small picture that can be updated, colorized, resized, and rotated to create a desired pattern. You can change the properties of a symbol by simply **Double-clicking** on the symbol and making the needed changes. Once you have updated to your desired look you can then **Double-click** the background and your new symbol will appear. Let's create some symbols.

**Tip:** You can also break apart a symbol to make a new color way or make additions to it. Then create a version of the symbol. It is a good idea to create your library of symbols before you start your patterning project.

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<sup>4</sup> Types of images

<sup>5</sup> Symbol Center cross mark

<sup>6</sup> Symbol blue line bounding box

## Creating Symbols

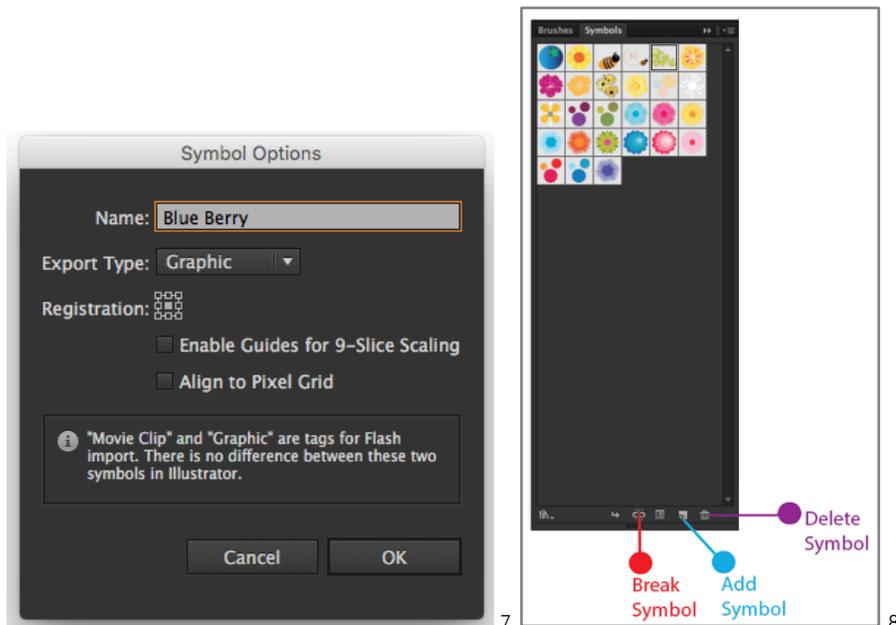
To create a symbol from an image you have on your art board:

1. **Select** the image you wish to make a symbol,
2. **Click and drag** the image over to the symbols library palette, a dialog box will appear.
3. **Name** the image
4. **Select** graphic for Export Type
5. **Click** OK.

Alternatively, you can:

1. **Select** the image you want to make a symbol
2. **Click** the add to symbols to your library button, a dialog box will appear.
3. **Name** the image
4. **Select** graphic for Export Type
5. Click OK.

Once you have created your symbols you can delete them from your art board.



<sup>7</sup> Symbol Options

<sup>8</sup> Symbols Palette

## Section #3 - Step by Step Creating Patterns

### Creating a Pattern

Now that we have a library full of symbols we can start to create our pattern. We will be using a bounding box as our guide. This box will give us control over our image and a way to align these images so the repeat works as we expect it to. William Morris was the king of pattern design, his designs for wall paper were done at the turn of the 20<sup>th</sup> century are still held in high regard today. People like Lilly Pulitzer and Vera Bradley use the same techniques that Morris used, and these are the same techniques and principals we are going to use in this document.

### Step by Step

Start by going to view on your navigation menu. **Click on** Smart Guides, and Snap to Point. These two items will insure your alignments are correct.

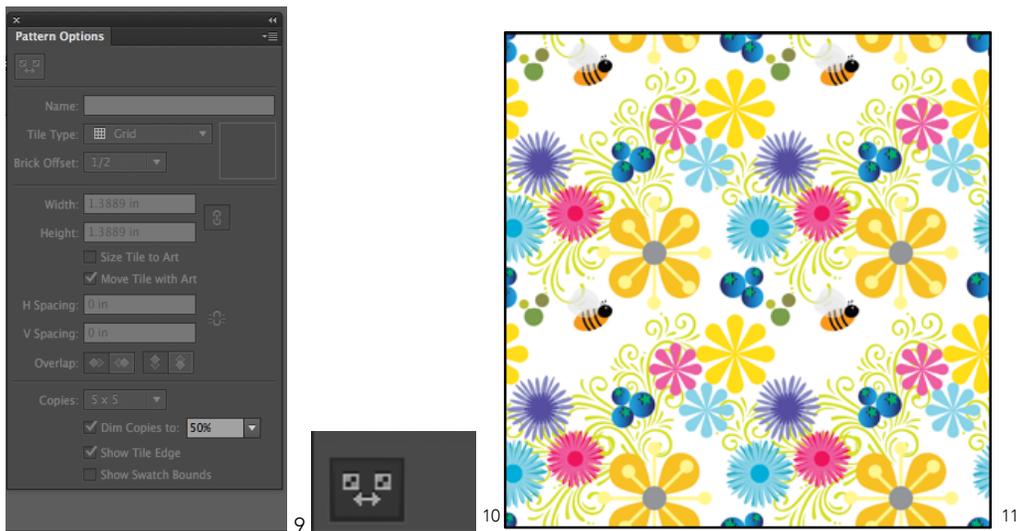
1. **Draw** a box shape that is 4"x4". This will determine the size of the repeat. (If a larger repeat is needed make the box larger, if smaller make smaller.)
2. **Place** this on the bottom layer in your layer's palette.
3. **Create** a new layer.
4. **Drag** an image onto the art board.
5. **Align** the image on the edge of the box shape using the center crosshairs. When the center is on the edge of the bounding box the word," intersect" will appear.
6. **Release** mouse on that intersection and repeat accordingly. What goes off the left side must come back in on the right, and top to bottom, and corner to corner. (See Tip below.)
7. **Click** on image holding the shift key and the option key, **Drag** the copied image other edge of the box and **Align** the center crosshairs like you did in the previous step.
8. **Repeat** steps 4, 5 and 6 creating the pattern you desire.

**Tip:** You can add images to the center of the square and they will repeat. Remember anything that is over the edge of the bounding box needs to have a corresponding image across from it on the opposite side. If you don't follow this rule you will have a broken pattern.

You have now created a pattern tile. From here you will use the swatches palette and the pattern tool to create a repeated pattern. You will be able to see what you have created and will be able to make adjustments to your preferences.

### Pattern Tool

The Pattern Tool is one of the best features in Illustrator, however it does have some limitations. Adobe introduced the pattern tool in version 6 of the Creative Suite, but the really magic of the tool has come to life in the Creative Cloud (CC2015) version. Features have been added and this has made it much easier to work with. If you are running an earlier version, most of what is in this next section will work, however it may be in a different area.



Now we will walk through the steps on how to use your pattern tile to create a tiled pattern fill. There are two ways to create a pattern using your tile:

1. **Select** your tile then **Drag and Drop** it onto the swatches palette. You can then use it as is to fill any shaped image. If you double click on the swatch you have created, you can edit in the pattern options palette as seen above.
2. **Select menu** on the main menu bar then pull down and **Select Pattern**. This will bring up the pattern options palette as seen above.

In figure 10 you see a close up of the Pattern edge adjust tool. This tool when selected allows you to make changes to the edges of your design. It is a useful feature when trying to adjust your pattern for a tighter or looser feel. By adjusting the anchor points of the design you can get differing effects. You can also use it as you make changes to your pattern style. In figure 13 we see a hex pattern instead of our brick repeat from the above repeat pattern tile.



<sup>9</sup> Pattern tool options

<sup>10</sup> Pattern edge adjust tool

<sup>11</sup> Tiled Image

<sup>12</sup> Pattern edge adjustment example 2

<sup>13</sup> Pattern edge adjustment example 3



14

In example 14 we can see the differences between the pattern types. The second image shows how we adjusted the pattern type. The top pattern is from the original pattern tile we created. The bottom is the result of the new adjusted shape. Notice how the bees in the top image are further apart in the repeat. On the bottom image they are closer and flying in pairs. You can take the same images and create multiple patterns. Experiment! You determine what works for your repeat and your design.

**Tip:** When getting started with pattern design it is a good best practice to observe how your favorite designers are doing theirs. Go look at Vera Bradley's designs, Isaac Mizrahi, Lilly Pulitzer or Heather Dutton's work. Go to Target and look at sheets. The more you learn to spot repeats the better you get at designing them.

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<sup>14</sup> Pattern edge adjustment top is original pattern tile; bottom is the adjusted pattern tile.

## Section #4 - Applying Pattern to Surfaces

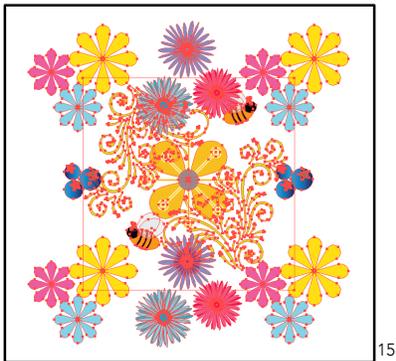
### Surfaces

Now that you have created some really fun patterns what can you do with them? You can create fabric, wallpaper, and giftwrap, gifts, napkins, and papers for scrapbooking. You can use them to create other pieces of art or you can use companies like Zazzle.com, CafePress.com to create just about anything. If you can print it, you can use your patterns on it. In this section we will teach you how to save your pattern tile to share and print on fabric.

### Printing Fabric

Fabric, unlike other surfaces is printed at a different resolution. Most imagery on paper and other surfaces is printed at 300 dpi (dots per inch). Fabric is printed at 150dpi. If you send your file at 300 it will be twice as big. Let's prepare our tile for printing on fabric.

1. **Create** an art board the size of your pattern tile.
2. **Select** your pattern from your swatches palette.
3. **Drag and drop** onto your art board. (This is the opposite action you did to create the pattern before).
4. **Select all**.

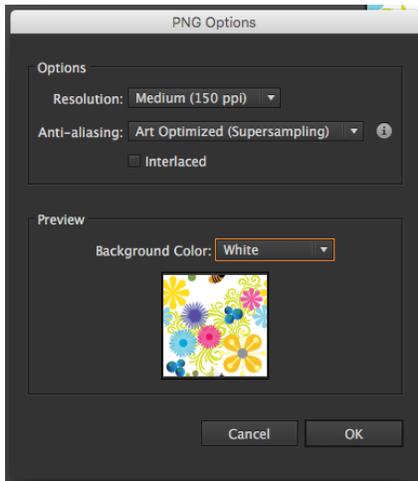


You can see that you have all of the elements even the images that fall beyond the original bounding box. We want only the images inside the box.

5. **Create** 2-4 guides that align with the edge of the original bounding box. (With rulers on)
6. **Create** a new box from shapes menu and **Place** it on top of the artwork aligning the box to the original bounding box.
7. **Select all**.
8. **Click Command, Shift, 7** to create clipping.



9. **Export** from the file menu. (Making sure to check use art board button at the bottom).
10. **Match** the information on the figure below.



11. **Upload** to [Spoonflower.com](https://www.spoonflower.com), [FabriconDemand.com](https://www.fabricondemand.com) or other fabric printing websites.

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<sup>16</sup> Masked Items w/o additional repeat information

<sup>17</sup> PNG Output options panel

## Conclusion

Creating patterns using symbols in Adobe Illustrator is simple, easy and fun. You have learned in this document the steps for creating symbols, creating patterns, editing patterns and finally creating an image that can be replicated and shared. Keep testing, designing and improving. What follows is a list of references to take your knowledge to the next level and resources for printing all of what you are designing.



# Informational References

## Sites for additional learning

[Lynda.com](http://Lynda.com)

(Site requires a membership)

Drawing Vector Graphics: Patterns with Von Glitschka

[tv.adobe.com](http://tv.adobe.com)

Adobe Illustrator

## Resources for printing

[SpoonFlower.com](http://SpoonFlower.com)

[FabriconDemand.com](http://FabriconDemand.com)

[Zazzle.com](http://Zazzle.com)

[CafePress.Com](http://CafePress.Com)

[Society6.com](http://Society6.com)

## Image References

1. Shapes tools
2. Pen tools
3. Symbols palette
4. Types of images
5. Symbol Center cross mark
6. Symbol blue line bounding box
7. Symbol Options
8. Symbols Palette
9. Pattern tool options
10. Pattern edge adjust tool
11. Tiled Image
12. Pattern edge adjustment example 2
13. Pattern edge adjustment example 3
14. Pattern edge adjustment top is original pattern tile; bottom is the adjusted pattern tile.
15. Select All Items in pattern
16. Masked Items w/o additional repeat information
17. PNG Output options panel

# Style Sheet – Surface Design 101

- Style Guide: Chicago Manual of Style
- Dictionaries:
  - Merriam-Webster 13<sup>th</sup> edition
  - Dictionary.com
- Grammarly.com

A Adobe Illustrator Terms: <ul style="list-style-type: none"> <li>• Artboard</li> <li>• Symbols</li> <li>• Pattern tool</li> </ul>	B	C	D	E
F	G	H	I	J
K	L	M	N Notes noted in Orange	O
P Page numbering is at bottom right	Q	R	S Screenshots referenced in footnotes and Image References on pg. 14	T Tips noted in Green
U	V	W	X	Y
Z	Numbers are numerical			

**Notes:**

1. No spaces before and after dashes and ellipses.
2. Periods inside quotation marks.
3. American spelling.
4. Serial commas (A, B, and C).
5. Acronyms don't have periods between letters.