



REPEAT AFTER ME

Creating Pattern Repeats in Illustrator & Photoshop

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What is a repeat? In pattern terms, a repeat is a piece of art or design that duplicates endlessly. As simple as this may sound, it takes a certain amount of knowledge and skill to create a successful repeatable design. You can greatly enhance your work by understanding the techniques and structure behind this process.

Before the use of computers, pattern creation was a painstaking process of drawing, copying and re-drawing. With the arrival of Adobe Photoshop and Illustrator, print creation has become much more streamlined. Small designers, large companies and printing factories all use this software, and thankfully can all agree that it is the most convenient for design and output to printers. For a surface designer, understanding this software is essential.

There are many different types of repeats but we believe that if you understand the principle behind just a few, you'll be able to master the others. In these tutorials, we'll be taking you through the following types of prints: tosses, drop-steps, symmetricals, and stripes, as well as walking you through the process of color separation. We'll explain each kind of repeat and show you how to create it using several different tools and tricks.

These tutorials will demonstrate the basic steps in creating a repeat, and require that you have a certain level of understanding of Illustrator and Photoshop. Before you begin, you should be proficient in using the duplication, align, and move tools, as well as working in layers. Of course there are multiple ways to achieve the same thing in these programs, so use these guides as loosely as you want.

List of Basic Terms

Object/Design Element *A piece of art or design which is arranged to form a repeat.*

Swatch *Another name for a repeatable piece of artwork. Illustrator also has a tool called Swatches.*

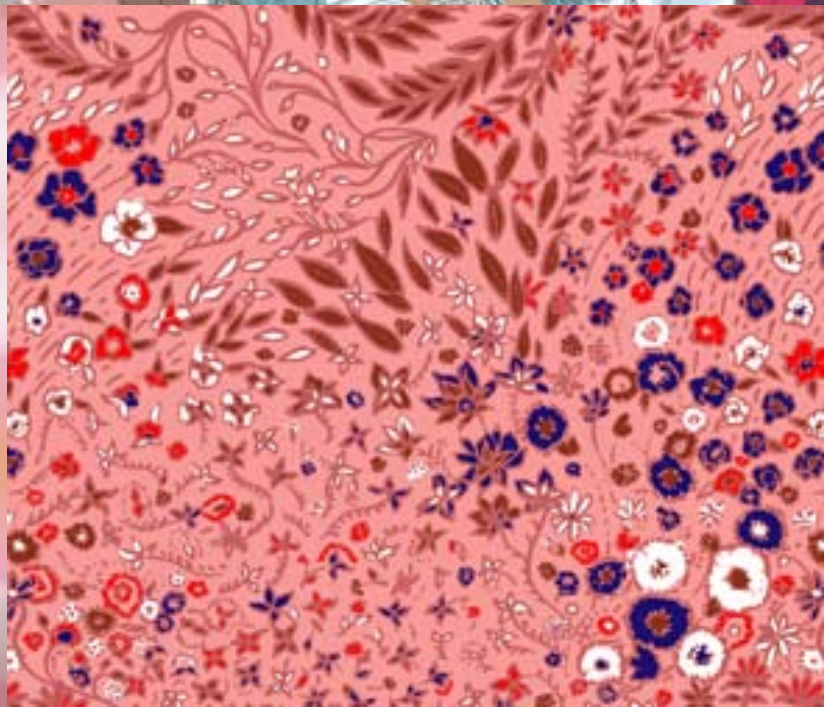
Working Repeat *A swatch that repeats but is not a perfect square/rectangle. It is called a working repeat because elements can still be easily edited and altered.*

Factory Repeat *A swatch that repeats and is built in a perfect square/rectangle. It is called a factory repeat because it is in the final form that a factory might need to begin the printing process.*

Toss Repeat *A seamless random-seeming repeat type.*

Grid Repeat *A structured-looking repeat based on a grid.*

Symmetrical Repeat *A repeat whose artwork is mirrored creating symmetry.*



SECTION 1

PHOTOSHOP TECHNIQUES

previous page
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In this section, we will demonstrate techniques to create seamless repeats in Photoshop. You should be comfortable in this program before beginning these tutorials. Feel free to modify steps with keyboard shortcuts or use other methods that are more familiar to you. We will first start with demonstrating how to design a toss repeat because this is one of the most challenging types of patterns to create without a seam. If you can design a good toss, creating a stripe or a symmetrical repeat is quite easy.

TUTORIAL 1: TOSS REPEAT

When you want to create a photographic or highly textured print, Photoshop is the program of choice. Although it lacks many of the helpful tricks which are found in Illustrator, it makes up for its ability to retain a hand-painted look. Here we show you how to create a seamless repeat in Photoshop.

Step One

Import or create your artwork in Photoshop.

Step Two

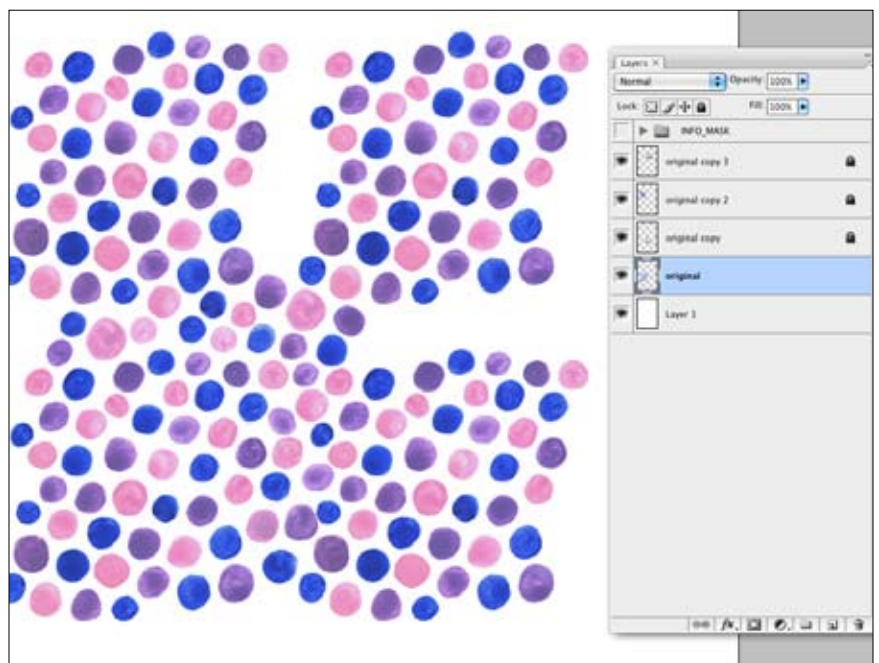
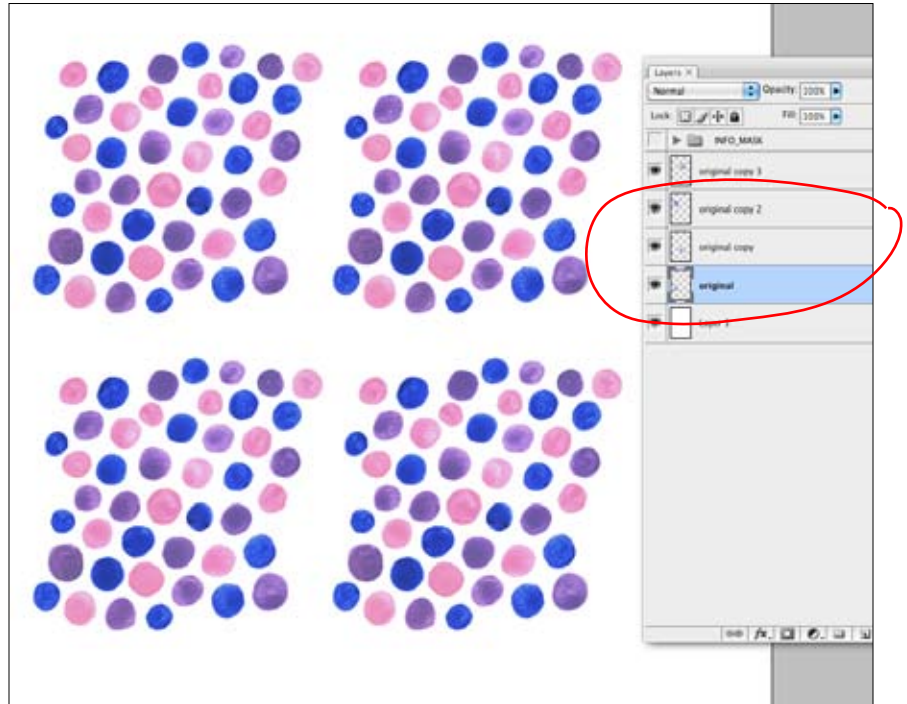
Duplicate your artwork to the right (hold down the shift key as you move the repeatable unit to make sure it is lined up exactly.) Now duplicate these two repeatable units and move to the top. Make sure to leave enough room between swatches so that you can fill in the space.

Step Three

Choose one of the swatches as the one you'll be developing and lock the others to avoid confusion. The locked layers are just placeholders. Remember, you're always working on just the one swatch while the others remain as placeholders.

Step Four

Fill in the blank areas of the swatch until it connects with the placeholders, using whatever method your prefer (copy and pasting or duplicating areas.)



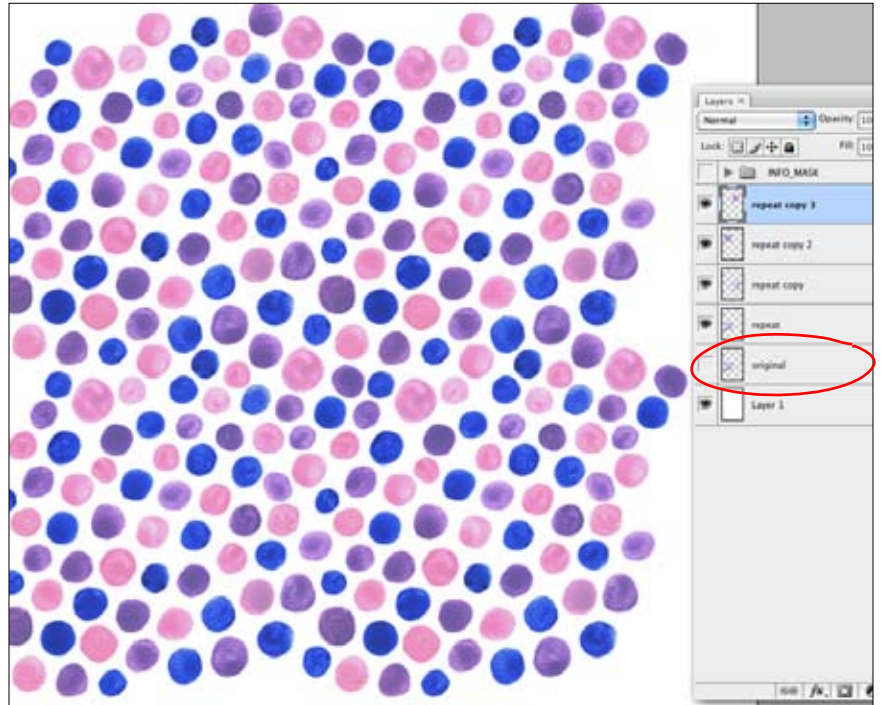
Step Five

Unlock and delete the placeholder layers.

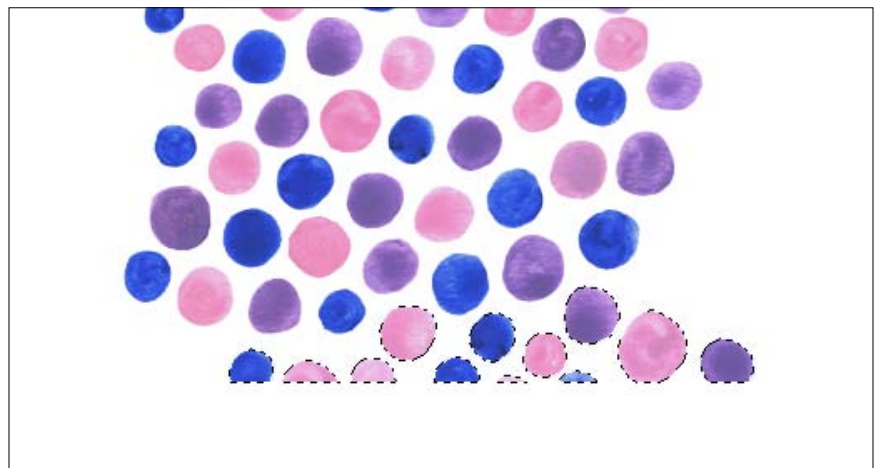
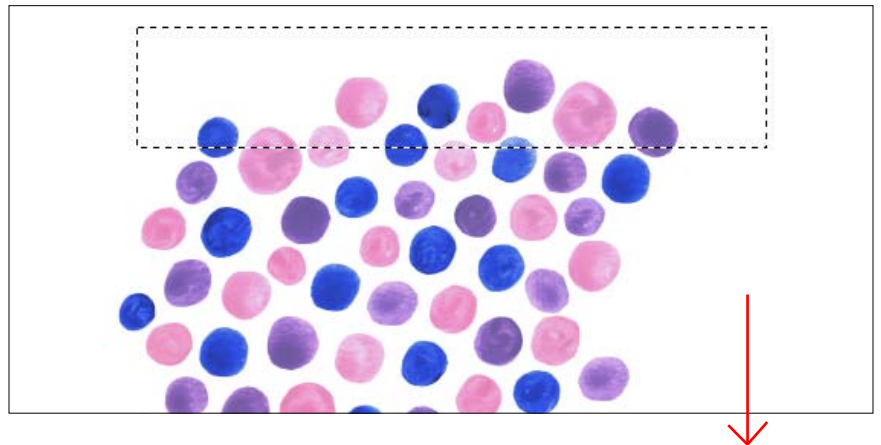
Step Six

Duplicate your swatch to make sure it repeats correctly. If the swatch repeats the way you like, then you've made your repeat work! Often, you'll have to go back and forth multiple times until it looks right.

Now all you have to do is fill in your document and you're ready to go!

**TUTORIAL 2: FROM WORKING REPEAT TO FACTORY REPEAT****Step One**

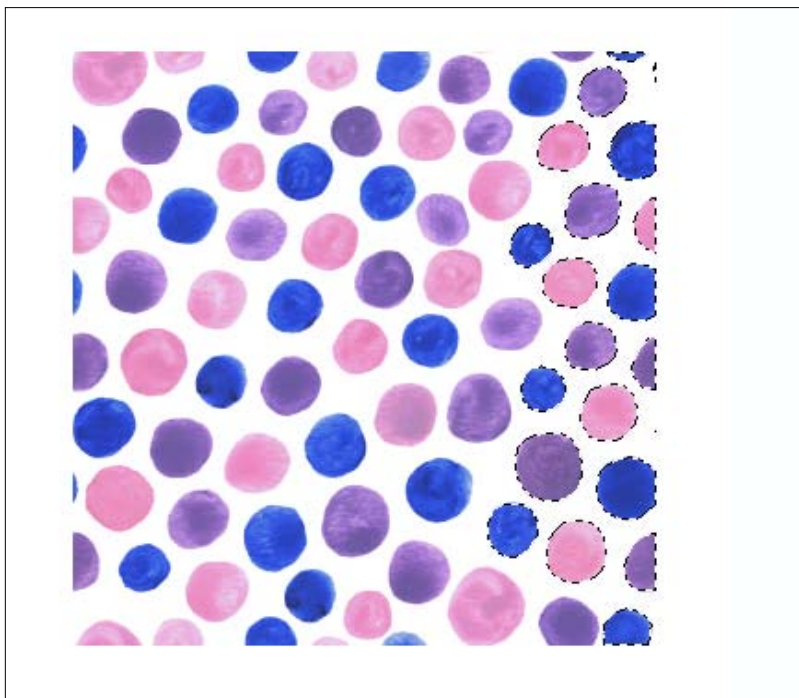
To create a factory repeat, select the top part of your swatch. Make a copy of that portion of the design by holding down the **option key and shift key while dragging it down to the bottom of the swatch**. The shift key keeps the elements aligned as you move.



Step Two

Repeat the step above but select the left side and move it to the right. You now have your factory repeat.

Tip: You may want to leave a copy of the original working repeat as a layer with the visibility turned off. That way you can always go back to it if you want to make changes later on. Once your artwork is in factory repeat form, it is more difficult to edit.



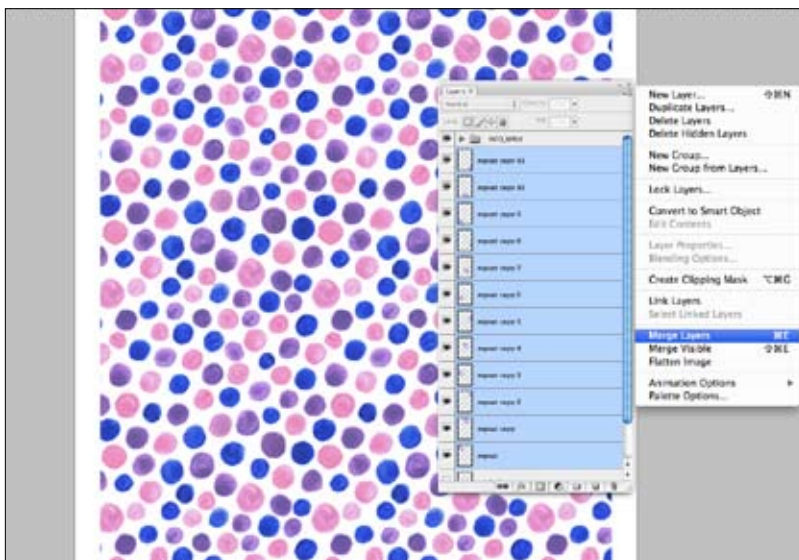
Step Three

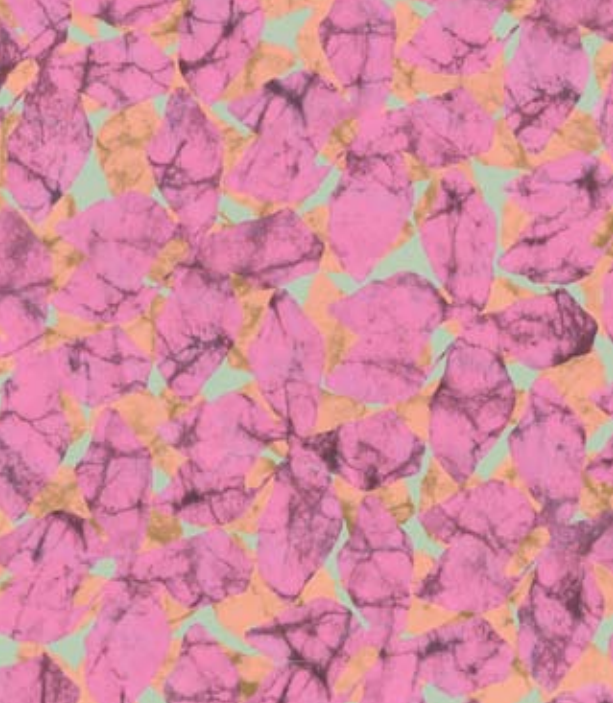
Repeat your swatch to fill in the size of your document. You may want to merge the repeat layers to reduce file size.

File Format Notes:

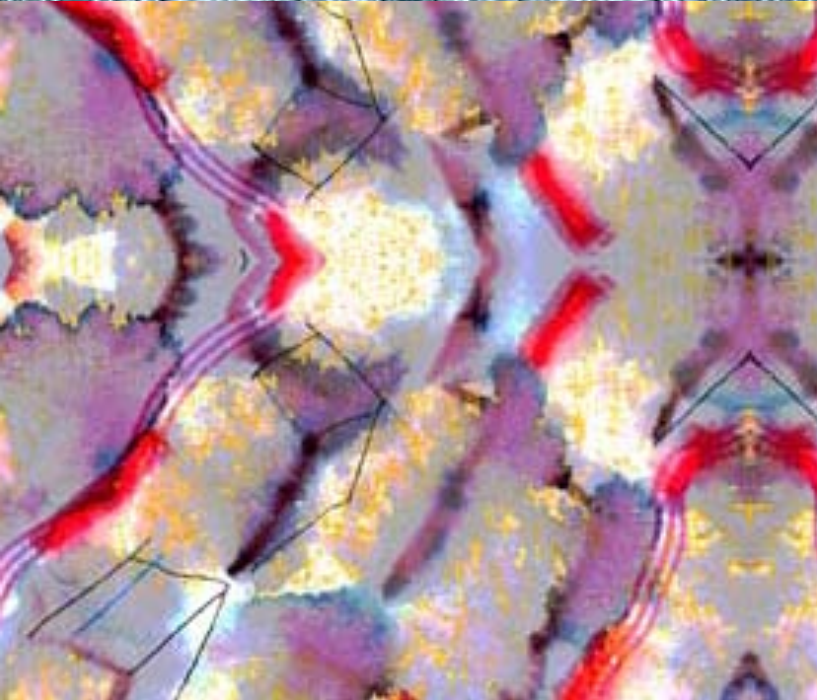
If selling a pattern to clients, you might want to have a separate layer or two that includes file information such as the print number or your logo, in addition to a border which helps create a finished look to your design. These layers should live at the top of your layers palette so if the design is printed, this information would appear.

Also, if your original artwork is in layers, keep that version available in your layers palette.





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SECTION 2 ILLUSTRATOR TECHNIQUES

previous page
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In the previous section you learned how to create a repeatable design using Photoshop. You can apply the same principle in Illustrator, working on one swatch until it is perfect. However, it often takes multiple rounds of edits, repeating elements over and over again before you get the swatch looking right. This can be bothersome and time consuming. Fortunately, Illustrator CS3 and subsequent versions have a very handy tool called Symbols that eliminates the trial and error method. The Symbols tool works especially well when creating more complex designs.

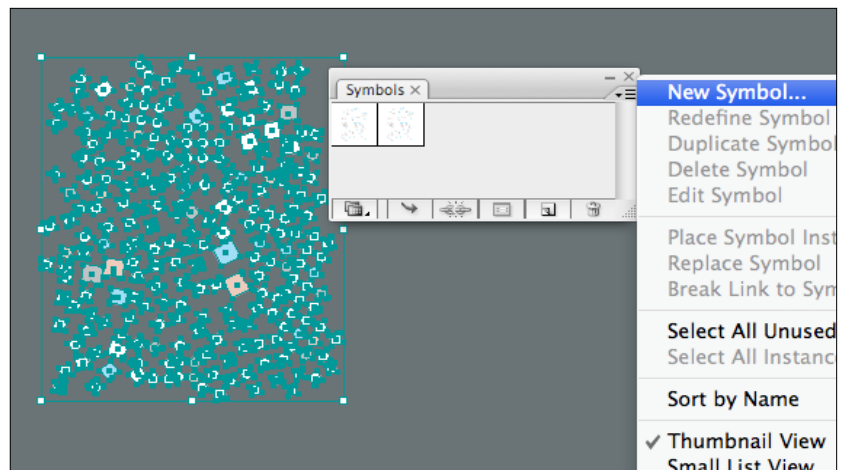
From the Adobe website: A symbol is an art object that you can reuse in a document. For example, if you create a symbol from a flower, you can then add instances of that symbol multiple times to your artwork without actually adding the complex art multiple times. Each symbol instance is linked to the symbol in the symbols panel or to a symbols library. Using symbols can save you time and greatly reduce file size.

TUTORIAL 1: WORKING WITH SYMBOLS

Step One

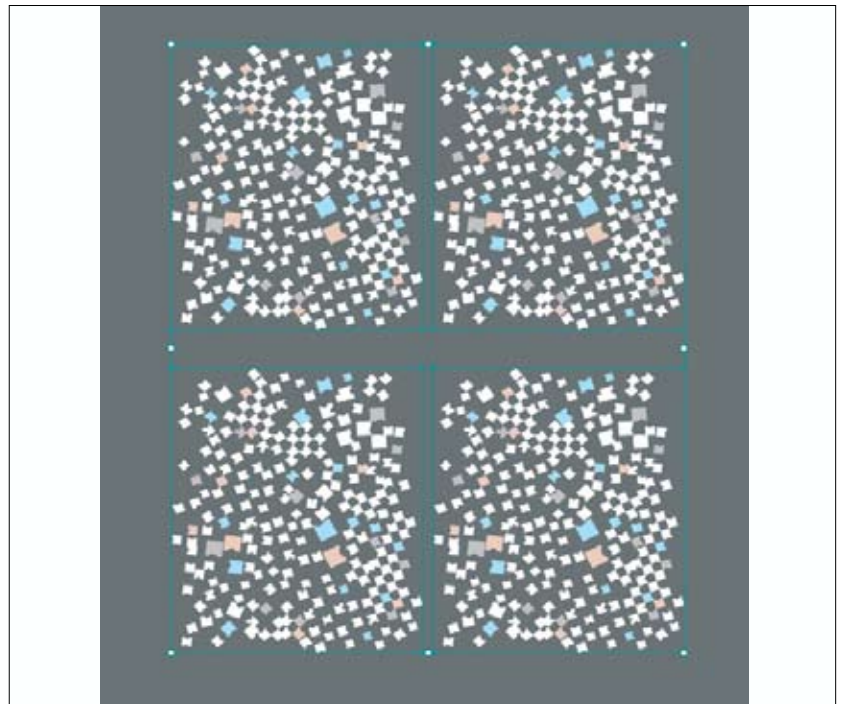
Once you create your artwork, make sure you have your symbols palette visible. You can select it from the windows drop-down menu.

Select all your artwork and make it a symbol by choosing *New Symbol* from the symbols palette drop-down menu. (You can also simply drag the artwork into the symbols palette.)



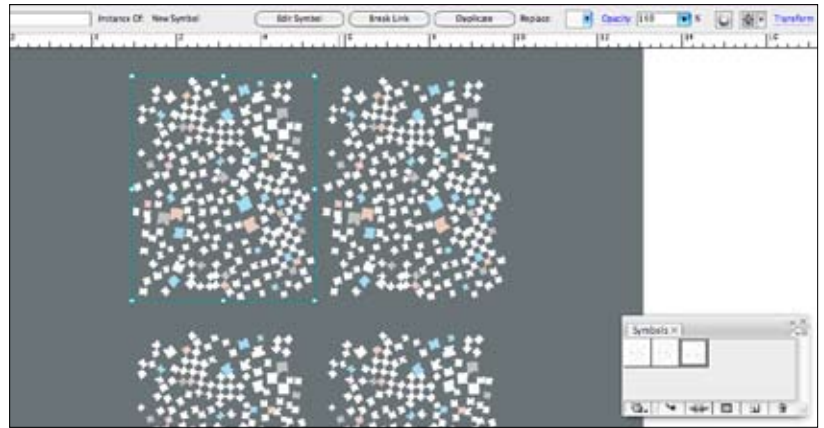
Step Two

Duplicate your symbols vertically and horizontally so there are now four instances of your symbol. Make sure they are aligned. Now, you can work on any of these instances as they all reference one symbol.



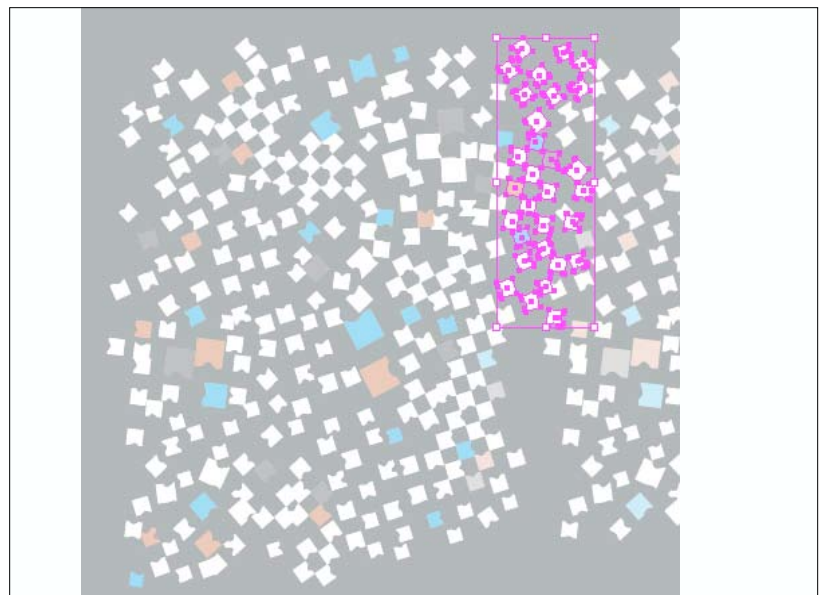
Step Three

To start filling in your swatch, select one of your instances, and click *edit symbol* from the top control bar. This will bring you into what is called *isolation mode* on that one instance, where you can edit the symbol.



Step Four

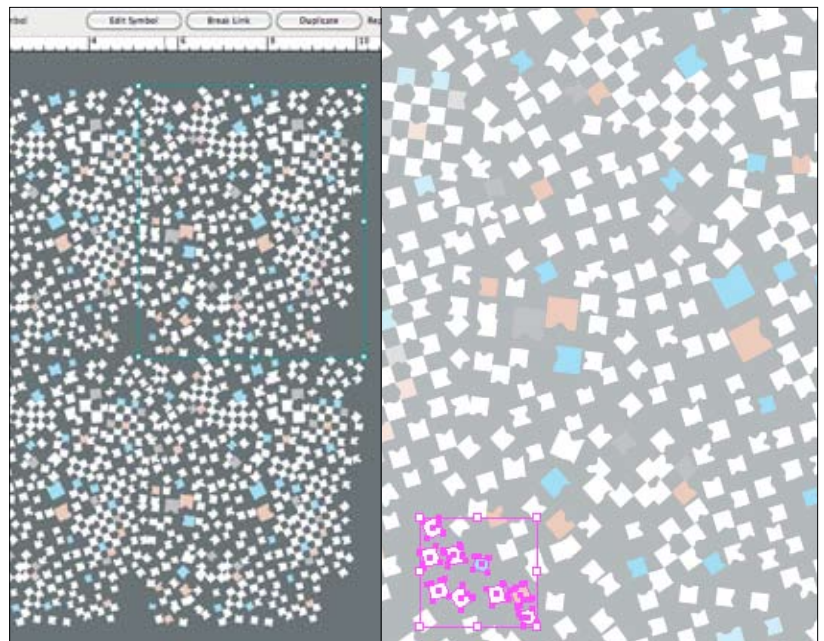
In isolation mode, begin to fill in the blank areas between symbols. Go back to your main stage by clicking the back button at the top left.



Step Five

You may need to go back and forth, adding elements to each side of the repeat as you work different instances.

Note: Scaling can get confusing with the symbols method. If you want to scale your artwork, remember to do so in isolation mode.

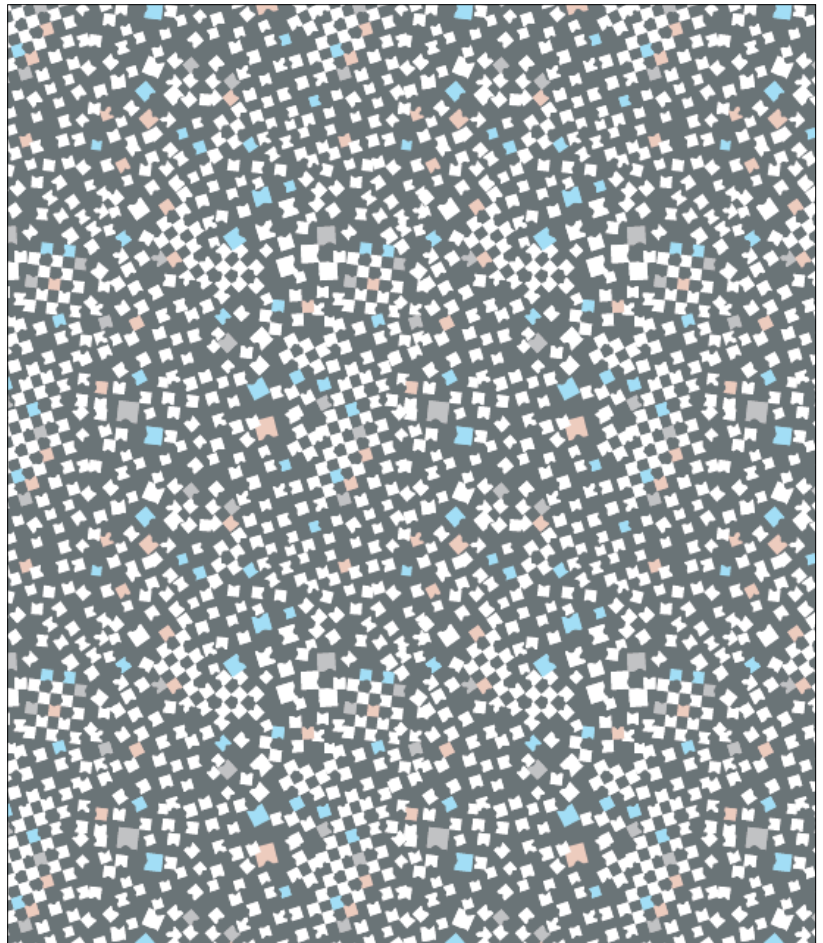


Step Six

Once you are satisfied with your repeat, fill your document with your symbol. You may need to do a little more tweaking once you see final view. You can still tweak any of your symbol instances at this point without having to re-do the entire repeat.

Congratulations! You now have a working repeat in Illustrator. This process can also be achieved without symbols by simply working on one swatch and duplicating it over and over in a similar manner as shown in this tutorial. However, working with symbols can save you time which can be precious when you're on a deadline.

Tips: Make sure to zoom out occasionally to see if striping occurs or if any elements jump out more than you want them to.



TUTORIAL 2: FROM WORKING REPEAT TO FACTORY REPEAT

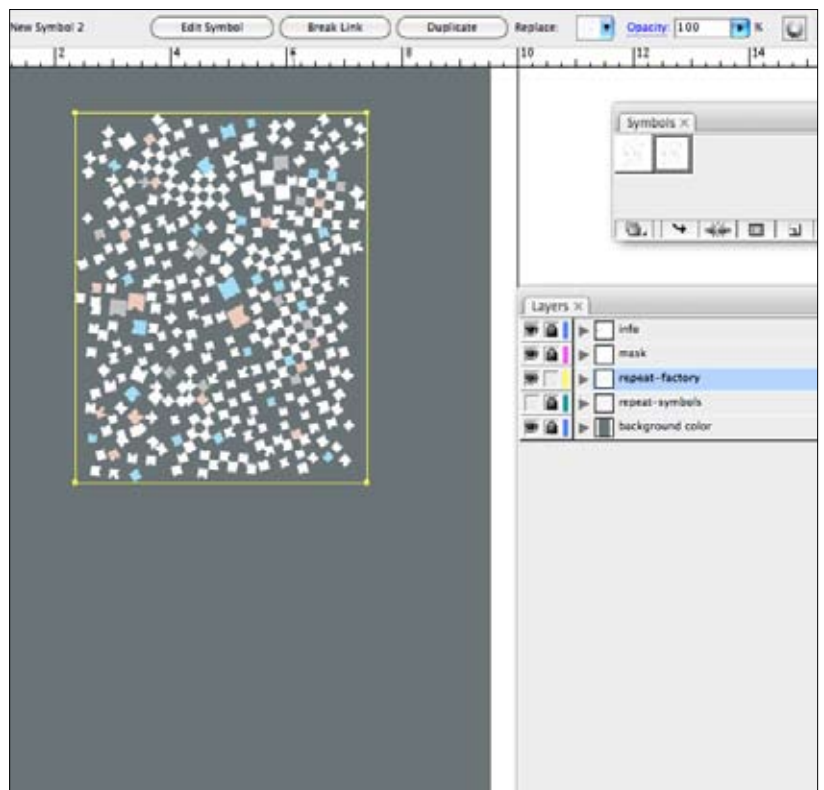
Step One

Turn the visibility off of the layer that contains your working repeat. Make a new layer, and drag a copy of your working repeat into it.

If working with a symbol, you need to break the symbol and make it into a group. While the symbol is selected, click *Break Link* in the symbols palette, then select from the menu *Object > Group*. Now you'll have all your objects in a group. This is your working repeat.

If you're not working from a symbol, your artwork is already in the right format.

Note: Make sure all your artwork is grouped together (Select from the menu Object > Group.) This is very important for duplication and alignment.



Step Two

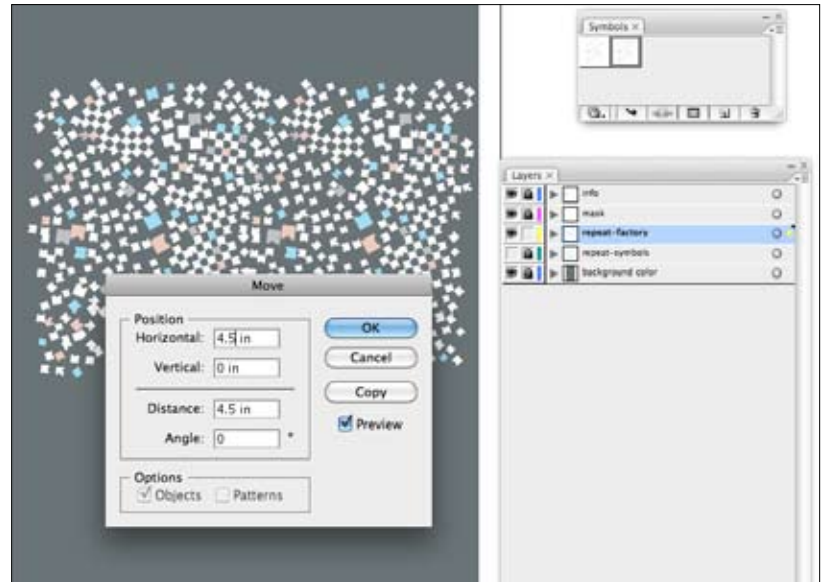
Hide the selections around your artwork. (*View > Hide Edges*) You'll need this to see what you're doing in the next few steps.

Step Three

Select your swatch, copy, and paste in place. (*Edit > Paste in Front.*)

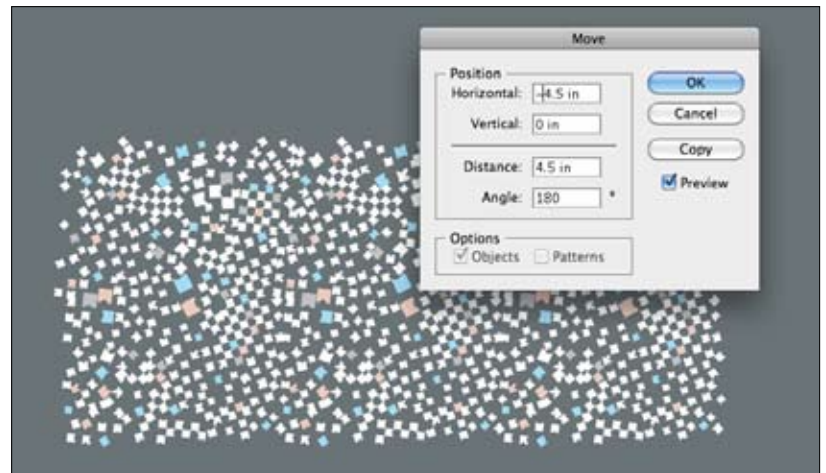
Step Four

Now you will move the unit you just pasted, and you'll be able to see numerically just how far you need to move it. (*Object > Transform > Move*) A *Move* window will appear. Make sure that *Preview* is selected, and begin to try out some numbers in the horizontal window. My first try was 5 inches but I could see it went too far. 4 was too close, but 4.5 seemed to fit nicely. Make a note of the distance that works for you and hit OK.



Step Five

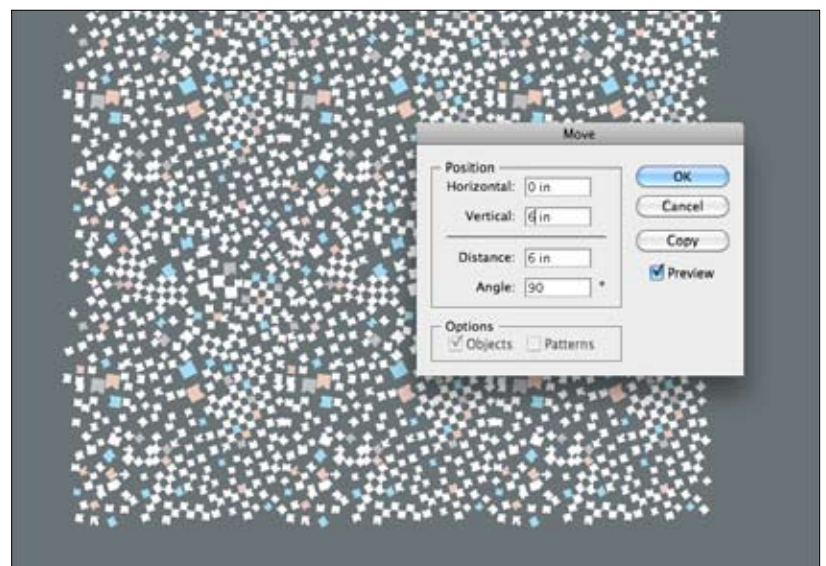
Repeat Step Four, but this time, move the pasted swatch to the left of the original by the same distance you used for the right. In my case it would be -4.5 inches.



Step Six

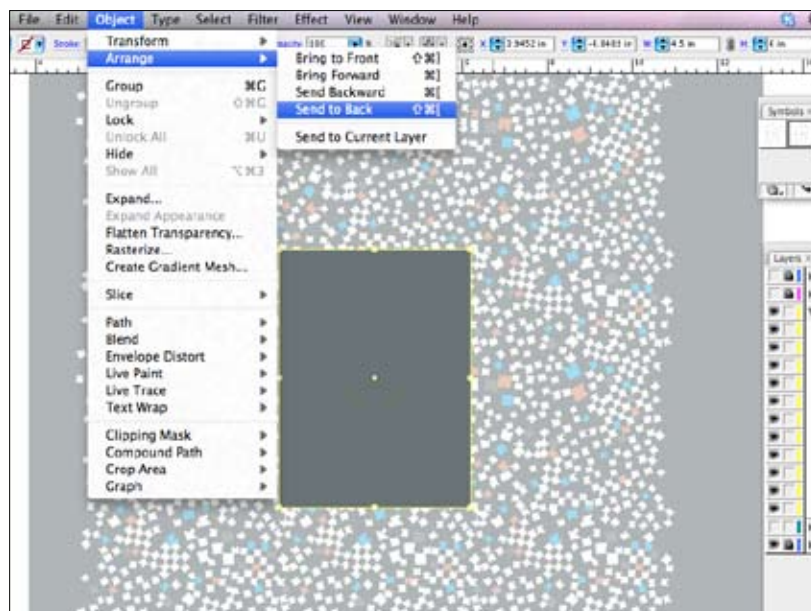
Now you'll be copying and pasting all three of these swatches, but moving them vertically.

Use trial and error to figure out the best distance for your design. For my pattern, a 6 inch move vertically works best. To move it below my starting swatches, I use -6 inches. Now do the same by copying, pasting and using the move tool.



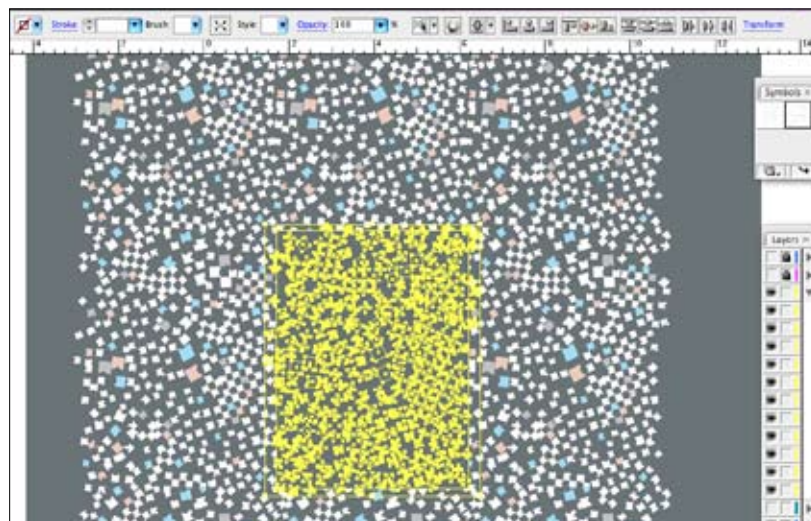
Step Seven

Now you'll need to add the background into the artwork. Create a rectangle that is composed of the dimensions you came up with earlier. In my case, I will use 4.5 inches horizontally and 6 inches vertically. Next, color the shape with the shade you'd like for your background.



Step Eight

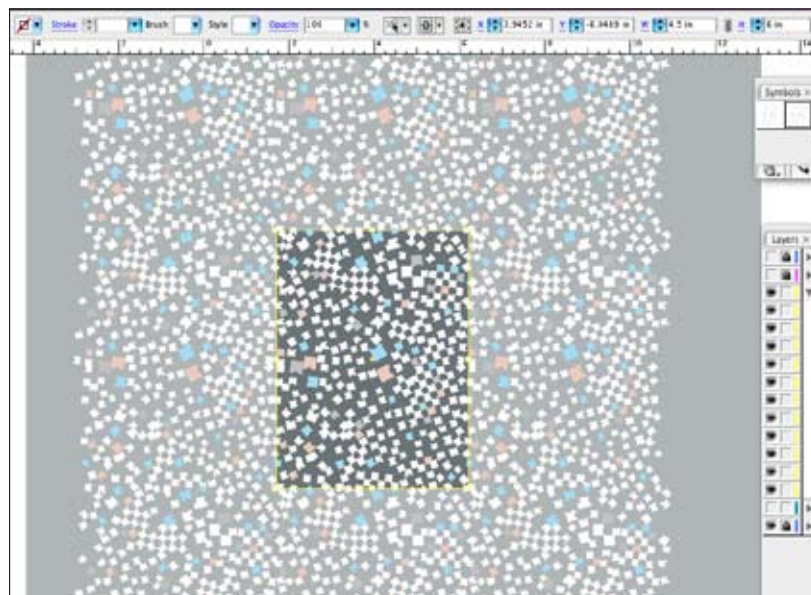
Align the middle repeatable unit with the background. When you align the background rectangle with the artwork, make sure the artwork stays where it is. To do that, select the two objects to align them, and then click on the artwork group one more time. That tells Illustrator that you want to align to the object you just clicked. Align the two from the center points, both horizontally and vertically.



Step Nine

Send the background layer behind your artwork.

Transform > Arrange > Send to Back

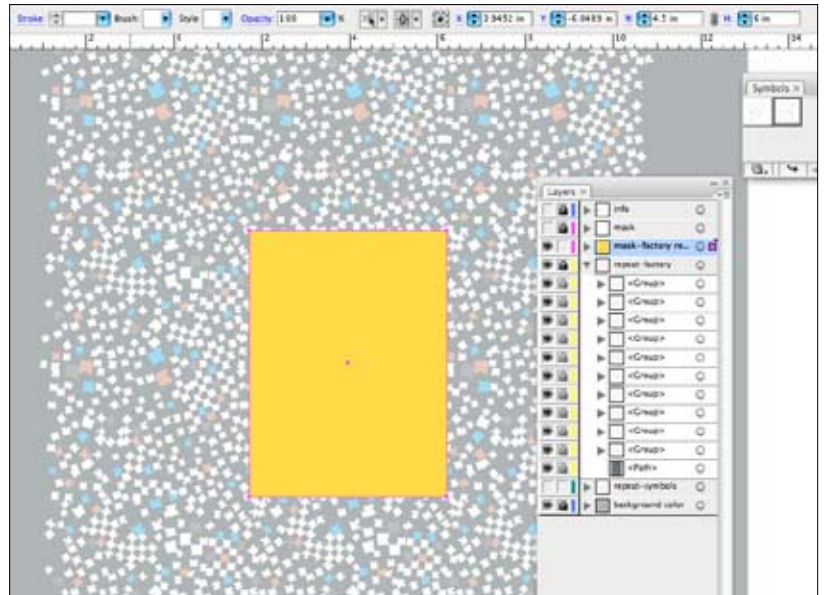


Step Ten

Next, you'll need to create a mask using the same dimensions of your background rectangle. Any art outside of the rectangle will be trimmed off while the pattern within the shape will be preserved.

The easiest way to do this is by selecting your background shape, then copying and pasting it in front of everything. Make sure to color this front shape in a shade that does not exist within your document.

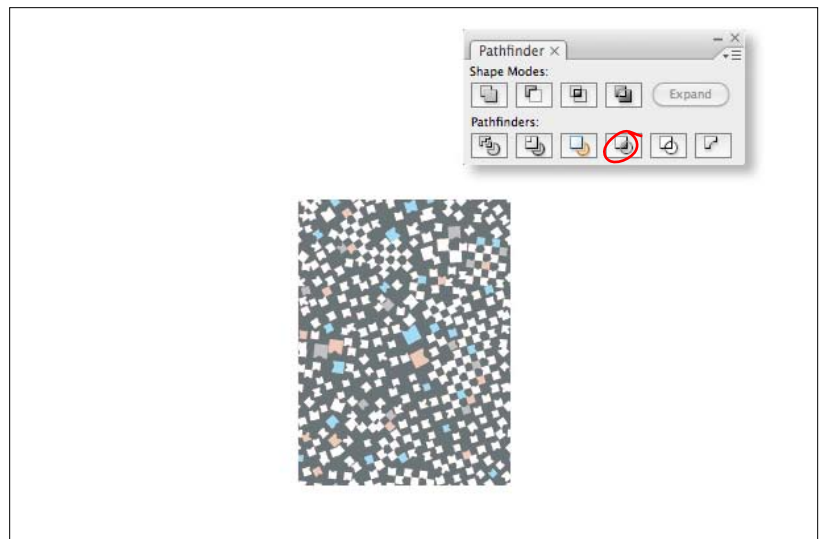
Select all and then create the mask.
Object > Clipping Mask > Make

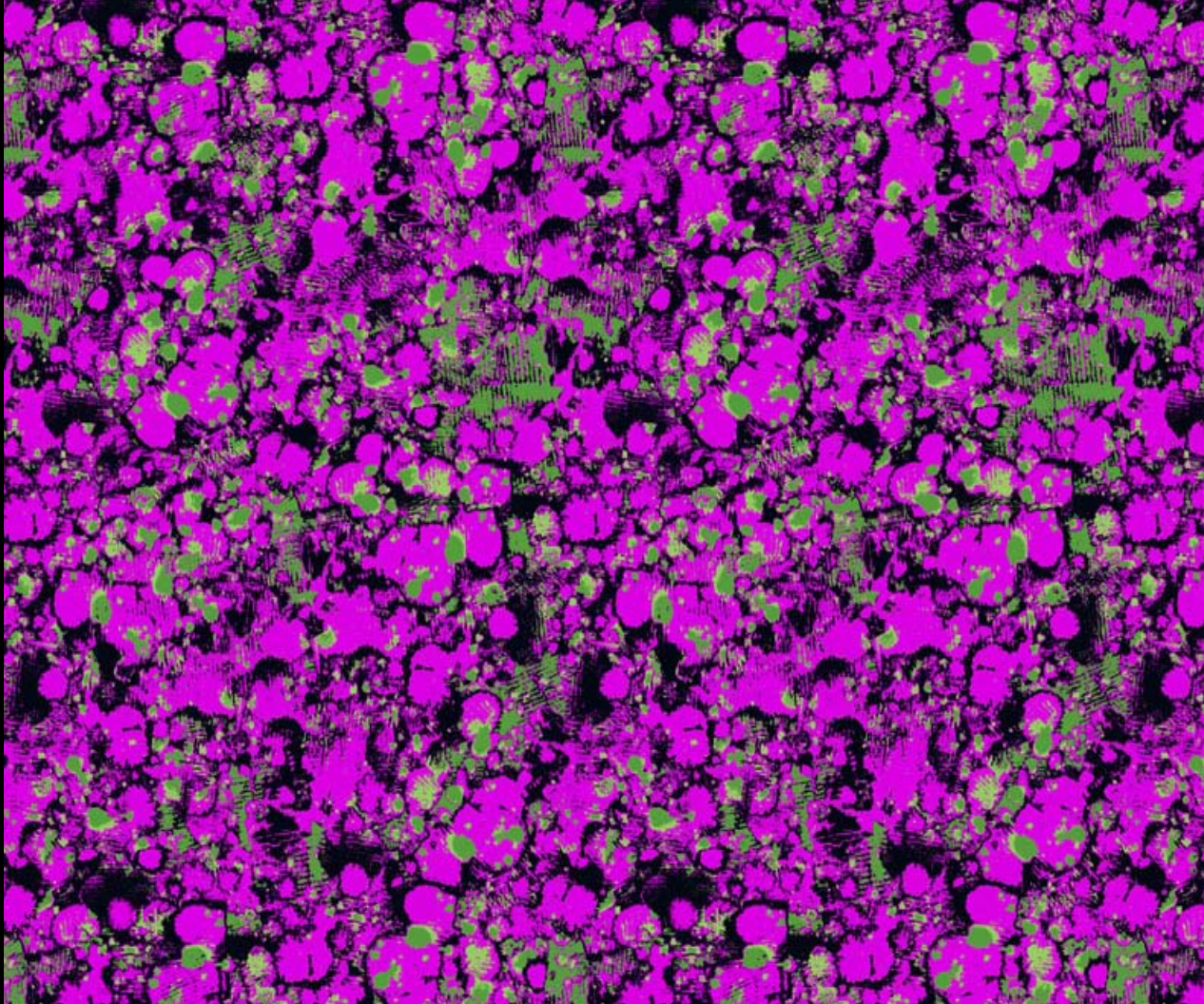


Step Eleven

With your masked artwork selected, go to the Pathfinder Palette (*Menu > Window > Pathfinder*) and choose the Crop tool. This is the fourth button over from the left on the bottom row. This tool will cut off the hidden portion of your design leaving a clean version of your visible swatch.

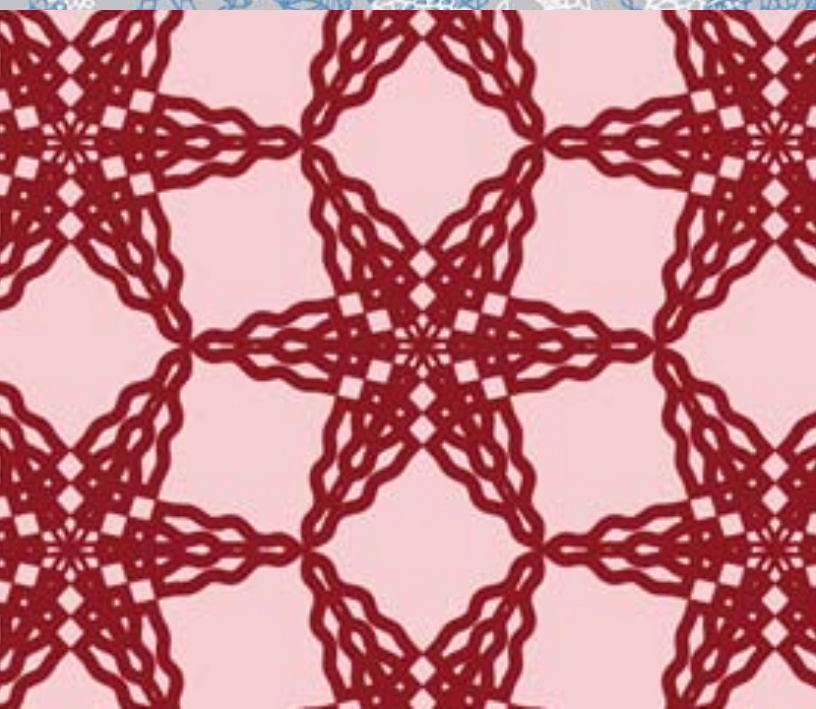
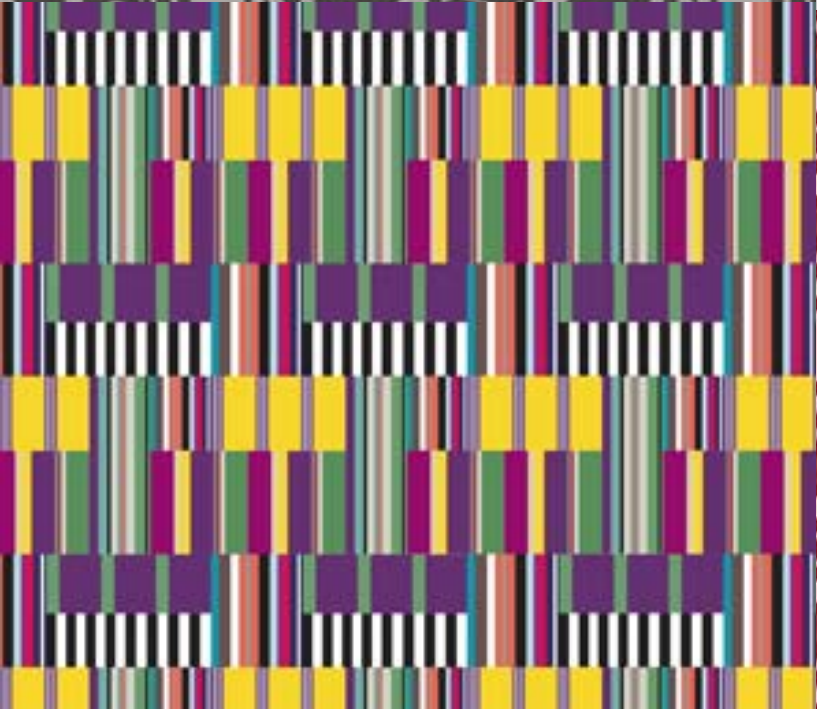
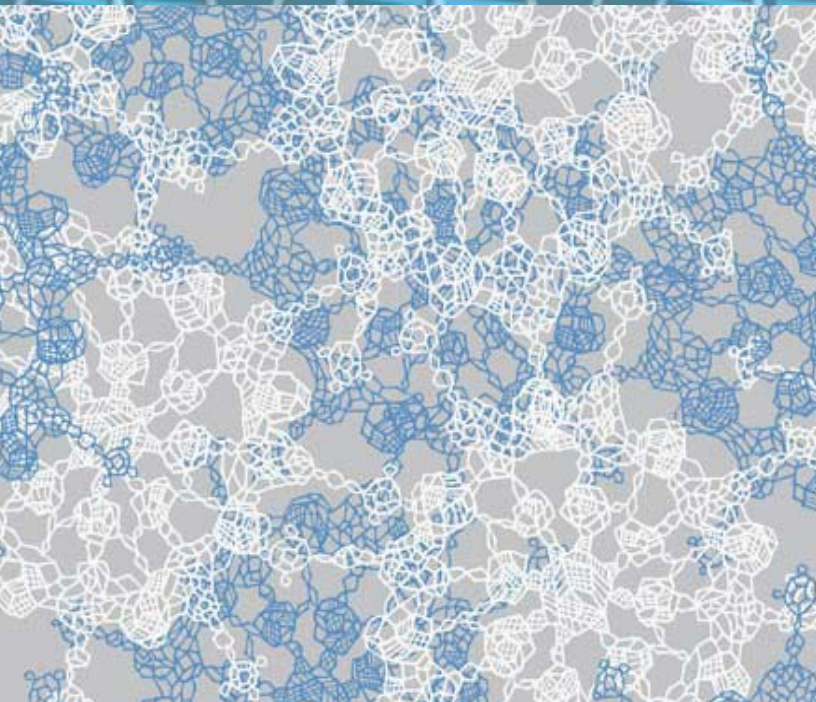
Voila! You now have your factory repeat!

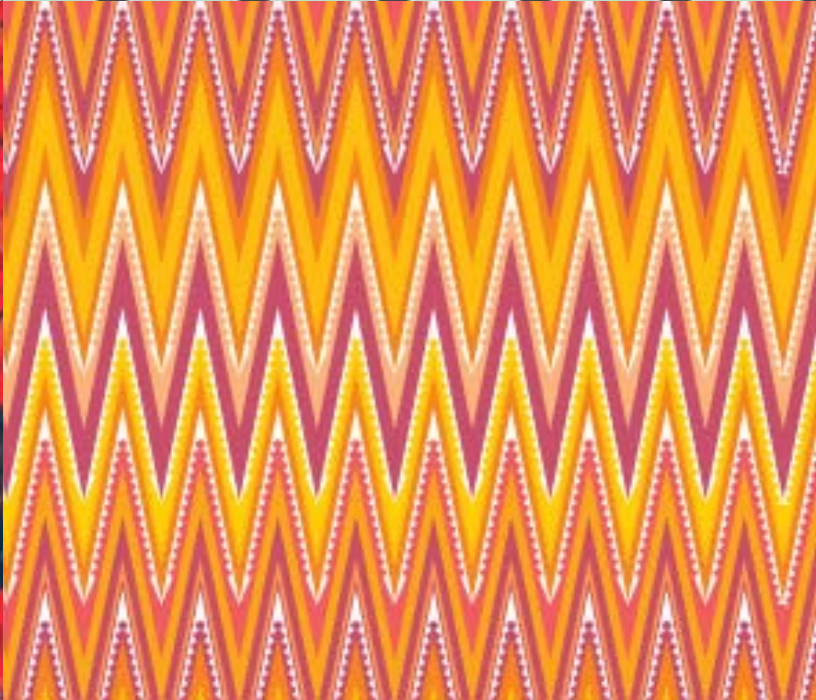
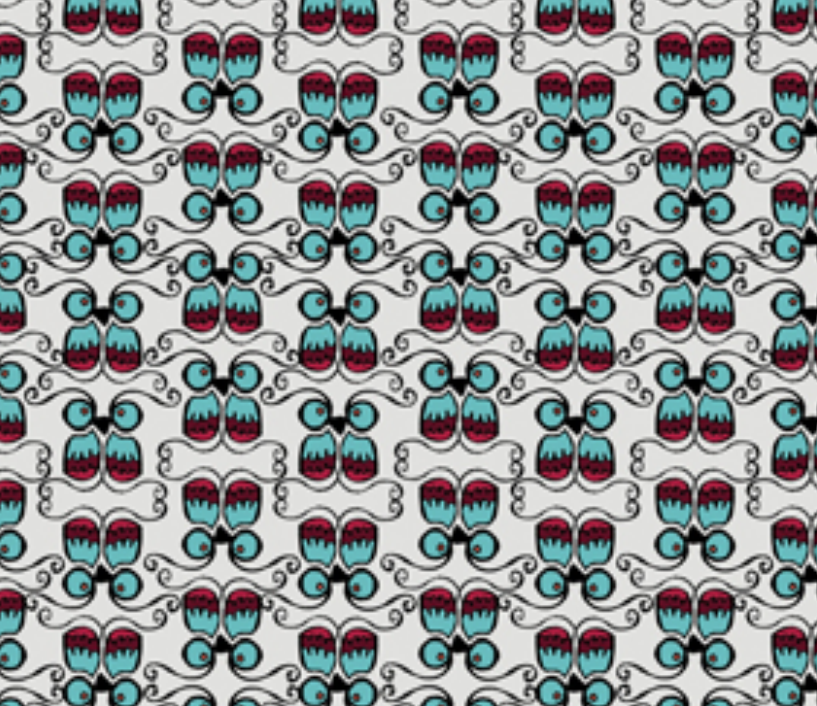
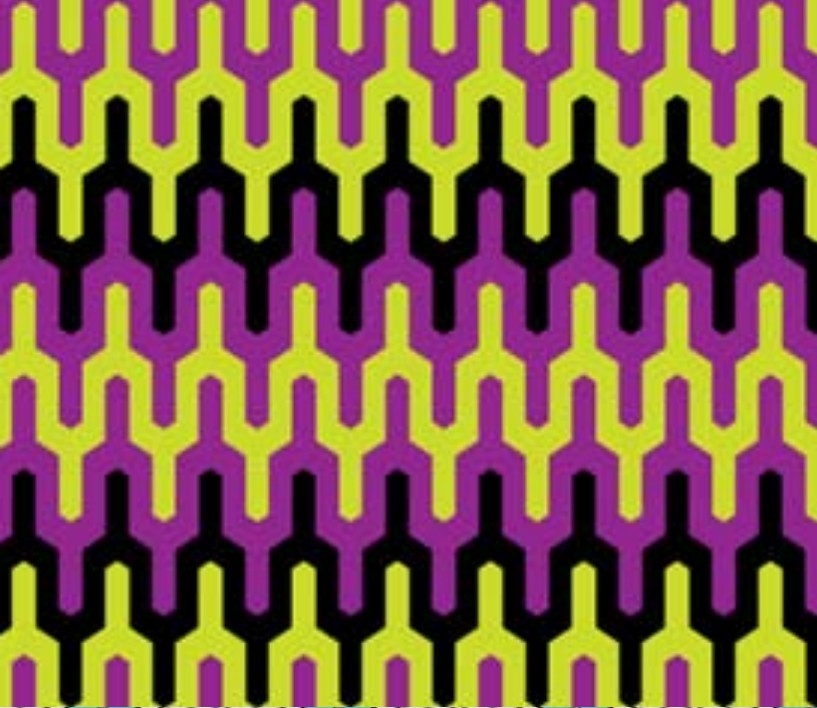




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Rachael Beresh
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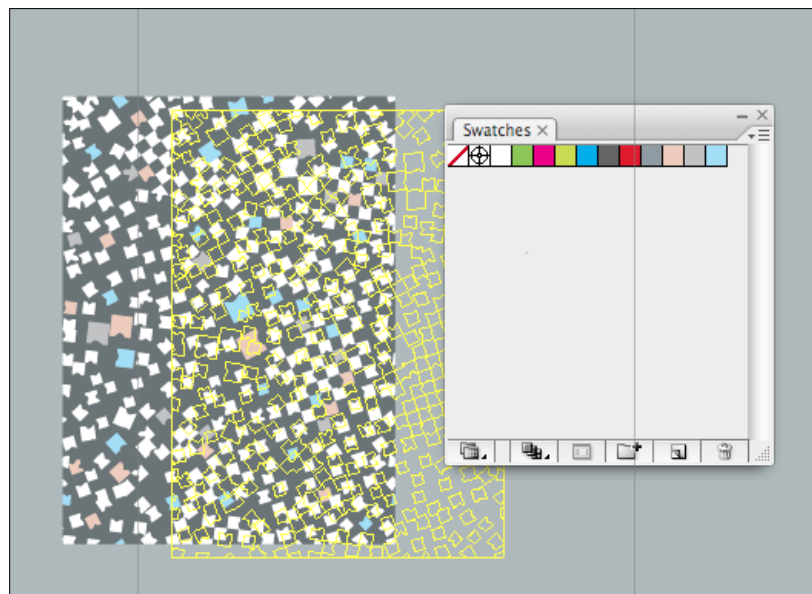
TUTORIAL 3: CREATING REPEATS WITH SWATCHES

In textile terminology a swatch is a repeatable portion of a design. In Illustrator, the Swatch palette provides some useful and powerful tools for creating repeats. To demonstrate how this tool works, we'll first use the factory repeat we made in the last tutorial. Following this example, we'll show you how to create a repeat using the Swatch palette.

PART ONE

Step One

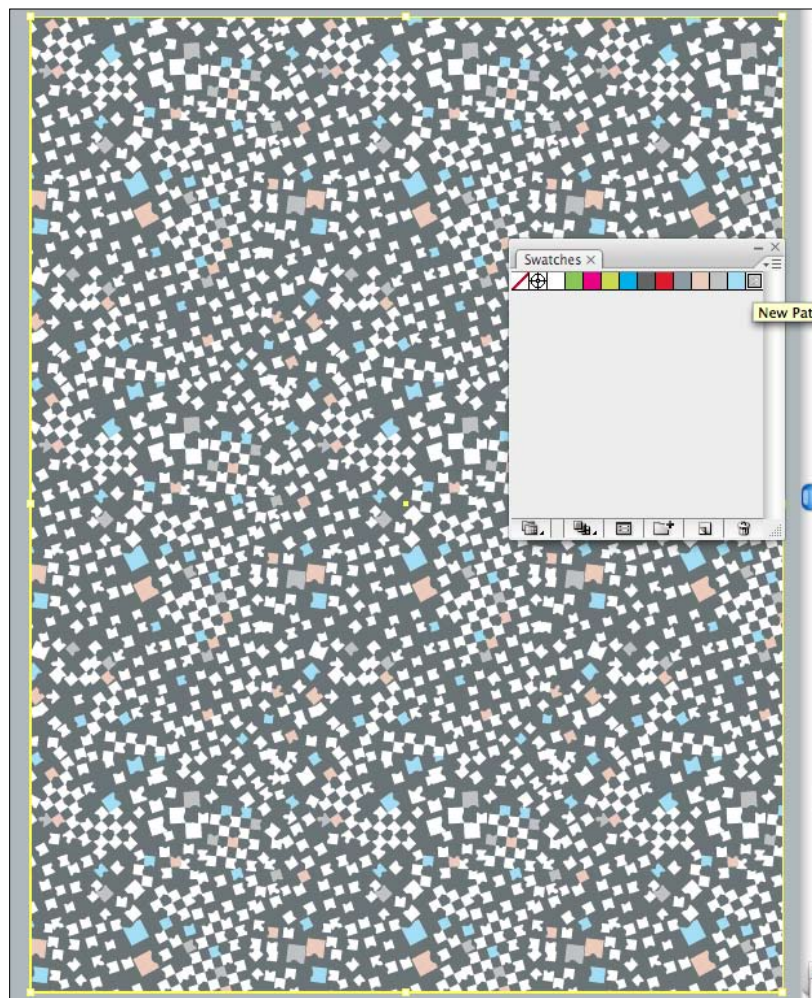
Select your factory repeat swatch and drag it into the Swatch palette. Your repeat will now appear as a small swatch in the palette which you can select and use as a fill.



Step Two

Create a rectangle and while it is selected, click on the swatch you just dragged into the Swatch palette. This will fill the rectangle with the swatch. If there are any problems with the repeat, such as gaps or cut off objects, you'll see that very clearly now.

You can also drag the swatch out onto your main stage to edit. Then simply drag it back into the Swatch palette once you are finished to use it again as a fill.



PART TWO

Step One

Create a rectangle. In this case, the size is 6 inches horizontal by 5 inches vertical. Make a note of your dimensions for future reference.

Step Two

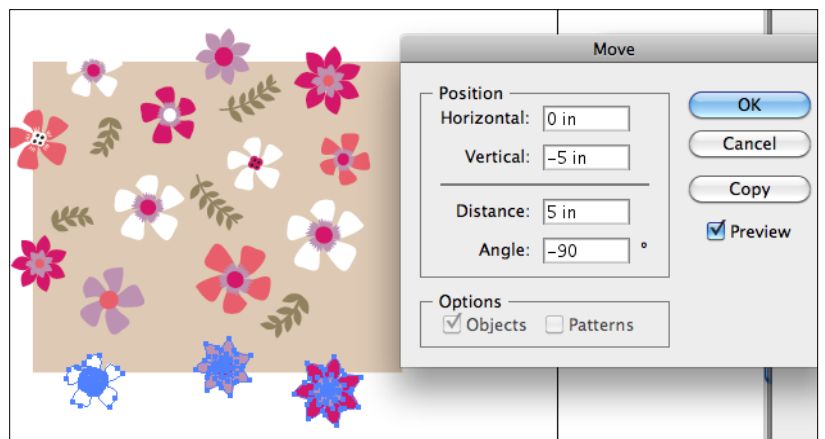
Start creating your artwork and overlap it on two sides of the rectangle – one horizontal side and one vertical side.

Step Three

Select the objects that overlap the top area. Copy, then Paste in Front. Open your Move palette.

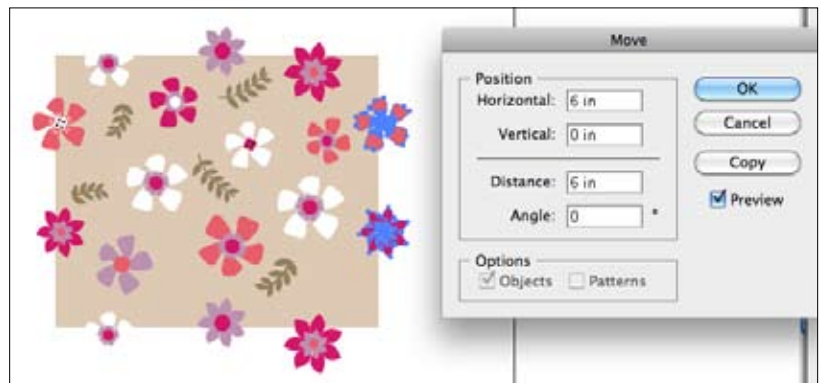
Object > Transform > Move

Move the objects 5 inches down or the size of your rectangle's vertical side.



Step Four

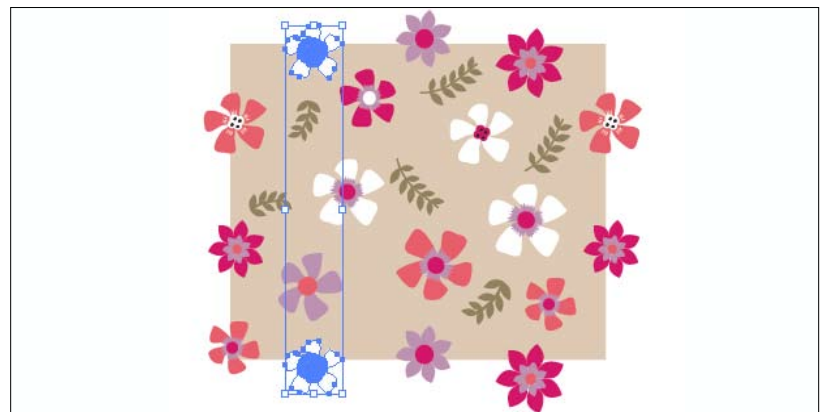
Repeat Step Three but this time, move your objects horizontally using the horizontal measurement of your shape.



Step Five

Now that you have your repeat points set, you should tweak the artwork around it until everything fits.

Note: You can still move the repeat points, but you must move them together, making sure they are perfectly aligned to one another. If you have an object in a corner, you must repeat it both vertically and horizontally.

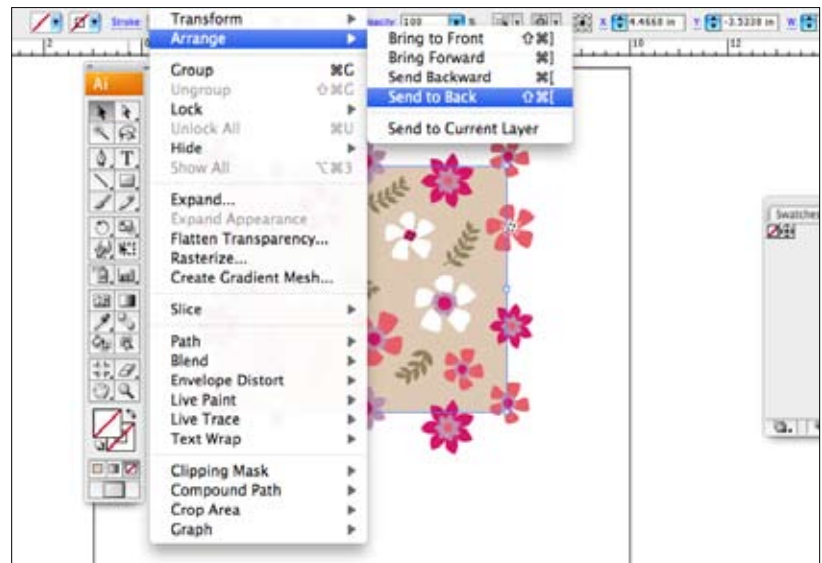


Step Six

You can leave the swatch in this state, but you must indicate to Illustrator where the repeat begins and ends. To do so, place a rectangle with no fill or stroke behind all of your artwork. It must be the exact same size and position as your background shape.

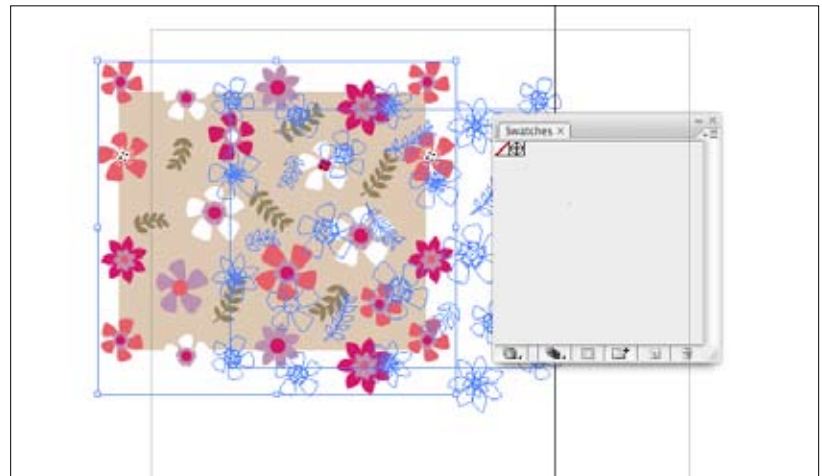
Copy your background rectangle and paste it behind all of your artwork. While it's still selected, make sure it has no fill or stroke.

And now your swatch is complete!



Step Seven

Select everything and drag it into the Swatch palette.



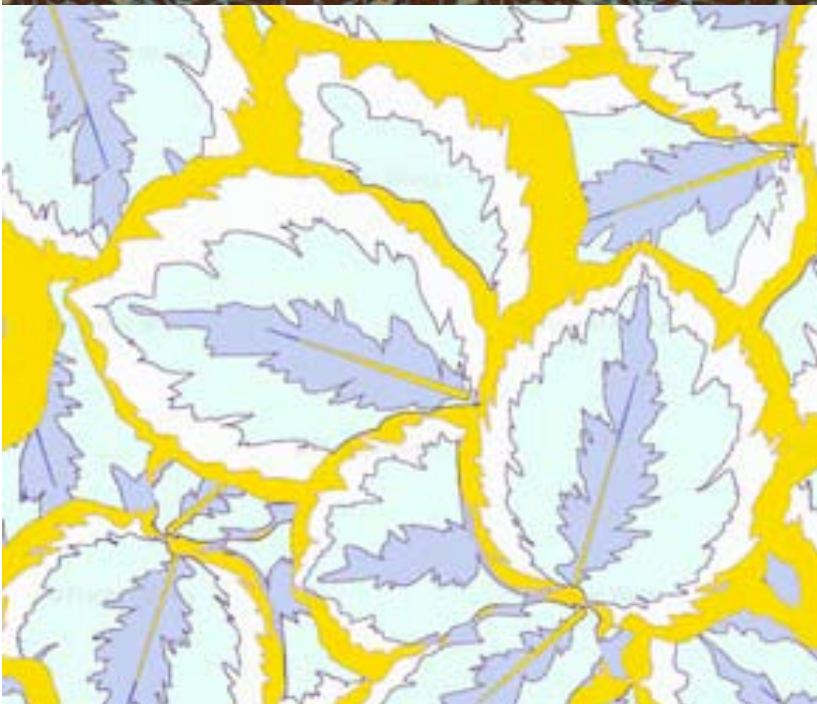
Step Eight

Create a large rectangle and while it's selected, click on the swatch you just added to the Swatch palette. Voila! You now have swatch you can easily use as a fill.

If your repeat is seamless and looks good to you, then you're done! If not, keep tweaking your design.

To create a factory repeat from here, you simply have to cut off the parts of your design existing outside of the rectangle. Go back to Tutorial 2 for reference.





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SECTION 3

COLOR SEPARATIONS

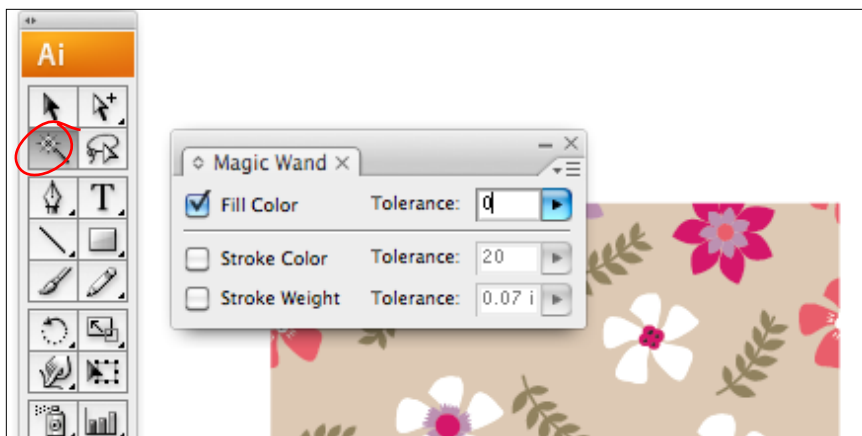
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Whitney Barnes Catarella
Carol Bailey
Jean Arunsirichok
Stefanie Sadowsky
Amy Howell
Patricia Miranda

At some point, you may need to prepare your file for silk-screen printing. This process involves separating each color in your design onto its own layer. At the factory each color layer will then be turned into its own screen and printed individually one on top of the other. Colors are very easy to separate when they are solid with no gradation. It gets more complicated when there are subtle shades to each color such as in a hand painted watercolor design. In the following tutorials, we'll show you how to do a simple color separation in Illustrator, and a more complex one in Photoshop. In both cases, your art should already be in a factory repeat swatch.

TUTORIAL 1: SIMPLE SEPARATIONS IN ILLUSTRATOR

Step One

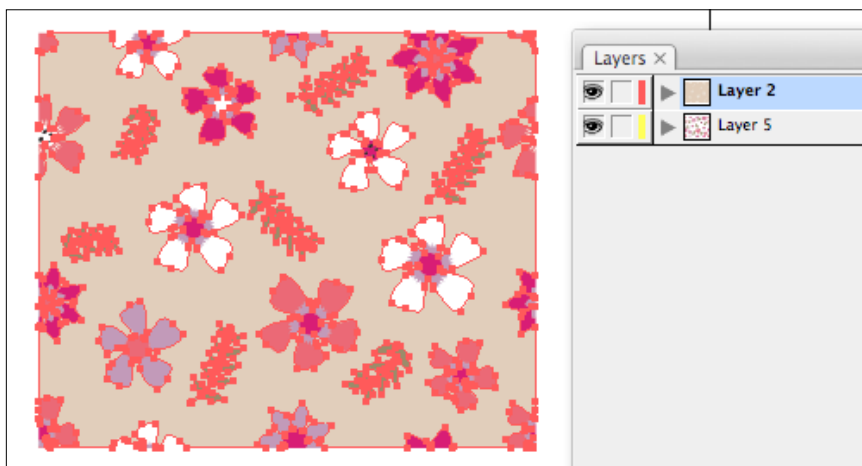
Once you have your swatch, double-click on the magic wand tool. This will bring up an option palette. Make sure the *Fill Color* box is checked, and set the tolerance to zero.



Step Two

Select one of the colors with the magic wand tool. Then, *Edit > Cut*.

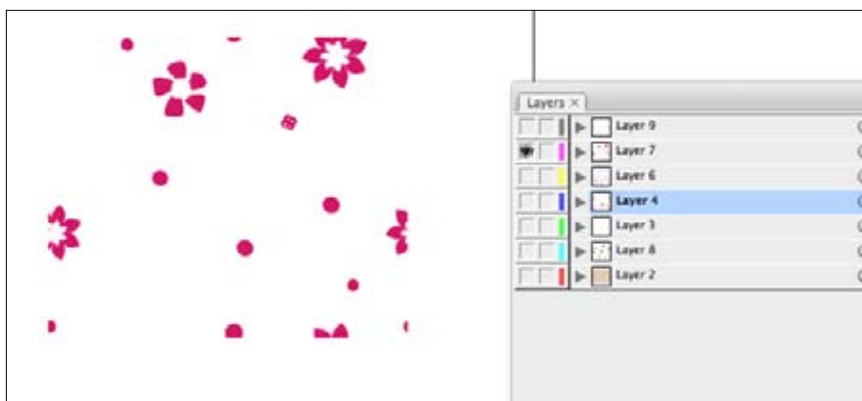
Create a new layer, and *Edit > Paste in Place*.



Step Three

Repeat this for each of the colors in your swatch, placing each one onto a separate layer. Keep your background color as the bottom layer with all other colors building up from it in layer order.

And you're done! Now you can pick your Pantone colors and you can also name each layer to help the printer.



Hand painted artwork often uses so many colors that achieving the effect through screen printing is impossible. If this is the case, digital or dye sublimation printing might be the best option. However, if you can keep your colors limited to ten or less, Photoshop allows you to separate more complex designs while maintaining a hand painted look.

If you have more than ten colors and you want to reduce your screens, one trick is to increase the contrast of your work (Image > Adjustments > Brightness/Contrast.) This will take out some of the mid-tones that create gradations and give you an easier starting point.

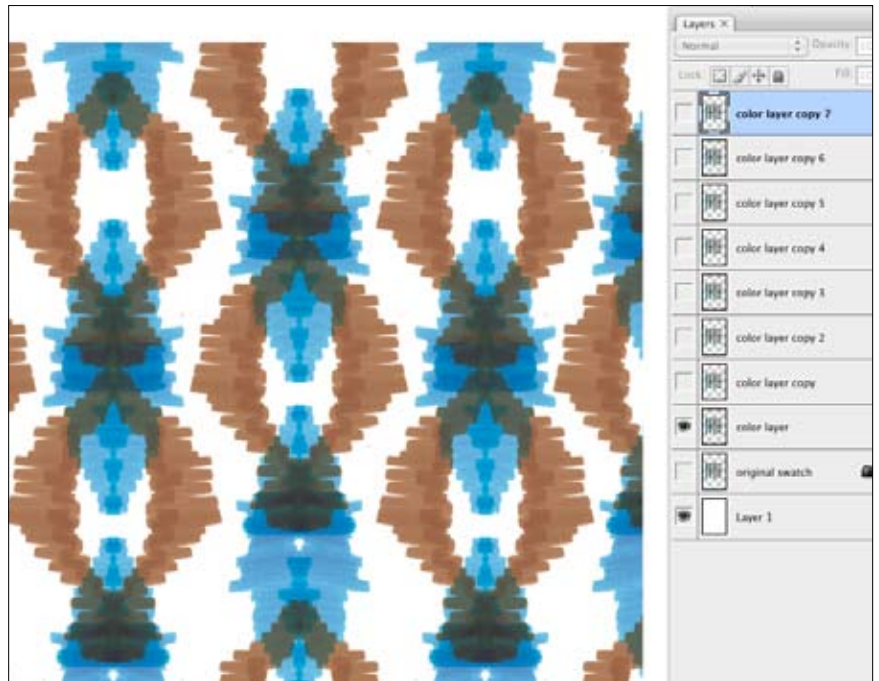
TUTORIAL 2: COMPLEX SEPARATIONS IN PHOTOSHOP

Step One

Create multiple duplicates of your original swatch in the layers palette. Each one will become a separate color.

Step Two

Lock one of your layers down and turn off visibility. You'll want to keep this in case you need to come back to it.



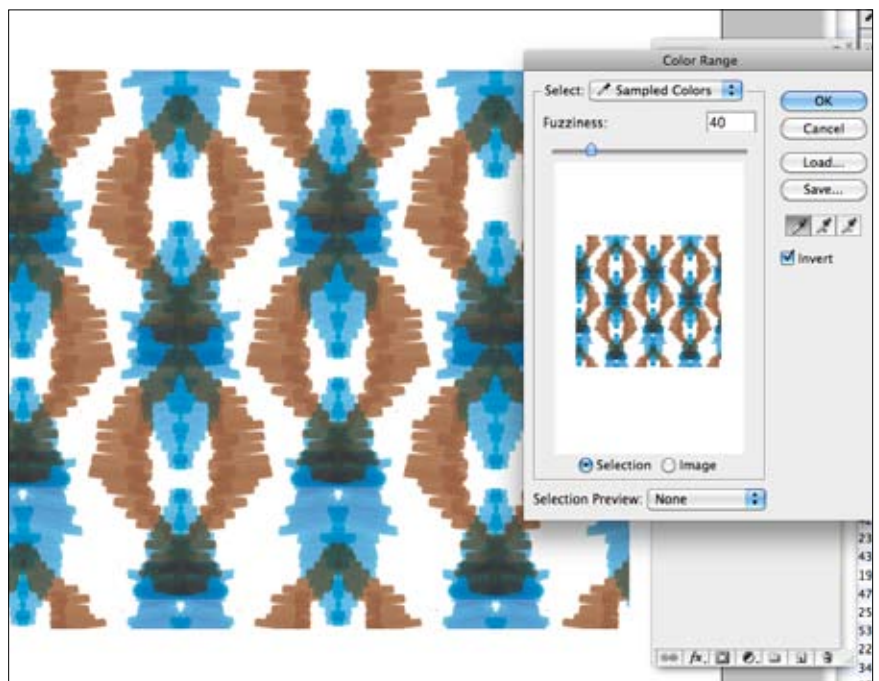
Step Three

Turn visibility off on all layers but one. Select the layer that is on, and go to *Select > Color Range*.

Once you're in the *Color Range* box, check the invert option. Select the eye-dropper on the left. *Fuzziness* should be set at around 40.

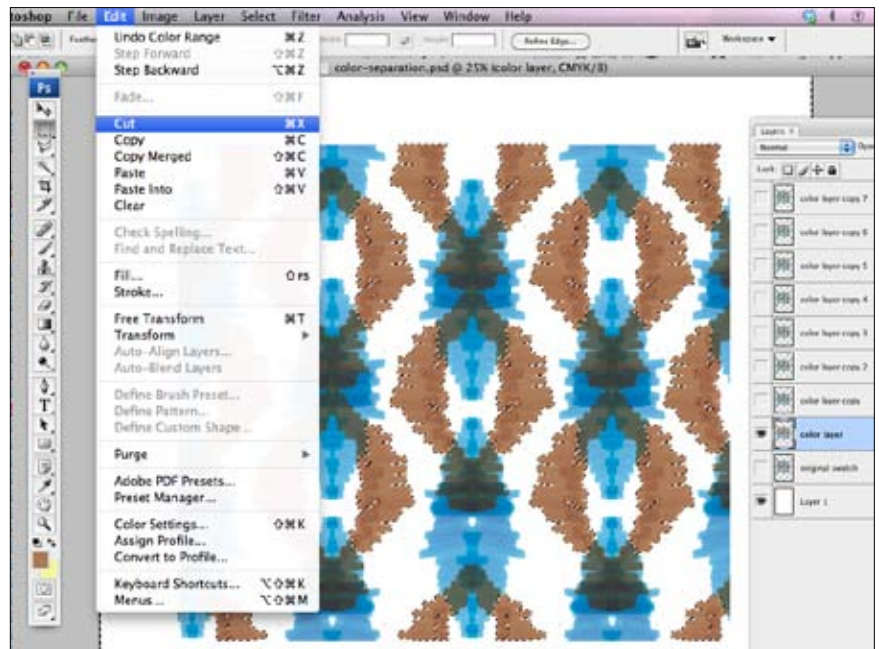
Click on a color in the artwork. To extend the range of the color, either hold down the shift key while selecting similar colors, or use the eye-dropper with the plus sign. Ultimately, whatever you select, will become one color.

Hit *OK* when done.



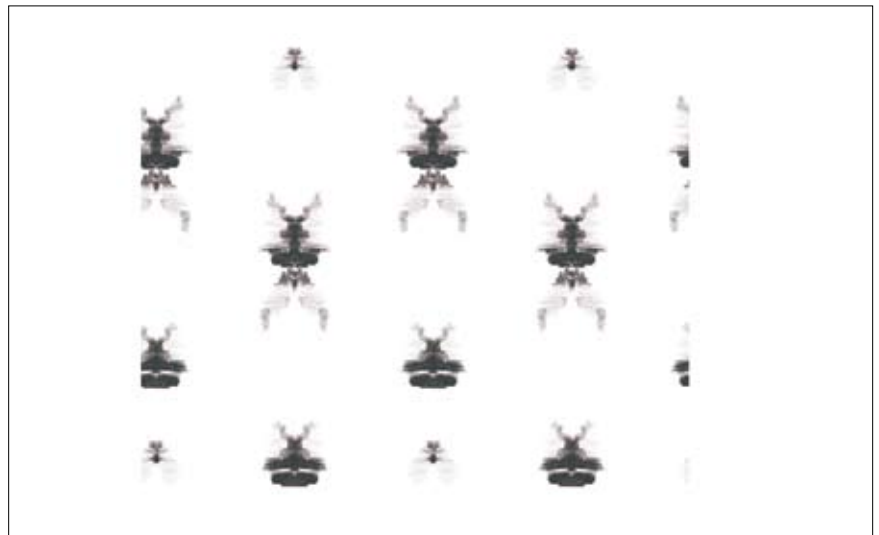
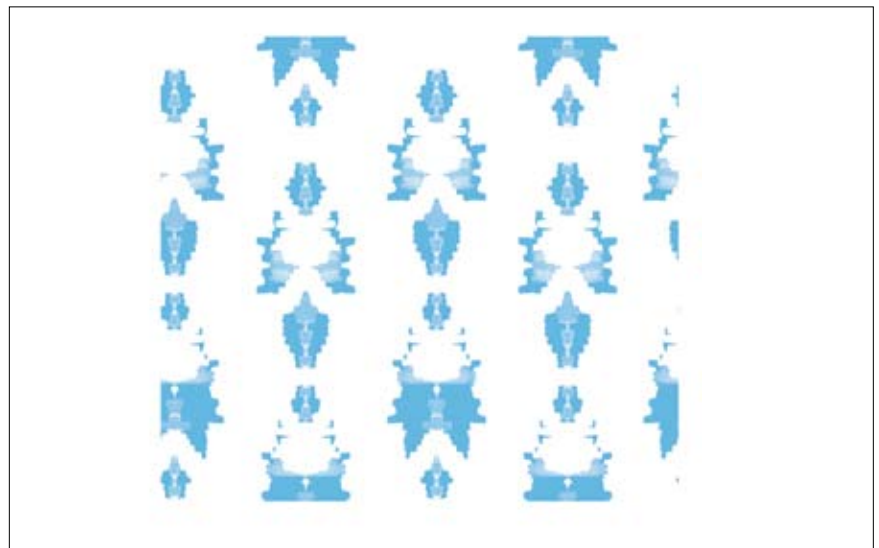
Step Four

Because you checked *Invert*, everything except the color(s) you chose is now selected. Hit *Delete* or *Edit > Cut*.



Step Five

Repeat this process on each of your layers, choosing different colors for each layer. Layers will start to look like the samples on the right.



Step Six

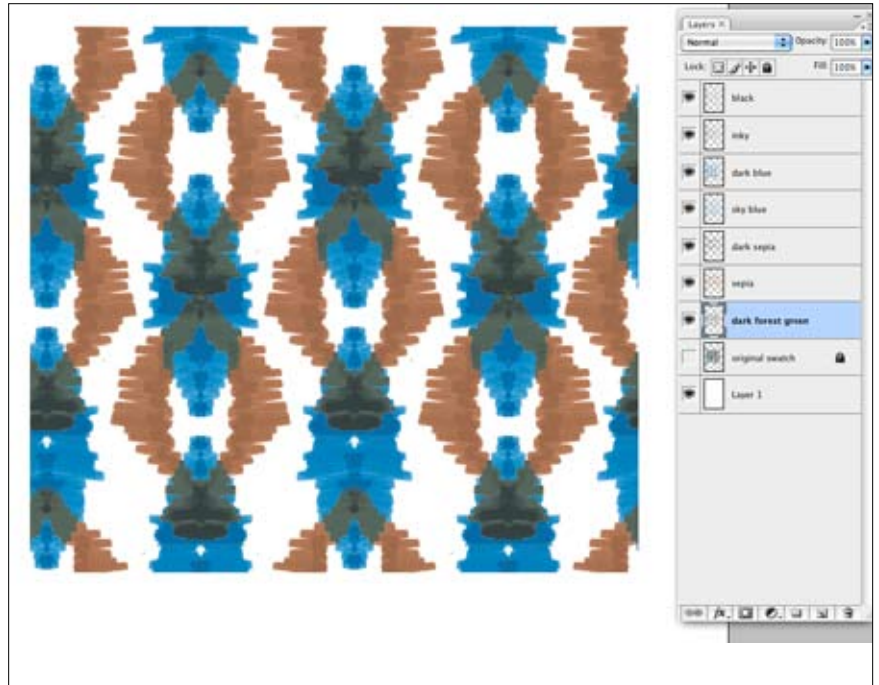
Tweaking is necessary and might take up the bulk of your time.

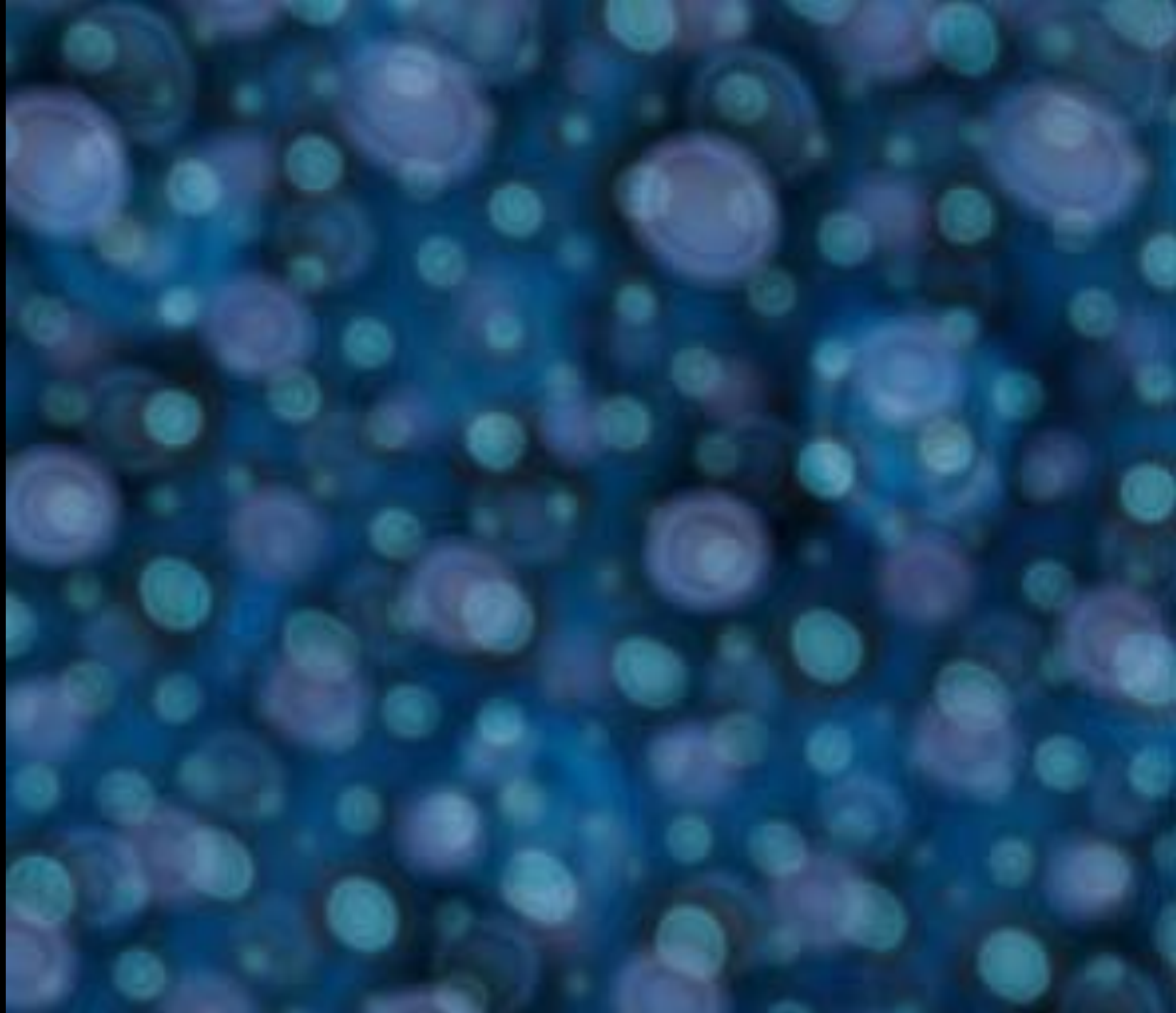
If you've picked up more than one color per layer, you'll want to recolor everything on that layer to be the same shade.

You may need to create more layers initially than you plan on using in order to achieve the look you want.

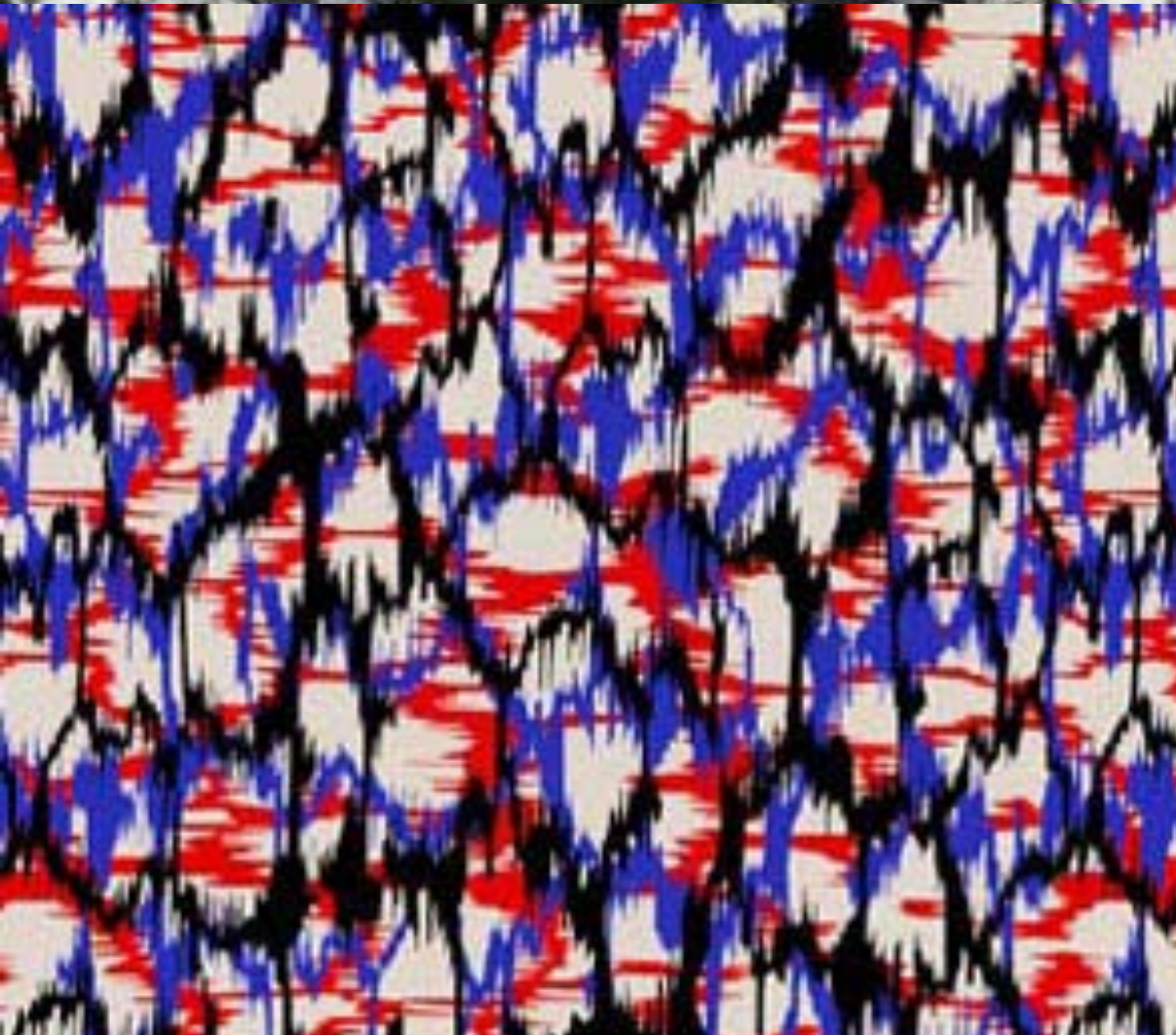
Later, you might be able to merge some colors that have similar tones or hues into a single layer.

When you're done, you can pick pantone colors and name your layers with either the pantone number or a description of each color.





Lesya Binkin
Coralie Prevert



*Coralie Prevert
Mathilde Brégeon*





*Iya Zumblick
Frances Moran
Juliana Vasconcellos
Lydia Meiying
Carol Van Zandt*

*previous page
Lydia Meiying
Tracy Miller
Aanchal Baranwal
Alejandra Cuellar
Amy Hillyard
Emily Kiddy*



SECTION 4 REPEAT TYPES

previous page

Velia Salinas

Whitney Barnes Catarella

Hannah Yoon

Patricia Miranda

Jenni Calo

Asmayani Kusrini

Despite the visual randomness of a pattern, if you look closely there is an orderly structure used at its base. Below we review the basic types of repeats. Understanding these structural systems leaves you with endless possibilities.

GRID

The simplest repeat structure is based on an obvious linear grid. **Diamonds, ogees, circles, stripes, plaids, and symmetricals** are often built in this manner with the shapes repeating top to bottom, left to right. This basic repeat appears frequently in Interiors as it can often be too structured for general apparel wear. However, you can find this classic repeat in menswear on pieces such as ties and button-down shirts.

TOSS

The earlier tutorials showed you how to create toss repeats using various techniques. Appearing random, flowing, and seamless, this common repeat works well on apparel and many other surfaces. If you can master the toss, then all other repeats will come easily.

DROP STEP

In a drop step, the swatch remains aligned vertically but as it repeats to the side it drops down a certain amount often times balanced between the motifs found to the left or right. This creates a step effect as the elements repeat. A drop step can be used when creating a grid or toss pattern.

Juliana Ferraz Vasconcellos

Eva Carlavilla

Sandra Keding

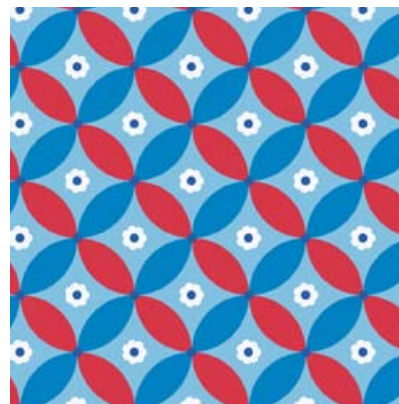
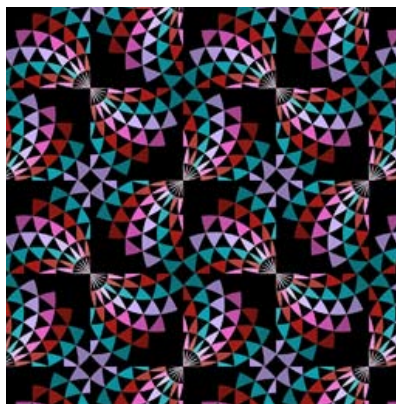
Maryse Berthet-Pilon

Gayle Kabaker

Mathilde Brégeon

Carol Van Zandt

Nicolas Gaillard



By no means do we cover every repeat variety as there are too many. However, by understanding the basic structure of a pattern, you have the knowledge to create any type of design. As a pattern's complexity grows, so do the creative challenges. In the following tutorials, we show how to work with more difficult repeats. From here you can develop your own techniques and solutions for design issues that may arise in your own prints.

Tutorial 1: Drop Step in Illustrator

The technique of designing a drop step is nearly the same as designing a toss or a grid repeat. The only difference is that the “placeholder” swatches drop down a step while you're filling in the repeat.

Step One

Create your repeatable elements. If using symbols, make it into a symbol. If not, make it into a group.

Duplicate and move the swatch to the right and down.

Hints: The move tool might be helpful for moving objects. Objects > Transform > Move

If duplicating by dragging, the Transform tool is helpful. Objects > Transform > Transform again

Step Two

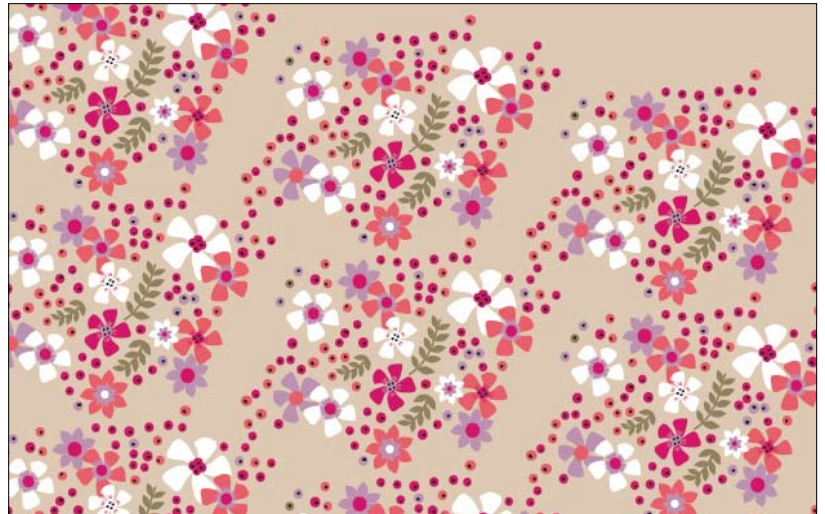
If working in CS3 or higher and with symbols, switch to isolation mode and fill in the gaps.

Note: If you're in CS2 or lower there is no isolation mode. In this case, lock all the groups except the one you're working on.

Step Three

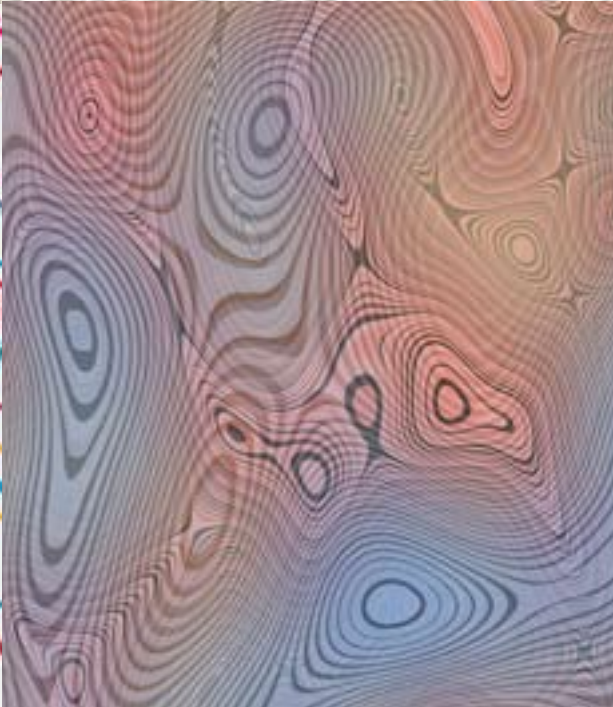
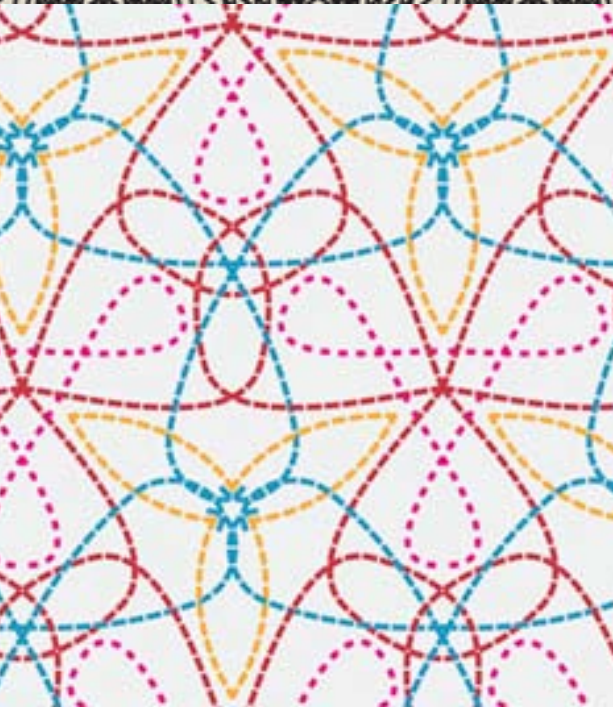
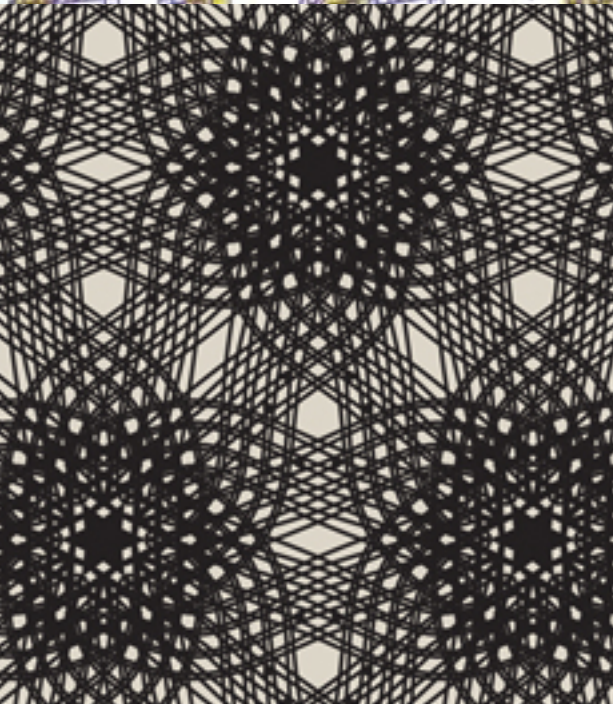
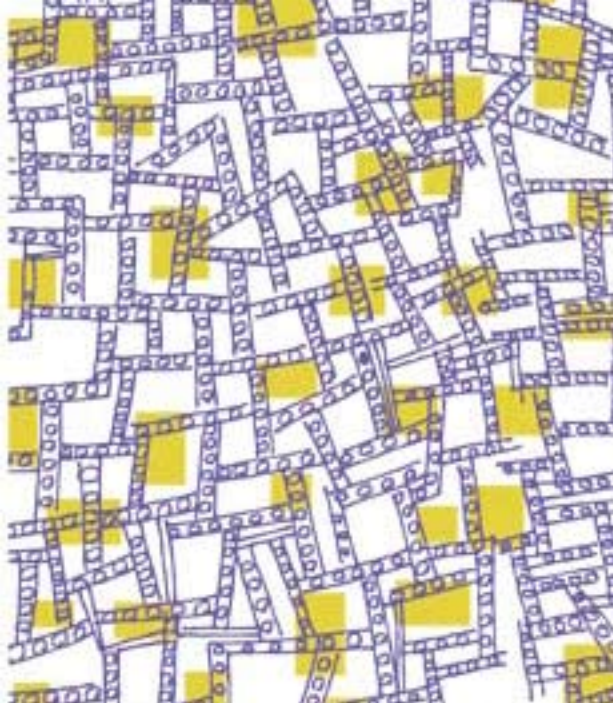
If you're working in symbols, go back to your main stage, and see how the repeat looks.

If you're not in symbols, unlock the locked groups and delete them. Re-work the repeat with your new filled in swatch. If the repeat looks right, then you're done!





Aline Miguel
Amelia Graham
Debbie Clapper
Florinda Orazi
Debbie Clapper
Carol Bailey



Jenifer Hernandez
Jeff Hendrickson
Ted and Rose
Sarah Rhodes
Ted and Rose
Lesya Binkin

Tutorial 2: Symmetrical Repeat in Photoshop

A symmetrical repeat is extremely easy to do and creates many unexpected and interesting results. For these reasons, many designers over-use this type of repeat, making their collections appear unvaried. Although this type of repeat may be simple, it is important to watch out for faces or other objects that might appear where the artwork's seams meet. These unexpected features can cause undesirable effects especially in apparel where repeats must flow in a body-conscious manner.

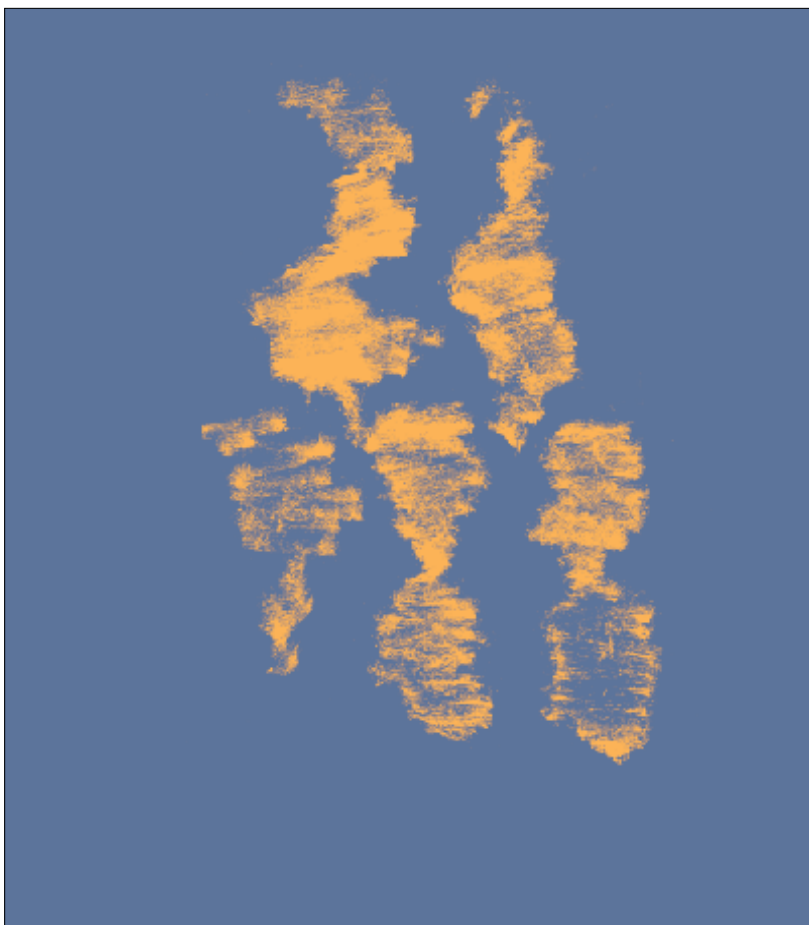
When choosing this type of repeat, make sure your design has enough detail and variety for visual interest.

Here is one way to create a symmetrical repeat with flow and variation from hand painted artwork.



Step One

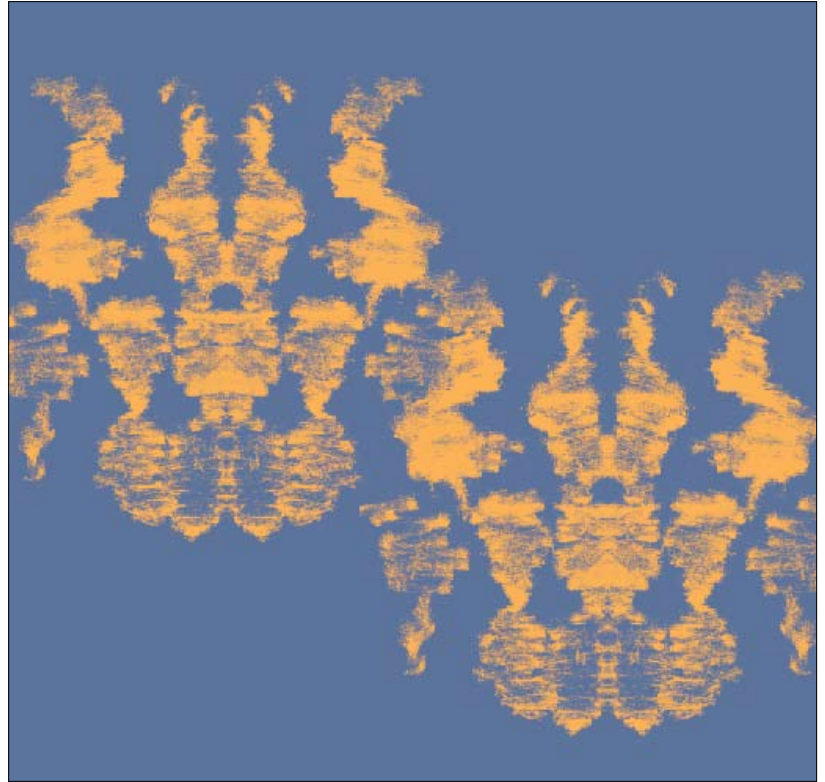
Scan in your artwork and paste it into your document.



Shelley Ward
Emma Schonenberg
Kate Hasted
Sarah Pashley

Step Two

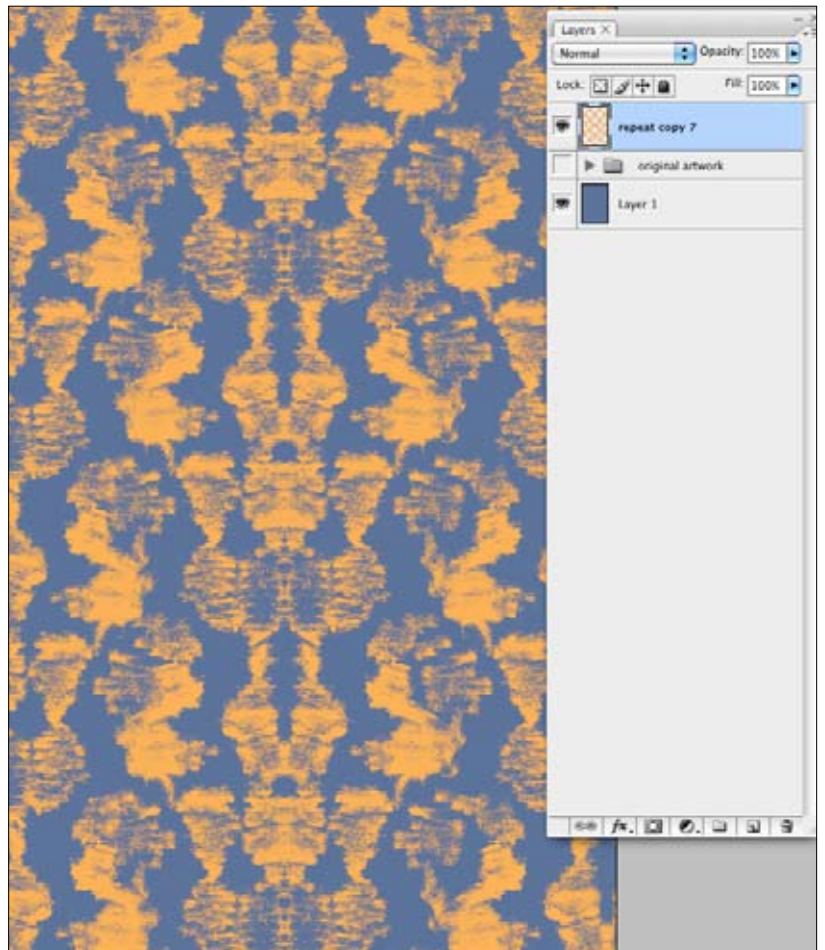
Duplicate your design element and move it directly to the right. Then, flip it horizontally creating a mirrored effect. *Edit > Transform > Flip Horizontal*. This is now your repeatable swatch.



Step Three

Repeat your swatch to create a pattern. We use the drop step technique to give the repeat some variance. We've now created a flowing print from some scratchy paint strokes.

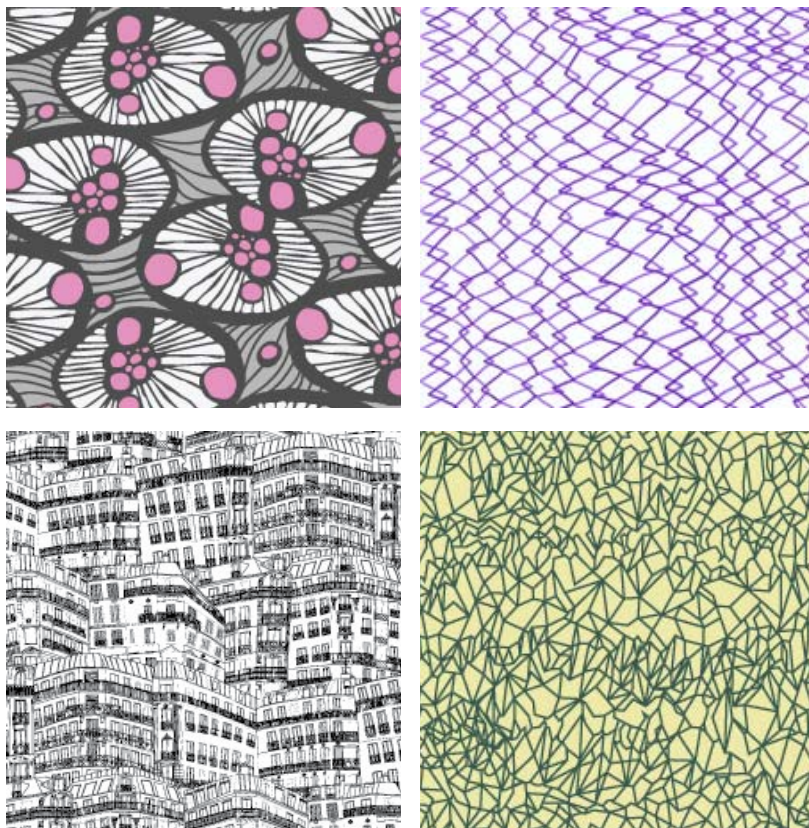
File Organization Tip: Notice the layers palette in the example on the right. There is a folder which contains the original artwork in layers. But, we've also duplicated this folder and merged the layers within it to create a flattened final version of the design. Leave this new flat layer visible and hide the folder with the original art. It's important to keep a copy of the layered design so you can always come back to it if need be.



Tutorial 3: Hand-drawn Interlocking Repeat in Illustrator

There are many ways to create seamless interlocking repeats and the previous toss tutorials will work for most designs in this category. Interlocking patterns can also be based on a grid and if created on the computer, can be quite easy to turn into a swatch. However, hand-drawn or painted artwork adds a level of complexity to this process.

The following tutorial shows you how to leave every part of your design hand-drawn and achieve a seamless interlocking repeat. The use of a printer and scanner are necessary for this exercise.



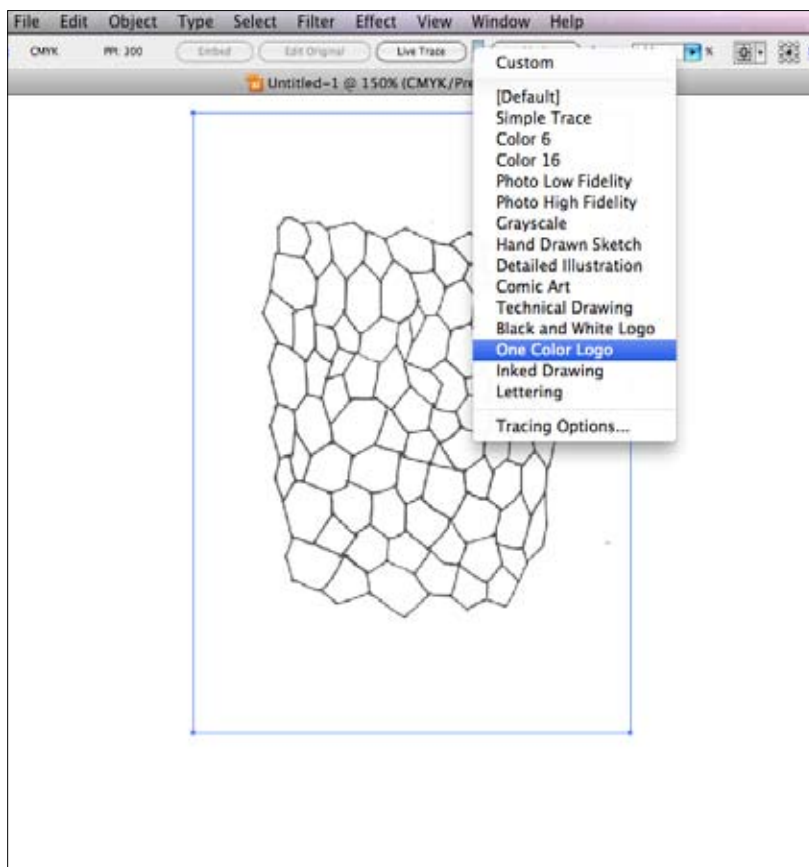
Step One

Scan in your artwork and open it in Illustrator.

Step Two

Make sure your *Control* window is open (*Window > Control*.) While your artwork is selected, go to the drop-down menu near *Live Trace* and select, *One Color Logo*. This will create a vector version of your artwork.

Note: In earlier versions of Illustrator, Live Trace can be found under the Objects menu.



Carol Van Zandt
Karolyn Morovati
Jessica Hogarth
Nicolas Gaillard

Step Three

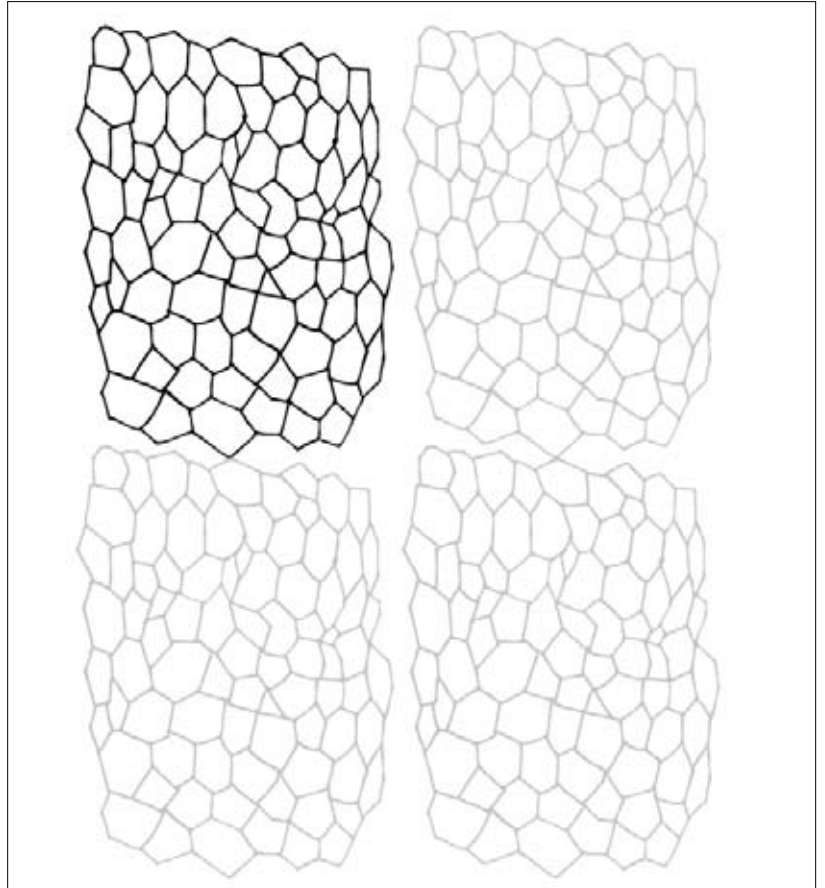
Duplicate your artwork across and down, making sure you'll have enough room to fill in the empty spaces between your objects.

Step Four

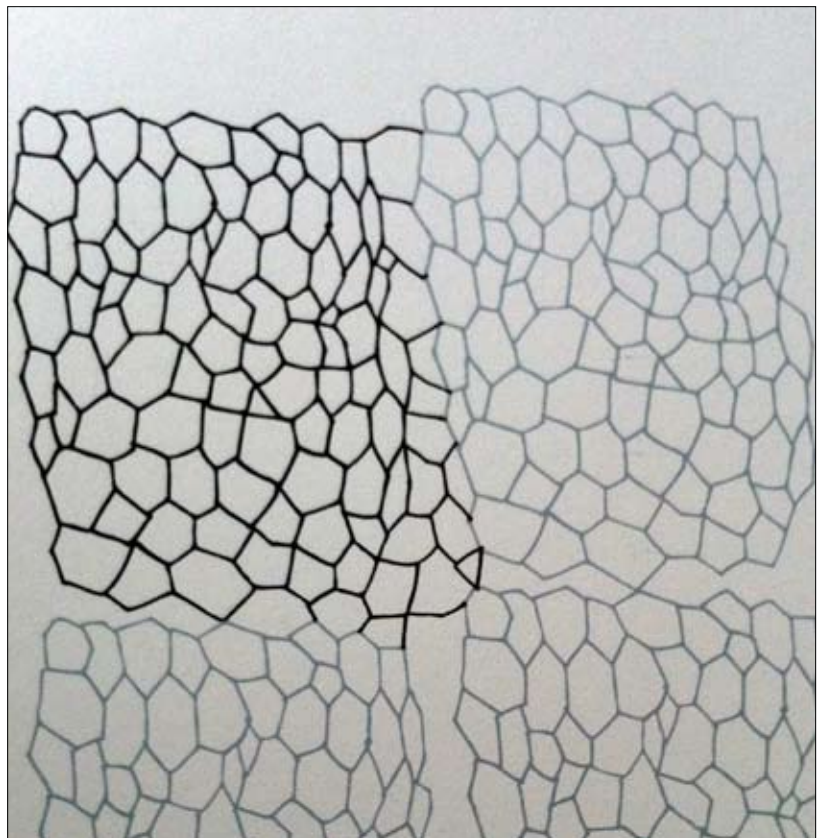
Keep one of your objects black while making the other ones a lighter color.

Step Five

Print a version of your artwork as set up in the step above.

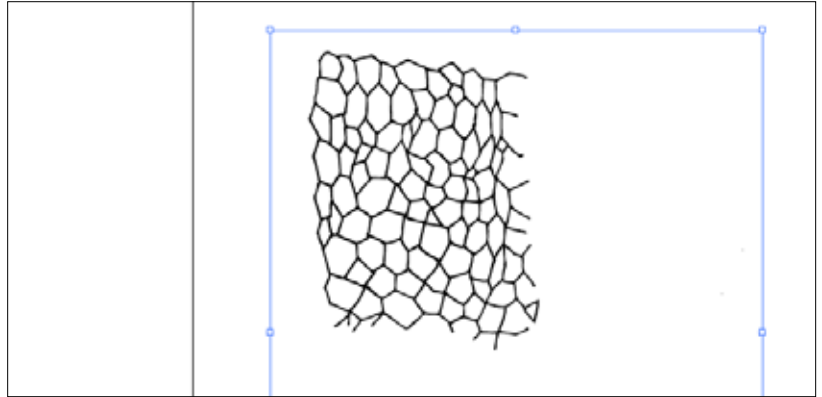
**Step Six**

Fill in the space surrounding your artwork connecting it to its duplicate on the side and bottom.



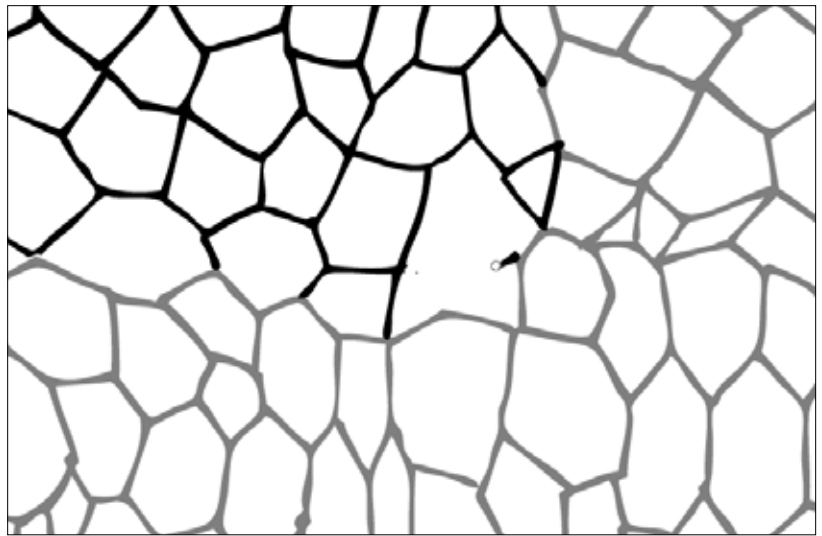
Step Seven

After scanning and importing, use *Live Trace* to vectorize your artwork once again. If you choose the *One Color* setting again, Illustrator will not read the lighter areas that you used as your place-holders. Select *Expand* again.

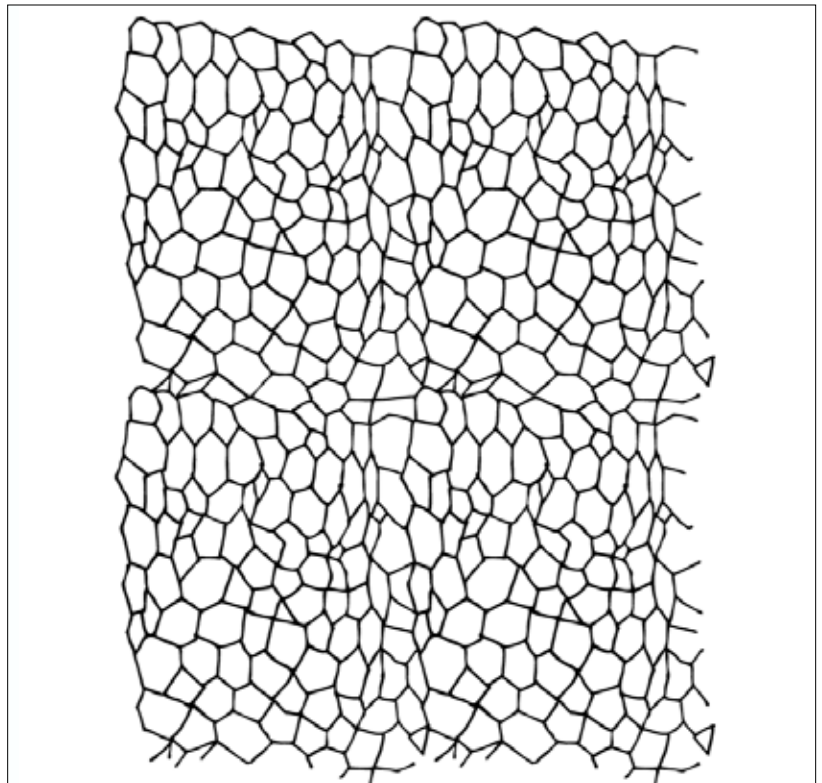


Step Eight

At this point, there are probably minor tweaks you'll need to do. Turning your artwork into a symbol as you make changes will help save time. If you're not using symbols, don't forget to erase the non-tweaked swatches and re-configure your repeat with the newly adjusted version.



...And you're done!

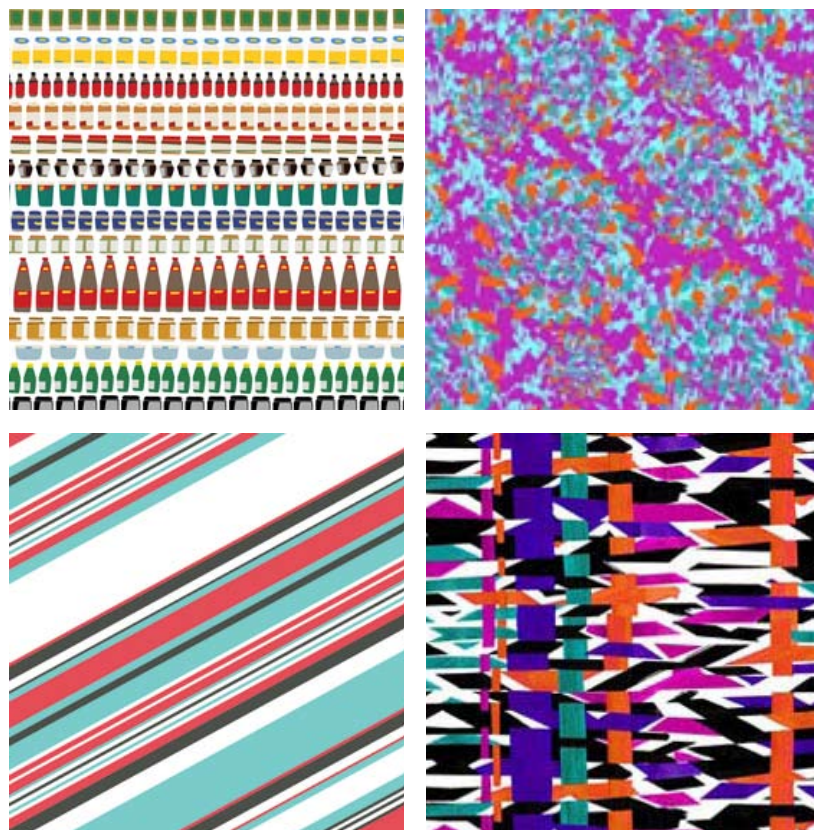


Tutorial 4: Diagonal Stripe in Illustrator

Some stripes can be easy to repeat, especially vertical or horizontal ones created on the computer. But what do you do with a hand-drawn or hand-painted stripe, let alone creating one that's diagonal? These all pose their own challenges and in the following tutorial we'll show you how to create a diagonal stripe as well as offer tips for dealing with the others.

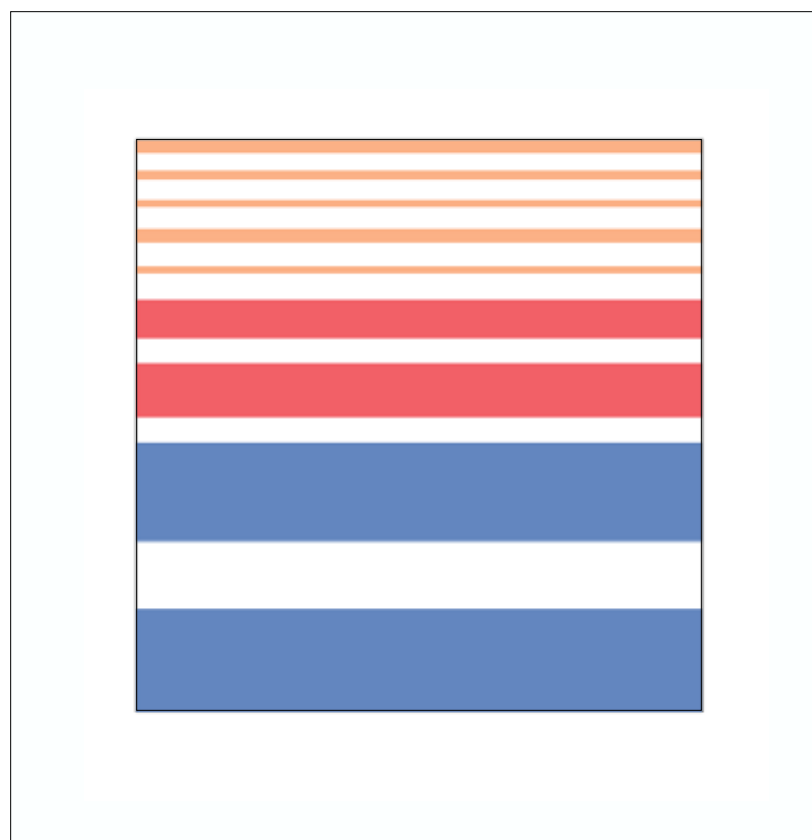
For hand-drawn stripes that you'll repeat in Photoshop, try using a ruler as a guide when drawing or painting your lines. Once in Photoshop, you can then use the brush tool to complete the connections between repeated elements.

For hand-drawn stripes that you'll repeat in Illustrator, use graph paper to keep your stripes lined up and even. Small tweaks will probably be necessary once you bring the artwork into the program.



Step One

Create a stripe design that is equal in both height and width and fits within a perfect square. A black stroke around the square is used as a guide. Remove it after you've created your design.



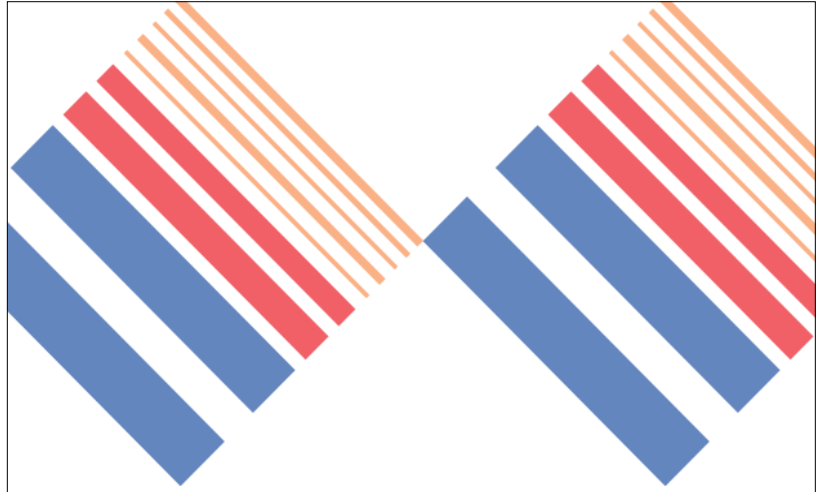
Eva Joly
Mysia Detko
Lauren Willhite
Mathilde Brégeon

Step Two

Turn your stripe square 90 degrees. We'll use the diamond structure to create our repeat.

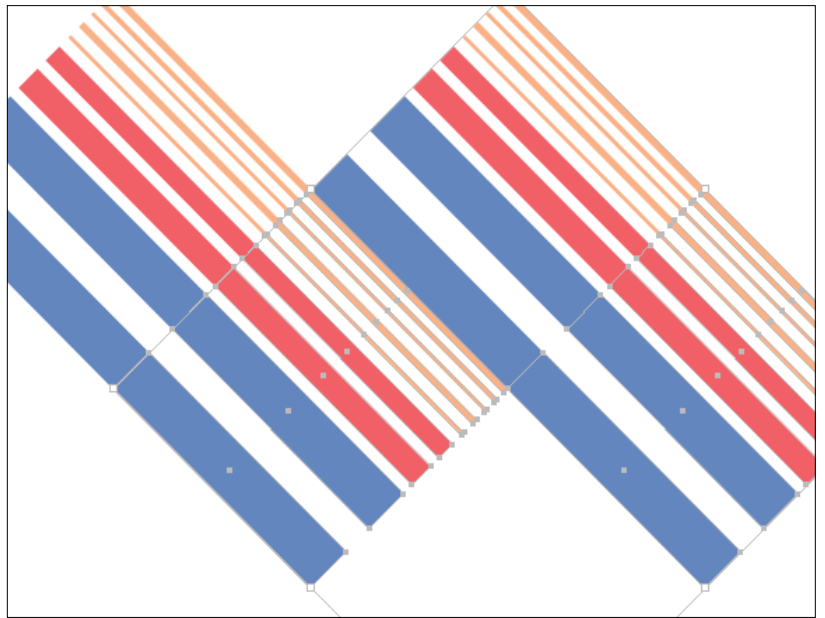
Step Three

Duplicate your diagonal square horizontally, so that the two squares barely touch at the corners.



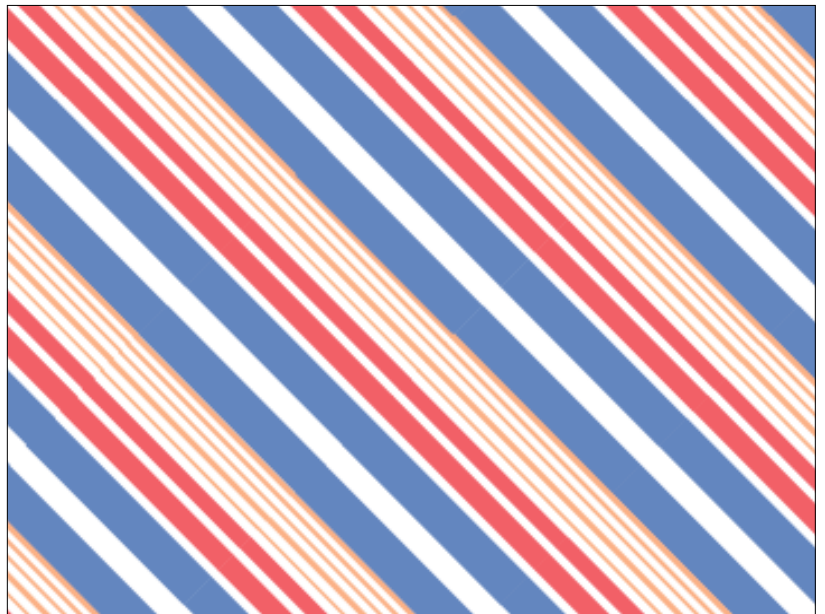
Step Four

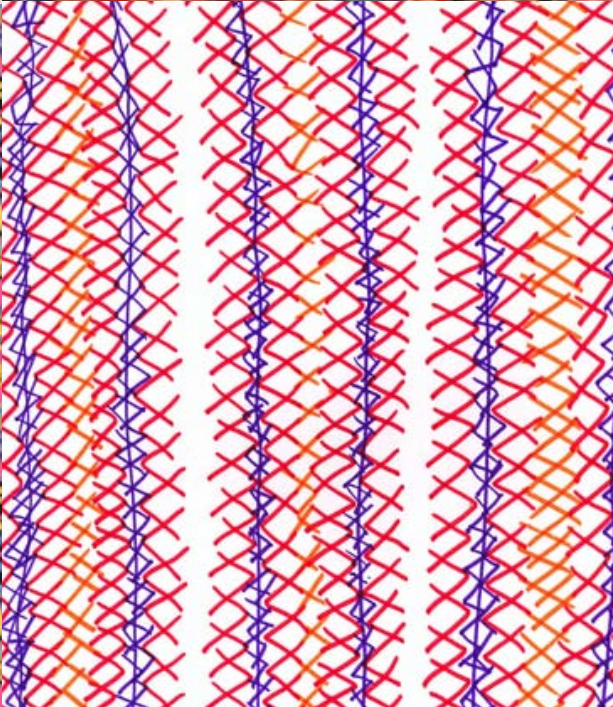
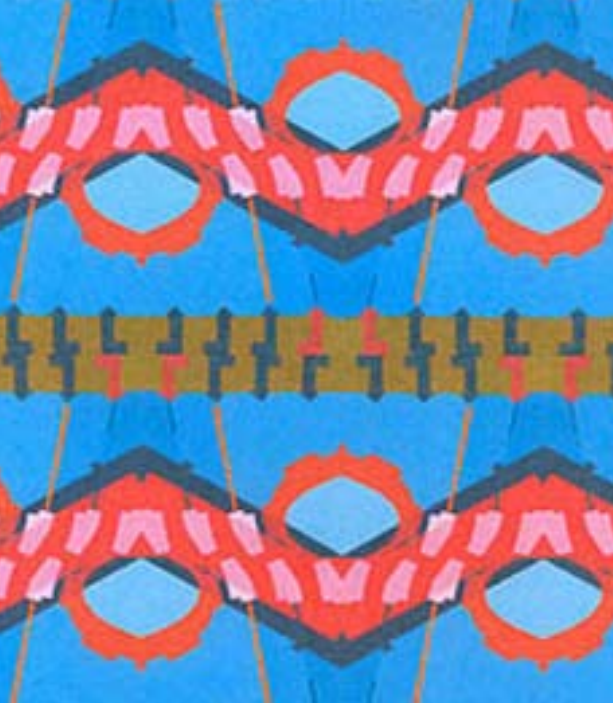
Duplicate the two squares again and move them down and to the side until they fit into the squares above.



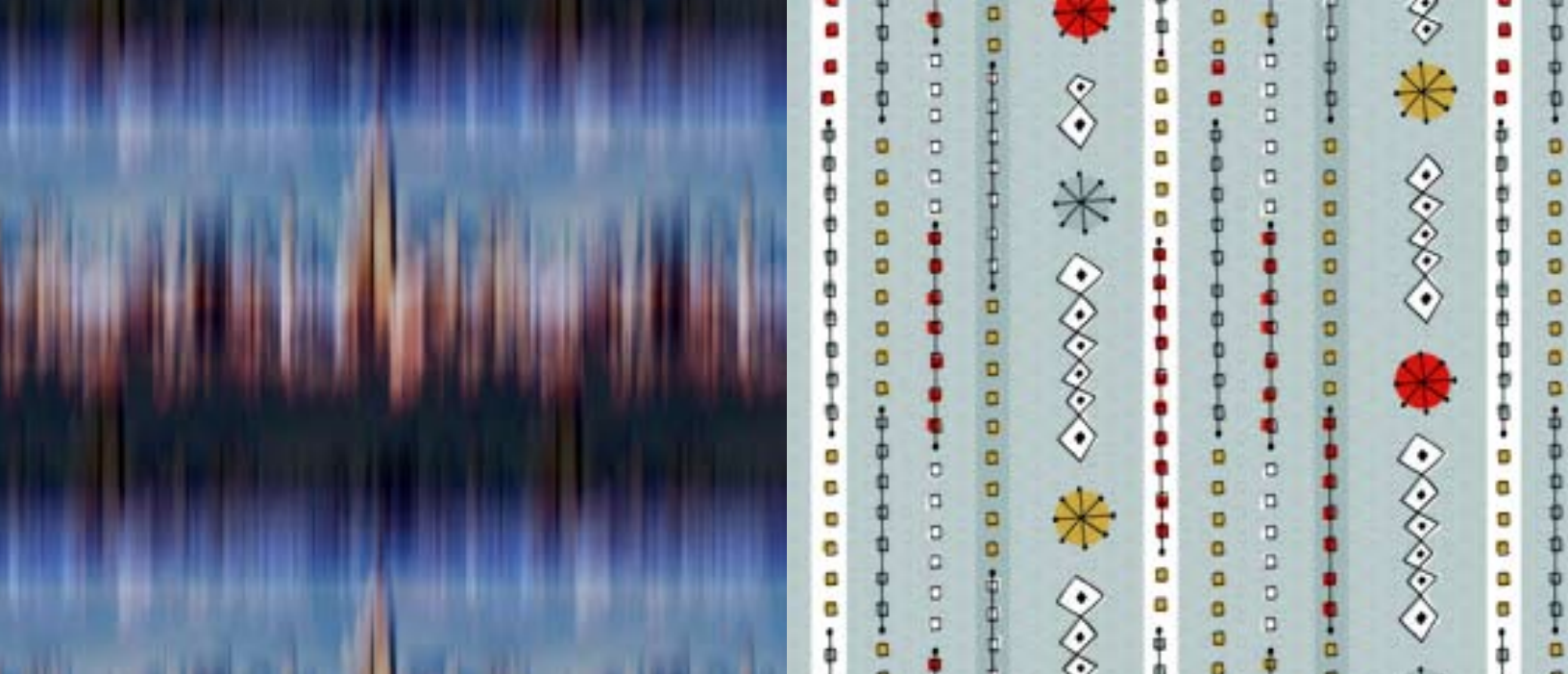
Step Five

Continue duplicating your elements and a diagonal repeat will appear. This design should repeat side to side and top to bottom. To create a factory swatch from here, simply reference the steps described in the earlier tutorial.





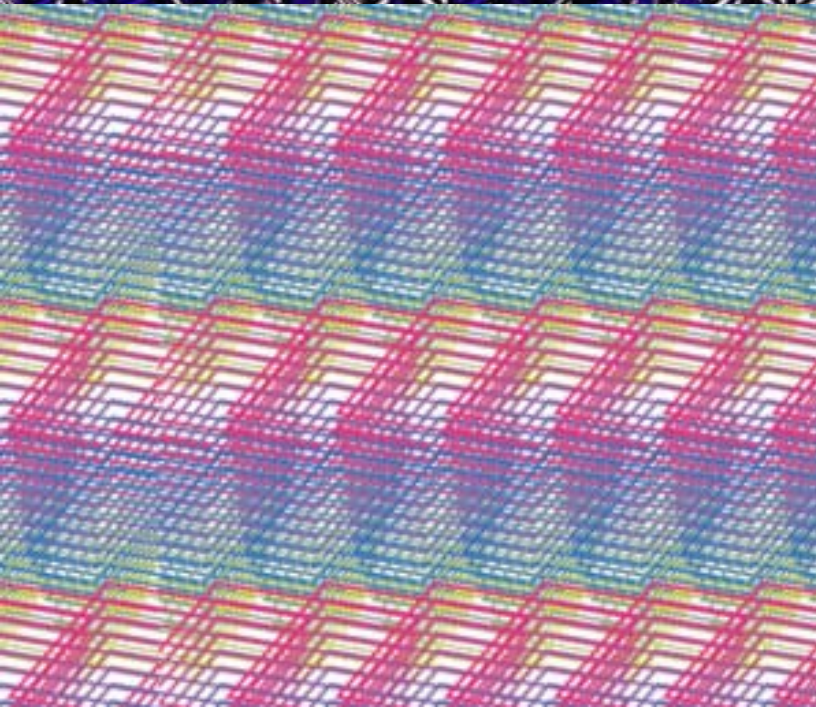
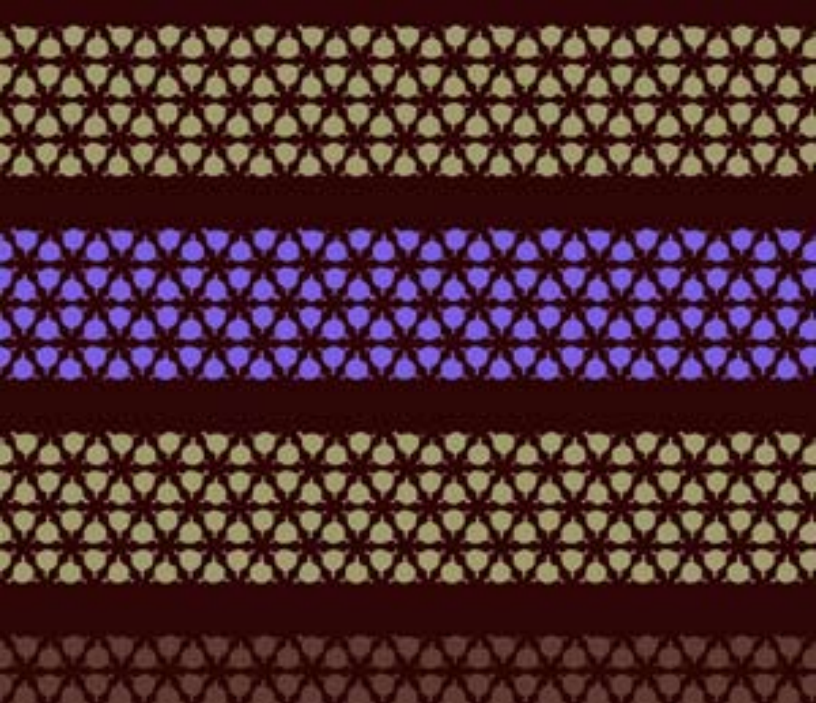
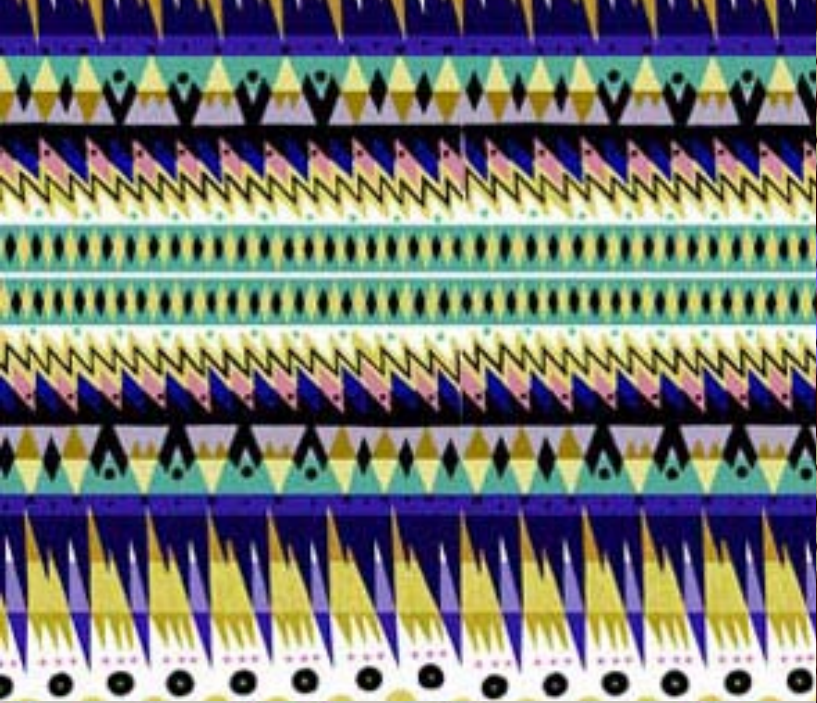
Emelizza Santos
Karolyn Morovati
Mathilde Brégeon
Coralie Prevert
Mysia Detko
Karolyn Morovati

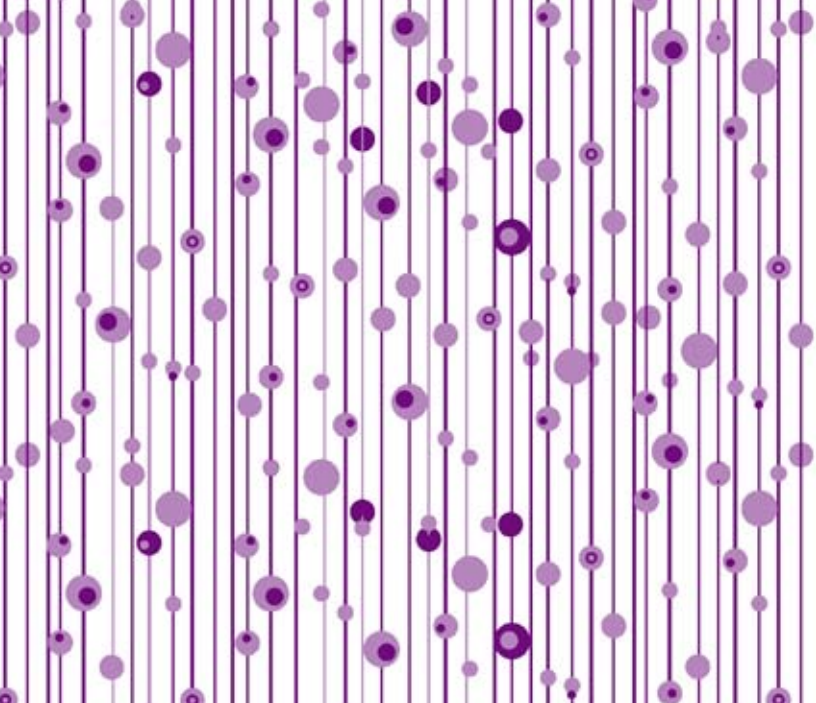




*Gemma Davison
Ted and Rose
Lara Nedeltscheff
Feng Liang
Frances Moran*

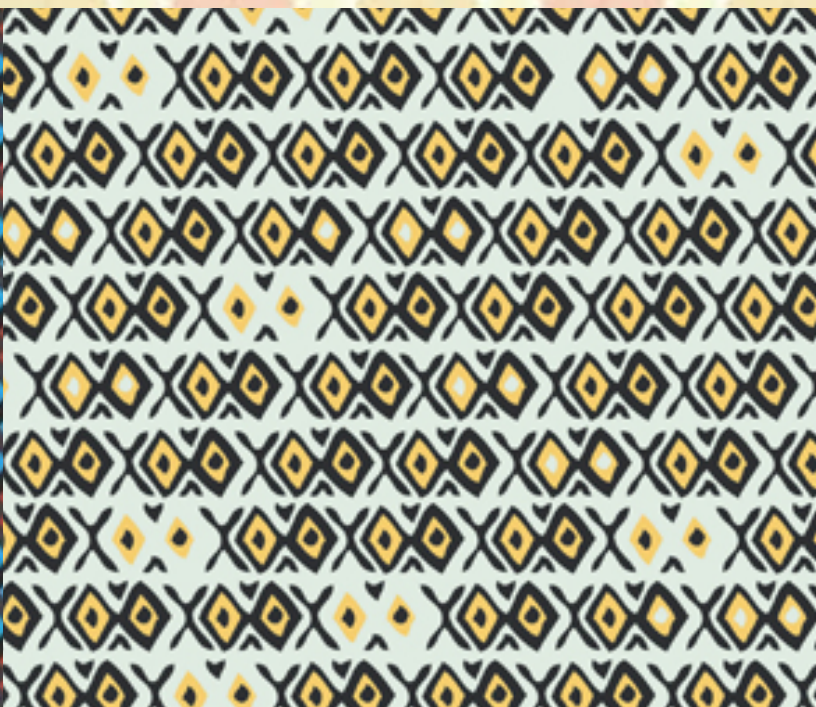
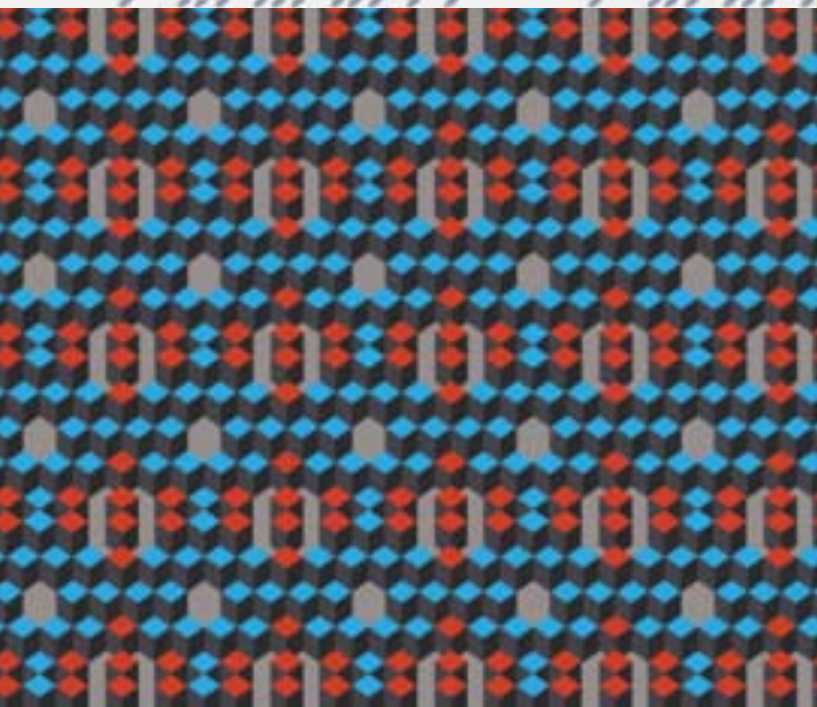
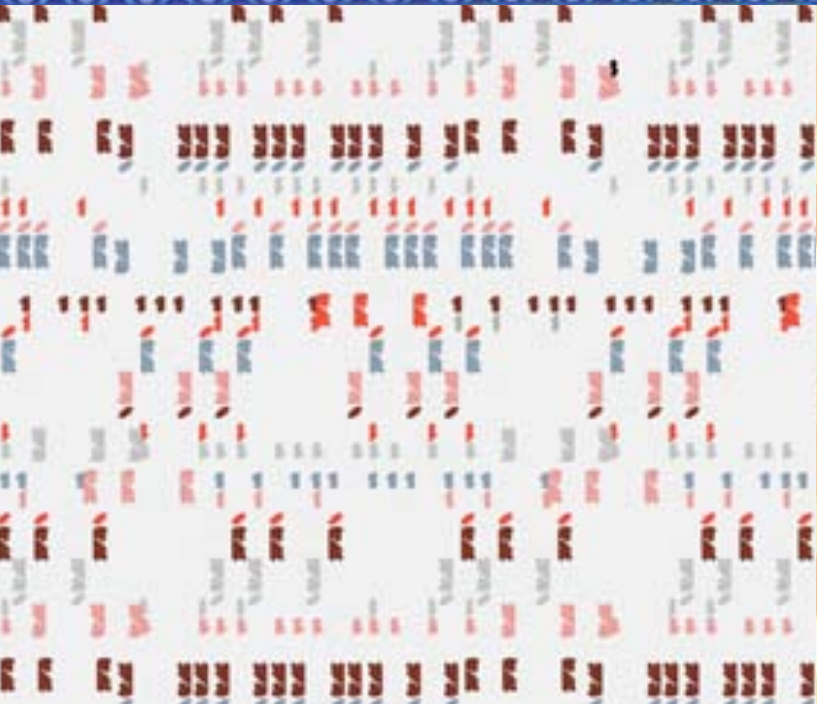
*previous page
Carol Van Zandt
Liz Smith
Chelsey Bills
Dom Marshall
Chelsey Bills
Whitney Barnes Catarella*





Pattern People
Ana Laranjeira
Shelley Ward
Richard Baker
Vicky Croydon

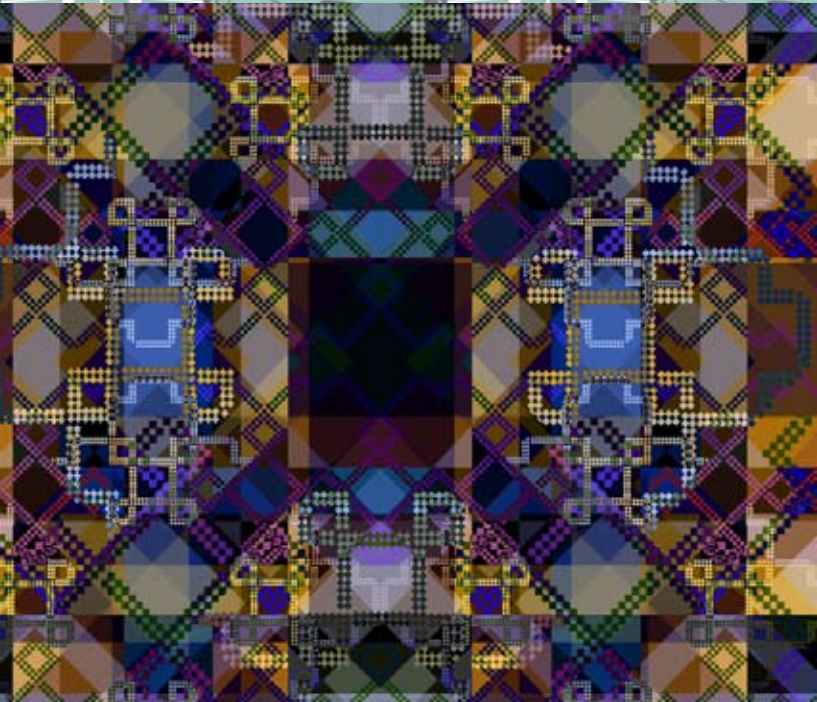
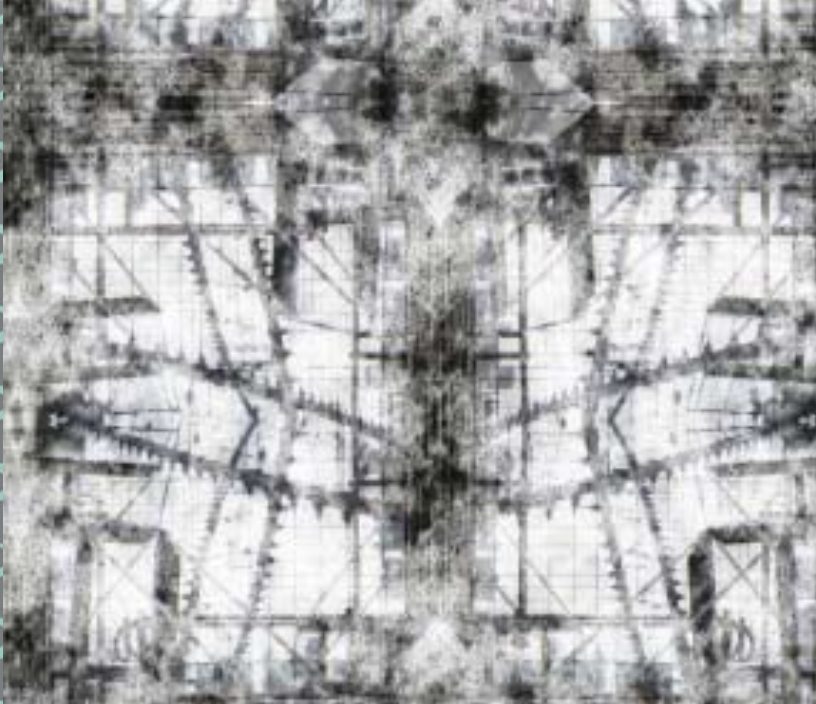
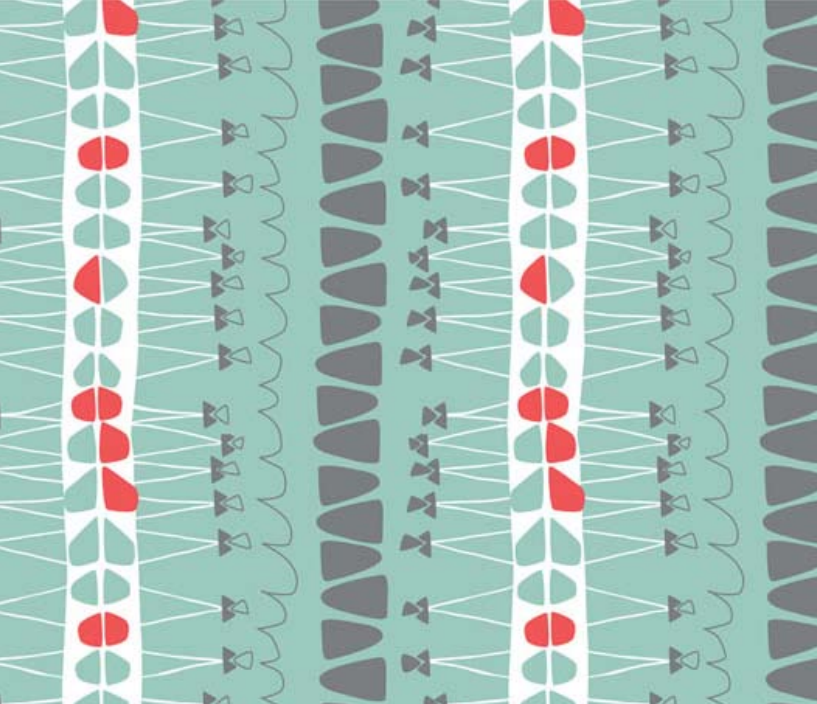
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Mathilde Brégeon
Patricia Miranda
Laura Fernandez Garcia
Mathilde Brégeon
Sarah Pashley
Rosario Solis





*Megan Steele
Dana Morales
Francesca Lahiri-Langley
Rita Fuerstenau
Neige Borges*

*previous page
Stefanie Sadowsky
Rita Jardon
Rachael Beresh
Rita Jardon
Rosario Solis
Rachael Beresh*

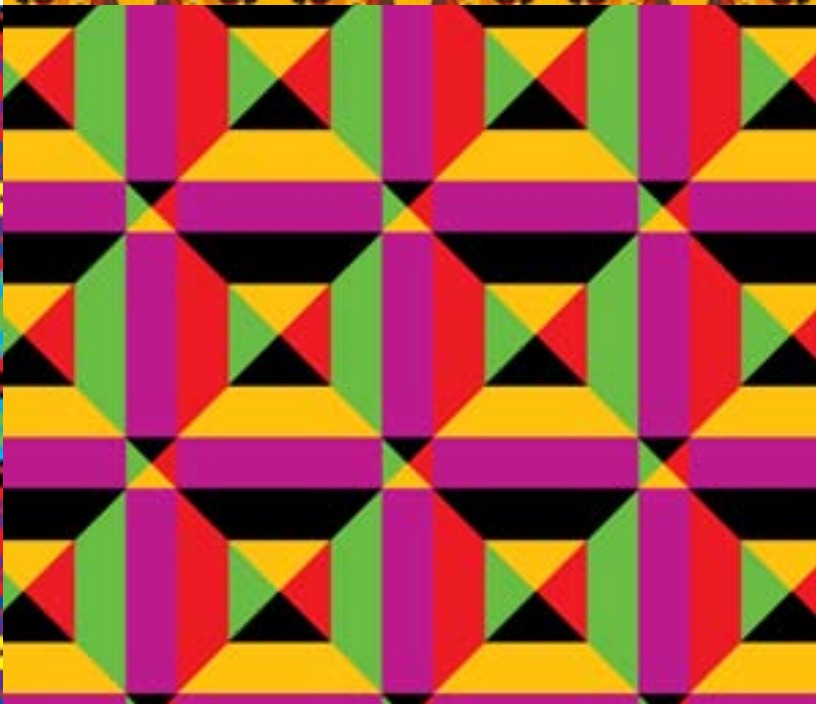
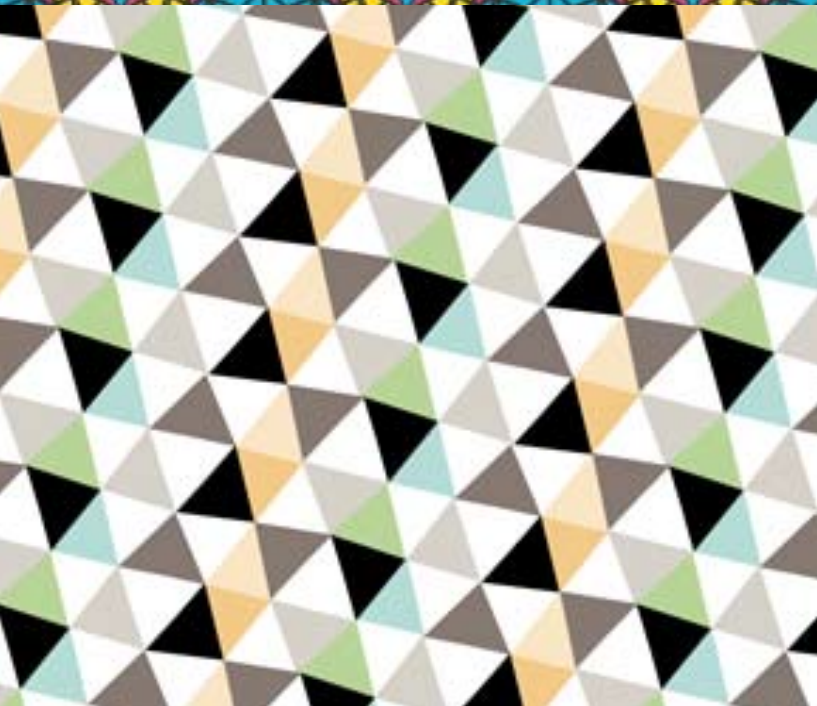


The world of pattern design is endless once you understand the basic principles to creating a repeat. We hope these tutorials have proved helpful, providing you with techniques which can be developed and honed on your own. As with all things, practice makes perfect so continue to explore and try new methods. This can release your creativity and push your design skills to another level.

If you have any tips you'd like to share or have a vexing problem that needs a solution, please visit our forum and share with the community.

We also welcome any feedback or comments on our blog, facebook page or twitter page.

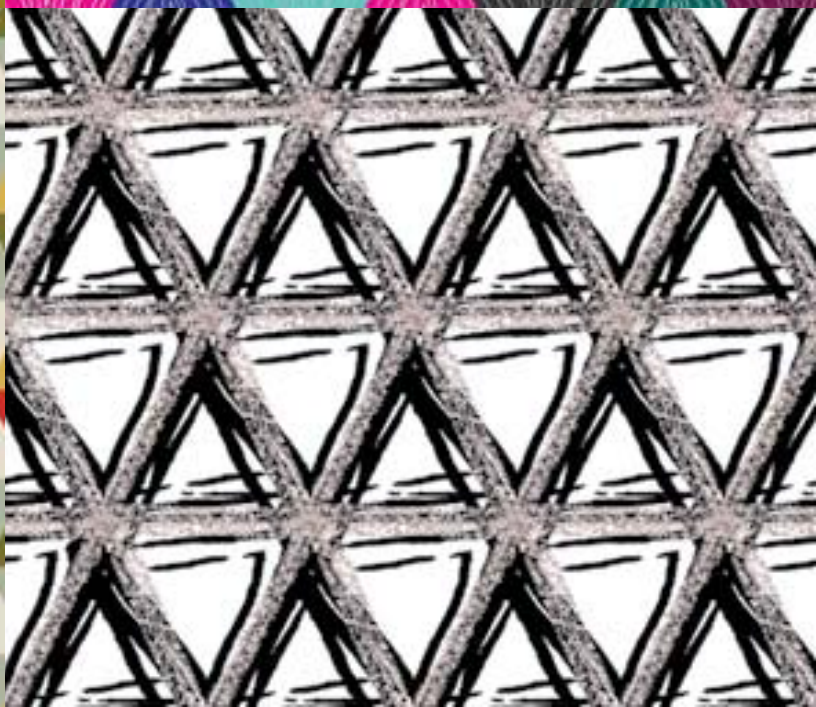
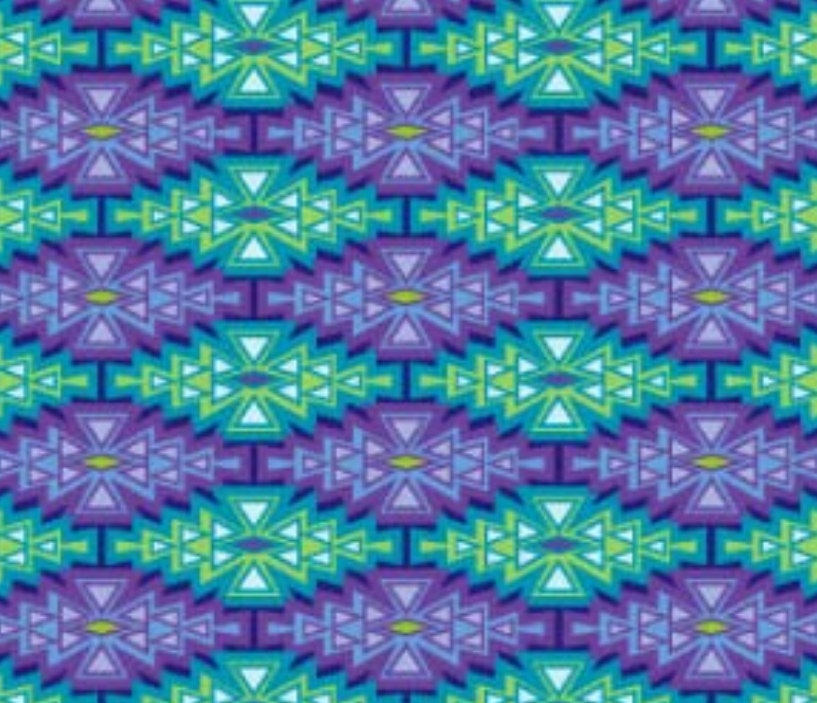
Happy Patterning!

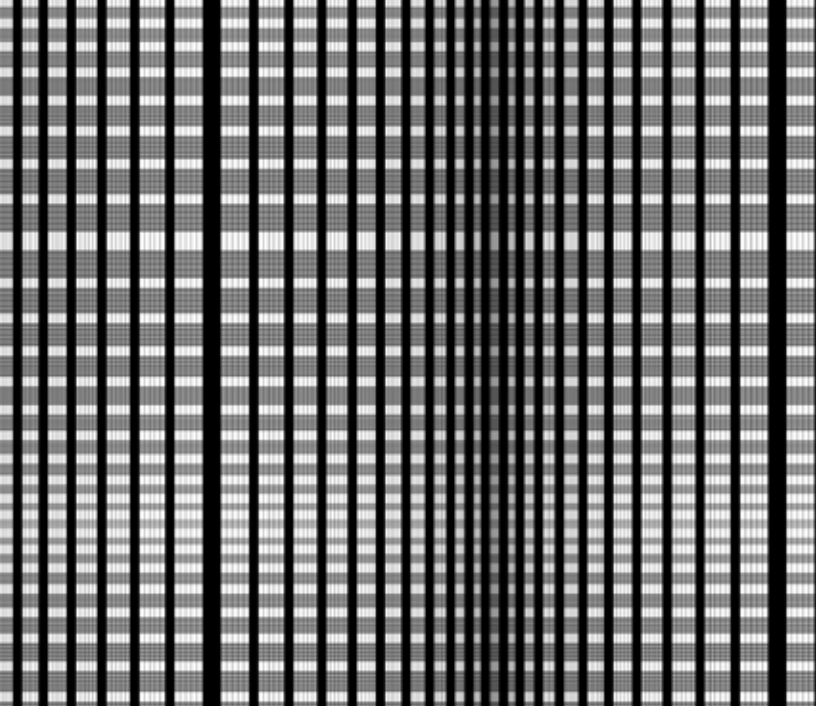




*Ruchi Bhargava Vrinda
Emelizza Santos
Stefanie Sadowsky
Rachael Beresh
Juliana Ferraz Vasconcellos*

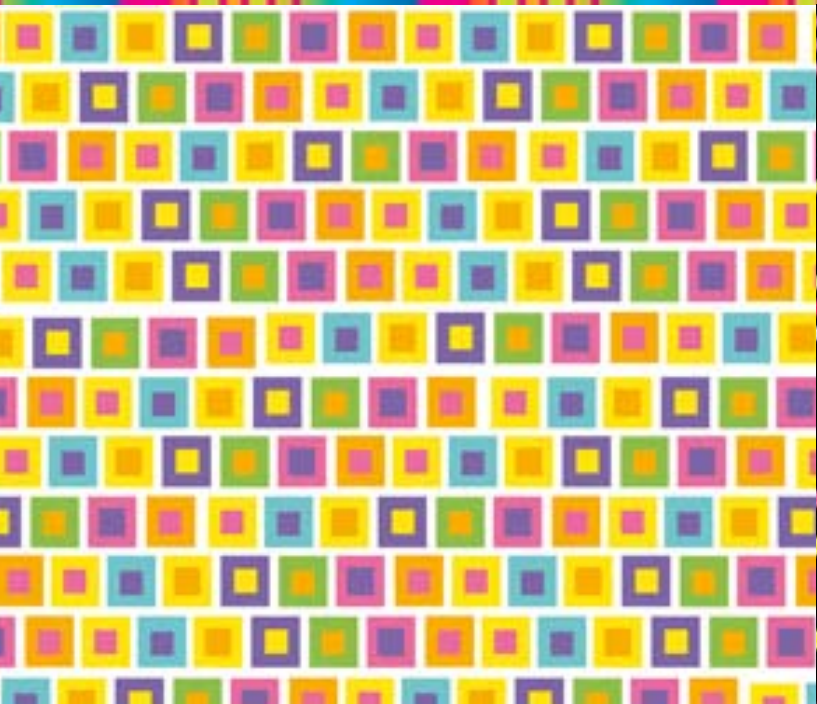
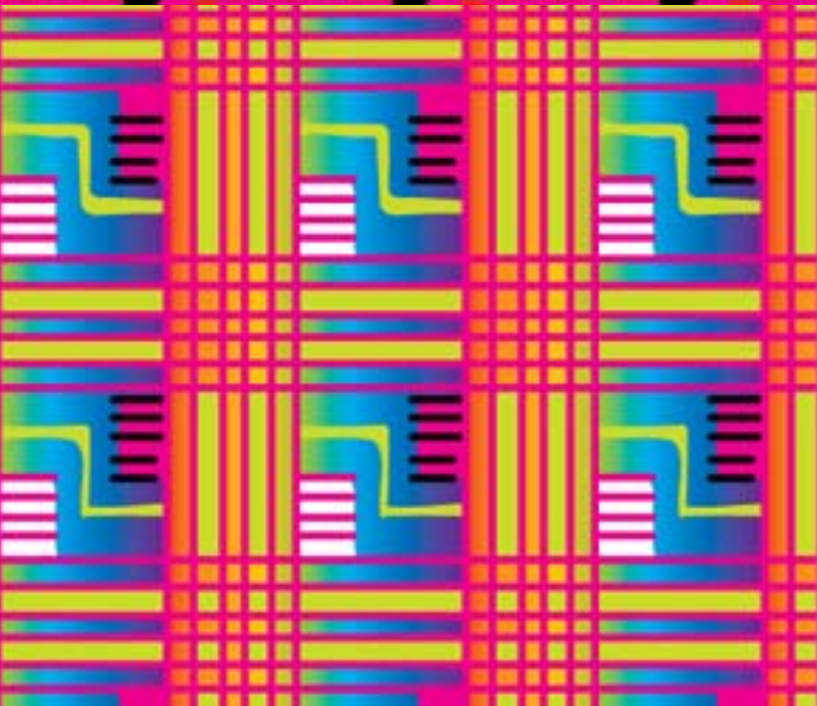
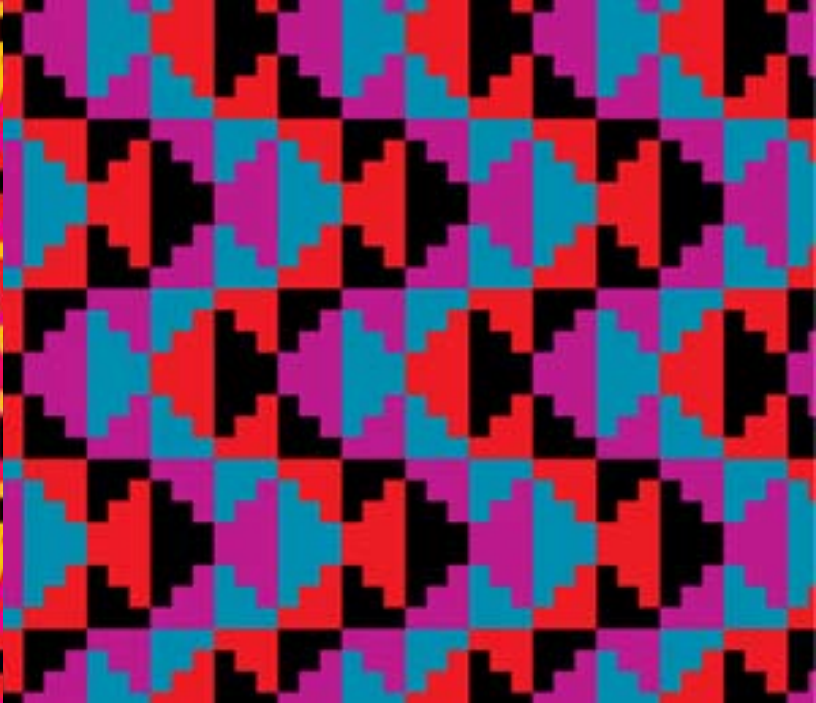
*previous page
Nicolas Gaillard
Diana Skylacos
Maryse Berthet-Pilon
Rachel Wines
Charlotte Gale
Charlotte Gale*





*Stefanie Sadowsky
Jeff Hendrickson
Jenni Calo
Ana Laranjeira
Karolyn Morovati*

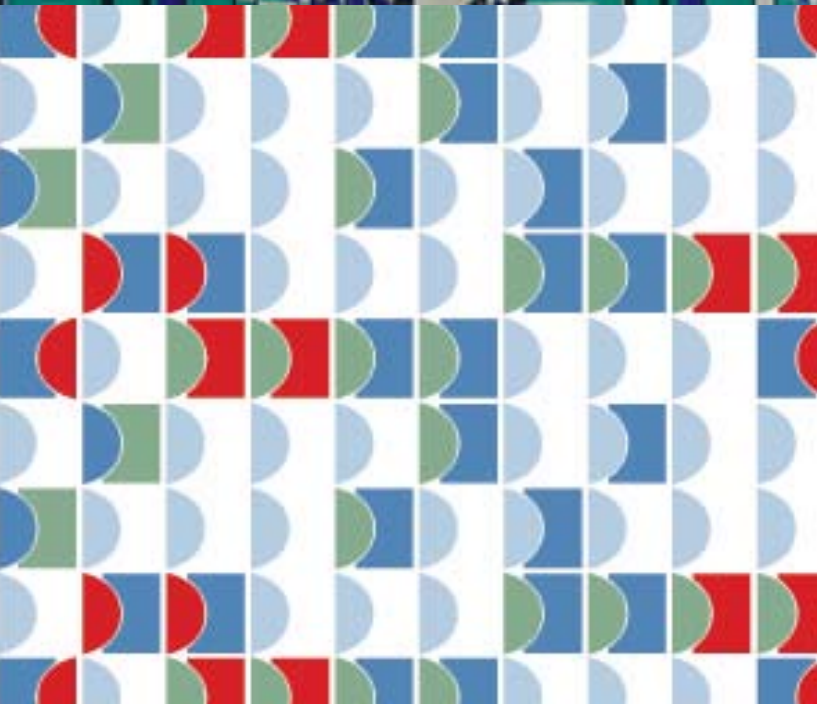
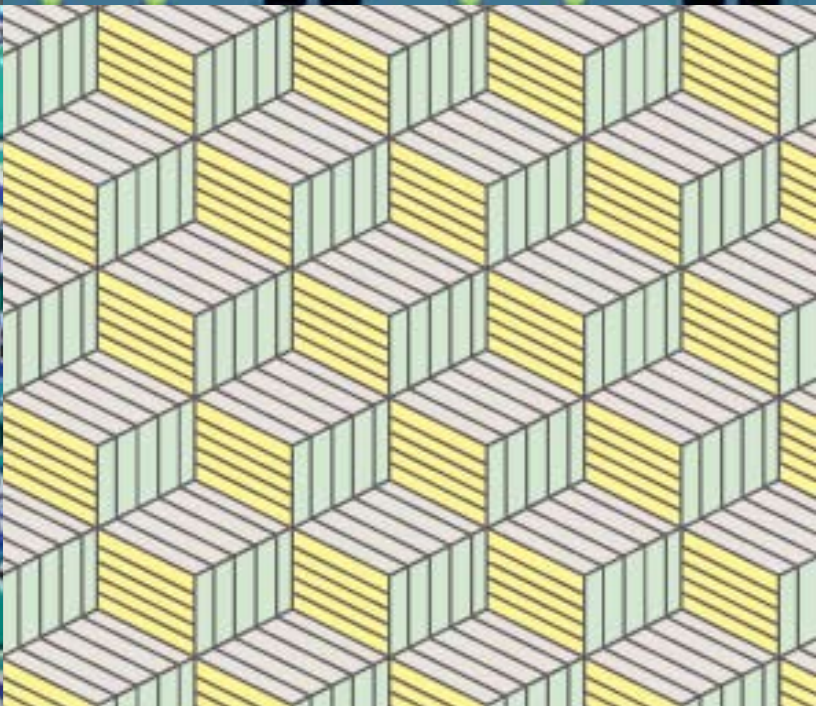
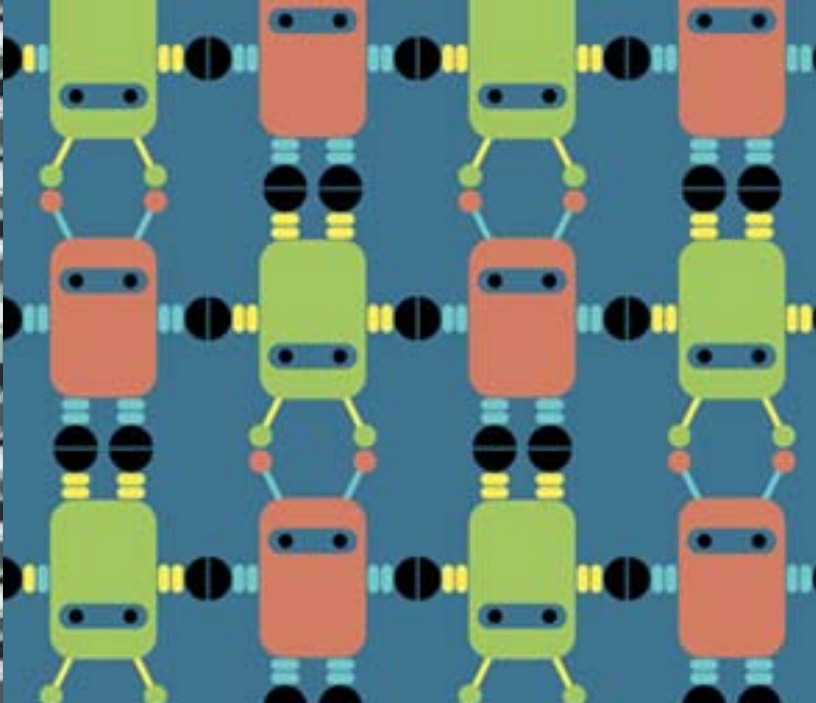
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Stefanie Sadowsky
Stefanie Sadowsky
Nicolas Gaillard
Lydia Meiyang
Gabe Lanza
Eva Carlavilla*

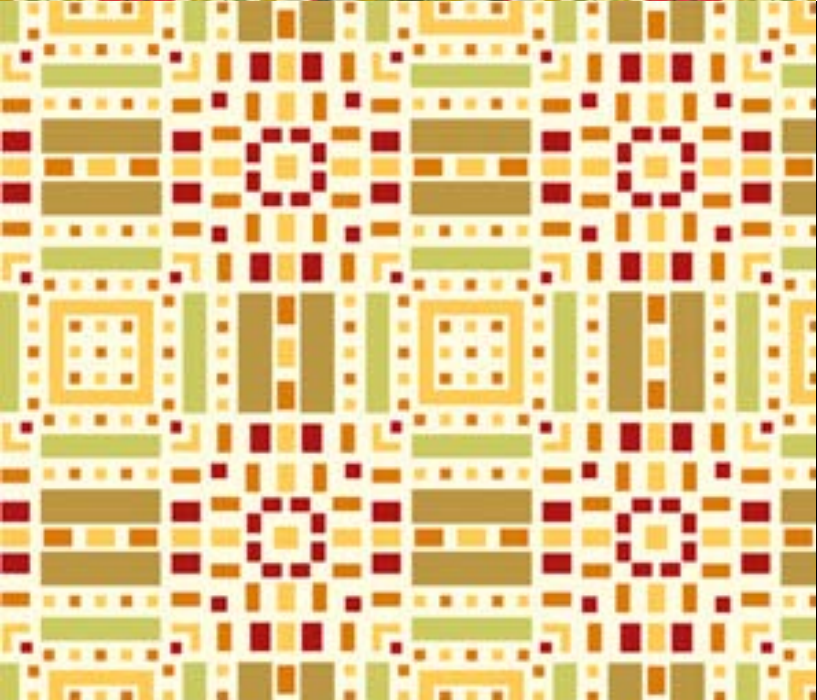
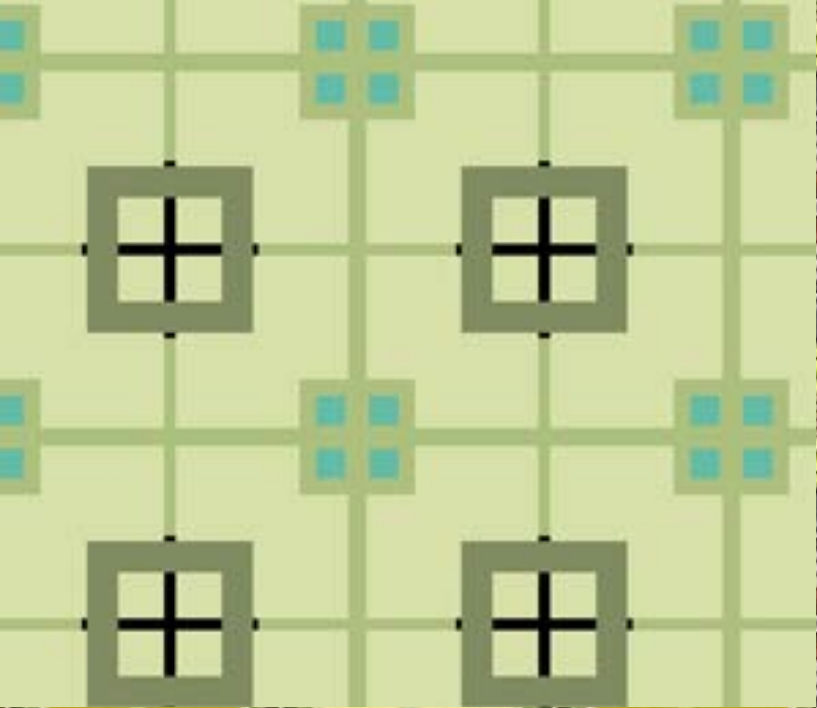




*Amy Hillyard
Frances Moran
Coralie Prevert
Coralie Prevert
Laura Wolfram*

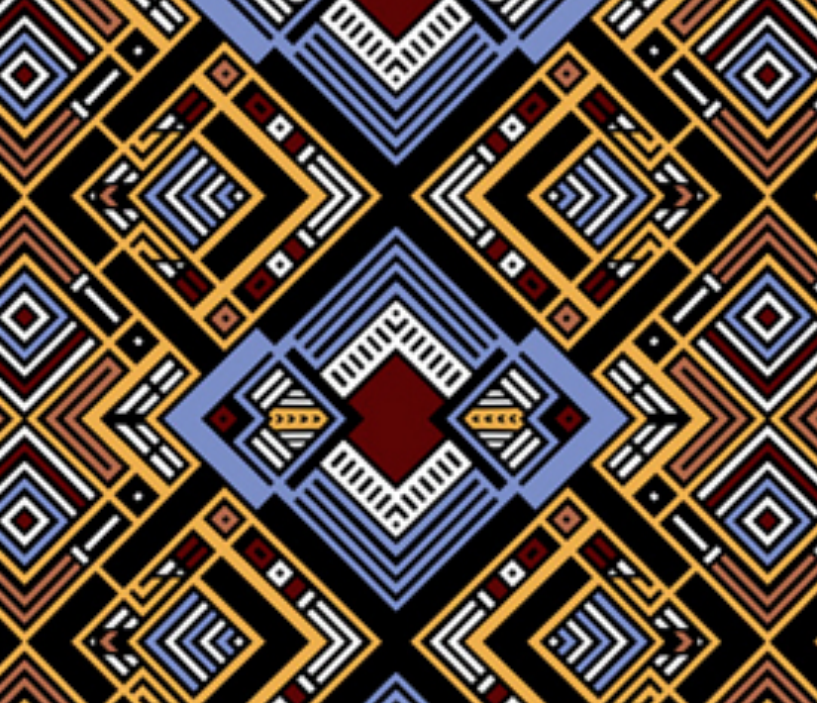
*previous page
Charlotte Gale
Charlotte Gale
Charlotte Gale
Charlotte Gale
Maryse Berthet-Pilon
Maryse Berthet-Pilon*





*Richard Baker
Tracy Miller
Tracy Miller
Ted and Rose
Ted and Rose*

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Leigh Bagley
Francis Moran
Katie Clement
Nicolas Gaillard
Open Face Sandwich
Open Face Sandwich*

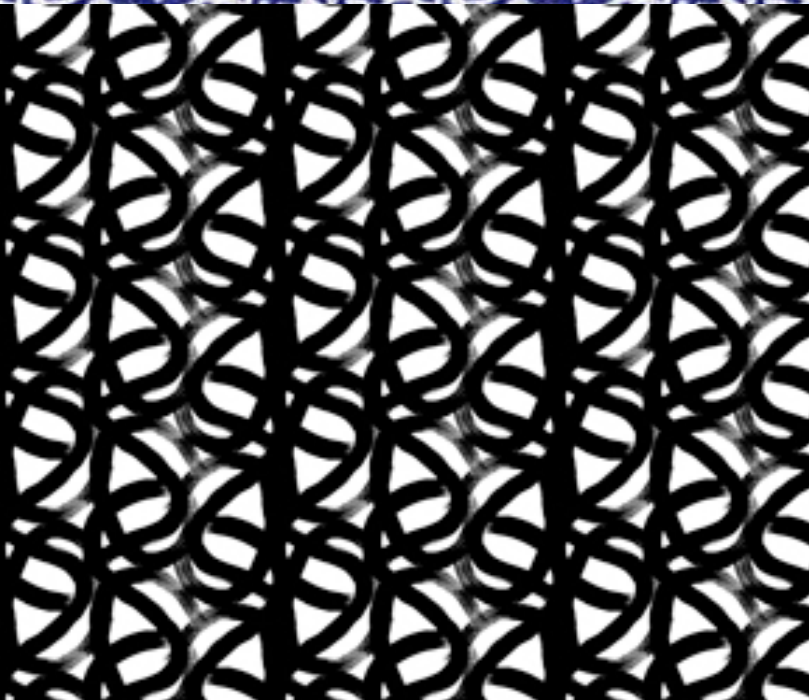
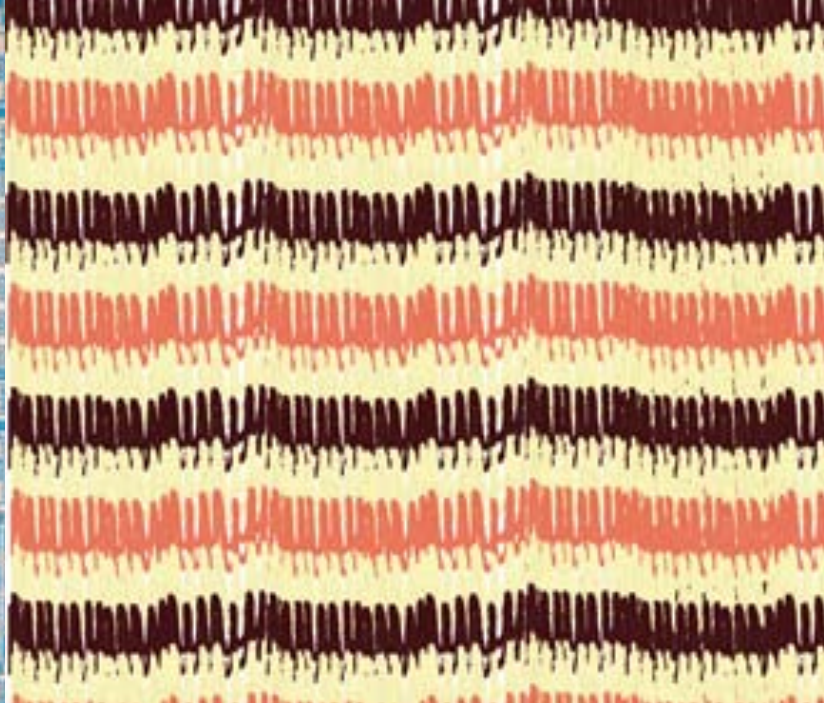
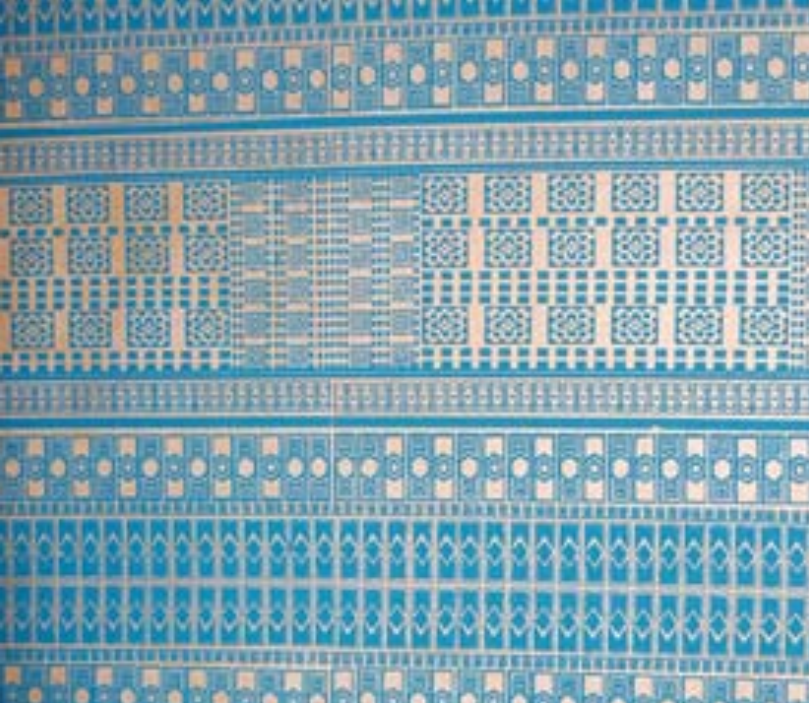




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Jiah Harrison
Eva Carlavilla
Carol Van Zandt*

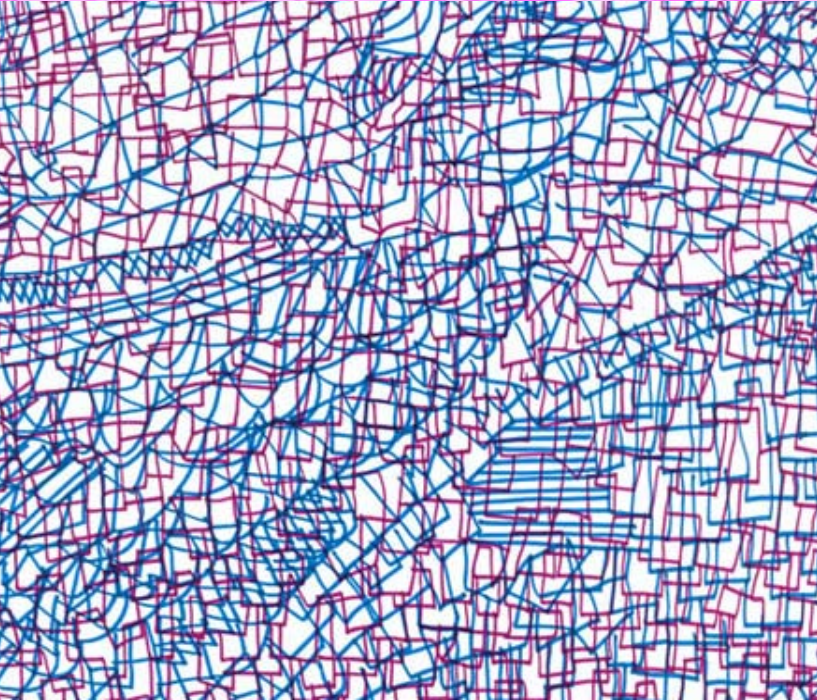
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Moyra Jones
Suzanne Washington
Dana Garczewski
Michele Blackwell
Gabe Lanza*

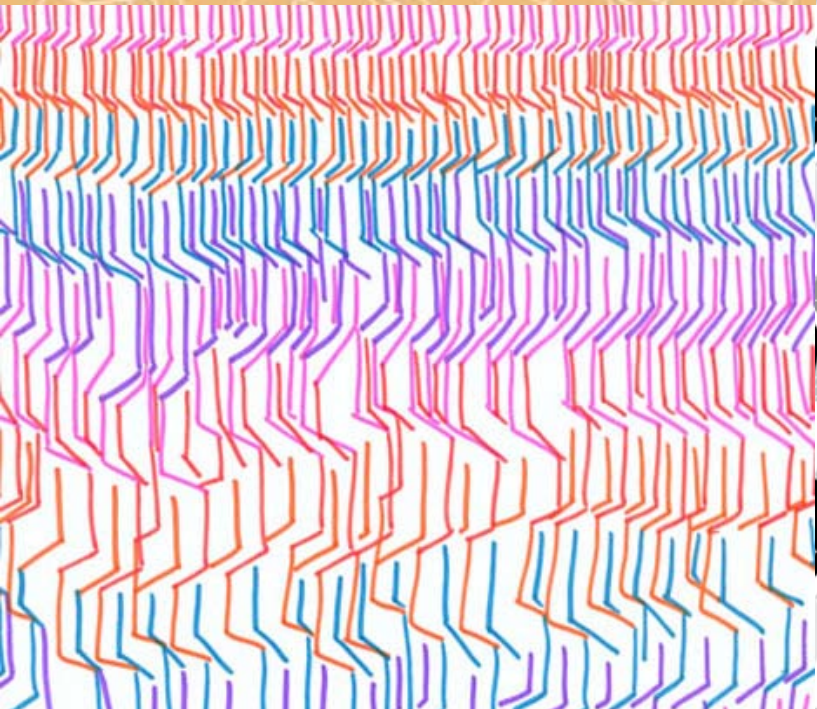
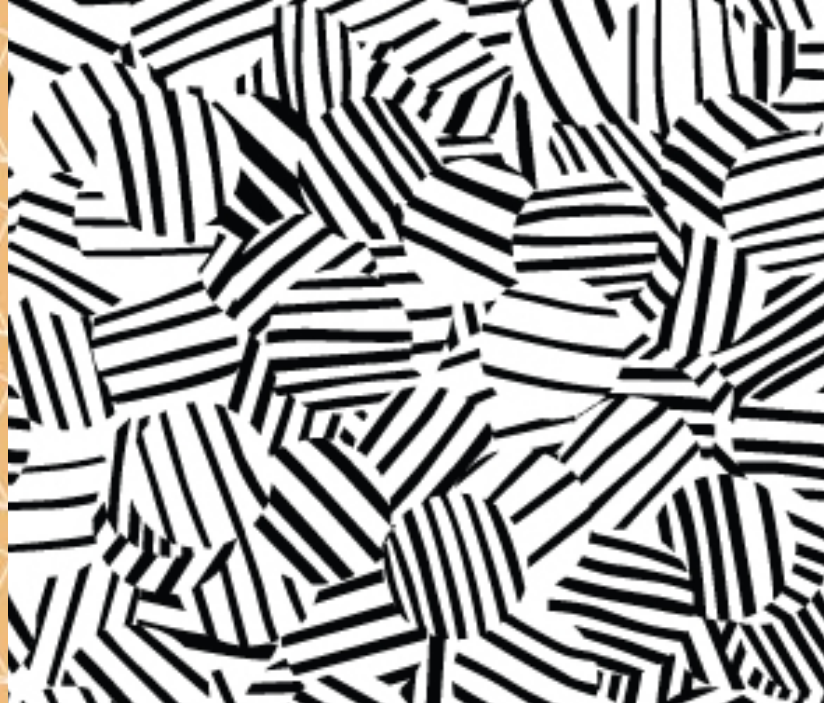




*Katie Clement
Valeria Boelter
Alexandra Coyle
Pattern People
Ciana Bodini*

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Aline Miguel
Coralie Prevert
Edward Chan
Hannah Yoon
Carol Van Zandt
Nicolas Gaillard*





*Rachael Beresh
Horizontal Studio
Karolyn Morovati
Ana Laranjeira
Melissa Luchini*

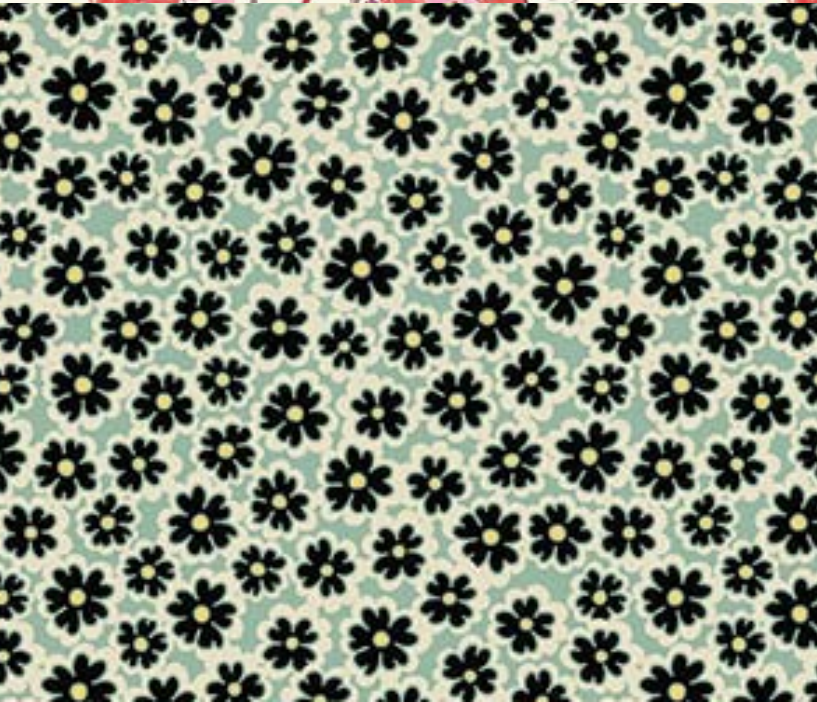
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Virginie Ozanon
Nikki Strange
Lital Gold
Karolyn Morovati
Ted and Rose*

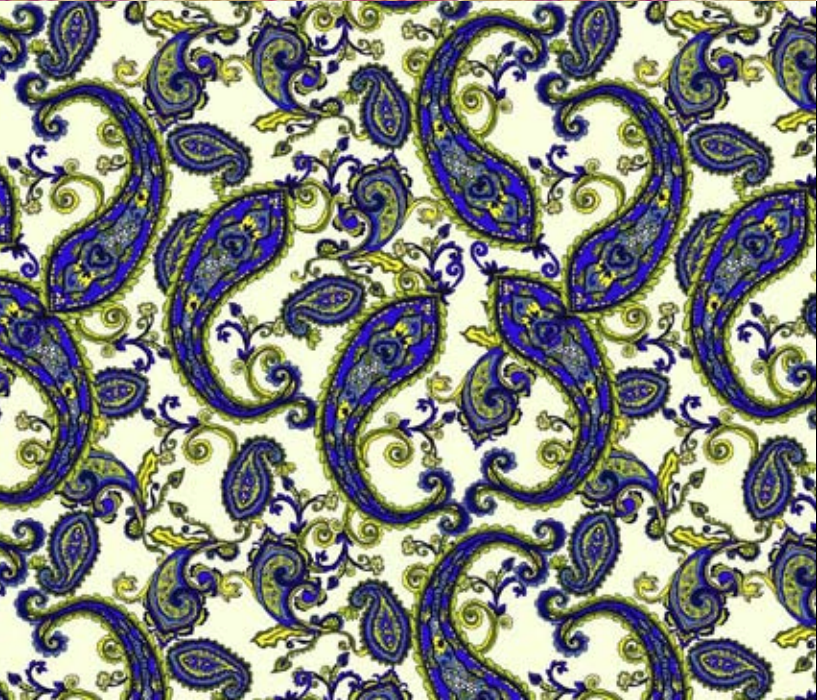
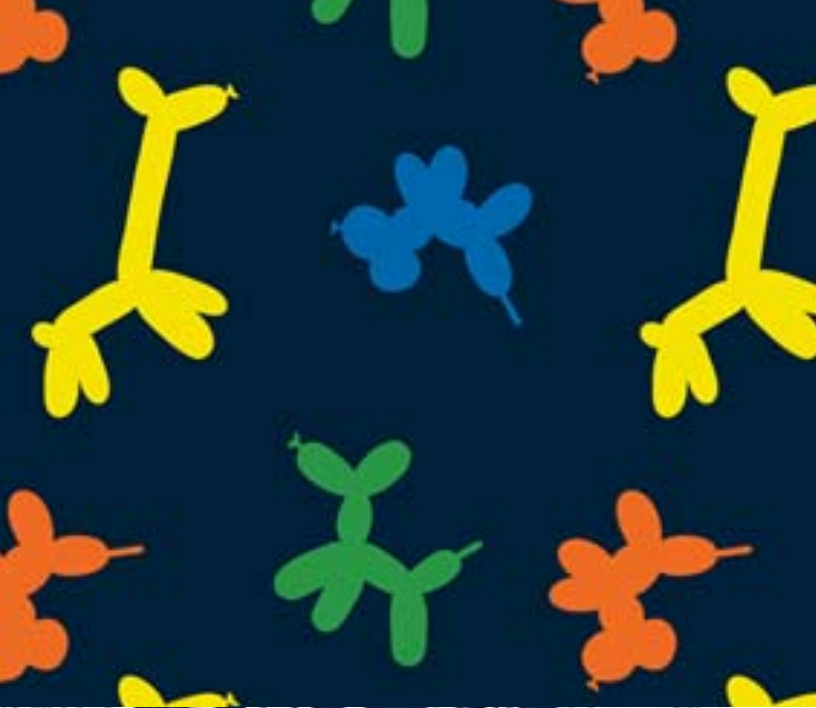




Irina Radtke
Jeff Hendrickson
Jennifer D'Eugenio
Laura Wolfram
Sandra Keding

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Dana Garczewski
Emily Kiddy
Emily Kiddy
Eva Carlavilla
Eva Joly
Horizontal Studio

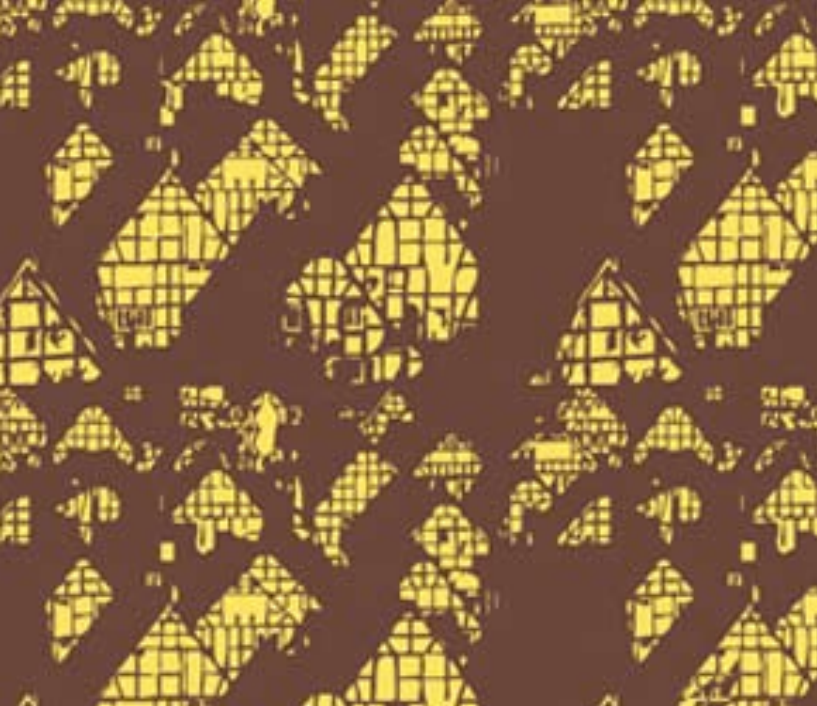




Linda Tieu
Jennifer D'Eugenio
Mandy Kippax
Mandy Kippax
Margarita Velez

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Laura Fernandez Garcia
Laura Fernandez Garcia
Margarita Velez
Mathilde Brégeon
Lili Niclass
Laura Fernandez Garcia

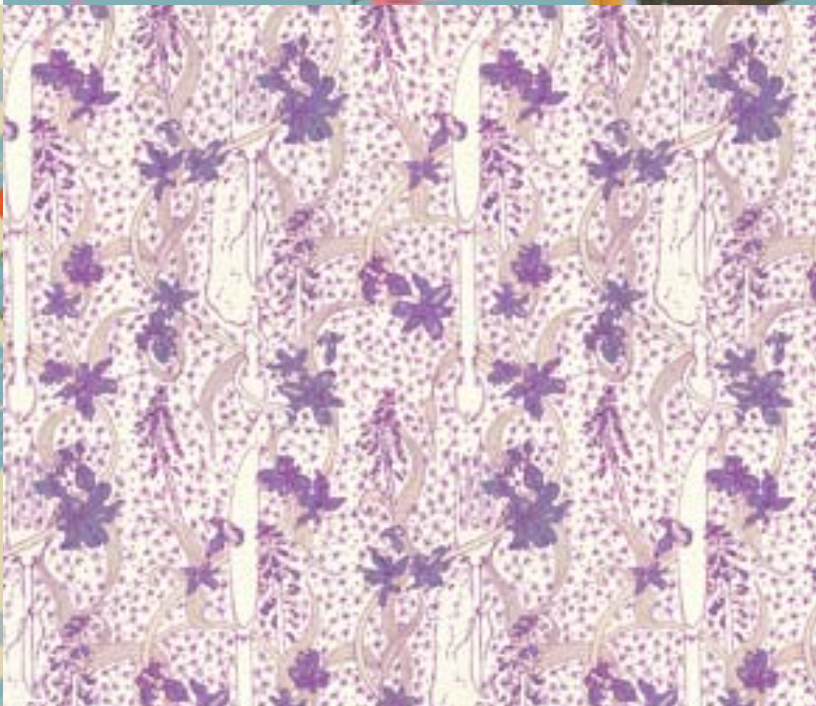
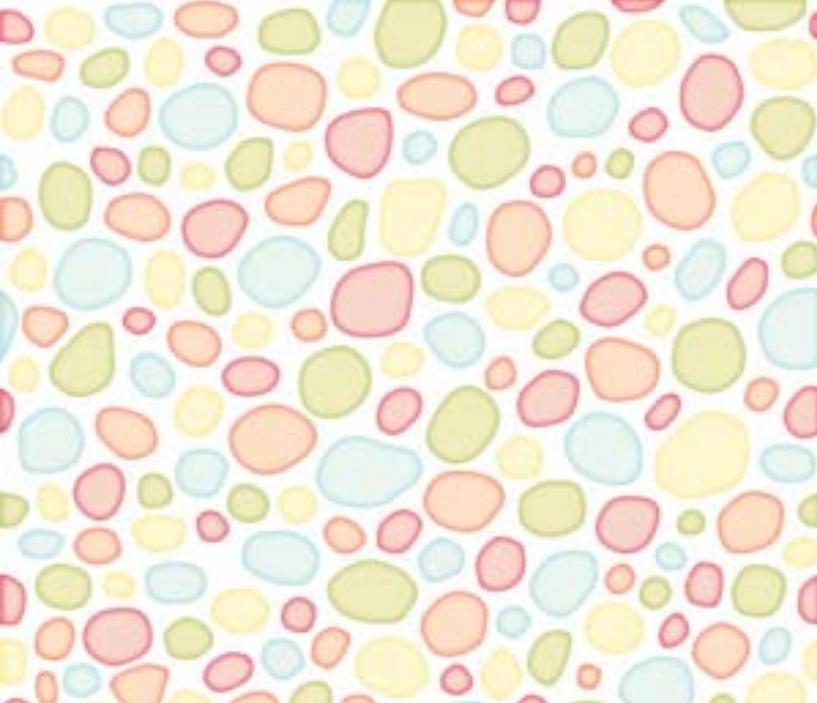




Valeria Boelter
Sandra Keding
Patricia Miranda
Pattern People
Dana Garczewski

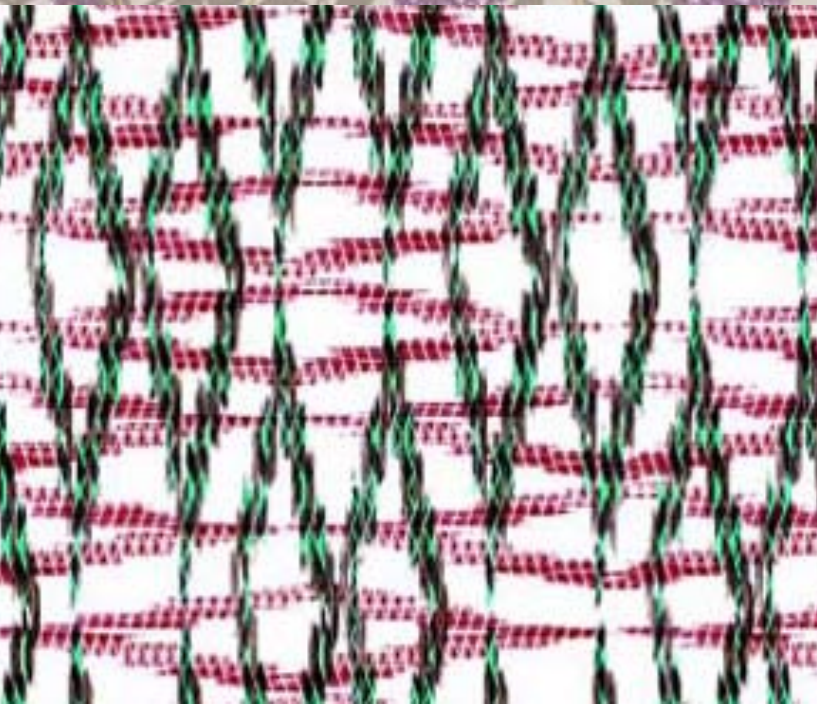
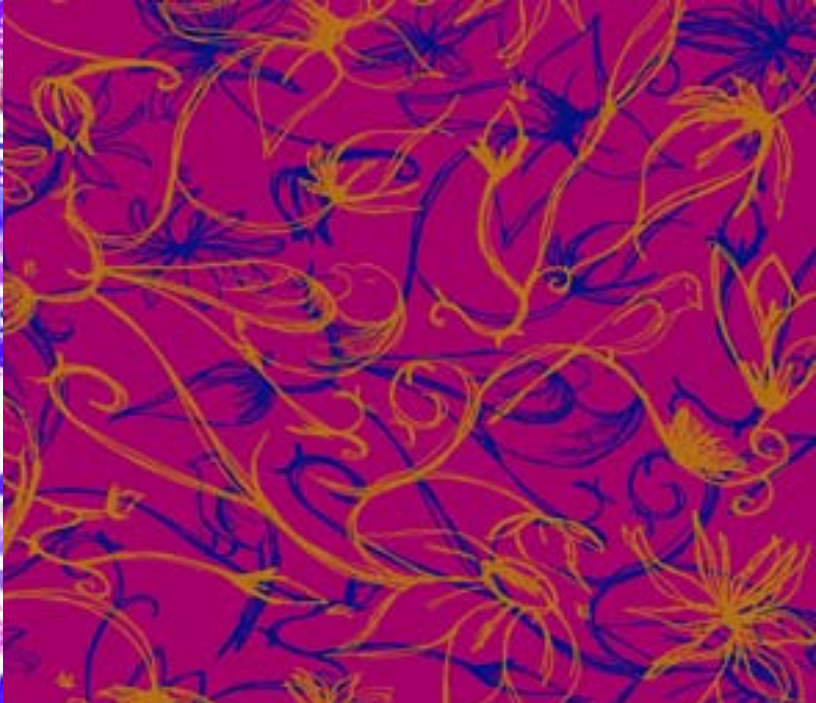
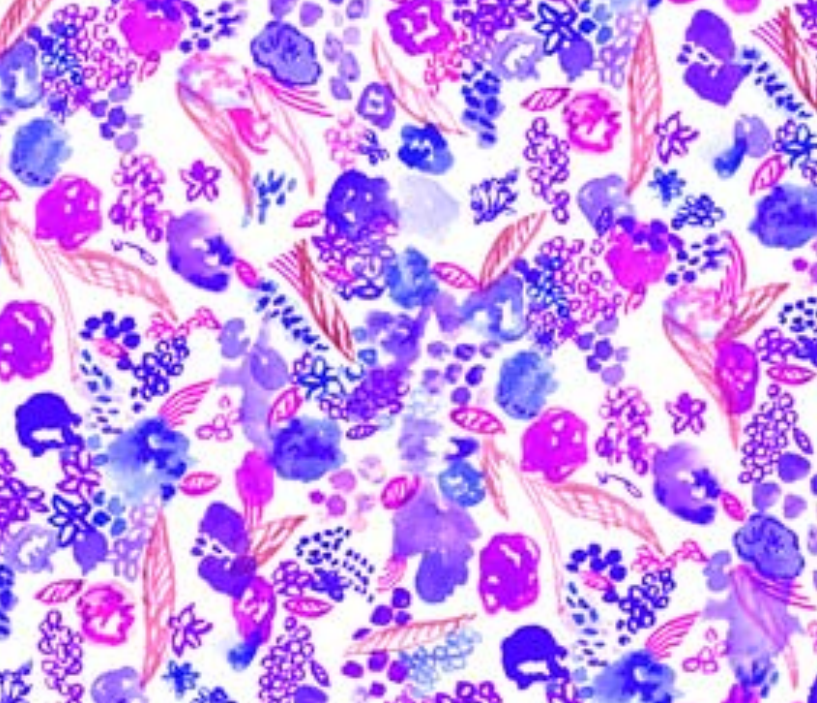
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Lydia Meiying
Jenni Calo
Mathilde Brégeon
Feng Liang
Liliana Solis

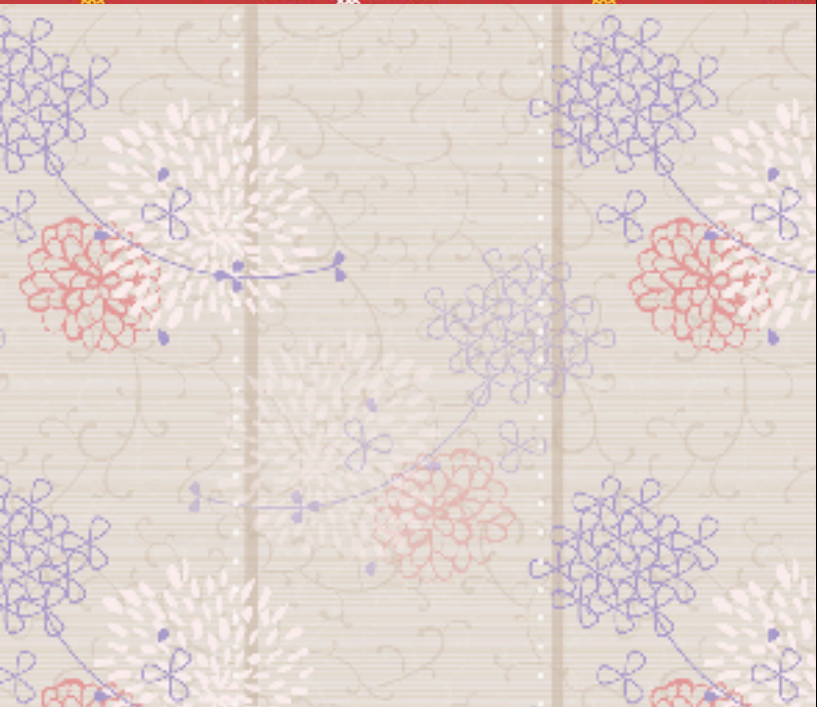
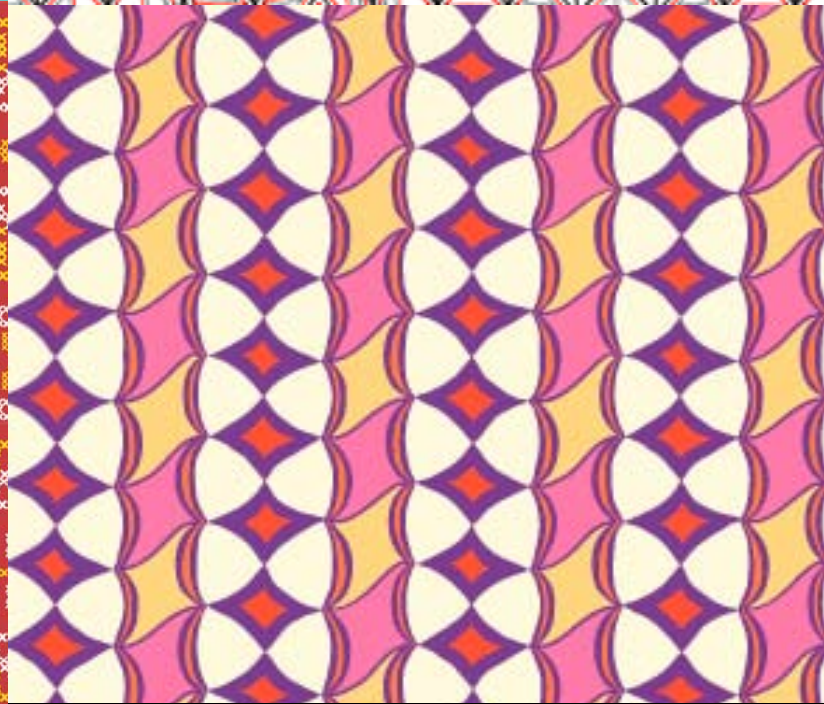
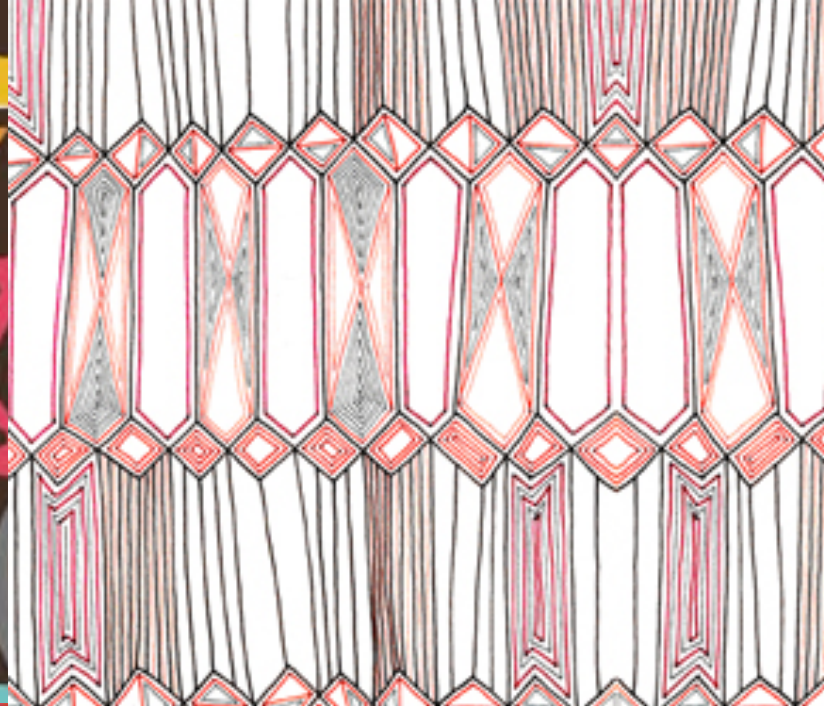




Sarah Rhodes
Rita Jardon
Rita Jardon
Rebecca Miller
Marina Frimovich

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Feng Llang
Mysia Detko
Rita Fuerstenau
Rachael Beresh
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Barbara Mazzoleni*

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Aaryn Nutter
Liz Smith
Rebecca Stoner
Mathilde Brégeon
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Sandra Keding*

We would like to thank Bekah Hilleson, and all of the wonderful print contributors for their help and support of this endeavor. Also, a big thank you to the readers, without whom this project would not have happened.

Thank you!

Pattern People is a Portland, Oregon based surface design studio founded by designers Claudia Brown and Jessie Whipple Vickery who came together with a mutual appreciation of pattern and a shared vision. Bringing a modern touch to the rich history of surface design, the studio creates prints and illustrations for fashion, beauty and interiors using paint, ink, graphite and pixels.

www.patternpeople.com

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