Tessellations

DOCUMENT PREPARATION

go to File > New and open a new document.
        type your name and tess1 in the New Document dialogue window, Ex: "lastnametess1"

        verify the following Artboard set up;  Size: letter- width 8.5" x height 11"   Unit: inches
                                                                Orientation: horizontal                 Color mode: RGB color
        Select OK or press Return
with the document open
go to Illustrator > Preferences > General
                                        deselect "use precise cursors"
                                        select "show tool tips"
        in the preferences window click on the drop down menu and select > Guides and Grids
                                in "gridline every:" type 1
                                in "subdivisions:" type 4
        Select OK or press Return
go to View > Show Rulers
        set ruler origin to 0,0 by dragging the two dashed lines from the little white square in the upper left corner
        of the document window to the upper left corner of the Artboard.

go to View > Show Grid
go to View > Snap to Grid
go to Window > Info
        to make sure the info window is visible

DESIGN ASSIGNMENT

Create three Tessellated patterns with three 50% reductions from each and save all twelve Unit Cells as Swatches.

go to View > Snap to Grid and Deselect Snap to Grid.

Draw textured shapes and lines that intersect the edge of a 1"x1" square on the layout grid.
Deselect all.

go to View > Snap to Grid and Select Snap to Grid.

Then draw a line from one of the edges to another of the one inch square. Repeat several times making sure that
wherever there is a line exiting through the left there is another entering at the same point on the right. Similarly,
wherever a line exits at the top edge there is another entering at the bottom at a similar point. Try to make the square unit
cell about equal in black and white areas.
Drag Select the whole square.

Go to Object > Pattern > Make.

In the Pattern Options dialog, provide a new name for the pattern,
Modify the other options available in the Pattern Options dialog:
        **Tile Type** choose Grid.
        The center of each tile is horizontally and vertically aligned to the center of the adjacent tiles.
        **Width / Height** chose 1"x1".
        Specifies the overall height and width of the tile.
        **Size Tile to Art**
        Choosing this option causes the size of the tile to shrink to the size of the artwork being used to create the
        pattern.
        **Move Tile with Art**
        Choosing this option ensures that moving the artwork causes the tile to move as well.

In the bar below the Control Panel, choose Done to save the pattern.
See the new pattern swatch in the swatches window.
Test the swatch by selecting it as a Fill and a Stroke and drawing a large rectangle then Delete it.

With the Rectangle Tool, draw a 2" x 2" square with the new pattern as a fill and stroke None.
and place it 3/4 inch from the left and 3/4 inch from the top of the Artboard.

Draw a second 2" x 2" half inch to the right of the first square.
With the pattern filled square selected click on the Scale tool or go to Object > Transform > Scale
and in the Scale window set Uniform scale to 50%.
Deselect Transform Objects to keep the square the same size.
Make sure Scale Strokes & Effects and Transform Patterns and Preview are all selected and click OK.

Drag Copy the second square by holding the Option and the Shift key as you drag another copy to the right.
Repeat the scaling down of the pattern by clicking on the Scale tool or go to Object > Transform > Scale
and in the Scale window set Uniform scale to 50%. Since the tool keeps the last percentage reduction it should happen
automatically but you might need to deselect the Transform Objects option.

Drag Copy the third square by holding the Option and the Shift key as you drag another copy to the right.
Repeat the scaling down of the pattern by clicking on the Scale tool or go to Object > Transform > Scale
and in the Scale window set Uniform scale to 50%. Since the tool keeps the last percentage reduction it should happen
automatically but you might need to deselect the Transform Objects option.

Once all three 2" x 2" squares of the reduced pattern are done Save the Document before proceeding.
Drag Select the three new pattern squares and go to Object > Expand.
Deselect All.
Select the second square and Go to Object > Pattern > Make.

In the Pattern Options dialog, provide a new name for the pattern,
Modify the other options available in the Pattern Options dialog:
       **Tile Type** choose Grid.
       **Width / Height** chose 2" x 2". You might need to decouple the height and width to set them independently.

In the bar below the Control Panel, choose Done to save the pattern.
Repeat the sequence for each of the three reduced pattern 2" x 2" squares.

You now have three reduced scale swatches of the original tessellated pattern. The process can be repeated if a smaller
pattern is needed. Deselect all and save the document.

Once you have all twelve Unit Cells laid out on the Artboard separated by half inch, Save the document.
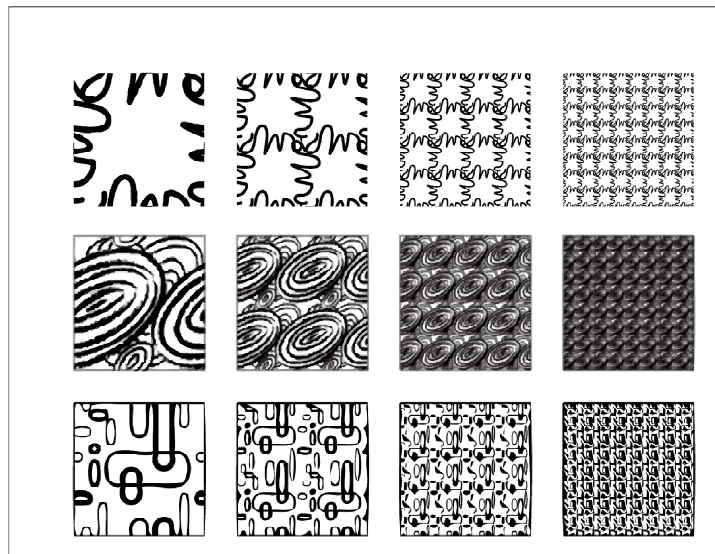
Draw a one point black frame around each patterned 2" x 2" square put your signature at the bottom right.

Go to Swatches Options by clicking on the small triangle in the top right of the Swatches Palette and
select Save Swatch Library. Give the swatches file a name and
save it to your desktop in the dialogue window.
Now you can access the tessellations for other projects later.

Save your document as an Illustrator file and then Save As again as PDF Smallest File
Drop the pdf into the Student Projects Drive for a grade.

## To Create or Edit a pattern

Do one of the following:

To **create a pattern**, select the artwork that you would like to create the pattern from, and then choose Object > Pattern > Make.

To **edit an existing pattern**, double-click the pattern in the pattern swatch, or select an object containing the pattern and choose Object > Pattern > Edit Pattern.

In the Pattern Options dialog, provide a new name for the pattern, or modify the existing name.
Modify the other options available in the Pattern Options dialog:

*Pattern Options panel*

**Tile Type** Choose how the tiles must be laid out.

*Grid*. The center of each tile is horizontally and vertically aligned to the center of the adjacent tiles.

*Brick by row*. Tiles are rectangular in shape, and arranged in rows. Centers of tiles in rows are horizontally aligned. Centers of tiles in alternate columns are vertically aligned.

*Brick by column*. Tiles are rectangular in shape, and arranged in columns. Centers of tiles in columns are vertically aligned. Centers of tiles in alternate columns are horizontally aligned.

*Hex by column*. Tiles are hexagonal in shape, and arranged in rows. Centers of tiles in rows are horizontally aligned. Centers of tiles in alternate columns are vertically aligned.

*Hex by row*. Tiles are hexagonal in shape, and arranged in columns. Centers of tiles in columns are vertically aligned. Centers of tiles in alternate rows are horizontally aligned.

**Brick Offset** Applies to:

*Brick by Row*. Determines by how much tile width the centers of tiles in adjacent rows are out of vertical alignment.

*Brick by Column*. Determines by how much tile width the centers of tiles in adjacent columns are out of horizontal alignment.

**Width / Height** Specifies the overall height and width of the tile. You can choose various values, smaller, or larger than the height and width of the artwork. Values larger than the size of the artwork cause the tile to grow larger than the artwork, and insert empty space between tiles. Values smaller than the size of the artwork cause artwork in adjacent tiles to overlap.

**Size Tile to Art** Choosing this option causes the size of the tile to shrink to the size of the artwork being used to create the pattern.

**Move Tile with Art** Choosing this option ensures that moving the artwork causes the tile to move as well.

**H Spacing / V Spacing** Places space between adjacent tiles.

**Overlap** When adjacent tiles overlap, determines which tile's appears in front.

**Copies** Determines how many rows and columns of tiles are visible while modifying the pattern.

**Dim Copies to** Determines the opacity of copies of the artwork tile previewed while modifying the pattern.

**Show Tile Edge** Displays a box around the tile.

**Show Swatch Bounds** Displays a unit portion of the pattern which is repeated to create the pattern.

In the bar below the Control Panel, choose Done to save or Cancel to discard changes to the pattern.

***Note:*** *If a new pattern was created, it is stored in the Swatches panel. If a pattern was edited, the definition of the pattern is updated in the Swatches panel.*