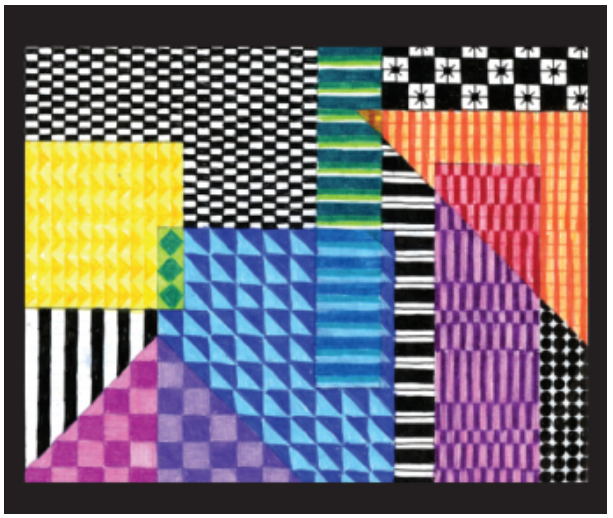
Graph Paper Patterns - Grades 3-8



Adaptable for almost any age level, the basis for this lesson is very simple: define a space and fill it with a repetition of color, line and shape to make what we define as a *Pattern*.

Very young age levels will learn to use a ruler as a straightedge and to count squares to make simple patterns such as stripes and checks.

Older students might start out with simple squares and diamonds, but will soon discover that there is truly an infinite number of patterns that then can create by simply repeating lines in different lengths and directions, varying their spacing and rotating their position on the page.

Grade Levels 3-8

Note: instructions and materials based on a class of 25 students. Adjust as needed.

Objectives

- Students will use the pre-printed lines on a sheet of graph paper as a template for creating their own patterns, therefore following a simple pre-defined structure
- Students will use a ruler as an art tool (straightedge) and also as a measuring tool
- Students will apply the design elements of color, shape and repetition to create patterns
- Students will apply geometry and simple chart making skills to produce visually intriguing pieces, connecting mathematic principles of patterning with visual patterning
- Students will create positive and negative spaces and recognize the difference between them (secondary)
- Students will be able to verbally describe how a pattern is organized (elementary)

Process, elementary

1. Have students use rulers to divide a sheet of graph paper into nine sections with a graphite pencil. They should draw two vertical lines and two horizontal lines, placing them wherever they wish.
2. Have students choose one section at a time and make their own color selections. Assign one pattern at a time either by drawing an enlarged example of it on the board or showing a pre-drawn piece of paper. Examples:

   Small Checks: Line 1: 1 square color, skip a square. Line 2: skip a square, 1 square color. Repeat.

   Medium Checks: Line 1: 2 squares color, skip 2 square squares. Line 2: same. Line 3: skip 2 squares, 2 squares color. Repeat.

Materials

Bienfang® Cross-Section Graph Paper, size 8.5" x 11", grid size 4 squares per inch (10613-1095), need one sheet per student

Blick Plastic Ruler (55403-1012), need one per student

Stabilo® Power Markers (21292-0129), 12-color set, share one set between two students

Blick Economy Graphite Pencils (20302-2009), box of 12, need one per student

Blick Soap Eraser (21519-1024), box of 24, need one per student

Small Stripes: Line 1: all squares color. Line 2: all squares another color. Repeat.

Varied Stripes: Line 1, 2 and 3 all squares color. Line 4: all squares another color. Repeat.

3. Instruct the students with pre-defined patterns for the first six sections. For the remaining three areas, have students try to make up their own patterns and invite them to describe how they created it line by line, square by square.
4. Mount the finished drawings on black matboard to display.

Process, secondary

1. Give each student a sheet of graph paper and instruct them to use their ruler and graphite pencil to begin:

   - Each drawing must contain 2 squares, 2 rectangles and 2 triangles, following the blue lines on the paper. Make them large enough to fill the paper.

   - Each shape must touch at least one edge of the paper

   - Each shape must overlap at least one other shape
2. Define the negative space outside the shapes with black and white patterns, using a fine line marking pen. Each area of negative space should contain a different pattern. Use the squares of the paper as guidelines.
3. Fill the shapes with color patterns, using colored pencils and the blue lines of the graph paper as guidelines.

   - Each shape must contain a pattern that incorporates at least 2 colors.

   - The areas where shapes overlap must be filled with a pattern or colors relative to the 2 overlapping shapes. For example: a red pattern overlapping a yellow pattern will be orange. Or, the pattern from one shape will pick up the colors of the overlapping shape.
4. When finished, every square on the graph paper should be part of a pattern, whether negative or positive space. Mount the finished drawing on a piece of black matboard to display.