

Twenty Questions



Lesson 3: Patterns of Patterns



GALLERY

Objectives

1. Students are able to distinguish regular (predictable) from irregular (unpredictable) patterns.
2. Students are able to repeat elements to create regular patterns (both in rows and around a center point or line).

Arizona Visual Arts Standards

EVALUATE: Materials, Tools and Techniques: PO 101: Describe the visual effects created by an artist's use of tools, materials and techniques in an artwork.

EVALUATE: Materials, Tools and Techniques: PO 201: Explain how an artist's use of tools, materials and techniques affect an artwork's meaning, purpose or value.

EVALUATE: Elements and Principles PO 101: Identify an element or principle in an artwork that supports its meaning and/or purpose.

EVALUATE: Elements and Principles PO 201: Describe how an artist's use of elements or principles in an artwork supports its meaning and/or purpose.

EVALUATE: Art Issues and Values: PO 101, 201 & 301: Form and support opinions about art (e.g., what art is and why it is important).

Preparation

Preview "Patterns of Patterns" PowerPoint

Practice placing Perler beads in a 7-inch x 7-inch square on a pegboard. Make at least four sample patterns (one row pattern, one radial pattern, one bilateral pattern and one irregular pattern). Follow instructions to use Perlors paper and iron to fuse squares on both sides. (If commercial, fusible beads are not an option for your school, students can make patterns of patterns replacing fusible beads with colored pencils on graph paper.)

Decide which of the following processes is most appropriate for your students.

1. Responsible secondary students work directly with beads on pegboard and iron squares, under your supervision.
2. Students work directly with beads on pegboard and you, or another responsible person, fuses all squares with iron.
3. Students plan their patterns on graph paper for your approval before working with beads on pegboard.
4. Students make squares and arrange them into patterns of patterns using colored pencils on graph paper.
5. After groups of students arrange their patterns of patterns, you fuse the nine squares with paper and an iron.
6. After groups of students arrange their patterns of patterns, students glue the nine squares onto a cardboard backing.

Plan to give sets of two or three colors to each group of students to ensure some consistency. For example, one day a group might make patterns with blue, green and black beads. The next day a group might work with red, purple and white beads.

Logistics with Commercial Fusible Beads

Commercial, fusible beads, such as Perlers, are not very expensive if each student makes three 7-inch x 7-inch bead squares. The number of students who can arrange beads on a pegboard at one time is limited to the number of pegboards available. An adult (or aide or responsible adolescent) is necessary to fuse the beads with an iron. Therefore, some logistical planning is necessary. One option is to require students to plan their patterns first with colored pencils on graph paper. Some students will finish their plans before others. You may recommend that some students design more patterns before choosing patterns to make with beads. Thus, students who have placed their beads on the pegboard and are ready for fusing can be staggered throughout a class period. Another logistical option is to plan some other work for students to do so that just a few students at a time are placing beads on pegboards.

Resources and Supplies

[Patterns of Patterns PowerPoint](#)

Multiple sets of fusible beads in assorted colors, depending on the number of students and the number of 7-inch x 7-inch bead squares each student will make. (Optimally students will make at least three 7-inch x 7-inch patterns, which will be used in a group project. In this case, you will need approximately 6,000 beads for 30 students. Two sets of 4,000 beads in 16 colors will be sufficient or bags of 1,000 beads, minimally six bags each of a different color.)

Four or more small square Perler pegboards

(depending on the number of students placing beads at one time)

Egg cartons

(to distribute beads to individual students or to small groups of students)

Iron and hard, flat surface.

Paper provided by Perlers to cover beads before fusing with iron

3x5 cards for each group to make labels

OPTIONAL

graph paper

assorted colored pencils

glue

construction paper or sturdy white drawing paper on which to mount small graph paper squares.

cardboard squares on which to mount students' Perler patterns of patterns (4-inch x 4-inch for no border), if you do not plan to fuse the squares with paper and an iron.

Activities

Review: Remind students that this unit is about inquiry or exploring through asking questions. Explain that in this lesson, they will be focusing on two key questions:

1. LOOK: What patterns can you see?
2. COMPARE: How are patterns similar and different?

Review the theme in life (“Throughout history, people have been able to work out puzzles and make new discoveries by asking questions”) and the theme in art (“Sometimes art is like a puzzle that makes us wonder what it is and what it is about.”)

Explain that in this lesson students will begin by analyzing patterns artists have used in their artwork. Then each student will make several of his or her own small, square patterns. Next, students will mix up their patterns, like disorganized pieces of a jigsaw puzzle, in preparation to inquire as a class about the patterns. They will devise questions to guide their classmates in categorizing the patterns by similar color/s or type/s of pattern. Finally, students will work in groups to arrange a set of small squares to make their own patterns of patterns.

Definition and Examples: Display the first seven slides of “Patterns of Patterns” PowerPoint to define “pattern” and show examples of patterns within a variety of artworks.

Display slide Nos. 8-15 of the “Patterns of Patterns” PowerPoint to define two kinds of **regular** patterns (repetition in a row and repetition around a central point or line) as well as **irregular** patterns. Focus on slide No. 15 if your students will be working with graph paper and colored pencils instead of Perler beads.

Individual Assignment: Introduce the project by showing slide Nos. 16-22 of the “Patterns of Patterns” PowerPoint. Explain to students that they are to demonstrate what they have learned by using just two or three colors to make at least three different 7-inch x 7-inch square patterns:

1. regular row pattern
2. regular radial pattern or bilateral pattern
3. irregular pattern

Group Inquiry: After each student has selected one square to keep, spread remaining squares over a large flat surface, such as a tabletop or cleared space on the floor. Direct students to look for similar squares and then take turns guiding their classmates to find them by asking questions such as:

Which squares all have _____ pattern?

Which squares are all _____ (color)?

Which squares are all _____ and _____ (colors)?

Which squares have _____ patterns and are all _____ (color)?

Group Assignment: Divide the class into groups of three to four students. Give each group 9 to 12 squares.

1. Ask each group to arrange squares at least three different ways and discuss what is good about each arrangement.
2. Direct each group to decide on a final set of nine squares to be fused (or glued) to make their pattern of patterns.
3. Ask each group to give their pattern of patterns a title. Then ask them to carefully write the title and all their names on a 3 x 5 card to be used as a label for their finished work.

Presentation: Iron each group’s set to fuse into a nine-patch for display. Display finished work with labels, for example on a bulletin board with pushpins. Lead a discussion with the following questions:

Which patterns of patterns are most alike? How?

Which patterns of patterns are most different? Explain.

Which patterns of patterns is most regular?

Which patterns of patterns are most irregular?

Which patterns of patterns expresses calmness? Excitement? Movement? (add more)

Samples for More Advanced Students: Display slide 23 of the “Patterns of Patterns” PowerPoint. Compare and contrast Denise Yagmourian’s *Pixel Patterns – Blue* and *Pixel Patterns – Orange*. Brainstorm ideas for large patterned artworks.

Vocabulary

Bilateral

Inquiry

Irregular

Nine-Patch (term borrowed from traditional quilt pattern)

Pattern

Radial

Regular

Repetition

Predictable

Assessment Guides

OBJECTIVE 1. Students are able to distinguish regular (predictable) from irregular (unpredictable) patterns.

Exceeds Expectations: Student correctly identifies regular and irregular patterns in the “Patterns of Patterns” PowerPoint and accurately uses such terms as “row,” “radial” and bilateral” during class discussion of final projects.

Meets Expectations: Student correctly identifies regular and irregular patterns in the “Patterns of Patterns” PowerPoint or accurately uses such terms as “row,” “radial” and bilateral” during class discussion of final projects.

Approaches Expectations: Student uses such terms as “row,” “radial” and bilateral” at least twice during class discussion of final projects or in final discussion.

Fails to Meet Expectations: Student uses such terms as “row,” “radial” and bilateral” once during class discussion of final projects or in final discussion.

OBJECTIVE 2. Students are able to repeat elements to create regular patterns (both in rows and around a center point or line).

Exceeds Expectations: Student accurately identifies and creates all three of the following patterns: 1) row pattern, 2) radial or bilateral pattern and 3) irregular pattern.

Meets Expectations: Student creates all three of the following patterns: 1) row pattern, 2) radial or bilateral pattern and 3) irregular pattern.

Approaches Expectations: Student creates two of the following patterns: 1) row pattern, 2) radial or bilateral pattern and 3) irregular pattern.

Fails to Meet Expectations: Student creates one of the following patterns: 1) row pattern, 2) radial or bilateral pattern and 3) irregular pattern.