

Pattern Quilt

4th Grade Math Project · Art & Patterns

Grade 4 · Standard

Name: _____ Date: _____ Class: _____

The Challenge

Your class is sewing a quilt for the school hallway. Before anyone cuts fabric, the design team (that is you) has to plan the layout, the colors and the border with math.

You will make: Quilt Design

What you will learn

- Find all factor pairs of a number.
- Decide whether a number is prime or composite.
- Recognize multiples of one-digit numbers.
- Generate a number pattern from a rule and describe its features.

Materials

- Grid paper
- Colored pencils
- Hundred chart (optional)

How to do it

1. Part 1: Quilt Layouts
2. Part 2: Prime or Composite?
3. Part 3: Color by Multiples
4. Part 4: A Growing Border
5. Check your work and share your quilt design.

Part 1: Quilt Layouts

The quilt will use exactly 48 squares arranged in a rectangle.

1. List all the factor pairs of 48.

2. How many different factors does 48 have?

3. Which layout would you choose for a quilt? Why?

Part 2: Prime or Composite?

Another class has 29 squares. A third class has 39 squares.

4. How many rectangular layouts can be made with 29 squares? Is 29 prime or composite?

5. Is 39 prime or composite? Prove it with a factor pair.

Part 3: Color by Multiples

Number the squares 1 to 48. Color every multiple of 3 blue. Put a star on every multiple of 4.

6. Which squares are blue AND have a star?

7. What do you notice about those numbers?

8. Is 48 a multiple of 4? How do you know?

Part 4: A Growing Border

The border uses a number pattern. Start at 5. Rule: add 6.

9. Write the first six numbers in the pattern.

10. Are the numbers odd, even, or do they switch? Explain why.

11. Draw your quilt design with your layout, colors and border.

⭐ Extension Challenge

Find a number between 30 and 40 that has exactly two factors. Then find one that has an odd number of factors. What is special about the second number?

How your project will be scored

Category	4 Excellent	3 Good	2 Developing	1 Beginning
Math accuracy	All answers correct	Most answers correct	Some answers correct	Few answers correct
Shows work	Clear work for every step	Work for most steps	Some work shown	Little work shown
Explains thinking	Clear, complete explanations	Mostly clear explanations	Some explanation	Little explanation
Final product	Complete, neat and creative	Complete and neat	Partly complete	Not complete