Factor to Reveal Structure

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Use factoring to interpret quantities and compare forms.
- Use an equation, inequality, table, or diagram to justify your reasoning.
- Explain your answer using mathematical vocabulary and units.

5-minute warm-up

Discuss with a partner: What previous algebra or number skill will help with today’s lesson?

Show one calculation or example in your notebook.

Why this lesson matters

Three equal teams receive 9t tickets and 6 passes in total.

What is known? What is unknown? Which quantities are related?

Represent the relationship

Three equal teams receive 9t tickets and 6 passes in total.

$$9t + 6 = 3(3t + 2)$$

Explain the meaning of the variable, numbers, and operations.

Worked example

Factor 9t + 6.

$$3(3t + 2)$$

Check: Does the result match the original relationship?

Independent practice

1. Factor $14x - 21$.

2. Factor $20a + 15b + 10$.

Check your reasoning

Question 1

$$7(2x - 3)$$

Question 2

$$5(4a + 3b + 2)$$

Group challenge

For a 5(x + 4) arrangement, explain what the 5 represents.

Each group member must explain one step or defend one claim.

Group challenge • solution

Five equal groups

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Factor 20a + 15b + 10.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Factor 16n + 24.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$8(2n + 3)$$

Reflect: What would you check before moving to the next lesson?