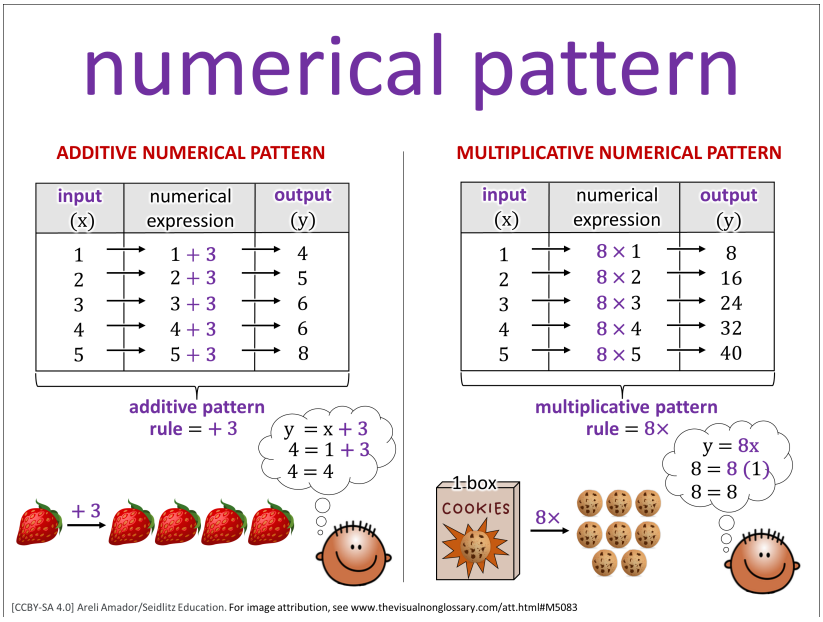
The Visual Non-Glossary™

Exploring Number Patterns

We're reading to learn how additive and multiplicative patterns show up in input/output tables and what they can teach us.

Pay Attention To:

- The rule each student uses
- What the input/output table shows
- How the numbers change in the additive pattern
- How the numbers change in the multiplicative pattern
- What the students learn from comparing the patterns



Ms. Carter gave her class a math task. "Make a number pattern," she said. "Use a rule to change the numbers."

Leah used the **rule**: "add 5." She started with 0. Then she got 5, 10, 15, and 20. "This is an **additive pattern**," she said. She made a chart with **input** and **output** numbers.

Jordan picked the **rule**: "multiply by 2." His numbers were 0, 2, 4, 6, 8, and 10. He called it a **multiplicative pattern**. He made a chart too.

Leah looked at both charts. "Your numbers grow faster than mine," she said.

"That's because I'm multiplying," Jordan said. "Your pattern adds, but mine jumps more."

Both patterns followed a **rule** and showed how numbers can change.

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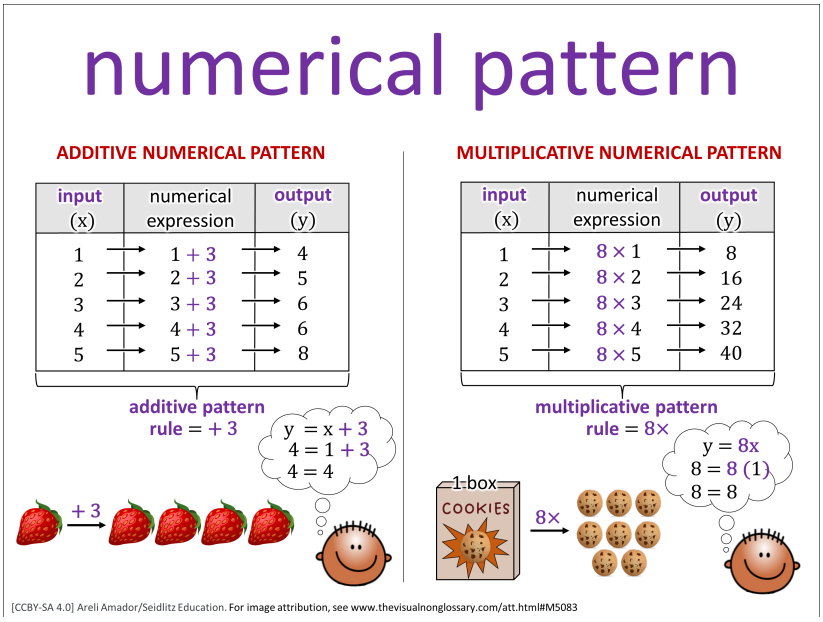

Ms. Carter gave her class a challenge. "You'll each create a pattern using a rule," she said. "Then share your pattern with a partner and compare how they change."

Leah chose a **rule**: "add 5." She started with 0 and added 5 again and again. Her numbers were 0, 5, 10, 15, and 20. "This is an **additive pattern**," she wrote. She made a table showing the **input** numbers and her **output** numbers.

Across the room, Jordan used a different **rule**: "multiply by 2." His pattern was 0, 2, 4, 6, 8, and 10. He labeled his as a **multiplicative pattern** and made his own **input/output** table.

When they compared their patterns, Leah noticed something. "Your numbers start smaller than mine, but they catch up and grow faster."

Jordan nodded. "That's because multiplying makes the numbers grow quickly. Yours are steady, mine increase more each time."

They looked at their tables side by side. The patterns were different, but both followed a **rule** and helped them understand how numbers could change.

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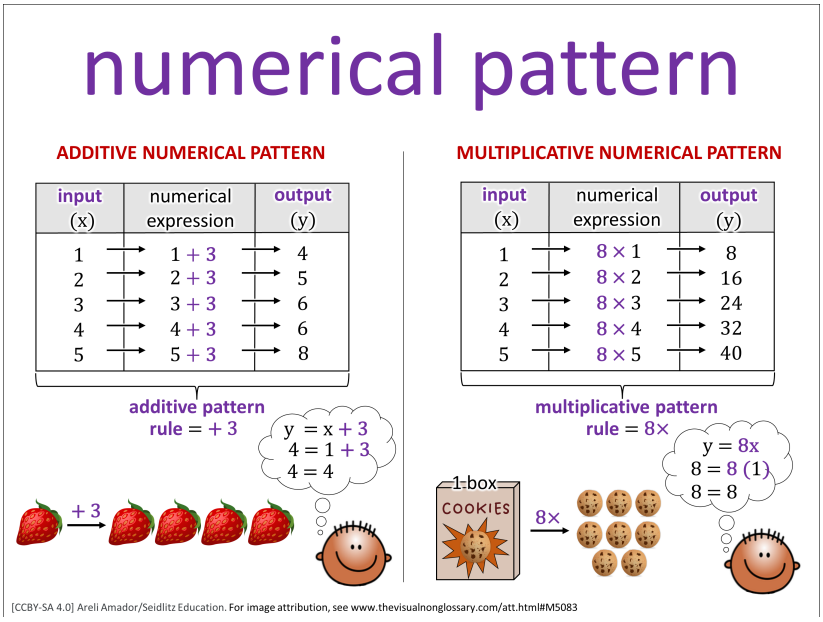

Ms. Carter gave her students a math challenge: use a rule to build a number pattern and explain how it works.

Leah decided on an **additive pattern** using the **rule** "add 5." She began with 0 and created a table with **input** and **output** numbers: 0, 5, 10, 15, and 20.

Jordan chose a **multiplicative pattern** with the **rule** "multiply by 2." His **output** values grew faster: 0, 2, 4, 6, 8, and 10.

As they compared their **input/output** tables, Leah noticed, "At first my numbers are higher, but then yours pass mine."

Jordan nodded. "That's the difference between adding and multiplying. Multiplying creates a faster rate of change."

They both realized that using a **rule** helped them clearly see how patterns work in math.

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