

Two Rules, One Relationship



Grade 5 | NC.5.OA.3

Teacher scripts • Original visual models
30 choice + 30 open/performance tasks
Worked keys • Individual evidence records

Current standards for 2026-27 and 2027-28. Select a few tasks across sessions; this bank is not a single 60-item test.

Free sample | Contents

NC.5.OA.3 | Fifth Grade mathematics

This sample contains 18 complete selected pages from the 122-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-14, 29-30, 59, 74

Representative activities

M01: sample PDF page(s) 15; original page(s) 14

M02: sample PDF page(s) 15; original page(s) 14

O01: sample PDF page(s) 16; original page(s) 29

O02: sample PDF page(s) 17; original page(s) 30

Selected teacher prompts and keys: original page(s) 59, 74

Using this sample

Read the preparation and access guidance before using a selected activity.
Keep teacher keys and private preparation pages separate from student copies.
Use the original resource contents to see the scope of the complete packet.

Complete paid download

The complete resource includes the full PDF task bank and teaching materials.

TEACHER GUIDE

Standard and learning targets

Generate two numerical patterns using two given rules.

- Identify apparent relationships between corresponding terms.
- Form ordered pairs consisting of corresponding terms from the two patterns.
- Graph the ordered pairs on a coordinate plane.

I can...

- Generate two patterns from given rules and starting terms.
- Explain a relationship between corresponding terms.
- Form ordered pairs and graph them with the first pattern on the x-axis.

Essential question: How does a representation make a relationship visible? Mathematical practices: connect quantities and symbols (MP2), justify and critique (MP3), choose tools (MP5), and use structure (MP7).

TEACHER GUIDE

Plan, access and materials

Suggested four-session sequence: warm-up and model; shared and partner practice; independent evidence; reteach and exit. The seven sections provide an approximately 80-minute selected core, which may be split and extended. Assign only the named core pair per section; the other tasks are optional practice or fresh checks.

Prerequisites: whole-number operations, equal groups and place-value units; decimal tenths/hundredths for the base-ten packets; reading a first-quadrant grid for patterns. Check these before attributing a difficulty to the new standard.

Materials: pencil, printed organizers, large square blocks if helpful, and paper. All required grids and templates are supplied. Adults handle any cutting. The contexts and data are invented for instruction. No measurement of printed physical lengths is needed.

Allow neutral read-aloud, enlarged print, breaks, AAC, signing, dictation and drawn/constructed explanations. For NBT.3, do not have an adult read the target numeral when observing the learner's ability to read decimals; read only directions. Do not score handwriting, decoding of context, or accent.

Keep examples and keys separate during independent checks. Record individual work before partner discussion. A supplied operation, coordinate, digit value or comparison is an answer-supplying cue, not access support. Record both separately.

Vocabulary: expression, parentheses, corresponding term, ordered pair, coordinate, place value, tenth, hundredth, thousandth. Use only the vocabulary relevant to this packet, with gestures and familiar-language explanations before formal labels.

TEACHER GUIDE

Contents and coverage

Guide, exact standard and targets; worked model; reusable visual tools; seven teaching scripts; choice bank; performance bank; teacher-only keys; scoring and evidence record; inquiry and sources. Match item IDs across scripts, student pages and keys.

Warm-up: M01-M04 / O01-O04

I Do: M05-M08 / O05-O08

We Do: M09-M13 / O09-O13

Collaborative practice: M14-M18 / O14-O18

Independent practice: M19-M23 / O19-O23

Small-group reteach: M24-M27 / O24-O27

Exit ticket: M28-M30 / O28-O30

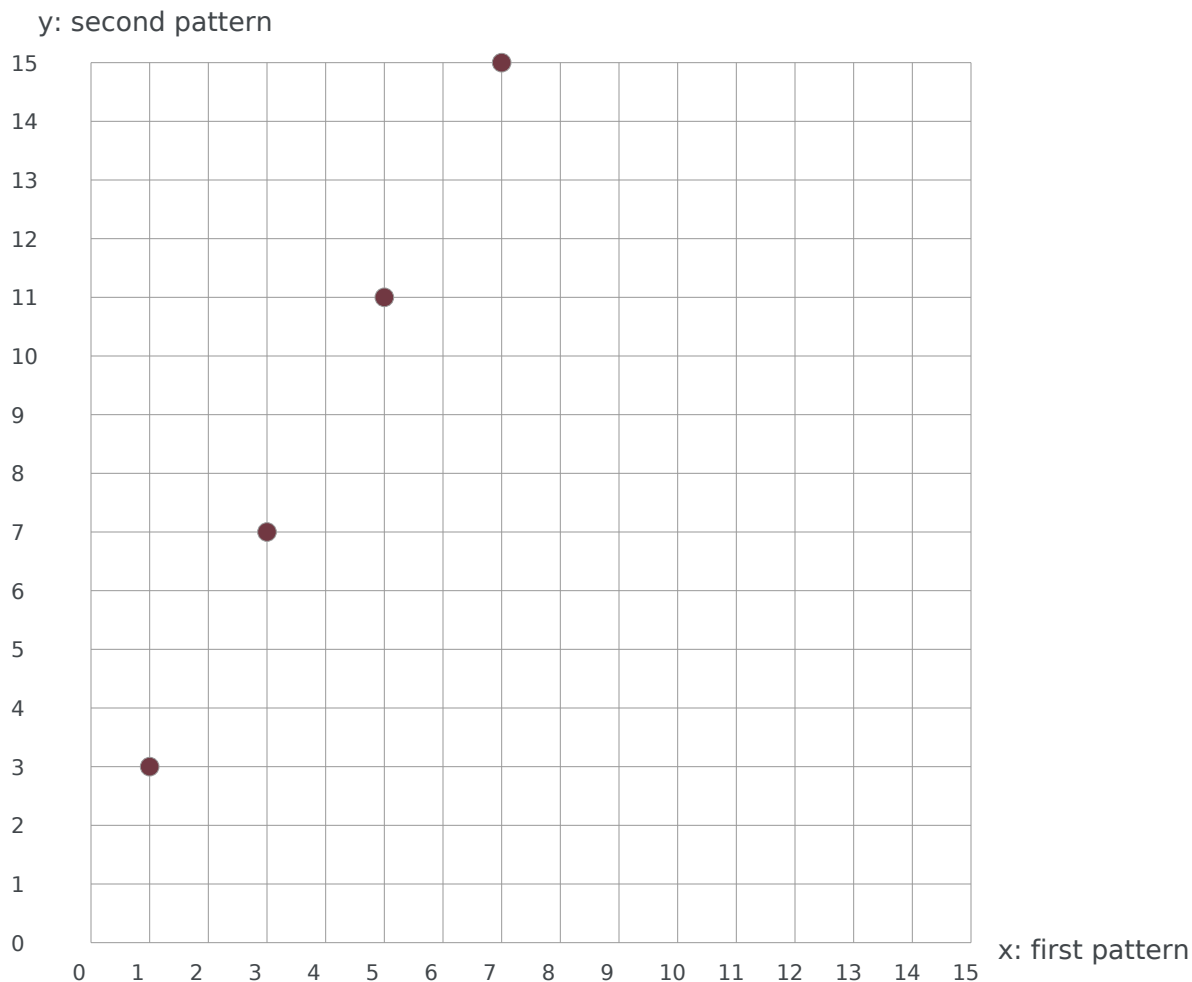
Actual performances matter: write and explain expressions; generate and graph both patterns; explain digit-value scaling; read, write and compare decimals. Recognition alone is not evidence of every standard clause. Choose tasks that sample each target, then revisit with new items.

WORKED TEACHER MODEL

From rules to a graph

First: start at 1, add 2. Second: start at 3, add 4.

First terms: 1, 3, 5, 7. Second: 3, 7, 11, 15. Corresponding pairs: (1,3), (3,7), (5,11), (7,15). The second value is one more than twice the first: $y = 2 \times x + 1$. For (5,11), $2 \times 5 + 1 = 11$. Go across for x, then up for y; plot a point, not a connected curve unless a context calls for one.



STUDENT TOOL

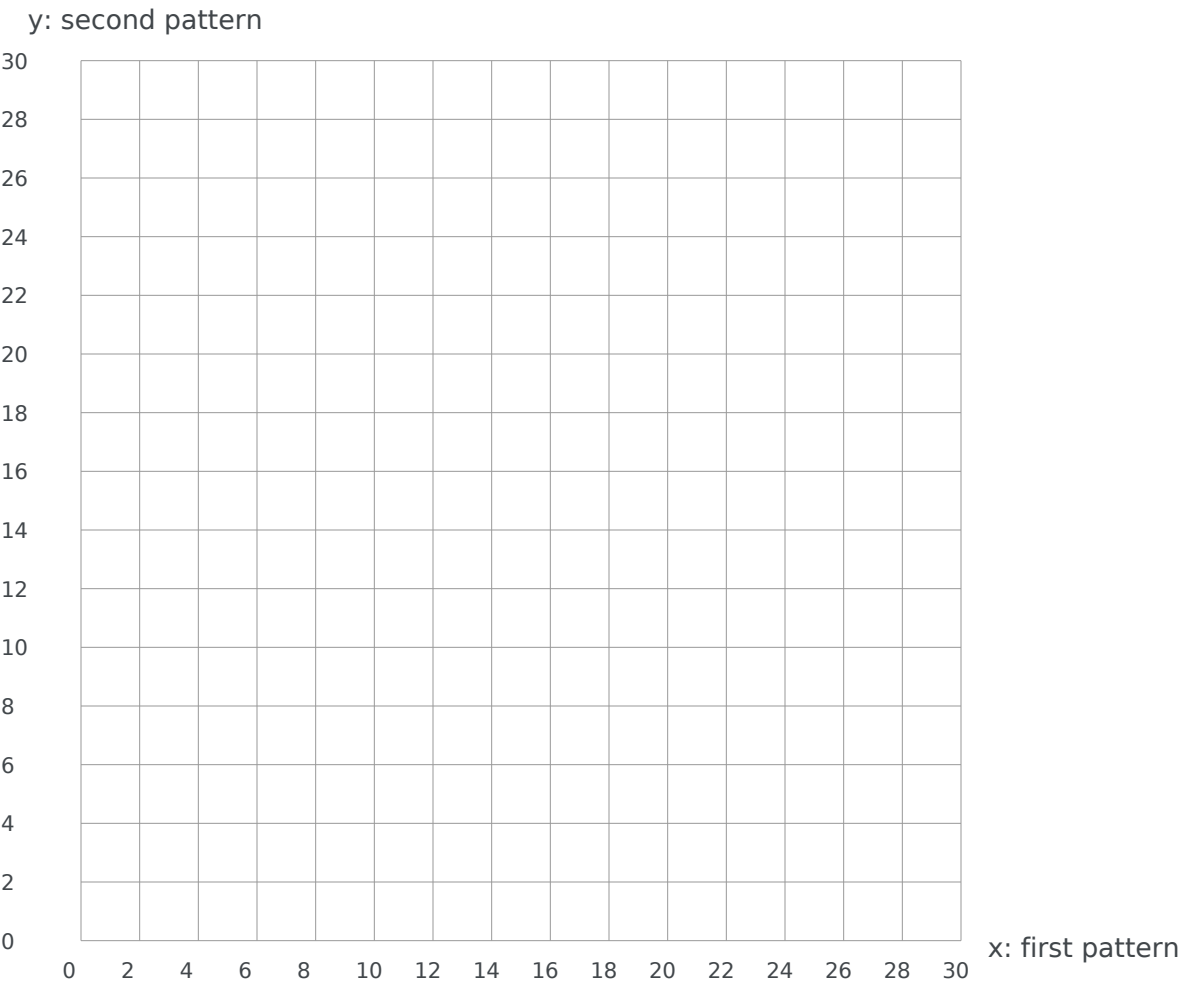
Reusable visual organizer

Name: _____ Date: _____

Use this tool during practice. Label all quantities and explain your reasoning.

First rule / start / four terms

Second rule / start / four terms



Scale: one interval = 2. Use the item graph for its specified scale.

TEACHER GUIDE

Warm-up | 8 minutes

Core: M01 and O01. Remaining M/O 02-04 are optional later practice. Pause or split if authentic construction needs more time.

0-1 min | Launch and exact language

What is term 1? Do we apply the rule before recording it?

1-3 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O01 before the choice item and do not model the solution.

3-4 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

4-6 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

6-8 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

TEACHER GUIDE

I Do | 12 minutes

Core: M05 and O05. Remaining M/O 06-08 are optional later practice. Pause or split if authentic construction needs more time.

0-2 min | Launch and exact language

Say: I keep the two starts and rules separate, then match terms by position.

2-4 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O05 before the choice item and do not model the solution.

4-7 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

7-9 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

9-12 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

TEACHER GUIDE

We Do | 15 minutes

Core: M09 and O09. Remaining M/O 10-13 are optional later practice. Pause or split if authentic construction needs more time.

0-3 min | Launch and exact language

Does the proposed relationship work for every pair, including the first?

3-6 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O09 before the choice item and do not model the solution.

6-9 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

9-12 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

12-15 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

TEACHER GUIDE

Collaborative practice | 13 minutes

Core: M14 and O14. Remaining M/O 15-18 are optional later practice. Pause or split if authentic construction needs more time.

0-2 min | Launch and exact language

Compare generated lists before comparing graphs. Each learner plots independently.

2-5 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O14 before the choice item and do not model the solution.

5-7 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

7-10 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

10-13 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

TEACHER GUIDE

Independent practice | 17 minutes

Core: M19 and O19. Remaining M/O 20-23 are optional later practice. Pause or split if authentic construction needs more time.

0-3 min | Launch and exact language

Use the axis labels and scale, without a filled example beside you.

3-6 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O19 before the choice item and do not model the solution.

6-10 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

10-13 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

13-17 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

TEACHER GUIDE

Small-group reteach | 10 minutes

Core: M24 and O24. Remaining M/O 25-27 are optional later practice. Pause or split if authentic construction needs more time.

0-2 min | Launch and exact language

If coordinates are reversed, trace across on x and up on y. Check the first pair.

2-4 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O24 before the choice item and do not model the solution.

4-6 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

6-8 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

8-10 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

TEACHER GUIDE

Exit ticket | 5 minutes

Core: M28 and O28. Remaining M/O 29-30 are optional later practice. Pause or split if authentic construction needs more time.

0-1 min | Launch and exact language

Generate, pair, graph and verify one relationship with fresh rules.

1-2 min | Model / elicit

During I Do, use the worked model and narrate what every symbol represents. During We Do, ask for the next step before showing it. For independent work and exit, elicit O28 before the choice item and do not model the solution.

2-3 min | Look and listen

Collect: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis. Ask: "How does your representation match the numbers? Show a check."

3-4 min | Respond to evidence

If the representation and calculation disagree, ask the learner to identify the first mismatch. Return to the model only after recording the original response. Keep term positions aligned; test the relationship at the starting terms as well.

4-5 min | Close / challenge / record

Ask for a different example that keeps the same relationship. Record the learner's explanation, support and next step. For an early finisher, ask for an example where a tempting shortcut fails and explain the failure.

STUDENT BANK

Choice practice 1-2

M01 First pattern: start at 0, then add 2. Second pattern: start at 1, then add 6. Count each start as term 1. What is the first-pattern value at term 3?

- A. 6
- B. 4
- C. 2
- D. 7

Choose one. Explain how you know.

M02 First pattern: start at 0, then add 3. Second pattern: start at 0, then add 12. Count each start as term 1. The corresponding terms obey $y = k \times x$. What is k ?

- A. 4
- B. 1
- C. 7
- D. 2

Choose one. Explain how you know.

STUDENT PERFORMANCE

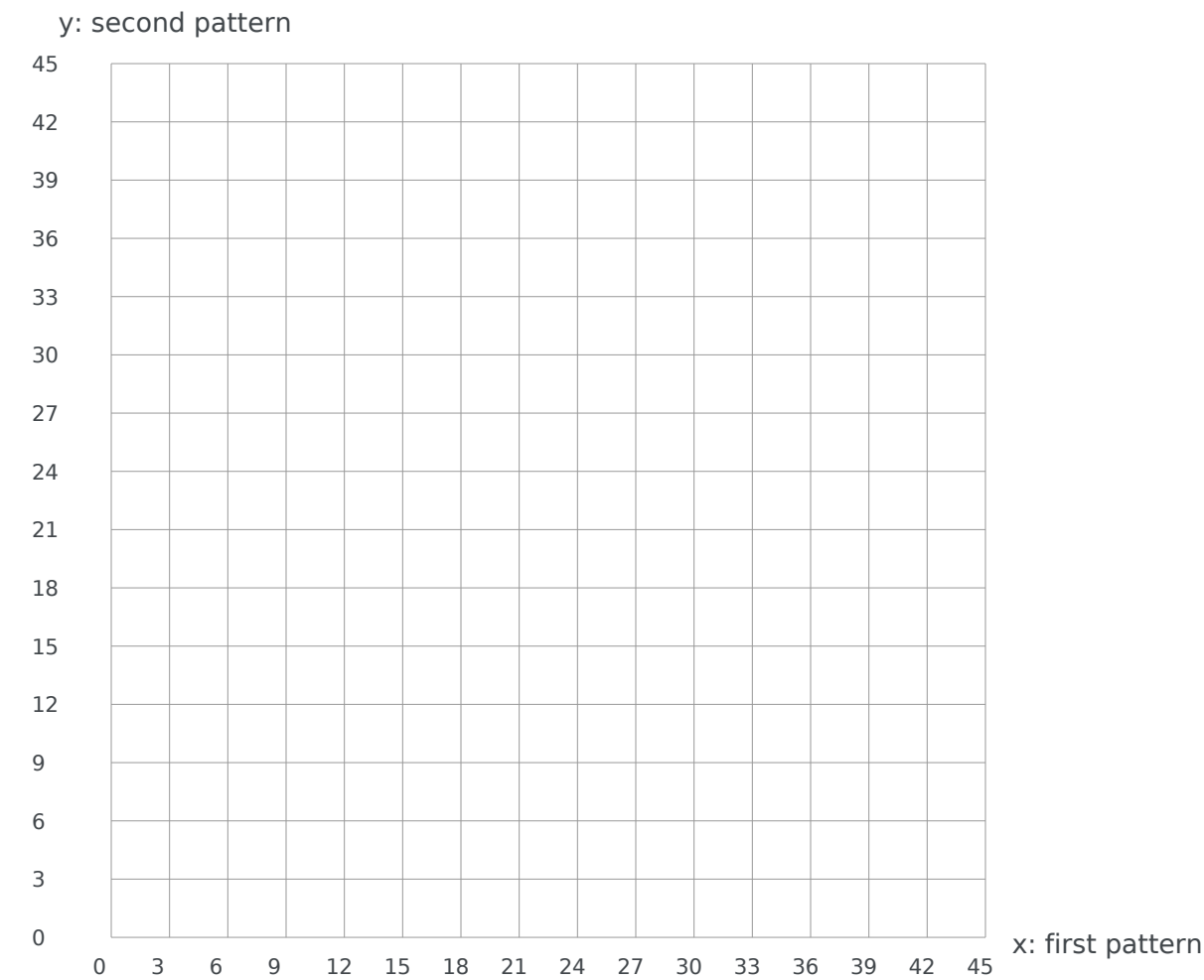
001 | Warm-up

First pattern: start at 8, then add 1. Second pattern: start at 32, then add 4. Count each start as term 1. Generate four terms in EACH pattern. List the four ordered pairs (first, second). Graph all four, then describe and verify a relationship between corresponding terms.

First pattern

Second pattern

Ordered pairs



Explain the relationship on the back or on separate paper.

STUDENT PERFORMANCE

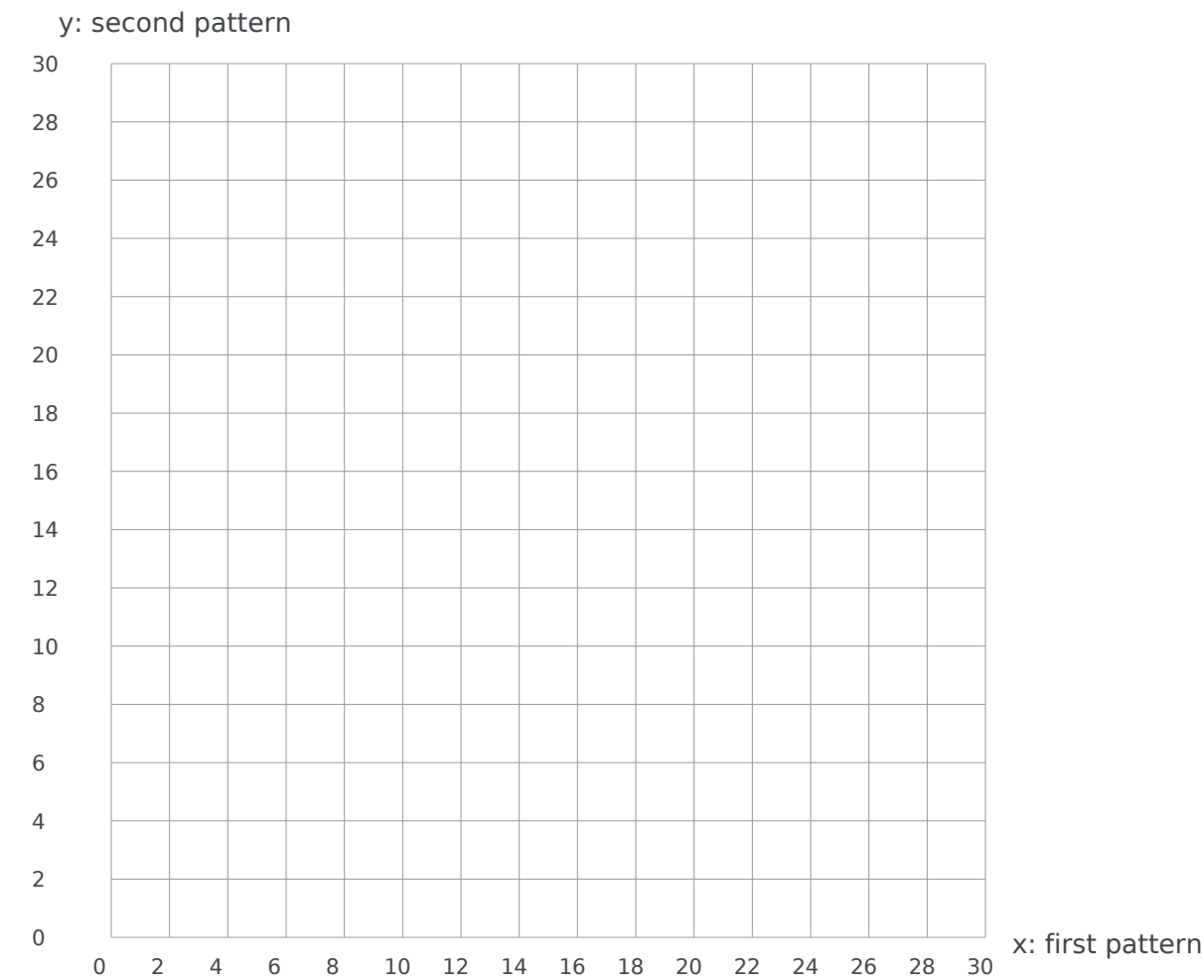
002 | Warm-up

First pattern: start at 8, then add 2. Second pattern: start at 16, then add 4. Count each start as term 1. Generate four terms in EACH pattern. List the four ordered pairs (first, second). Graph all four, then describe and verify a relationship between corresponding terms.

First pattern

Second pattern

Ordered pairs



Explain the relationship on the back or on separate paper.

TEACHER ONLY

M worked keys 1-2

M01: B. 4

Target: Generate two patterns from given rules and starting terms.

First: [0, 2, 4, 6]. Second: [1, 7, 13, 19]. Ordered pairs: (0, 1), (2, 7), (4, 13), (6, 19).

Relationship: $y = 3 \times x + 1$. Check last pair: $3 \times 6 + 1 = 19$. Plot x across, y up; one grid interval is 2. The first listed pair uses the starting terms.

Other choices do not match the stated rule or value. Ask for the learner's steps before diagnosing: check grouping/order, term alignment, place-value scaling, or the first unequal place as relevant. A choice alone does not identify a unique misconception.

M02: A. 4

Target: Explain a relationship between corresponding terms.

First: [0, 3, 6, 9]. Second: [0, 12, 24, 36]. Ordered pairs: (0, 0), (3, 12), (6, 24), (9, 36).

Relationship: $y = 4 \times x$. Check last pair: $4 \times 9 = 36$. Plot x across, y up; one grid interval is 3. The first listed pair uses the starting terms.

Other choices do not match the stated rule or value. Ask for the learner's steps before diagnosing: check grouping/order, term alignment, place-value scaling, or the first unequal place as relevant. A choice alone does not identify a unique misconception.

TEACHER ONLY

O worked keys 1-2

001 | sample performance

Target: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis.

First: [8, 9, 10, 11]. Second: [32, 36, 40, 44]. Ordered pairs: (8, 32), (9, 36), (10, 40), (11, 44). Relationship: $y = 4 \times x$. Check last pair: $4 \times 11 = 44$. Plot x across, y up; one grid interval is 3. The first listed pair uses the starting terms.

Accept mathematically equivalent explanations and models. Record each requested part separately. A correct final value with no required explanation is incomplete evidence.

002 | sample performance

Target: Generate two patterns from given rules and starting terms.; Explain a relationship between corresponding terms.; Form ordered pairs and graph them with the first pattern on the x-axis.

First: [8, 10, 12, 14]. Second: [16, 20, 24, 28]. Ordered pairs: (8, 16), (10, 20), (12, 24), (14, 28). Relationship: $y = 2 \times x$. Check last pair: $2 \times 14 = 28$. Plot x across, y up; one grid interval is 2. The first listed pair uses the starting terms.

Accept mathematically equivalent explanations and models. Record each requested part separately. A correct final value with no required explanation is incomplete evidence.