Merit Tutoring

Year 4 Mathematics

Worksheet 47: Grid References & Symbols

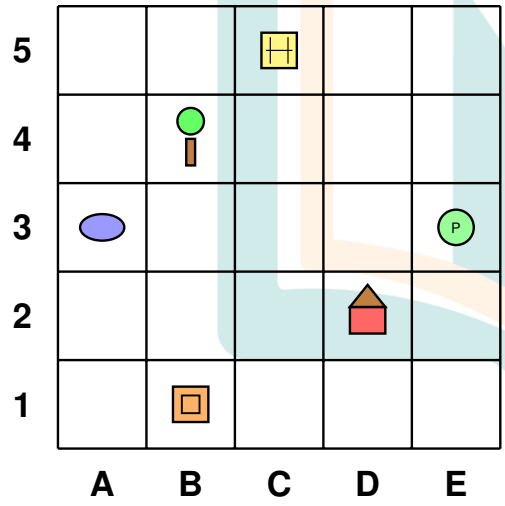
Australian Curriculum v9.0 — AC9M4SP02

Name: _____ Date: _____

Section 1: Fluency — Reading the Grid

Use the grid below to answer the questions. Remember: Find the letter first (across), then the number (up).

Town Map Grid



1. What is the grid reference for the pond?

Answer: _____

2. What is the grid reference for the house?

Answer: _____

3. What is the grid reference for the tree?

Answer: _____

4. What is the grid reference for the school?
Answer: _____

5. What is the grid reference for the park?
Answer: _____

6. What is the grid reference for the shop?
Answer: _____

7. What symbol is found at grid reference D2?
Answer: _____

8. What symbol is found at grid reference C5?
Answer: _____

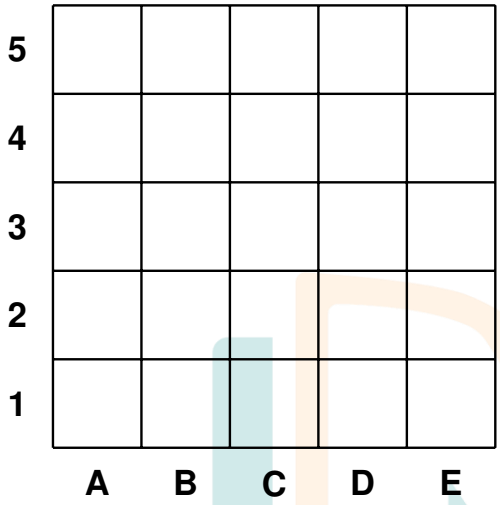
Reward Box

Grid Greatness!

Why did the map go to the doctor?
Because it had a bad case of the 'grid-lock'!

Section 2: Reasoning — Marking the Grid

Draw the symbols in the correct grid squares. Use the blank grid below.



9. Draw a star () in square D2.

10. Draw a circle () in square A4.

11. Draw a triangle () in square C3.

12. Draw a square () in square E1.

13. Draw a cross (×) in square B5.

14. If you drew a heart in square C2 and a diamond in square A1, which one would be further North?

Answer: _____

15. If you placed a flag at E5 and a balloon at A5, which one would be further East?

Answer: _____

Reward Box

Master Navigator!

What did the compass say to the map?

"You give me direction in life!"

Section 3: Fluency — Describing Locations

Answer questions about the positions of places on a grid.

16. If the school is at C3 and the library is at C5, are they in the same column or the same row?

Answer: _____

17. If the post office is at B2 and the bank is at D2, are they in the same column or the same row?

Answer: _____

18. The hospital is at A4 and the pharmacy is at E4. How many squares apart are they if you travel in a straight line East?

Working: _____

Answer: _____ squares

19. The cafe is at C1 and the restaurant is at C4. How many squares apart are they if you travel in a straight line North?

Working: _____

Answer: _____ squares

20. If two places are both in column D, what do they have in common about their grid references?

Answer: _____

21. If two places are both in row 3, what do they have in common about their grid references?

Answer: _____

22. Name a grid reference that is in column A.

Answer: _____ (Example)

23. Name a grid reference that is in row 5.

Answer: _____ (Example)

Reward Box

Grid Greatness!

Why did the treasure map get good grades?
Because it always knew where 'X' marks the spot!

End of Worksheet 47 — Excellent Grid Work!

Year 4 Mathematics

Worksheet 47: Answer Key

Grid References & Symbols

Section 1: Fluency — Reading the Grid

Answers with explanations

1. Answer: **A3**

Explanation: The pond is in column A (first column from the left) and row 3 (third row from the bottom).

2. Answer: **D2**

Explanation: The house is in column D (fourth column from the left) and row 2 (second row from the bottom).

3. Answer: **B4**

Explanation: The tree is in column B (second column from the left) and row 4 (fourth row from the bottom).

4. Answer: **C5**

Explanation: The school is in column C (third column from the left) and row 5 (fifth row from the bottom).

5. Answer: **E3**

Explanation: The park is in column E (fifth column from the left) and row 3 (third row from the bottom).

6. Answer: **B1**

Explanation: The shop is in column B (second column from the left) and row 1 (first row from the bottom).

7. Answer: **House** (or a house)

Explanation: Looking at grid reference D2, we find the house symbol.

8. Answer: **School** (or a school)
Explanation: Looking at grid reference C5, we find the school symbol.

Section 2: Reasoning — Marking the Grid

Marking guide and answers

9. Student should have drawn a star in square D2.
Marking guide: Check that the star is placed in column D, row 2 (fourth column from left, second row from bottom).

10. Student should have drawn a circle in square A4.
Marking guide: Check that the circle is placed in column A, row 4 (first column from left, fourth row from bottom).

11. Student should have drawn a triangle in square C3.
Marking guide: Check that the triangle is placed in column C, row 3 (third column from left, third row from bottom).

12. Student should have drawn a square in square E1.
Marking guide: Check that the square is placed in column E, row 1 (fifth column from left, first row from bottom).

13. Student should have drawn a cross in square B5.
Marking guide: Check that the cross is placed in column B, row 5 (second column from left, fifth row from bottom).

14. Answer: **The heart** (in C2)
Explanation: C2 (row 2) is further North than A1 (row 1). The higher the row number, the further North the location.

15. Answer: **The flag** (at E5)
Explanation: E5 is further East than A5. Column E is to the right (East) of column A. The letters further along in the alphabet indicate positions further East.

Section 3: Fluency — Describing Locations

Complete answers with reasoning

16. Answer: **Same column**
Explanation: Both C3 and C5 have the letter C, which means they are in the same column (column C). They are in different rows (3 and 5).

17. Answer: **Same row**
Explanation: Both B2 and D2 have the number 2, which means they are in the same row (row 2). They are in different columns (B and D).

18. Answer: **4 squares**
Working: From A4 to E4, count the columns: A to B (1), B to C (2), C to D (3), D to E (4). Total = 4 squares.

19. Answer: **3 squares**
Working: From C1 to C4, count the rows: 1 to 2 (1), 2 to 3 (2), 3 to 4 (3). Total = 3 squares.

20. Answer: **They both have the letter D** (or they both start with D)
Explanation: Grid references in the same column all share the same letter at the beginning. Column D includes D1, D2, D3, D4, and D5.

21. Answer: **They both have the number 3** (or they both end with 3)
Explanation: Grid references in the same row all share the same number at the end. Row 3 includes A3, B3, C3, D3, and E3.

22. Answer: **Examples: A1, A2, A3, A4, or A5**
Marking guide: Accept any grid reference that starts with the letter A.

23. Answer: **Examples: A5, B5, C5, D5, or E5**
Marking guide: Accept any grid reference that ends with the number 5.

Outstanding Achievement!

You have successfully mastered reading grid references, placing symbols on a grid, and understanding rows and columns. These navigation skills will help you read maps and locate places accurately!

Year 4 Mathematics

Worksheet 48: Compass Directions & Pathways

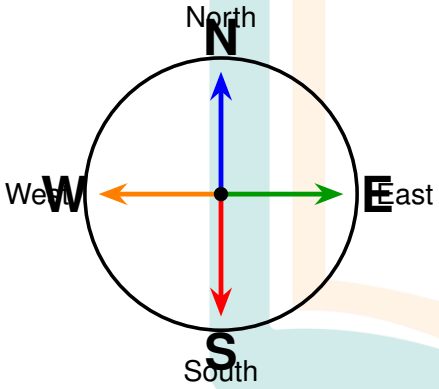
Australian Curriculum v9.0 — AC9M4SP02

Name: _____ Date: _____

Section 1: Fluency — Cardinal Directions

Use the compass rose below to answer questions about directions.

Compass Rose



1. If you are facing North and turn 90 degrees to your right, which direction are you facing?

Answer: _____

2. If you are facing South and turn 90 degrees to your left, which direction are you facing?

Answer: _____

3. If you are facing East and turn around (180 degrees), which direction are you facing?

Answer: _____

4. If you are facing West and turn 90 degrees to your right, which direction are you facing?
Answer: _____

5. Which direction is opposite to North?
Answer: _____

6. Which direction is opposite to East?
Answer: _____

7. On a map, North is usually at the top. Where is South usually located?
Answer: _____

8. If you walk from point A towards the North, are you moving up or down on the map?
Answer: _____

Reward Box

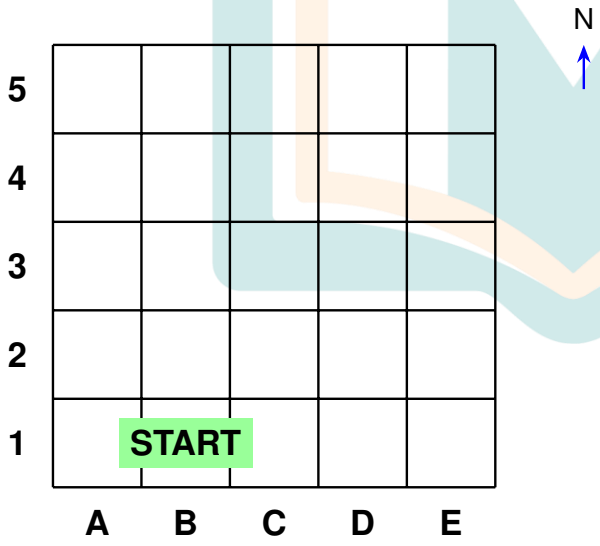
Master Navigator!

Why did the compass get invited to every party?
Because it always knew which way to go!

Section 2: Problem Solving — Following Pathways

Use the grid below to follow directions and find new locations.

Movement Grid



9. Start at B1. Follow these directions: Move 2 squares North, then 2 squares East. What is your new grid reference?

Working: _____

Answer: _____

10. Start at A1. Follow these directions: Move 3 squares East, then 2 squares North. What is your new grid reference?

Working: _____

Answer: _____

11. Start at E5. Follow these directions: Move 2 squares West, then 2 squares South. What is your new grid reference?

Working: _____

Answer: _____

12. Start at C3. Follow these directions: Move 1 square North, then 2 squares East, then 1 square South. What is your new grid reference?

Working: _____

Answer: _____

13. Start at D4. Move 3 squares West. What is your new grid reference?

Working: _____

Answer: _____

14. Start at B2. Move 3 squares North. What is your new grid reference?

Working: _____

Answer: _____

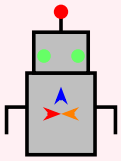
15. If you are at C5 and move 2 squares South and 1 square West, where

do you end up?

Working: _____

Answer: _____

Reward Box



Grid Greatness!

What do you call a robot that always knows where to go?

A navi-'bot'!

Section 3: Challenge — Creating Directions

Write your own directions to move between grid references. Use the words North, South, East, and West.

16. Write a set of directions to get from A1 to D4 using North and East.

Directions: _____

_____

17. Write a set of directions to get from E5 to B2 using South and West.

Directions: _____

_____

18. Write a set of directions to get from C3 to E5 using North and East.

Directions: _____

_____

19. Write a set of directions to get from D5 to A3 using South and West.

Directions: _____

_____

20. You are at B3. Write directions to get to D3. (Hint: You only need to use one direction!)

Directions: _____

21. You are at C2. Write directions to get to C5. (Hint: You only need to use one direction!)

Directions: _____

22. Can you get from A1 to E1 by moving only North and South? Explain your answer.

Answer: _____

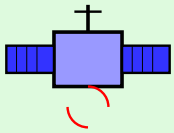
_____

23. Create your own challenge! Choose a starting point and an ending point, then write the directions.

Start: _____ End: _____

Directions: _____

Reward Box



Master Navigator!

Why did the GPS break up with the map?
Because the map couldn't keep up with its directions!

End of Worksheet 48 — Fantastic Navigation Skills!

Year 4 Mathematics

Worksheet 48: Answer Key

Compass Directions & Pathways

Section 1: Fluency — Cardinal Directions

Answers with explanations

1. Answer: **East**

Explanation: When facing North, turning 90 degrees to the right brings you to face East.

2. Answer: **East**

Explanation: When facing South, turning 90 degrees to the left brings you to face East.

3. Answer: **West**

Explanation: East and West are opposite directions. Turning 180 degrees (turning around) from East means you face West.

4. Answer: **North**

Explanation: When facing West, turning 90 degrees to the right brings you to face North.

5. Answer: **South**

Explanation: North and South are opposite directions. North is up, South is down.

6. Answer: **West**

Explanation: East and West are opposite directions. East is to the right, West is to the left.

7. Answer: **At the bottom** (or bottom of the map)

Explanation: On standard maps, North is at the top and South is at the bottom.

8. Answer: **Up**
Explanation: North is at the top of the map, so moving North means moving up on the map.

Section 2: Problem Solving — Following Pathways

Worked solutions

9. Answer: **D3**
Working: Start at B1. Move 2 squares North: B1 → B2 → B3. Then move 2 squares East: B3 → C3 → D3. Final position: D3.

10. Answer: **D3**
Working: Start at A1. Move 3 squares East: A1 → B1 → C1 → D1. Then move 2 squares North: D1 → D2 → D3. Final position: D3.

11. Answer: **C3**
Working: Start at E5. Move 2 squares West: E5 → D5 → C5. Then move 2 squares South: C5 → C4 → C3. Final position: C3.

12. Answer: **E3**
Working: Start at C3. Move 1 square North: C3 → C4. Move 2 squares East: C4 → D4 → E4. Move 1 square South: E4 → E3. Final position: E3.

13. Answer: **A4**
Working: Start at D4. Move 3 squares West: D4 → C4 → B4 → A4. Final position: A4.

14. Answer: **B5**
Working: Start at B2. Move 3 squares North: B2 → B3 → B4 → B5. Final position: B5.

15. Answer: **B3**

Working: Start at C5. Move 2 squares South: C5 → C4 → C3. Move 1 square West: C3 → B3. Final position: B3.

Section 3: Challenge — Creating Directions

Sample answers (student answers may vary)

16. Sample Answer: **Move 3 squares North, then move 3 squares East.**
Explanation: From A1 to D4 requires moving up 3 rows (1→2→3→4) and right 3 columns (A→B→C→D). Alternative: Move 3 East, then 3 North (same result).

17. Sample Answer: **Move 3 squares South, then move 3 squares West.**
Explanation: From E5 to B2 requires moving down 3 rows (5→4→3→2) and left 3 columns (E→D→C→B). Alternative: Move 3 West, then 3 South.

18. Sample Answer: **Move 2 squares North, then move 2 squares East.**
Explanation: From C3 to E5 requires moving up 2 rows (3→4→5) and right 2 columns (C→D→E). Alternative: Move 2 East, then 2 North.

19. Sample Answer: **Move 2 squares South, then move 3 squares West.**
Explanation: From D5 to A3 requires moving down 2 rows (5→4→3) and left 3 columns (D→C→B→A). Alternative: Move 3 West, then 2 South.

20. Sample Answer: **Move 2 squares East.**
Explanation: From B3 to D3, both locations are in row 3, so you only need to move East (right) 2 squares: B→C→D.

21. Sample Answer: **Move 3 squares North.**
Explanation: From C2 to C5, both locations are in column C, so you only need to move North (up) 3 squares: 2→3→4→5.

22. Answer: **No, you cannot.**
Explanation: A1 and E1 are both in row 1 (same row, different columns). To move between them, you need to move East (from A to E). North and South

only change the row number, not the column letter. To change columns, you must move East or West.

23. Answers will vary.

Marking guide: Check that the student has chosen two different grid references, and that their directions correctly move from the starting point to the ending point using appropriate compass directions (North, South, East, West). Accept any valid solution path.

Outstanding Achievement!

You have successfully mastered using compass directions, following pathways on a grid, and creating your own directional instructions. These essential navigation skills will help you read maps, find locations, and give directions in real-world situations. Excellent work, Master Navigator!

