



Year 4 Mathematics

Shapes & Data: Flat Shapes (2D)

Australian Curriculum v9.0 — AC9M4SP01 & AC9M4SP03

Worksheet 41: Properties & Composite Shapes

Name: _____ Date: _____

Section 1: Fluency – Naming Polygons

In this section, you will identify polygons by their properties (sides, vertices, and angles).

1. I have 5 sides and 5 vertices. What is my name?
2. I have 6 sides and 6 vertices. What shape am I?
3. How many sides does an octagon have?
4. A polygon with 4 sides is called a _____.
5. How many pairs of parallel sides does a regular hexagon have?
6. True or False: A triangle has 3 vertices and 3 angles.



7. I have 8 sides and 8 corners. What polygon am I?

8. How many vertices does a pentagon have?

Reward Box: Shape Shifter!



Fantastic work on naming polygons!

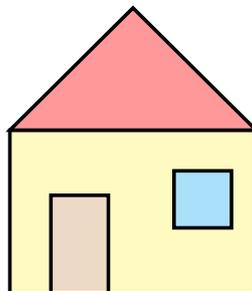
Year 4 Joke: Why did the polygon go to the party?

Because it had too many sides to choose from!

Section 2: Visual Modeling – Composite Shapes (AC9M4SP01)

Composite shapes are made up of two or more basic shapes. Look carefully and identify all the shapes!

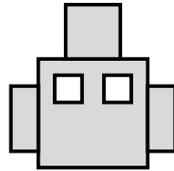
9. Look at the composite shape below. List all the 2D shapes you can see in this drawing.



10. Draw a composite shape using exactly one triangle and two rectangles.



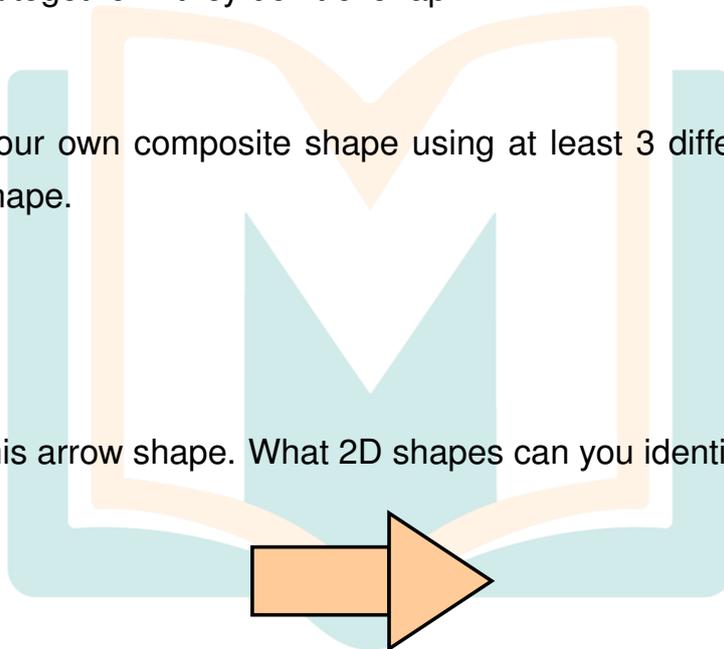
11. Look at the robot below. How many squares can you count?



12. A composite shape has 2 rectangles and 1 triangle. How many sides does it have altogether if they don't overlap?

13. Create your own composite shape using at least 3 different polygons. Label each shape.

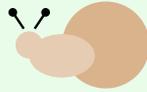
14. Look at this arrow shape. What 2D shapes can you identify?



15. Describe a composite shape you can see in your classroom. What shapes make it up?



Reward Box: Composite Champion!



Excellent work identifying composite shapes!

Year 4 Joke: What do you call a shape that's always telling jokes?

A fun-gon!

Section 3: Reasoning – Quadrilateral Sorting

All quadrilaterals have 4 sides, but they have different special properties.
Let's explore!

16. Is every square also a rectangle? Explain why or why not.
17. What is special about the sides of a parallelogram?
18. True or False: All rectangles are squares. Explain your answer.
19. How many right angles does a rectangle have?
20. Name two ways a square and a rhombus are similar.
21. A trapezium has at least _____ pair(s) of parallel sides.
22. Draw a quadrilateral that is NOT a square, rectangle, or parallelogram.



23. Explain the difference between a rhombus and a square.

Reward Box: Symmetry Specialist!



Amazing reasoning about quadrilaterals!

Year 4 Joke: Why was the square always so calm?

Because it had four right angles!

**Congratulations! You've mastered properties
and composite shapes!**



Answer Key

Worksheet 41: Properties & Composite Shapes

Section 1: Fluency – Naming Polygons

1. Pentagon
2. Hexagon
3. 8 sides
4. Quadrilateral
5. 3 pairs of parallel sides
6. True
7. Octagon
8. 5 vertices

Section 2: Visual Modeling – Composite Shapes

9. Rectangle (body), triangle (roof), rectangle (door), rectangle (window)
10. Student's own drawing (check for 1 triangle and 2 rectangles)
11. 5 squares (body, head, 2 eyes, 2 arms - accept variations)
12.
$$2 \times 4 + 3 = 11 \text{ sides (if they don't share edges)}$$
13. Student's own composite shape (check for at least 3 different polygons with labels)
14. Rectangle and triangle
15. Student's own answer (e.g., door = rectangle; clock = circle and rectangle, etc.)



Section 3: Reasoning – Quadrilateral Sorting

- 16.** Yes. Every square is also a rectangle because it has 4 right angles and opposite sides that are equal and parallel. A square is a special type of rectangle where all four sides are equal.
- 17.** A parallelogram has two pairs of parallel sides.
- 18.** False. All squares are rectangles, but not all rectangles are squares. Rectangles need 4 right angles and opposite sides equal, but squares need all four sides to be equal as well.
- 19.** 4 right angles
- 20.** Both have 4 equal sides; both have opposite sides that are parallel. (Accept other valid similarities)
- 21.** One pair (at least)
- 22.** Student's own drawing (check for an irregular quadrilateral or a trapezium)
- 23.** Both have 4 equal sides and parallel opposite sides, but a square has 4 right angles while a rhombus does not necessarily have right angles.





Year 4 Mathematics

Shapes & Data: Flat Shapes (2D)

Australian Curriculum v9.0 — AC9M4SP03

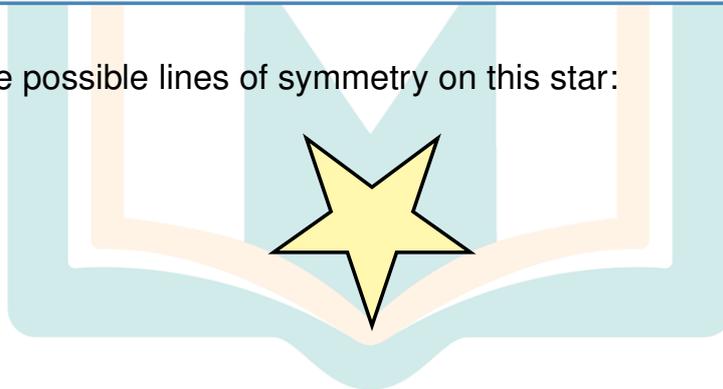
Worksheet 42: Line & Rotational Symmetry

Name: _____ Date: _____

Section 1: Fluency – Line Symmetry

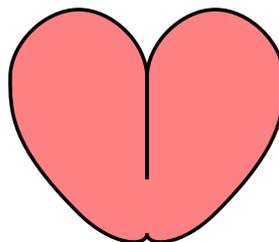
A line of symmetry divides a shape into two identical halves that are mirror images of each other.

1. Draw all the possible lines of symmetry on this star:



How many lines of symmetry does this star have? _____

2. Draw all the lines of symmetry on this heart:



How many lines of symmetry does the heart have? _____

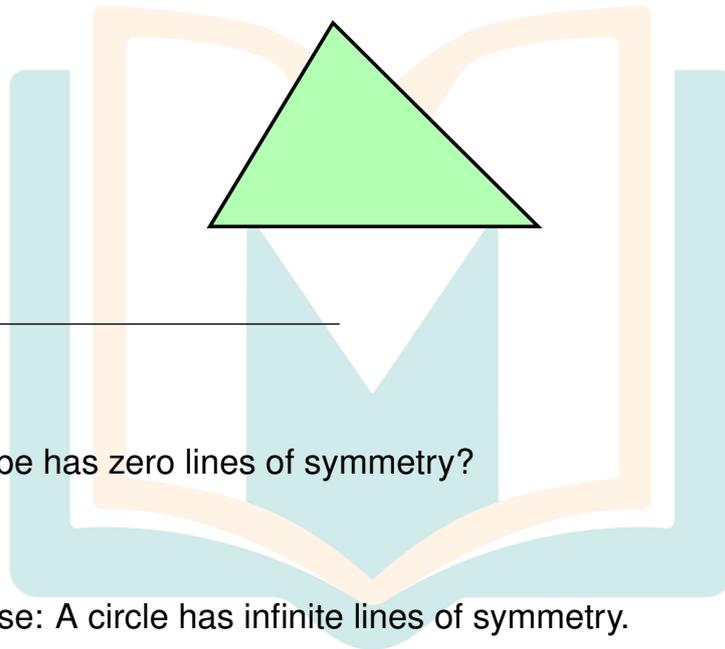


3. Draw all the lines of symmetry on this rectangle:



How many lines of symmetry? _____

4. Draw this scalene triangle. Does it have any lines of symmetry?



Answer: _____

5. Which shape has zero lines of symmetry?

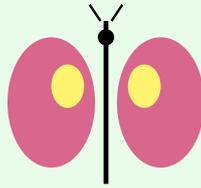
6. True or False: A circle has infinite lines of symmetry.

7. How many lines of symmetry does a square have?

8. Draw a capital letter that has exactly one line of symmetry.



Reward Box: Symmetry Specialist!



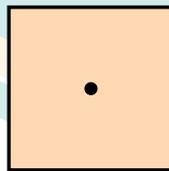
Outstanding work with line symmetry!

Year 4 Joke: Why did the shape go to the mirror?
To check if it was symmetrical!

Section 2: Reasoning – Rotational Symmetry (AC9M4SP03)

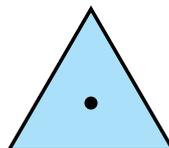
A shape has rotational symmetry if it looks exactly the same after being rotated less than 360° (one full turn).

9. Look at this square. Mark the centre point. How many times does this shape look exactly the same as you turn it one full circle (360°)?



Answer: _____ times

10. Look at this equilateral triangle. How many times does it look the same when rotated 360° ?



Answer: _____ times



11. Does a rectangle have rotational symmetry? If yes, how many times does it look the same during one full rotation?

12. A regular pentagon has rotational symmetry. How many times does it look identical during one complete turn?

13. True or False: A scalene triangle has rotational symmetry.

14. How many times does a regular hexagon look the same when rotated 360° ?

15. Does the letter "H" have rotational symmetry? Explain.

Reward Box: Shape Shifter!



Brilliant work with rotational symmetry!

Year 4 Joke: What did the shape say when it spun around?

"I'm going in circles but I still look the same!"

Section 3: Challenge – Symmetrical Patterns

Complete patterns so they are perfectly symmetrical across the line of symmetry.

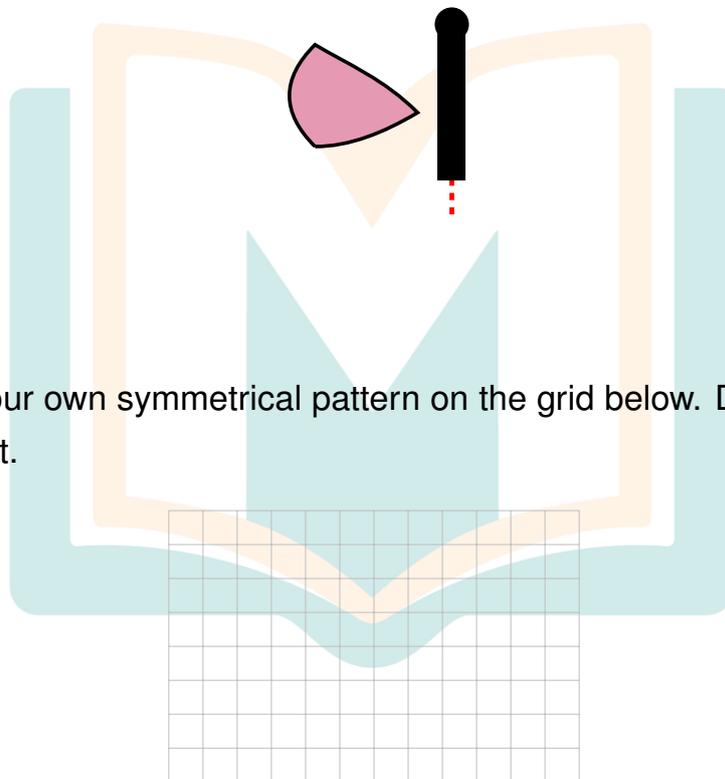
16. Complete the pattern so it is perfectly symmetrical across the dashed



line:



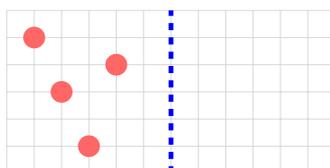
17. Complete this butterfly so it has line symmetry:



18. Create your own symmetrical pattern on the grid below. Draw the line of symmetry first.



19. Complete the pattern so both sides match across the vertical line:



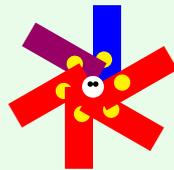


20. Draw a face that has exactly one line of symmetry.

21. True or False: Every symmetrical pattern must have rotational symmetry.

22. Create a design with 4 lines of symmetry.

Reward Box: Pattern Pro!



Magnificent symmetrical patterns!

Year 4 Joke: Why was the pattern so confident?

Because it was perfectly balanced!

Amazing! You're now a Symmetry Specialist!



Answer Key

Worksheet 42: Line & Rotational Symmetry

Section 1: Fluency – Line Symmetry

1. The 5-pointed star has 5 lines of symmetry (one through each point to the opposite indent).

Answer: 5 lines

2. The heart has 1 line of symmetry (vertical line down the center).

Answer: 1 line

3. The rectangle has 2 lines of symmetry (one horizontal through the middle, one vertical through the middle).

Answer: 2 lines

4. No, a scalene triangle has zero lines of symmetry because all its sides are different lengths.

5. The scalene triangle (from question 4)

6. True. A circle has infinite lines of symmetry because any line through its center divides it into two identical halves.

7. 4 lines of symmetry (2 diagonals and 2 through the midpoints of opposite sides)

8. Student's own answer (e.g., letters A, T, U, V, W, Y have 1 line of symmetry)



Section 2: Reasoning – Rotational Symmetry

9. 4 times (at 90° , 180° , 270° , and 360°)
10. 3 times (at 120° , 240° , and 360°)
11. Yes, a rectangle has rotational symmetry. It looks the same 2 times during one full rotation (at 180° and 360°).
12. 5 times (at 72° , 144° , 216° , 288° , and 360°)
13. False. A scalene triangle does not have rotational symmetry because its sides are all different lengths.
14. 6 times (at 60° , 120° , 180° , 240° , 300° , and 360°)
15. Yes, the letter H has rotational symmetry. It looks the same when rotated 180° . (Order 2 rotational symmetry)

Section 3: Challenge – Symmetrical Patterns

16. Student should mirror the left pattern on the right side of the dashed line.
17. Student should complete the right wing to mirror the left wing.
18. Student's own symmetrical pattern (check that it has a clear line of symmetry and both sides match)
19. Student should place circles on the right side that mirror the positions on the left: (1.5, 0.5), (2, 1.5), (1, 2), (2.5, 2.5)
20. Student's own face with one vertical line of symmetry down the center
21. False. A pattern can have line symmetry without having rotational symmetry. For example, a rectangle has 2 lines of symmetry but only order 2 rotational symmetry.
22. Student's own design (check for 4 lines of symmetry—could be a square, cross, or star pattern)



Teacher Notes

AC9M4SP01: Students represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects.

AC9M4SP03: Students recognise line and rotational symmetry of shapes and create symmetrical patterns and pictures, using dynamic geometric software where appropriate.

These worksheets provide comprehensive practice in identifying properties of 2D shapes, analyzing composite shapes, and exploring both line and rotational symmetry—all key concepts for Year 4 students under the Australian Curriculum v9.0.

