

Max's Geometric Garden Adventure

Learning objective: To identify, measure, and calculate angles around a point, on a straight line, and within shapes.

Help Max the monkey solve the puzzles in the community garden. Use your protractor accurately and remember the properties of angles on a straight line (180°) and around a point (360°).

Max is designing a new flowerbed in the shape of a large regular hexagon. He wants to ensure every corner is perfectly angled. He notices that the path junction forms a straight line where a cyclist has stopped. The angle on one side of the path is 75° . Max uses his mathematical mind to calculate the missing angle on the other side of the path. Meanwhile, Zara the zebra is painting a pattern using triangles. She needs to ensure the internal angles of her triangles always add up to 180° to keep the pattern symmetrical.

Word bank: acute · obtuse · reflex · protractor · degrees · straight line · vertically opposite · complementary

1. Max observes an angle of 75° on a straight path. Calculate the size of the adjacent angle on the same straight line. Explain your method. (2 marks)

2. If two angles meet at a point and one is a reflex angle of 280° , what is the size of the remaining angle? Justify your answer. (2 marks)

3. Compare and contrast an obtuse angle and a reflex angle. Provide an example measurement for each. (2 marks)

4. Max draws a triangle with two internal angles measuring 45° and 65° . What is the third angle? Show your working. (2 marks)

5. What might happen to the symmetry of Zara's patterns if she accidentally makes an internal angle of a triangle 190° ? Explain why this is impossible for a triangle. (2 marks)

Draw: Using a ruler and protractor, draw a compound shape that includes one acute angle, one obtuse angle, and one right angle. Label each angle clearly with its approximate measurement.



Extension challenge: Design a complex geometric mosaic using only triangles and quadrilaterals. Calculate the sum of the internal angles of your entire design and explain the mathematical rule you used to verify your total.