

Max's Architectural Challenge: Designing the Jungle Community Centre

Learning objective: Calculate the area and perimeter of rectilinear shapes and compound shapes, and solve multi-step problems involving units of measure.

Max the monkey has been tasked with designing a new community centre in the jungle. Use your mathematical skills to help him calculate the dimensions of his blueprints. Remember: Perimeter is the total distance around the outside, and Area is the total space covered inside, measured in square units (e.g., cm^2 or m^2).

Word bank: rectilinear · dimensions · perimeter · area · square centimetres · compound · total · calculation · formula

1. The main hall is a rectangle measuring 8m by 6m. Calculate the perimeter and the area. Explain the formula you used for each. (4 marks)

2. Max wants to add a square reading corner with a side length of 4m. What will be the new total area of the floor space? Show your working out. (3 marks)

3. If the cost of carpet tiles is £5 per square metre, how much will it cost to cover the entire floor of the main hall (8m x 6m)? Justify your answer. (3 marks)

4. Compare and contrast a shape with a large perimeter but a small area versus a shape with a small perimeter but a large area. Provide an example of each. (4 marks)

5. Max decides to add a triangular stage. Why is calculating the area of a triangle different from calculating the area of a rectangle? Explain the relationship between the two. (3 marks)

6. What might happen if Max miscalculates the perimeter of the building and orders too little fencing material? Describe the real-world consequences. (3 marks)

Extension challenge: Design a complex, compound shape for a jungle playground that has a total area of exactly 50m^2 . Label the lengths of all sides and calculate the final perimeter.