

Max's Garden Design Challenge

Learning objective: To calculate the perimeter and area of rectilinear shapes and solve multi-step problems involving measurements in centimetres and metres.

Max the monkey is designing a new vegetable garden. He has carefully planned his plots on squared paper, where each square represents 1 metre by 1 metre. Help Max calculate the space he needs for his vegetables by solving the problems below. Show your working out clearly.

Word bank: Perimeter · Area · Rectilinear · Square metres · Calculate · Dimensions · Total · Multiply

1. Max has a rectangular plot that is 6 metres long and 4 metres wide. Calculate the area of this plot. Explain how you found your answer. (2 marks)

2. Max decides to add a path around his 6m x 4m plot. What is the total perimeter of the plot? Show your calculation. (2 marks)

3. A packet of organic carrot seeds costs £2.50 and covers an area of 5 square metres. If Max has a plot with an area of 20 square metres, how much will it cost him to seed the whole plot? Justify your answer. (3 marks)

4. Compare and contrast the effect on the area and perimeter if Max doubles the length of his plot but keeps the width the same. What might happen if he doubled both the length and the width? (4 marks)

5. Max has 24 metres of fencing to create a rectangular enclosure. List two different possible dimensions (length and width) he could use for this enclosure and calculate the area for each. (3 marks)

6. If Max uses £15.00 to buy fertiliser that costs £0.50 per square metre, what is the maximum area he can fertilise? Show your reasoning. (2 marks)

Draw: Draw two different rectilinear shapes on a grid that both have an area of 12 square metres, but have different perimeters. Label the sides of your shapes in metres.



Extension challenge: Design a 'dream garden' for Max that includes at least three different vegetable plots of varying sizes. Create a table listing the length, width, area, and perimeter of each plot. Calculate the total cost to fence the entire garden if fencing costs £2 per metre.