Mathematics – planning a garden

3a

Planning and maintaining a garden offers numerous opportunities for exploring Maths in a practical setting.

CURRICULUM LINKS

Maths
Key Stage 2 – Ma2 1a, 1b, 1c, 1e, 1f, 1h, 1j, 2c, 2d, 3d, 3f, 3g, 3h, 3i, 3j, 3k, 4a, 4b, 4c, Ma3 1a, 1e, 4a, 4b, Ma4 1a, 1b, 1c, 1d, 1e, 1f, 1h, 2a, 2b, 2c, 2f

English
Key stage 2 – En1 2b, 2e, 3a, 3b, 3c, 3d, 3e, 3f, En2 3a, 3b, 3c, 3d

Geography
Key stage 2 – 2a, 2b, 2c, 2e

ICT
Key stage 2 – 1b

Art and Design
Key stage 2 – 1a, 1c

What you'll need:

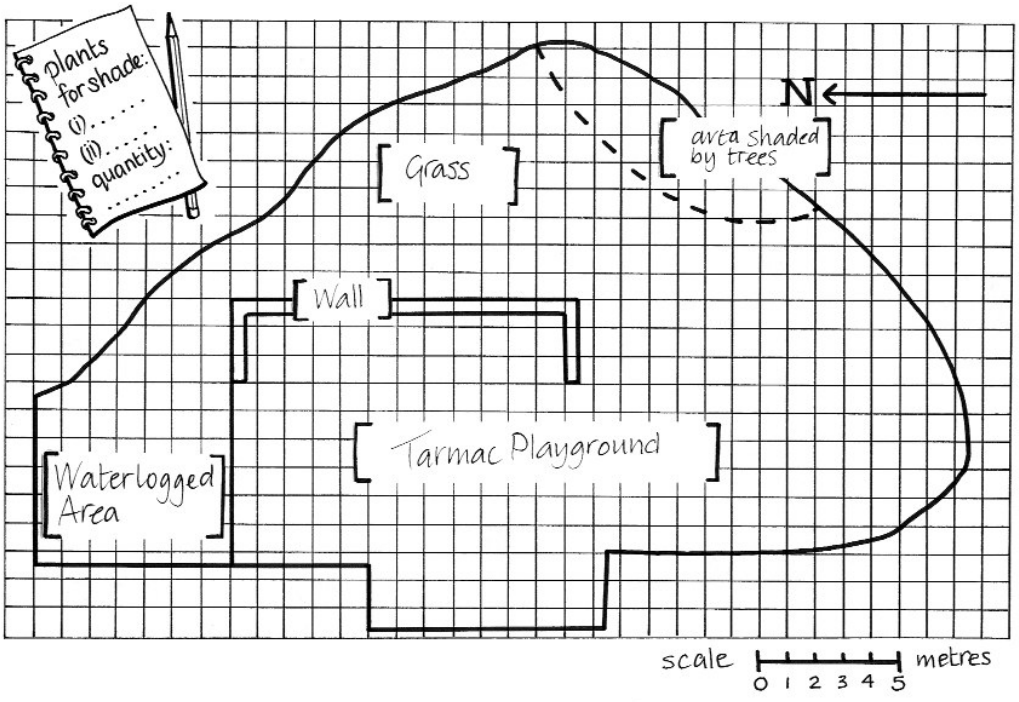
- Tape measures
- Tracing paper
- A compass

Measuring the area

First, get the pupils to measure the outer boundaries of the garden plot in order to work out a suitable scale for their plans.

Depending on the size of the garden, a scale of 1:50 is often appropriate, where 2cm on paper = 1m of garden. If the garden area is very large, you may find 1:100 more suitable, where 1cm on paper = 1m of garden.

Noting which way is North, get the pupils to mark the shape of the garden on their plans.



Scale drawing of St Thomas More Nursery Garden

continued overleaf

growing schools

NOTES

Noting features

Now ask the pupils to identify the various features of the garden, such as walls, grass, trees, ponds and so on. Pupils can measure the distances to existing features from the boundary, convert the measurements using the scale and mark them on to their plans. Drawing a grid on the plan to represent m^2 before they start will improve accuracy.

Growing conditions

Certain features of the garden can affect how well things will grow. Get the pupils to note and mark relevant features like waterlogged areas, parts of the garden receiving shade from trees or buildings, and areas of full sun.

Planning

Using tracing paper or copies of the plan, pupils can now add their ideas for new features that they would like to see in the garden.

Further areas of learning

Once the garden is planned, other areas of Maths can be explored. Pupils can make calculations involving the number of seeds planted; how many germinated; the rates of plant growth; the effects of different factors including climate and weather and the productivity of different vegetables. Read factsheet 2 for more on planting and growing flowers and vegetables.

Mathematics – investigations

3b

Does the range of plants found in one habitat or area differ from the range of plants in another habitat or area?

NOTES

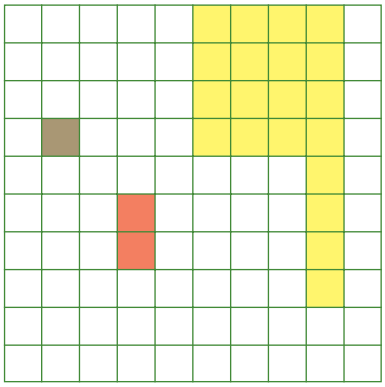
Choose two areas. Use coat hangers as quadrants and place them randomly. Take **repeat** results in each of your areas and record the number of each plant present in each quadrant.

AREA 1	Daisy	Dandelion	Plantain	Buttercup	Clover	Grass
Day 1						
Day 2						
Day 3						
Day 4						
Day 5						

AREA 2	Daisy	Dandelion	Plantain	Buttercup	Clover	Grass
Day 1						
Day 2						
Day 3						
Day 4						
Day 5						

Different types of graphs can be produced from these results, for example pictograms or bar charts.

A third method of collecting results would be to use a much larger quadrant divided into sections. Choose a colour for each different species of plant present and colour in the sections on a paper copy of the quadrant. If more than one plant appears in each section then the square can be divided and each half coloured in a different colour. Results could be produced in the form of percentages. In the example below 20% of the area is covered with daisies.



- Daisy
- Dandelion
- Plantain
- Buttercup
- Clover
- Grass

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