

Dereham Church of England Infant and Nursery School- Mathematics



Year group: Reception

Area/topic: Mathematics- Visualise, build and map

Development Matters - Reception - Continue, copy and create repeating patterns.

Development Matters - 3 and 4-year-olds Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'.

Understand position through words alone - for example, "The bag is under the table," - with no pointing.

Birth to 5 Matters - Range 6 Spots patterns in the environment, beginning to identify the pattern "rule"

Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat

Development Matters - 3 and 4-year-olds Discuss routes and locations, using words like 'in front of' and 'behind'.

Development Matters - 3 and 4-year-olds - Understand position through words alone - for example, "The bag is under the table," - with no pointing.

Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

Birth to 5 Matters - Range 6 - Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build

Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints

Birth to 5 Matters - Range 6 - May enjoy making simple maps of familiar and imaginative environments, with landmarks

Prior learning

Children complete a block in the Autumn focussing on repeating patterns

Future learning

Children will apply this knowledge during daily maths meetings

What pupils need to know or do to be secure

Key knowledge and skills	Possible evidence
Identify units of repeating patterns	Provide children with a range of resources, such as loose parts, cubes and beads. Prompt them to make patterns with at least three units of repeat. Encourage children to pull out each unit to see the pattern's structure and how it repeats. In an open space outside, enact large movement patterns and prompt children to say what the unit of repeat is. Encourage children to copy and continue these patterns. Set up a pattern station with photos of complex patterns, such as patterns that start mid-unit of repeat, or patterns where the unit of repeat starts and ends with the same item. Encourage children to identify the unit of repeat as well as copy and continue the pattern. Read books such as <i>I See a Pattern Here</i> by Bruce Goldstone and explore the relevant pages in books that show repeating patterns. Provide children with loose parts or resources from the classroom. Encourage them to copy the patterns they see and then identify the units of repeat.
Create own pattern rules	Introduce children to a class puppet and explain that the puppet is going to create a pattern using their own rule. Encourage children to look carefully at the pattern to work out the rule. Repeat

Explore own pattern rules

several times following different rules each time. What is the pattern rule? How do you know?

Set up a jewellery workshop with different lengths of string, beads and cotton reels. Encourage children to create their own bracelets and necklaces using their own pattern rules. Prompt children to describe the rule they followed. To extend this, children could be the customer and request a bracelet or necklace with a given rule. For example, they could ask for an AAB necklace.

After reading books such as *Pattern Fish* or *Pattern Bugs* by Trudy Harris, provide children with a range of resources to make patterns. In pairs, one child makes a pattern following their own rule. Their partner must guess what the rule is. Prompt the partners to then swap roles.

Show children patterns around a circle where there is more than one possible rule or unit of repeat. Prompt children to identify the units of repeat and encourage them to make their own pattern, creating their own rules around a circle. Provide children with paper plates or circular templates and cubes to support them to do this.

Set up a performance area or stage outside. Provide children with a range of musical instruments and encourage them to make different

Replicate and build scenes and constructions

sound patterns with them. Ask the audience to describe what the rule is.

Provide children with a range of items for them to make patterns with. Ask them to identify their rule. Prompt them to change the context of their pattern by using different items to show the same rule.

Provide children with a paper plate and items to make a pattern. Prompt the first child to make a pattern on the inside of the plate. Invite a second child to then repeat the same pattern around the outside of the plate. As the distance around the outside of the plate is greater, the second child will need to extend the pattern to fill the space. Ensure that they add in the extra unit of repeat.

Hide a range of beach-themed loose parts, such as differentsized shells and pebbles, in the sand tray. In pairs, children dig up the items and one child uses them to make a pattern. Their partner can copy the pattern and identify the rule. Prompt the partners to then swap roles.

Create a scene or environment following children's interests, for example, a fairy town. Talk through where you have placed objects and why. Prompt children to then replicate and build their own scene. Encourage children to explain the reasons why they have placed objects where they have.

Visualise from different positions

Encourage children to access the small-world area. Using the resources available, prompt children to create a scene and then invite a partner to copy it. What is the same? What is different?

After reading stories such as Rosie's Walk by Pat Hutchins and What the Ladybird Heard by Julia Donaldson, discuss the scenes that are in the stories. Encourage children to describe what they can see. Prompt children to access the outdoor area and use large-scale resources to recreate scenes similar to those in the books.

Set up a small-world scene and ask children to describe where objects are positioned and where they are in relation to other things. Encourage them to move around and look at the scene from a different viewpoint. What do you notice? Does the scene still look the same?

Ensure the construction area is well resourced with ample blocks and bricks of varying shapes and sizes. Encourage children to build more complex structures such as castles. Prompt them to look at their constructions from different positions.

Take photographs of the outdoor area from unusual viewpoints. For example, from high up, low down or from under a tree. Encourage

Describe positions

children to identify where the photographer was standing when they took the picture. Prompt them to take their own photographs from different viewpoints.

After reading stories such as Disney's *The Lion King* by Justine Korman Fontes, set up a similar scene in the smallworld area or in a curiosity cube. Encourage children to explore and talk about what the characters will be able to see from different positions and viewpoints.

Show children photographs of familiar places. Prompt them to describe where things are in relation to one another using positional language. SCHOOL To develop this, encourage children to bring in photographs of places that are special to them and describe what the picture shows.

After reading books such as *We're Going on a Bear Hunt* by Michael Rosen, set up a small-world scene to enact the story. Prompt children to describe where they are moving the characters as they act out the story.

Show children illustrations from stories such as *Cockatoos* by Quentin Blake. Initially, encourage children to say what they can see, before moving on to describing the position of key characters from the stories.

Give instructions to build

Provide children with a plan of a model. Prompt them to use the plan to make a group model. Encourage children to take it in turns to place one brick at a time onto the model. Children will need to refer to the plan and guide each other as to where to place the next block in order to make the best construction.

Provide each child with a set of items the same as yours, such as small-world animals. Give verbal instructions as you arrange your items. Prompt children to arrange their set in exactly the same way as yours. Repeat with different children taking on the role of the leader.

Sing songs such as Gonna Build a House with children. In pairs, one child makes their own model of a house and then gives their partner instructions for how to replicate the building. The partner builds a matching model, using the original model to help them. Encourage children to discuss how they made their models and to look for what is the same and what is different.

Explore mapping

When reading stories such as What the Ladybird Heard by Julia Donaldson and Me on the Map by Joan Sweeney, encourage children to explore the maps. What do the maps show? What can they see? Explain that maps should be easy to read

Represent maps with models

and follow, and should include key details such as landmarks.

Provide children with a range of aerial maps to explore. Ensure that children can clearly see areas from their local environment. Prompt them to try and identify key landmarks, such as their school.

After reading stories such as *The Secret Path* by Nick Butterworth with children, explore different kinds of maps such as maps of mazes. Discuss how you could follow the map to move around the maze. Encourage children to make their own mazes (but not to draw them at this stage).

Explore maps from a range of landscapes. Encourage children to recreate scenes using small-world and construction resources. For example, make a park or farm scene.

After reading books such as *In Every House, on Every Street* by Jess Hitchman, provide children with recycled boxes and tubes. Encourage them to build and represent street scenes. Prompt them to make a map of their street. What key landmarks are on your street? What does your house look like?

Show children maps of the school and the local area. Pick out key landmarks that they recognise

Create own maps from familiar places

and together make a map of the area around the school using small construction. Use mark-making on large paper to support this. What can you recognise on the map? Where have you positioned the school?

Read stories with children, such as *Pirates Love Underpants* by Claire Freedman, that show illustrations of treasure maps. Discuss what a treasure map needs to include for others to be able to use it to find the treasure. Hide treasure in the outdoor area and create a treasure map for children. Encourage them to discuss which area each part of the map is showing and then follow the map to find 'X marks the spot'. Encourage children to make their own treasure maps for other children to follow.

Display pictures of different rooms in a house, discussing that everyone's houses and rooms look different. Encourage children to draw a map of one room in their own house and then talk about the different parts of the map

Create own plans and maps from story situations

Display a map that relates to the story of *The Gruffalo* by Julia Donaldson. Ask children to identify which story it may be representing. How do they know? Read the story while keeping the map visible and prompt children to look at and follow the journey as you read. Encourage

	children to draw their own maps to show the journey that the mouse makes and the characters passed along the way. When reading stories such as Little Red Riding Hood, change the ending so that Red Riding Hood didn't go to Grandma's house. Talk to the children about how the events of the story have changed. Encourage them to create their own map or plan of where Red Riding Hood went instead of going to Grandma's house. Read stories such as What the Ladybird Heard by Julia Donaldson. Access the small-world area with children and make the farm resources available. Encourage children to design a similar scene to that in the story and make their own map of a farmyard, showing the journey that the characters make.
Key vocabulary	
Pattern, repeat, continue, rule, unit of repeat, same, different, in front of, behind, route	
Common misconceptions	Books linking to this area

Encourage children to identify units of repeat in images and books and prompt them to replicate them with manipulatives or drawings. Encourage children to hear the units of repeat in songs, such as beating in time to a rhythm. To help children gain confidence and think more deeply, model patterns that start mid-unit of repeat. Encourage children to show their patterns and verbalise their own rules. Provide lots of exciting resources that spark children's interests to encourage them to invent and describe their patterns. Replicating scenes in the small-world and construction areas develops children's thinking as to where objects are in relation to each other. This is the beginning of mapping	I See a Pattern Here by Bruce Goldstone Pattern Fish and Pattern Bugs by Trudy Harris Art Forms in Nature by Ernst Haeckel Rosie's Walk by Pat Hutchins What the Ladybird Heard and The Gruffalo by Julia Donaldson Disney's The Lion King by Justine Korman Fontes • We're Going on a Bear Hunt by Michael Rosen • Cockatoos by Quentin Blake • Martha Maps It Out by Leigh Hodgkinson • In Every House, on Every Street by Jess Hitchman • If I Built a House by Chris Van Dusen • The Secret Path by Nick Butterworth • Me on the Map by Joan Sweeney • Pirates Love Underpants by Claire Freedman • My Map Book by Sara Fanelli • Little Red Riding Hood • The Once upon a Time Map Book by B.G. Hennessy
Memorable first hand experiences	Opportunities for communication
Many opportunities to play games. Regular use of a range of manipulatives, loose parts, natural objects etc.	Ask and discuss the key questions provided by White Rose Discuss, share and repeat the sentence stems provided by White Rose

DCINA Reasonable adjustments for pupils with SEND

Communication and Interaction Use a range of visual aids Give clear instructions one at a time Repetition Provide simple instructions Pre teach vocabulary Use working wall where modelling is displayed Give children thinking time Model task	Cognition and Learning Check understanding regularly Allow rest breaks Give thinking time Colour code signs that could be confusing Work checklists Break down tasks into small steps Give opportunities for over-learning
Social, Emotional and Mental health Allow access to a quiet and calm space Give child a special role to increase self esteem Provide a visual support- what to do if you are stuck Provide a movement break Seat pupil by more confident peer Now and next board Sand timers Movement breaks Break down tasks into small steps	Sensory and Physical Consider carpet space position Reduce background noise Provide a range of manipulatives- dienes may be too small Appropriate seating Wobble boards Writing slope Enlarge text Variety of writing tools available