

Patterns, number, space and measurement

Resource booklet for families



This resource booklet has been designed to accompany the learning from home resources designed for teachers. Each booklet covers a different learning area and is designed to be used by families in the home so they can offer play experiences that will support their child's learning in this area. It also unpacks some of the learning that will happen.

The learning outcome that links to this resource booklet is:

Learning Outcome 5: Children are effective communicators

- Children begin to understand how symbols and pattern systems work

The learning concepts covered in this resource are:

- Patterns
- Number
- Space
- Measurement

Numeracy includes understanding and using numbers, patterns, space and measurement in daily life. A positive attitude to numeracy is important for children's successful learning across all areas of life. When children take part in numeracy experiences they develop language to talk about mathematical concepts.

Families are encouraged to investigate and explore play experiences incorporating local Aboriginal history and culture, when and where appropriate.

Patterns

There are many play experiences that can be offered at home to support children to see patterns in the environment and recognise the connections between them.

Play experiences

- Sort the groceries from your pantry in different ways for example by tinned foods, fruit or boxed foods.
- Be pattern detectives. Go looking for patterns inside and outside, for example patterns in or on wrapping paper, wall paper, bricks, floor tiles, fabric such as doona covers or clothing, butterfly wings, plant leaves. Take photos of the patterns you find.
- Talk about the different types of patterns you find for example, is the pattern in a line or a circle?
- Use your body to make a pattern. For example clap your hands twice then touch your head. Ask your child to copy the pattern.
- Collect some natural items outside such as rocks, twigs and leaves. Create a pattern for example rock, twig, rock, twig. Ask your child to continue the pattern.

- Cut up fruit with your child and thread it onto a skewer or arrange it in a pattern around the edge of a plate. Ask your child to tell you about the pattern and then add more fruit to continue the pattern.
- Using materials from around the house for example blocks or empty boxes, create a growing pattern, like a staircase. Ask your child to continue the pattern and count how many steps or levels there are.
- Draw or paint patterns found in the house or create your own patterns.

Questions to support your child's learning

- How did you sort them out?
- What kind of pattern can you see?
- What objects are in the pattern?
- Is it a line or a circle?
- What have you used to make your pattern?
- What might come next in the pattern?
- Can you make another pattern?
- What makes it a pattern?
- What is different? What is the same?

What will your child learn?

- Notice that patterns are everywhere in our environment
- Identify, predict, copy, extend and create patterns
- Recognise patterns and the relationships between them

Number

There are many play experiences that can be offered in the home to support children to count and order numbers and recognise and write numerals.

Play experiences

- Sing counting songs. For example: Five Little Ducks, Ten In The Bed, 1,2,3,4,5, Once I caught a fish alive. You can use your fingers to do any actions.
- Read books or listen to stories together online such as The Very Hungry Caterpillar by Eric Carle or One Fish, Two Fish, Red Fish Blue Fish by Dr. Suess.
- Go for a walk and count aloud. For example: the number of steps you take, how many mailboxes you see. Try walking backwards and counting backwards too. See if you can spot and say any numbers. For example: on a letterbox or number plates on cars.
- Count objects while doing daily routines like washing. For example: count the number of items you hang on the line or the number of pegs you use.
- Using playing cards, look for the numerals on the cards and put them in order.
- Look for numbers in a magazine or grocery brochure and cut them out. Put the numbers in order and check that you have found all the numbers for example from 1-5 or 1-10.
- Collect some objects from outside or around the house. Sort the objects into piles. Count the piles. Use the playing cards to match the number with the amount of items in the pile.
- Create a scavenger hunt. Ask your child to collect a certain number of items. For example: 1 pillow, 2 spoons, 3 pegs...etc. When they return with all the items, count the items. Ask your child to draw the items then write the matching number underneath.
- Look through the house and see if you can find any numbers. Ask your child to trace the numbers with their fingers, holding their finger if they need some help. Paint, draw or make the numbers with playdough. Check to see if it looks the same as the number/s you found.

Questions to support your child's learning

- What is this number?
- What comes next?
- How many do you have?
- Can you get me one more? One less?
- Can you point to each item as you count it?
- Which group has the same amount? Which groups are different?

What will your child learn?

- Counting numbers
- Counting objects using one to one correspondence
- Order numbers
- Recognise that numbers are symbols and they have meaning
- Recognise numerals
- Write numerals

Space

There are many experiences that can be offered at home to support children to learn words to use to describe position and features of two and three dimensional shapes.

Play experiences

- Play the box game. Call out different positions for your child to try with the box for example on or under. Write down or draw the positions on some paper. Put the papers in a container and take turns to call out while the other person does the position.
- Build your own obstacle course either inside or outside or a combination. You could use items in the house. For example table or couch or moveable items such as containers or toys. Time your child doing the course then see if they can do it again but faster.
- Using different sized blocks and/or empty boxes, have your child create your house or your town. Have your child build in a certain area. For example: on the rug, and try not to have anything outside the area.
- Create shape stamps. Cut up some fruits and vegetables and put out some paints. Place the fruit or vegetables in the paint and then stamp it onto some paper creating their own picture, design or patterns.
- Circle art painting. Collect some objects from around the house that have circles. For example straw, lid, tins, cups, cork, paper towel tubes and put out some paints. Place the items collected into the paint then paint the paper with different circles.
- Collect some pegs, popsicle sticks, straws and twigs to use. Using the items make some shapes. For something a little harder, see if your child can use the pegs to clip the popsicle sticks together to create the shape.
- Cut out a range of shapes from magazines, newspapers and grocery brochures. Ask your child to sort the shapes into groups. Using the shapes, ask your child to create a design or pattern with the shapes.

Questions to support your child's learning

- Can you get on? Off? In? Under? Beneath? Beside? Next to? Above? In front of? Behind? Left? Right?
- What could we add to make the course harder? Longer?
- If you could add anything to the house or town what would it be? Where could you put it? Will it fit there?

- Which fruit is round? Can you find some fruit or vegetables that has something straight? Could we cut this a different way to make a new shape?
- What could you use to make a bigger circle? Smaller circle?
- Could you make a triangle? Square? Do you have a straight edge?
- How did you sort the shapes? What is the same about these shapes? What is different about these shapes? Tell me what shapes you used for your design.

What will your child learn?

- Awareness that shapes are everywhere
- Features of two dimensional (2D) shapes and three dimensional (3D) shapes
- Language to describe position and direction
- Language to describe features of different shapes

Measurement

There are many experiences that can be offered in the home to support children's understanding of height, length, volume and mass.

Play experiences

- Build a tower using building blocks or empty boxes. Count how many blocks/boxes it took to build the tower that tall. Add or take away some blocks/boxes and see what happens. See if you can find objects around the house that are the same height as the tower.
- Cut a piece of string (any length). Use the string to measure objects around the house. Ask them to guess how pieces of string might be needed to measure items like the kitchen table or the front door then measure those objects.
- Set up a large container with water. Collect empty and/or recycled containers of different sizes and see how much water is needed to fill each of the containers. Instead of using water, ask your child to collect rocks or leave and see how many are needed to fill the containers.
- Ask your child to help you with household chores for example wipe down the table after meals, stack the dishwasher, put rubbish in garbage.
- Collect some items around the house. Ask them to guess which is heaviest and which is the lightest, then check. Put the objects in order of weight.

Questions to support your child's learning

- Can you make the tower taller or shorter? How will you do that?
- What is longer or shorter than the string? What is the same length?
- Which container holds the most? Which container holds the least? How do you know? Can you make a container half full? How much will you need to fill the container?
- Will that plate fit in the dishwasher? Will the container fit in the bin? How do you know? Did you clean the whole area? Did you wipe all the way to the edge?
- Is there another way we can find out which is heaviest? What is the lightest? Can you find two things that are the same weight? Is the biggest item the heaviest? Is the smallest item the lightest? Why is the small rock heavier than the big empty box?

What will your child learn?

- Mathematical concepts including height, length, volume and mass
- Language to talk about mathematical concepts
- Maths is part of everyday life
- Think about and solve problems