

Play School

Early Education Notes

Play School's Marvellous Maths

Background

So much of our world is mathematical, whether it be the spatial pattern of pavers on the ground or the shapes we see in the clouds. Mathematical understandings help young children make sense of the world and gives us a language to communicate, share and describe.

Many young children love mathematics; they relish exploring numbers, use shape and measurement understanding as they build and spatial knowledge as they paint. However, as adults, we often focus on mathematics as numbers.

In this series, we explore the marvellous world of mathematics. Indeed, this series takes us into the field of numeracy. This is where we go beyond understanding mathematics into applying maths in practical and real-life situations.

Overview

Dive into the marvellous world of maths as Play School teams up with two of Australia's most loved mathematicians, [Lily Serna](#) and [Eddie Woo](#)! In this brain-building series, Big Ted, Kiya and friends explore everyday concepts in early numeracy including directionality, measurement, shape, classification and currency.

Play School's Marvellous Maths brings STEM learning to life through inquiry, hypothesising, researching, and experimenting. Through the Windows, we see how maths links to everyday activities and play as children create patterns in art and navigate an obstacle course. From sorting silly socks to market day fun, it's all maths, and it really is marvellous!

Links to The Early Years Learning Framework for Australia (EYLF)

"Numeracy is the capacity, confidence and disposition to use mathematics in daily life. Children bring new mathematical understandings through engaging with problem-solving. The mathematical ideas with which young children interact must be relevant and meaningful in the context of their current lives.



Educators require a rich mathematical vocabulary to accurately describe and explain children's mathematical ideas and to support numeracy development. Spatial sense, structure and pattern, number, measurement, data argumentation, connections and exploring the world mathematically are the powerful mathematical ideas children need to become numerate."

(EYLF page 41)

Additionally, the concepts in this series align with the following EYLF Learning outcomes:

Outcome 4: Children are confident and involved learners.

- Outcome 4.1 Children develop dispositions for learning such as curiosity, cooperation, confidence, creativity, commitment, enthusiasm, persistence, imagination and reflexivity.
- Outcome 4.2 Children develop a range of skills and processes such as problem solving, enquiry, experimentation, hypothesising, researching and investigating.
- Outcome 4.3 Children transfer and adapt what they have learned from one context to another.

Outcome 5: Children are effective communicators

- Outcome 5.2 Children engage with a range of texts and gain meaning from these texts.
- Outcome 5.3 Children express ideas and make meaning using a range of media.
- Outcome 5.4 Children begin to understand how symbols and pattern systems work.

Concepts explored in Marvellous Maths



Try these ideas in homes and early education and care settings to spark emergent maths interest and build understandings.

Sorting and classifying

We sort socks with Eddie, Emma and Matt. When sorting, it is great to remember that we can sort in many ways- by colour, shape, pattern, and size. Re-sorting, that is sorting the same objects in different ways, is helpful as it encourages flexible thinking and problem-solving.

Spatial reasoning and counting

Emma shares the story of Margot's Market Day. Here we explore size comparison and capacity, investigating fruit through shopping fun. Spatial reasoning is an excellent mathematical skill that can be explored through everyday activities, such as shopping, packing and putting away.

Patterns and representation

Matt uses coloured blocks as an algorithm to help him remember the recipe for Greek Salad. We also explore representation with Abi and Luke as they make movement patterns and dance.

Measurement, mass and balance



Abi and Luke make mobiles and explore how to balance hanging objects. We find out that although something may be large, it might not be as heavy as something small (such as balloons and gumnuts). In Eddie's lab we use mathematical tools, an equal arm balance, to measure and think about how heavy dinosaurs were. Rachel and Matt make fancy hats by using paper strips as informal measurement to measure their head circumference.

Karen and Kaeng use measurement and comparison in the kitchen. They partition (or share) cake batter before mixing colours and creating a beautiful rainbow cake! Want to make your own rainbow cake? Visit free online recipe sites such as Taste or BBC Good Food. For a healthier alternative, visit Healthy Food Guide online.

Geometry and Shapes

Kaeng and Karen explore strong shapes, finding that square lids can be used to make a triangular prism. Children often explore geometric shapes in their play; describing shape properties is a simple way to build vocabulary and explore maths through play. Kiya also explores shapes, colour and attributes as she goes on a shape hunt, checking items off a list.

Capacity



Rachel, Matt and Lily pack boxes and play a guessing game called "which one holds more". This classic water-play experience invites children to consider how much liquid containers hold and how a container's size and shape impacts how much water it can hold.

Comparison, size and measurement

The told story, 'Jemima's New Tractor', is a great chance to look at construction play and compare the size of different blocks needed to build a shed large enough to hold the new tractor.

Number, money, counting and addition

Kiya and Jemima go shopping and in 'Lily's Lab' we play a guessing game. Lily helps us to think about really big numbers. This is a concept that we often think children are too young to understand. However, many young children are interested in these concepts and linking them to real-world ideas (such as how many stars are in the galaxy, grains of rice in a jar or sand on a beach) helps make these big numbers less abstract.

Rachel, Abi and Lily continue looking at **number, numeral recognition and counting** as we make dice and play a building game. This game is a chance to explore addition as well. Here we use a numeral dice, one with numbers, as well as a dice with the traditional spatial pattern of dots and investigate that opposite sides of a dice add up to make seven.

Little ted continues helping us think about **numbers and quantity** in the story "The King's Bath" – where we add more and more bubbles to the bath. This again helps us think about big numbers and how many things (bubbles) can fit in a space.



More ideas

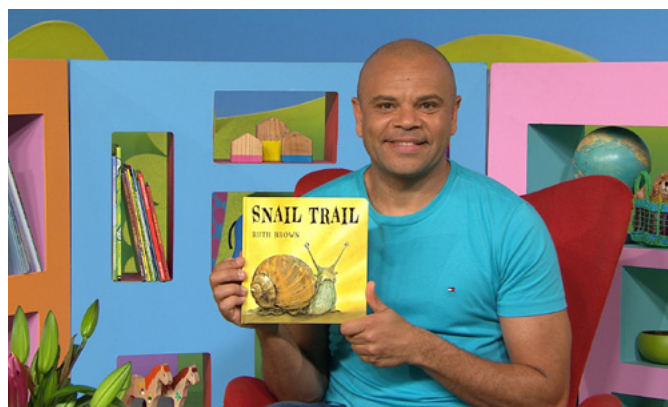
- Choreograph a simple dance, using symbols to identify the steps in a sequence.
- Make a recipe that involves measuring. Check out the [Play School Recipe Book](#) or try this kinetic sand recipe:

Make Kinetic Sand

- * 3 cups of play sand
- * 3 cups of flour
- * 1 cup of oil

Mix the flour and sand together and then add the oil. Depending on how dry your sand is you may need a little more oil, or a little more sand and flour.

- Build using blocks and construction materials, write instructions or draw a plan to explore the mathematics further.
- Find the maths in your garden, whether that be the number of plants or flowers, comparing lengths of leaves, finding shapes in nature or looking for patterns around you, the outside world is full of maths!
- Go on a treasure hunt, looking for maths in your room – can you find 4 light switches, a container that holds a large number of resources, the longest window, the tallest wall.



Picture Book Suggestions

There are so many picture books that share mathematical ideas as part of the story. Here are a few that take us beyond simple numbers

- *Uno's Garden* by Graeme Base
- *Bamboozled* by David Legge
- *How Many Jellybeans?* by Andrea Menotti
- *Rosie's Walk* by Pat Hutchins
- *Counting on Frank* by Rod Clement

Additional resources

Victoria State Government Education and Training: [How to build your child's numeracy skills from birth to year 2.](#)

Raising Children Network. [Early numeracy skills: How to build them.](#)

Australian Government resource booklet, [Early childhood literacy and numeracy: Building good practice](#) by Marilyn Fleer and Bridie Raban.

[The Erikson Institute: Early Math Collaborative](#); The big ideas of early mathematics.

The Australian Association of Mathematics Teachers [position paper on early mathematics.](#)

[Let's Count by the Smith Family](#), with resources for families and teachers.

Maths related viewing on ABC Kids iview

Each show is 5 mins or less. Perfect bite-sized viewing for early education and care settings.

- [Go Wild for Maths](#)
- [How To Make: Brainy Bites](#)
- [Numberblocks](#)
- [The Stickie Gang](#) and [resources](#)
- [One, Two, Threebies!](#) and [resources](#)

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