

# CURRICULUM, PEDAGOGY AND BEYOND



THE MATHEMATICAL  
ASSOCIATION OF VICTORIA

**MAV24**  
CONFERENCE

**Picture Books – A  
Springboard for  
Effective Maths  
Teaching.  
Di Liddell  
Sheila Griffin**

# Benefits

- Help children learn maths concepts and skills
- Provide a meaningful context
- Facilitate the development of mathematical language
- Assist with problem solving, reasoning and thinking
- Provide a richer view of mathematics
- Improved attitudes towards mathematics
- Engagement!



# Jennie Marston

[apmc19\\_1\\_marston.pdf / Sample articles / Journals / Home - Australian Association of Mathematics Teachers \(aamt.edu.au\)](#)

## Identifying and using picture books with quality mathematical content

Moving beyond  
*Counting on Frank* and  
*The Very Hungry Caterpillar*



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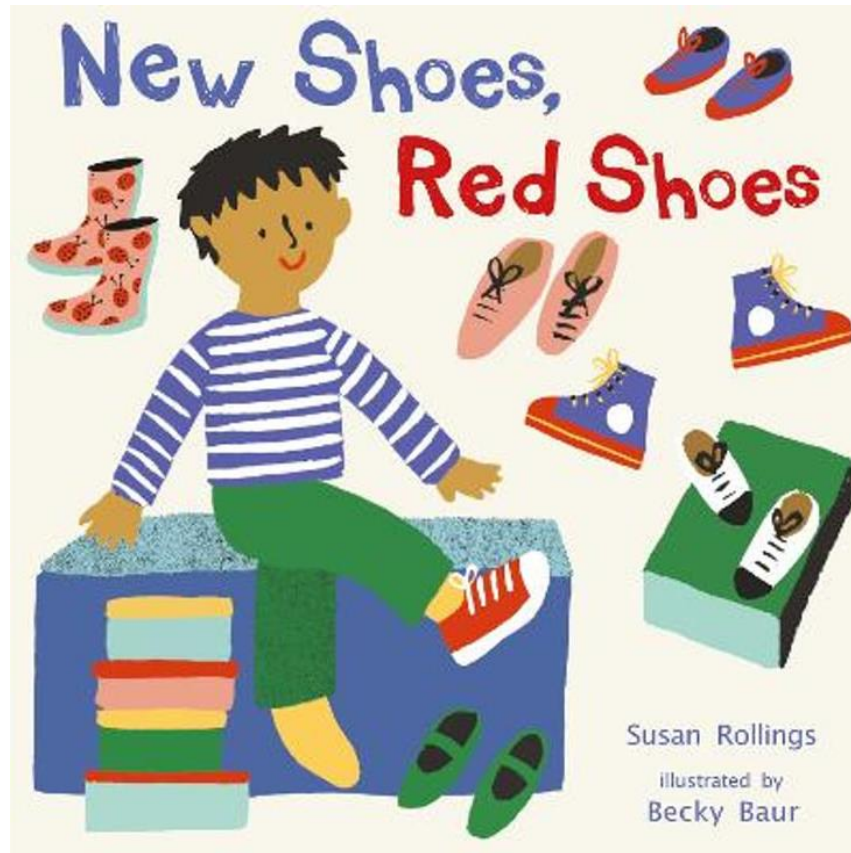


# Framework for Selecting Books

Perceived	Explicit	Embedded
 	 	 



# New Shoes Red Shoes



- Author Susan Rollings
- Illustrator Becky Baur
- Published 2020

# Provocations



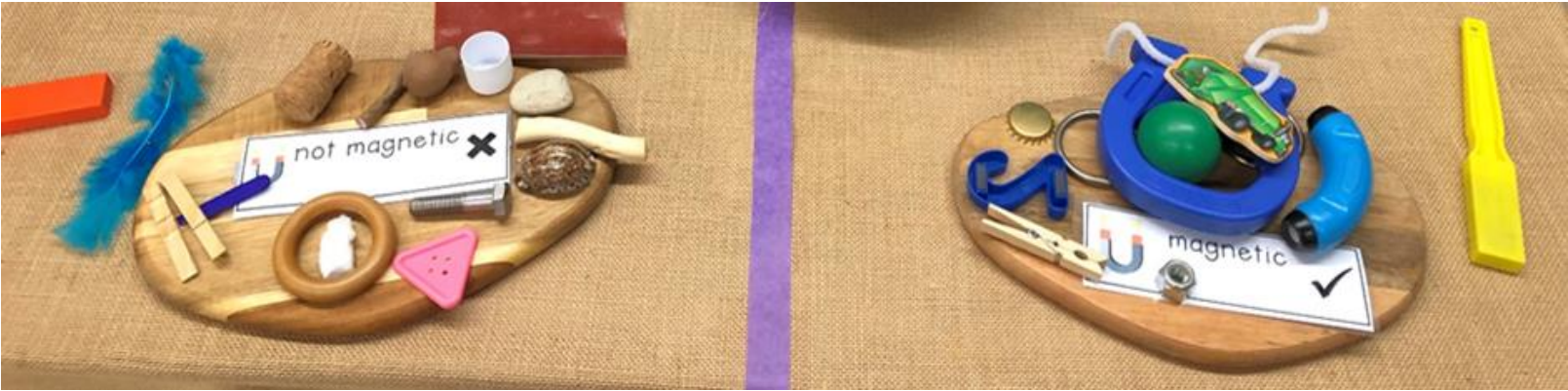
# Shoe Shop



# Gumboots



# Learning Spaces



# Learning Spaces



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# Teachers' Reflections

- Many children English is an additional language

“Children’s ability to observe and describe patterns and attributes improved in the process of categorising items as they learned new adjectives from their peers and their teachers. By using picture books and engaging in the associated activities, the children improved their vocabulary and developed their describing skills in English.”

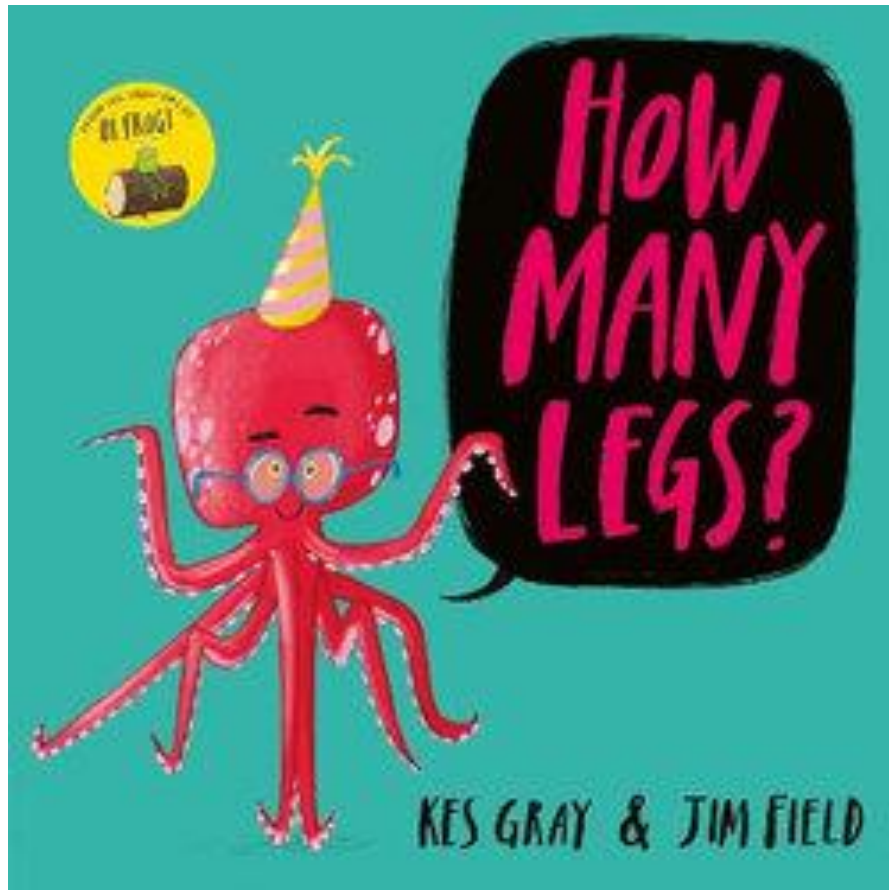
- Learning Mathematics Through Picture Books in Kindergarten AISWA 2023



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# How many legs?



- Author Kes Gray
- Illustrator Jim Field
- Published 2015

# Provocations



# Children's own stuffed animals



# What do we need for a party?



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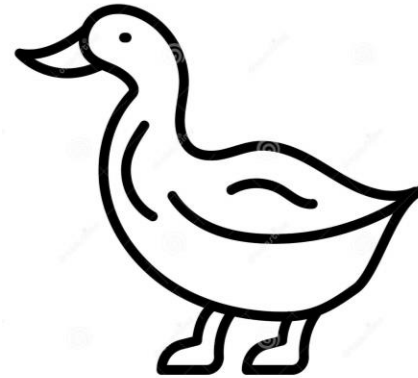
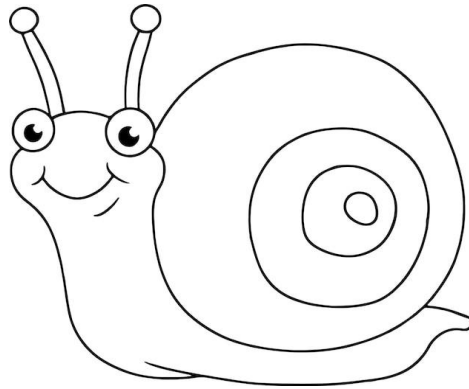
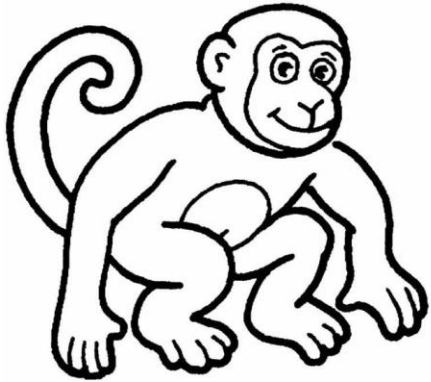


# Bunting

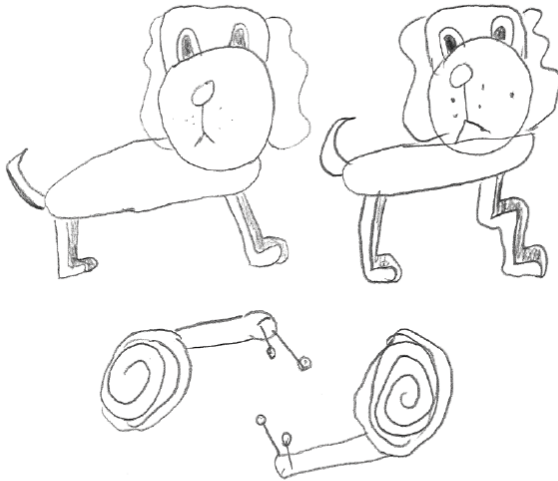


# How Many Legs?

- Using the pictures to design an activity.
- Be prepared to share.



# How Many Legs?



Write a number sentence to match the drawing.

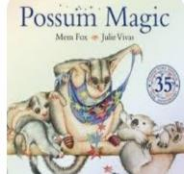
Altogether there are 9 legs.  
What could we be?

Make a drawing to match the number sentence.

$$6 + 2 + 2 = \square$$



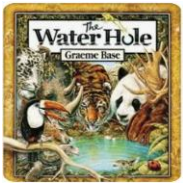
# Book Provocations for senior primary



Money and Financial Mathematics, Measurement

Design a financial plan for a "Possum Magic" journey, using Australian currency. Measure distances between locations across Australia where Grandma Poss travels.

VCMNA191, VCMMG199



Data Representation and Interpretation, Statistics

Create and interpret bar graphs and tables to represent the number of animals visiting the waterhole. Interpret data patterns and predict future trends based on changes in the environment.

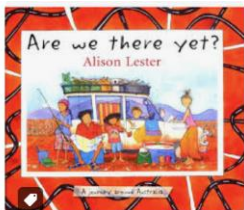
VCMS206, VCMS207



Probability, Chance

Explore probability concepts by discussing the likelihood of events in the story (e.g., chance of ingredients being added to the stew). Use fraction-based probability for each "ingredient event."

VCMS203, VCMS204

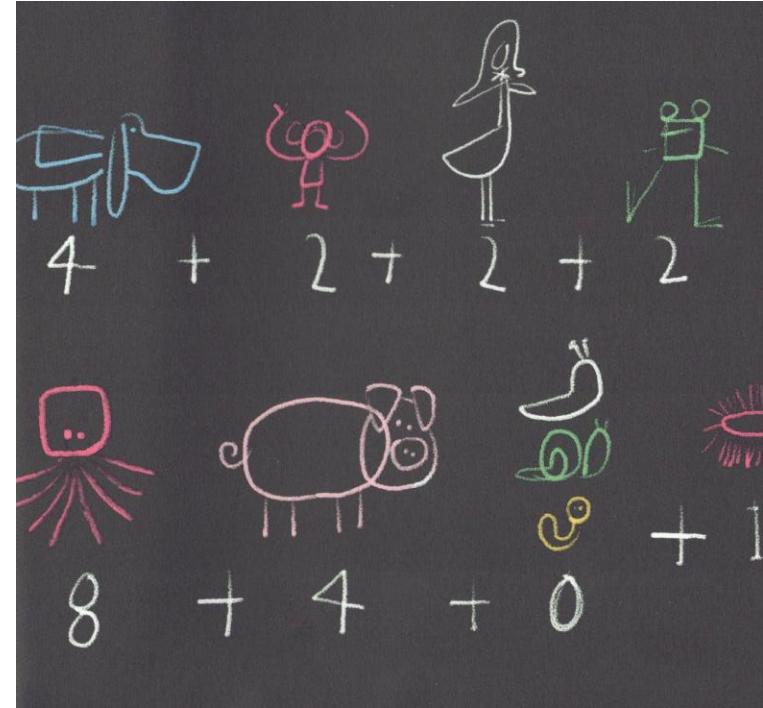
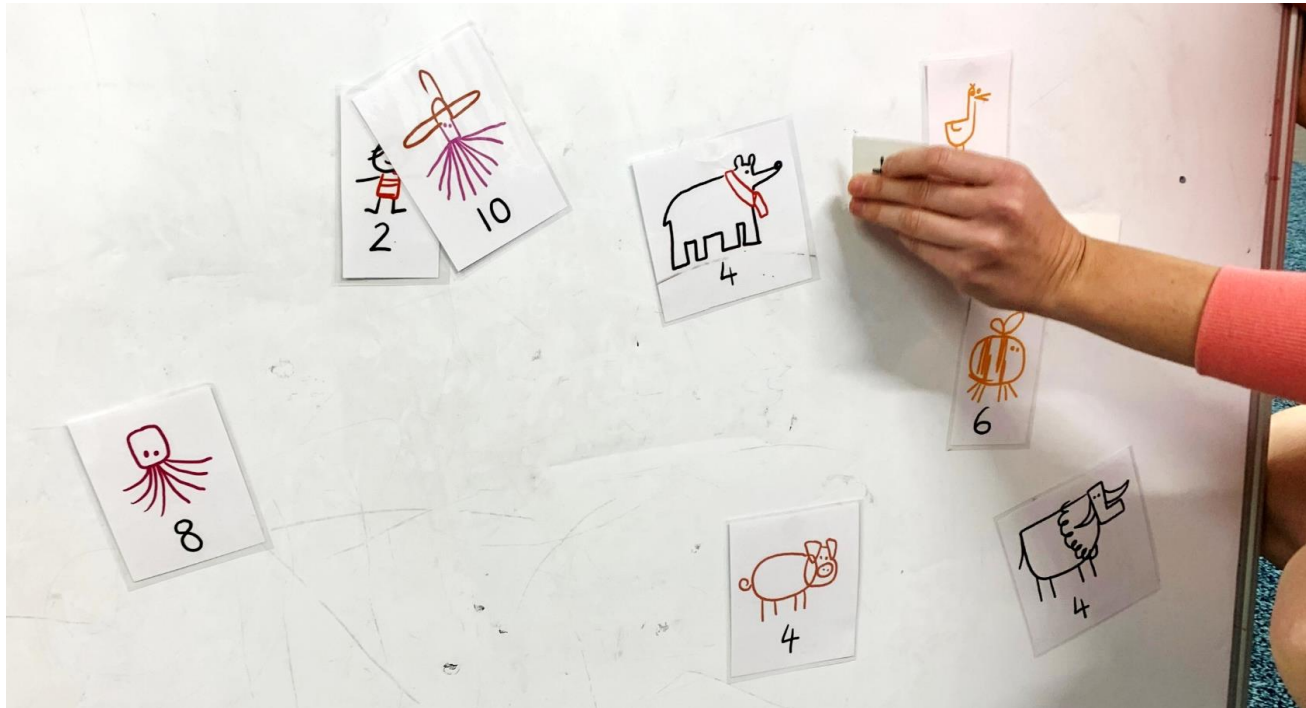


Location and Transformation, Measurement and Geometry

Use a map and grid system to locate places visited by the family on their journey. Practice describing routes with grid references and measure distances between key locations.

VCMMG199, VCMMG200

# Problem Solving and Reasoning



# Tips for keeping it as a stimulus

- Multiple exposures
- Read the important part
- Authentic cross curricular connections
- Relaunch by coming back to the book
- Summarise by completing the book
- Use the book for multiple activities

**COUNT AND ORDER NUMBERS 1**  
Ten students are each given a card with one of the digits from 1 to 10 on them. They then line up in the correct order, and the rest of the class count out loud.  
This activity could also be done with cards with the words for the numbers One to Ten on them; or with pictures of sheep.

**MAKING NUMBER SENTENCES**  
"Sam tucked them up with woolly socks." Students work out how many woolly socks Sam needs for his sheep.  
Students represent this orally and where possible as simple number sentences.

**ALGEBRA PATTERNS**  
"Well bless my pink pyjamas!" Using two colours of counters get students to create a pyjama pattern.  
Students do the same using more than two colours. Students use strips of coloured card to create pyjama patterns.

**COUNT AND ORDER NUMBERS 2**  
How can students count the sheep? Counting by 1s, need to count ten times; count by 2s, need to count five times, count by 5s, there are two counts.  
What if there were 12 sheep? How many ways could they be counted?

1s	12 counts	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
2s	6 counts	2, 4, 6, 8, 10, 12
3s	4 counts	3, 6, 9, 12
4s	3 counts	4, 8, 12
6s	2 counts	6, 12

**PARTITIONING NUMBERS**  
Using the last page, students describe how Sam is sleeping with his sheep. (Five sheep on each side).  
Students show the different ways Sam could sleep with his sheep.

**PATTERN**  
Students look at the bed cover. Students design their own bed cover and describe their patterns.

One More Sheep Resources 1 & 2

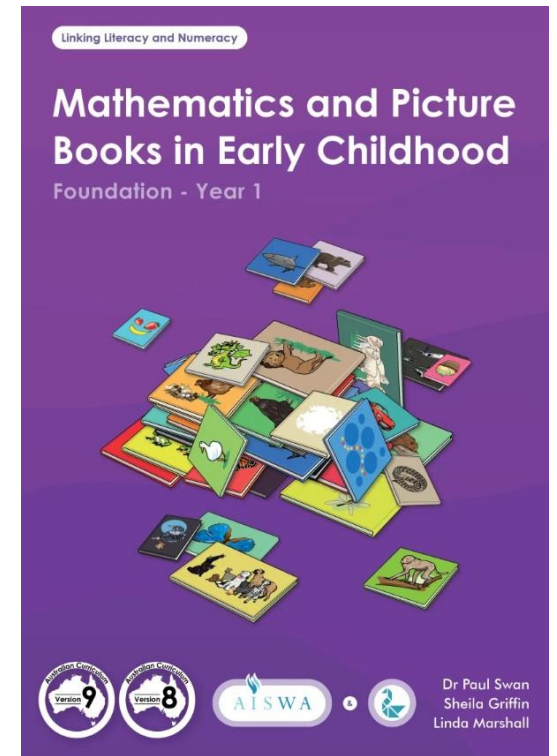
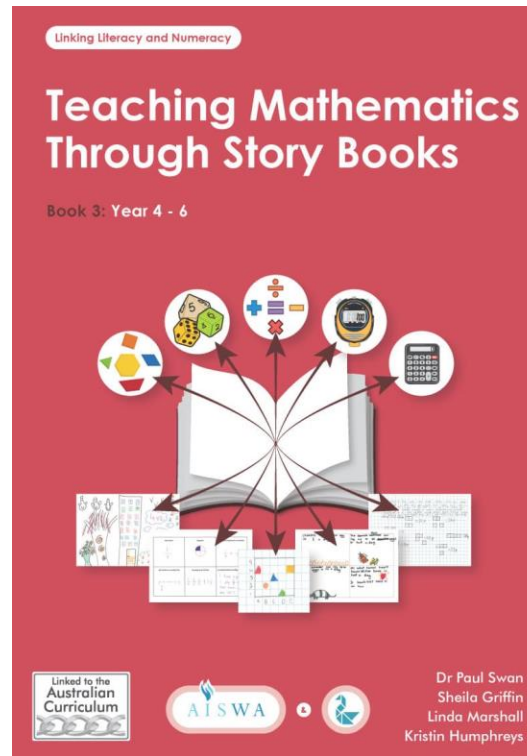
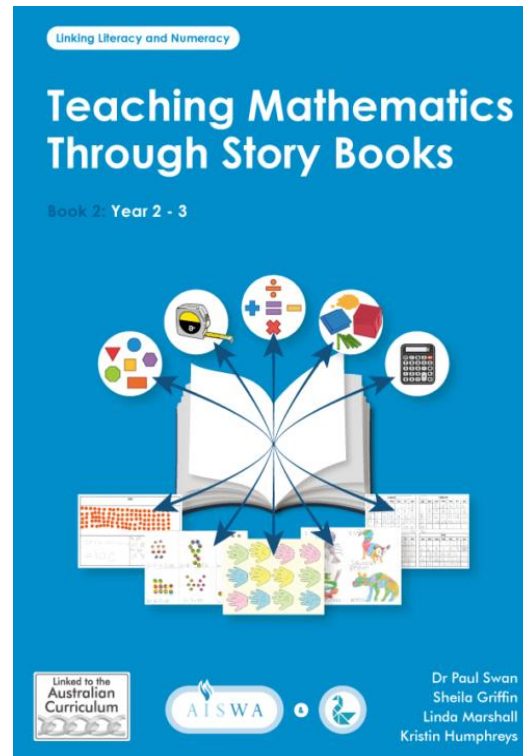
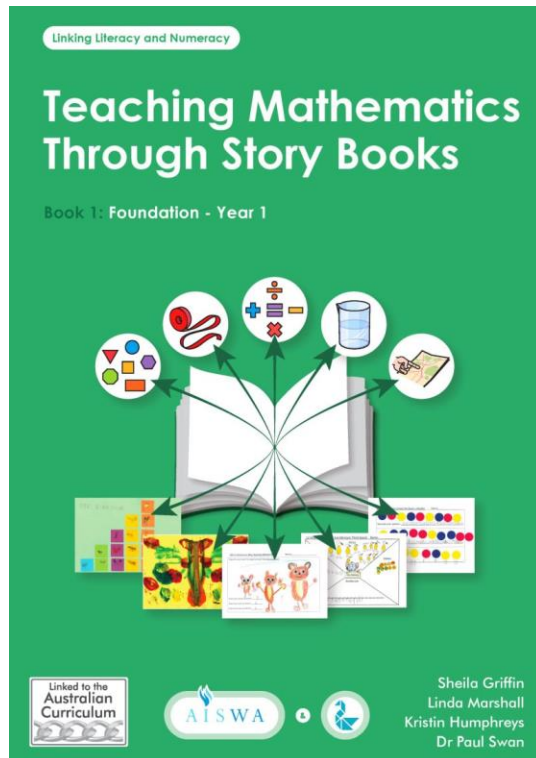
ONE MORE SHEEP

Examples of students' work.



# Resources

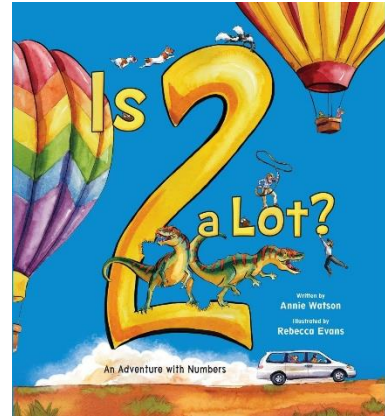
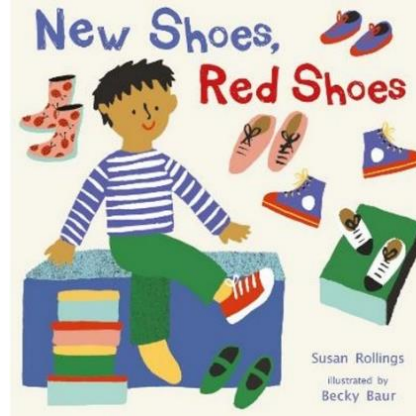
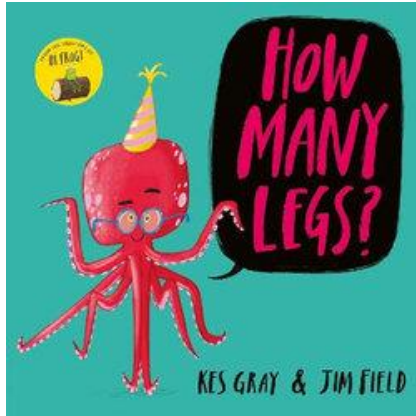
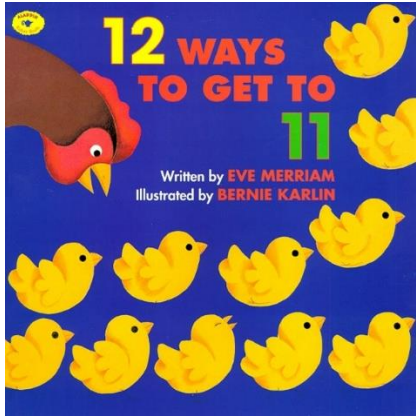
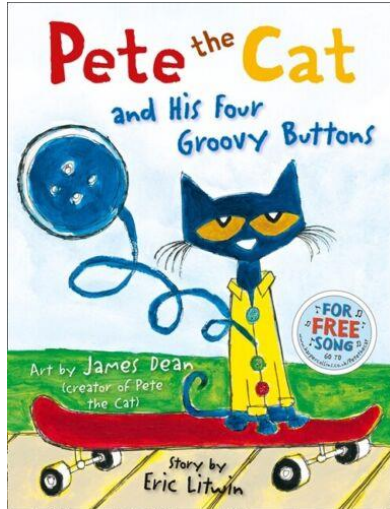
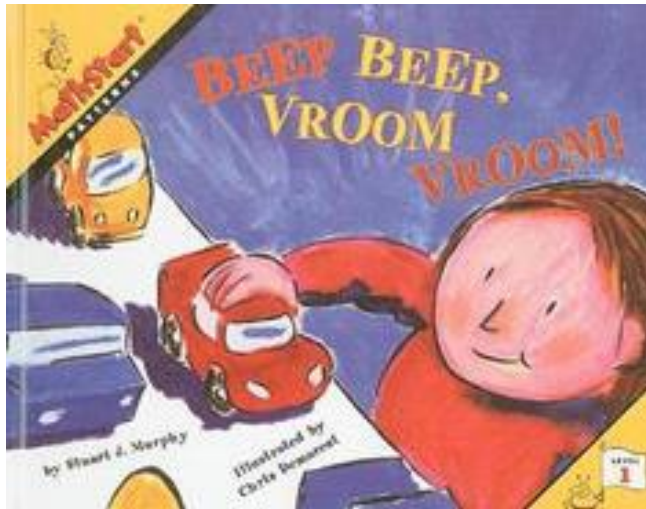
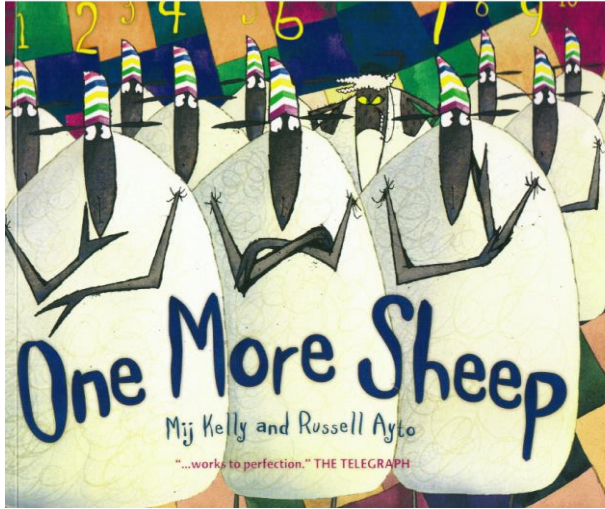
Teaching Mathematics Through Story Books was also **shortlisted** in the highly competitive 'Primary Teaching Resource Category' at the '**Educational Publishing Awards Australia**'.



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# Opportunity to read some books!



# Event App



## App Download Instructions

Step 1: Download the App 'Arinex One' from the App Store or Google Play



App Store



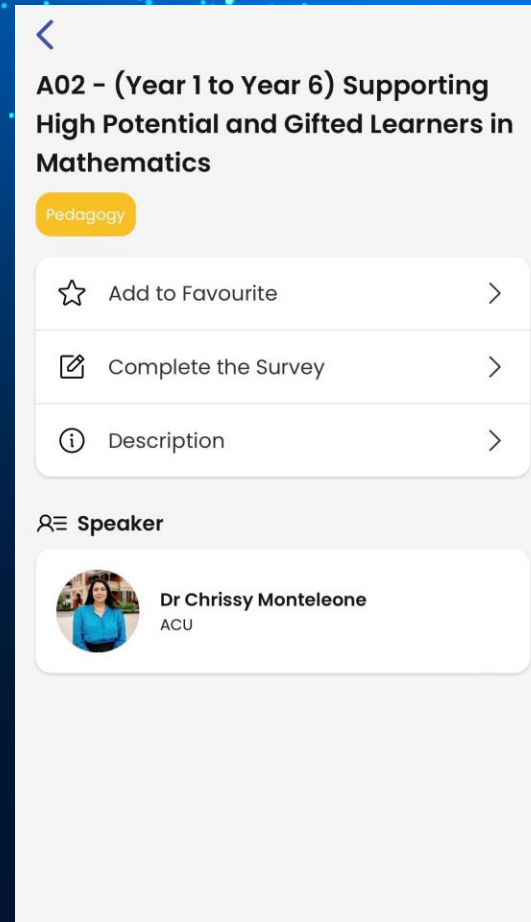
Google Play

Step 2: Enter Event Code: **mav**

Step 3: Enter the email you registered with

Step 4: Enter the Passcode you receive via email and click 'Verify'. Please be sure to check your Junk Mail for the email, or see the Registration Desk if you require further assistance.

# Be in it to WIN!




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**A02 - (Year 1 to Year 6) Supporting High Potential and Gifted Learners in Mathematics**

Pedagogy

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☰ Speaker

 **Dr Chissy Monteleone**  
ACU