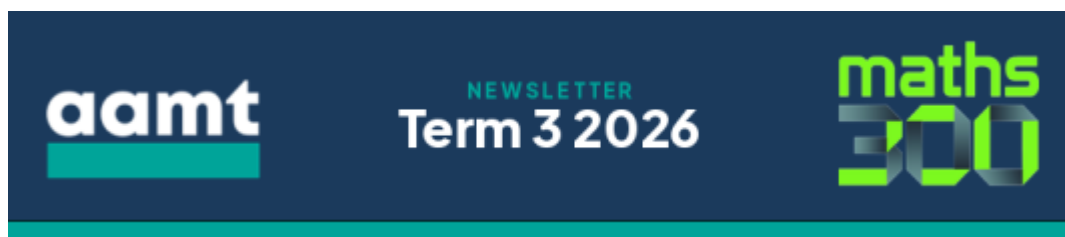


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Welcome to our Term 3 Maths300 newsletter!

The days are starting to lengthen and spring is edging closer - a good moment to bring something fresh into your classroom.

This term we're exploring one of the most fundamental ideas in mathematics: prime and composite numbers. Three carefully selected Maths300 activities take this topic from upper primary through to secondary, each one inquiry-based and ready to use. If you find a surprise or two of your own as we explore these building blocks of number, we wouldn't be at all shocked.

And don't miss the Individual Teachers PL session announcement further down - open to every Maths300 subscriber, whether you're an individual subscriber or part of a larger school subscription. This PL is for you.

Why prime and composite numbers?

Prime and composite numbers are a familiar territory for most of us.

We know how to find them, define them, maybe even invoke the Fundamental Theorem of Arithmetic - the idea that every number greater than 1 breaks down into a unique product of primes. But how often do our students genuinely discover them, rather than receive them as a definition?

Maths300 approaches these ideas differently: through stories, physical materials, and investigations that put the reasoning before the rule. The highlighted activities start at Year 5 level, moving from intuitive discovery (what makes some licorice machines redundant?) through structured pattern-finding (what determines how many factors a number has?) to open-ended digital exploration (how many pairs of numbers share a given LCM?). Each is designed to provoke curiosity and stimulate thinking, and each builds the kind of number sense that compounds through secondary and beyond.

Fluency with prime structure underpins the simplification of fractions, ratios and surds and supports algebraic factorisation in later years.

Featured Resources



The Licorice Factory. (Years 5 and 6)

Students step into a fantasy licorice factory where machines stretch strips of licorice by whole-number multiples. However, they quickly discover a surprising fact when one machine breaks: some machines produce the same result as a combination of other machines - they are redundant. Working in groups and through the physical and playful act of testing each

machine, students are guided toward a profound realisation: the redundant machines are the composite numbers. Only the prime machines are truly irreducible.

This lesson tackles curriculum codes AC9M5N02, AC9M5N10 and AC9M6N02 in a very different way. This narrative approach builds genuine understanding of factors and multiples, grounding the concept in concrete experience - using Unifix blocks and the Licorice factory floor plan - before moving to abstraction.

The Licorice Factory is an ideal starting point for upper primary classes exploring factors, multiples, and the meaning of prime.

Factors (Year 7 upwards)

Why do 100, 36, and 225 all have exactly 9 factors? This is the opening challenge of Factors - a deceptively simple question that draws students into a rich investigation of how prime factorisation determines the structure of a number. Working in small groups, students systematically list factors, collect class data on the board, and begin to notice patterns. The 'secret' lies in the simplest (prime) factors. Physical prime number cards support students to map out all the factors of a number, providing a relatively gentle introduction to prime factorisation with a purpose.

Factor 1	Factor 2	Product
2	2×7	28
7	2×2	28
2×2	7	28
2×7	2	28
$2 \times 2 \times 7$	1	28



For Year 7 students, the investigation addresses content descriptor AC9M7N02. However, as the investigation is extended to incorporate algebra it builds toward a powerful generalisation: if a number has x occurrences of one prime factor and y of another, the total number of factors is always $(x+1)(y+1)$. Students derive this rule through a structured investigation, including data collection, hypothesis testing, listing tools - such as a tree diagram - and eventually algebraic reasoning. Extensions push into three prime factors and beyond, making this investigation equally stimulating for older students.

Natalie's LCM Task (Year 6 upwards)

Natalie's LCM Task explores the concept of prime factorisation in reverse, asking if the Lowest Common Multiple of two numbers is 60, what could those numbers be? Far from having one tidy answer, this investigation has 23 distinct solutions - a fact that students discover for themselves, firstly using pen and paper and then more systematically, aided by the Maths300 software. The software lets students explore, record findings and begin to notice patterns in which LCMs share a given number of factor pairs

Number	No. of Factors
12 ($= 2^2 \times 3^1$)	6
18 ($= 3^2 \times 2^1$)	6
45 ($= 3^2 \times 5^1$)	6
28 ($= 2^2 \times 7^1$)	6
75 ($= 3^2 \times 5^1$)	6

Enter a chosen LCM

60

60 is made up of 4 prime factors.

Calculate factors

4 primes

2
2
3
5

$a^2 \times b^1$
$a^2 \times b^2$
$a^1 \times b^3$
$a^2 \times b^3$
$a^4 \times b^2$
$a^3 \times b^3$
$a^5 \times b^1$

This reversal is a powerful pedagogical move. It transforms a routine skill into a rich investigation, develops fluency with factors, multiples, and prime factorisation, and reveals the deep connections between LCM and the prime structure of numbers. As in the **Factors**

lesson, which this activity naturally builds upon, there are opportunities to introduce index notation, to formalise findings algebraically and to arrive at a generalisation - truly working like a mathematician. The digital component makes the exploration efficient and engaging, allowing students to work with a wide range of larger numbers and freeing class time for noticing and discussing as a precursor to generalisation. **Natalie's LCM Task** is mapped to AC9M6N02 and AC9M7N02, but with opportunities to explore much more advanced concepts for mathematically curious students.

Other great resources

We found it almost impossible to choose just three resources to feature in this term's newsletter so we have to give an honourable mention to two other great lessons on this theme: **Factorgrams** allows students to explore prime factorisation through a different representation - a 2D rectangle or 3D prism, whilst **Goldbach's Conjecture** explores one of the oldest and most well-known unsolved problems in mathematics - that every even number greater than 4 can be written as the sum of two primes.

Community and Professional Learning

Whether you're new to Maths300 or deepening an established practice, our online professional learning program has something for you.

Whole school sessions

Modules 1 and 2 are available as live sessions at a time that's convenient for you, and exclusively for your school team.

- **Module 1** - Getting started with Maths300
- **Module 2** - Experimenting and exploring with the Maths300 software

Sessions from 60 to 90 minutes are available, tailored to either primary or secondary and starting at a highly cost effective \$700 for any number of teachers.

Contact us at maths300@aamt.edu.au to arrange a professional learning session for your faculty, or to find out more.

PL for individual teachers - relaunching this term!

Single teacher subscribers, or individual teachers from a school, can now join our online group sessions, priced at only \$55 plus GST per teacher.

Two sessions are available this September:

- Tuesday 15 September, 6pm–7pm AEST – Primary focus
- Wednesday 16 September, 6pm–7pm AEST – Secondary focus

Click here to register for the PL now!

Don't have a Maths300 account yet? If you or someone you know wants to join the PL but isn't currently subscribed to Maths300, let us know when you register and we'll organise a trial account so you can take part.

Past Newsletters

Missed a previous newsletter? Catch up on our earlier themes:

Term 1 - Space and Concrete Materials: using manipulatives to build spatial reasoning

Term 2 - Estimation: developing number sense through real-world estimation tasks

All back issues are available on the Maths300 website [here](#).

Whether you're catching up on recent updates or revisiting earlier announcements, we hope this makes it easier to stay connected with everything happening across Maths300.

Here are a few other ways to stay updated on the latest in maths education in Australia:

Follow us on **Facebook** or on Twitter **@aamtinc**.

Connect with **AAMT Ltd** , our **CEO Allan Dougan** or **Education Specialist Denise Halliday** on LinkedIn.

AAMT's quarterly newsletter, Highest Common Factor, is delivered right into your mailbox. Past newsletters can be found on our website under the **About Us/Newsletters** section.

And if you like what you read, please tell your colleagues about us!

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