Parent Information Session

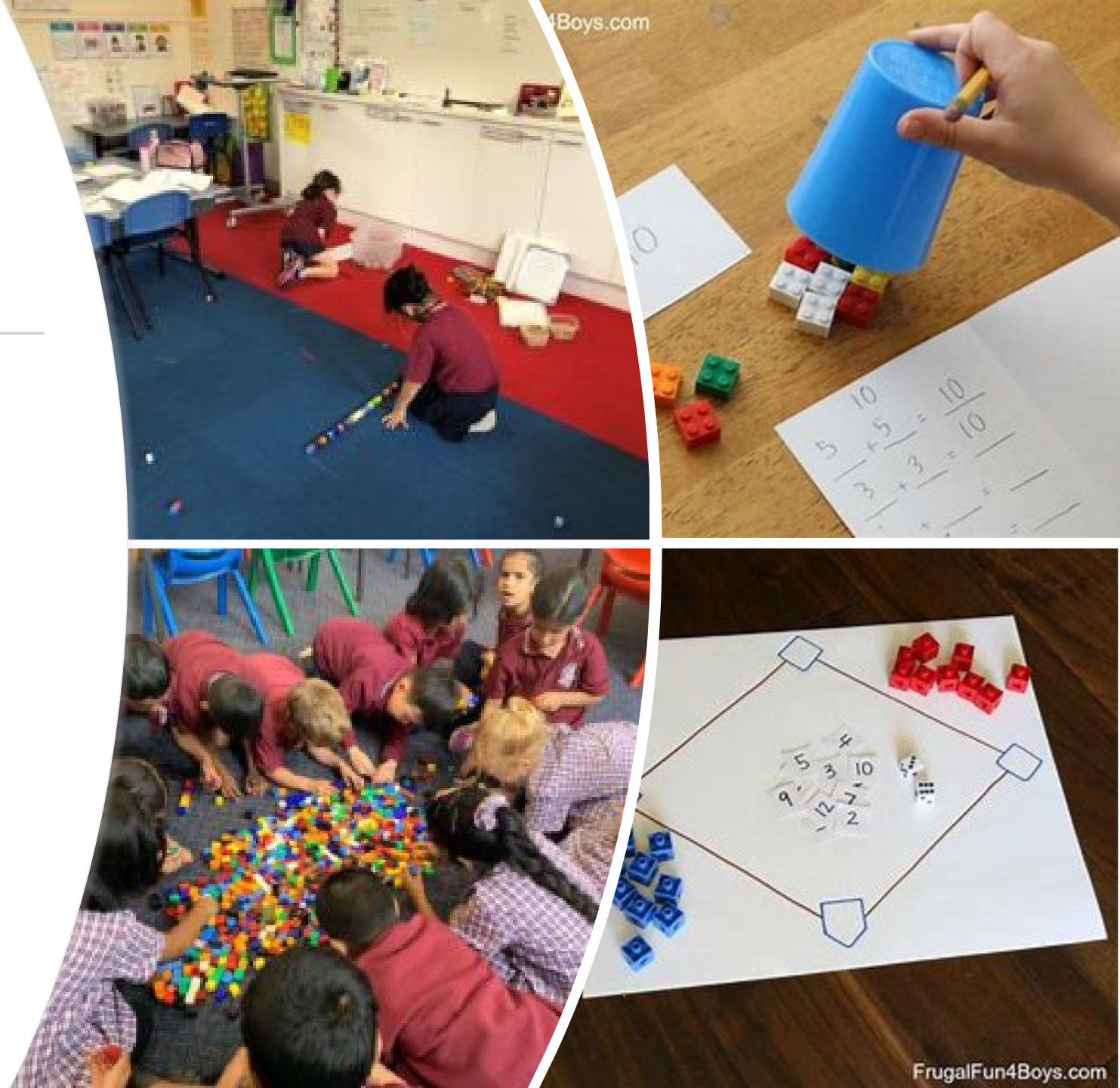
GLEN HUNTLY
PRIMARY SCHOOL
LEARNING TODAY LEADING TOMORROW

Numeracy at GHPS

5.30-6pm

Perceptions of our students

How do you learn best in Mathematics?



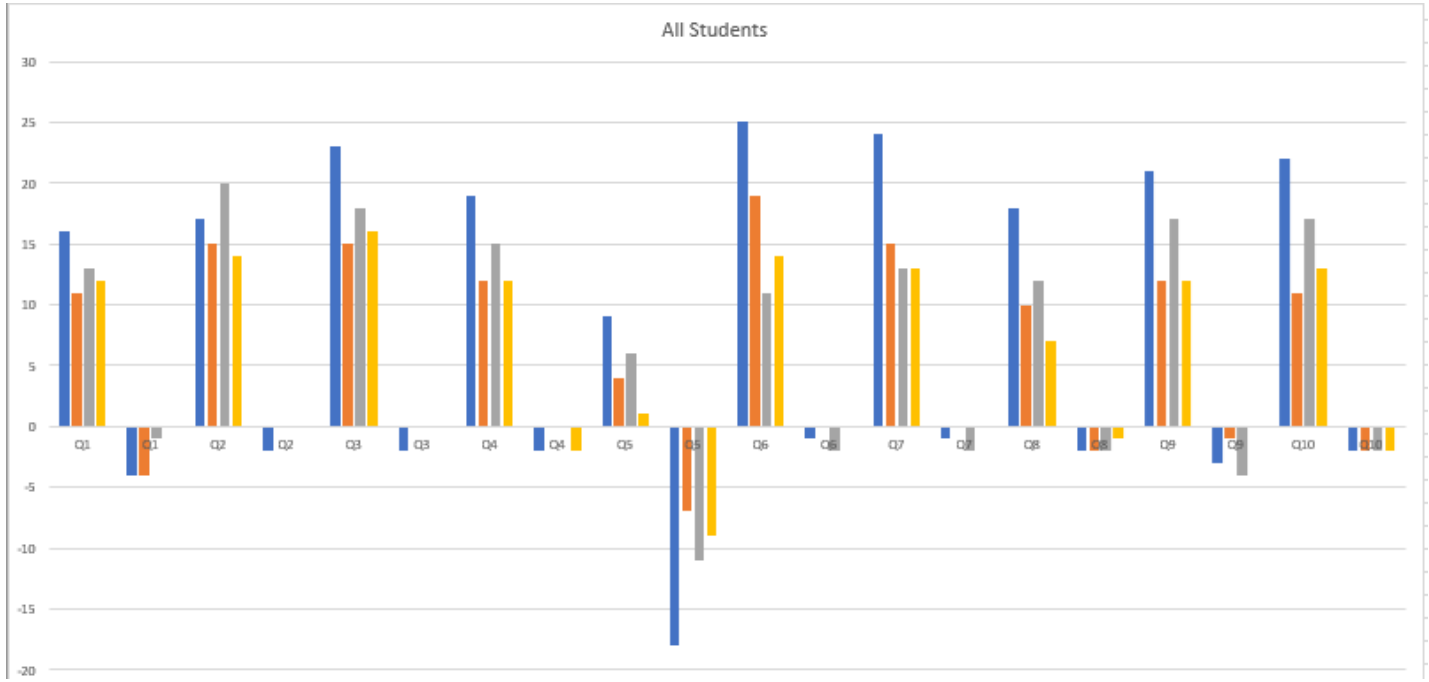
Gender Gaps DET

Key findings

Girls are less engaged with mathematics and more fearful of the subject

Girls perceive mathematics to be more difficult than do boys through most of secondary school

Gender differences in confidence extend beyond self-efficacy to more general competence beliefs with girls tending to perceive their general ability levels more negatively than boys



Blue – *Year 2 Most students feel they want to become better at Maths. They see STEM/Mathematics as important and have confidence to ask their teacher for help.* ***Question no 5 (Maths is hard for me)***

Orange – *Year 4 Some negative sentiment with Maths in terms of confidence – slightly higher in females. Again, many want to become better at Maths.*

Grey – *Year 5/6 Many see that they can improve their Maths with the right help. Not many negative responses. A few for 'I use a Growth Mindset when stuck on a problem' Even positive/negative range for male and female students*

Yellow – *Year 3 Quite even across the board. Slightly more female students had negative perceptions of Maths than males.*

Survey Results

Survey Results GHPS

Strategies for success - DET

- Improve access to learning resources with a focus on growth mindset approaches to encourage self-confidence, among all students
- Incorporate careers awareness into classroom learning to strengthen understanding of the application and value of mathematics and the participation of women in STEM
- Improve mentoring access, to support learning outcomes
- *Improve highly effective teaching practices for all students e.g. personalised instruction, providing feedback, time for reflection, encouraging effort, catering to different interests*

What is Mathematics/ Numeracy?

Key messages

Numeracy and mathematics are not synonymous. In Victorian schooling, mathematics is defined as the Victorian Curriculum: Mathematics, one of the eight learning areas of the Victorian Curriculum.

Numeracy involves recognising and understanding the role of mathematics in the world. Having the dispositions and capacities to use mathematical and statistical knowledge and skills purposefully.

Mathematics programs need to be numeracy-rich: with a real-life context, application of mathematical knowledge, use of tools, promotion of positive dispositions, and involving a critical orientation.

Being numerate requires experience in the use of mathematics beyond the mathematics classroom.

Teachers of all school subjects have an important role to play in developing the numeracy capabilities of students.

Maths Anxiety

"Many people think of mathematics as one of the most logical, most impersonal branches of knowledge, yet it inspires more emotion than any other school subject" (Zaslavsky, 1994, p.5).

Research shows that mathematics anxiety can interrupt working memory, leading to more error making, and reducing the capacity to successfully participate in Mathematics (Ashcraft and Kirk, 2001; Eden, Heien and Jacobs, 2013; Ma, 1999).

Students who consistently experience mathematics anxiety when engaging with Mathematics are also more likely to avoid Mathematics subjects, courses, and careers. The causes of Mathematics anxiety revolve around a fixed mindset or belief about Mathematics performance and learning (e.g., "I am no good at maths").

https://www.youtube.com/watch?v=7snnRaC4t5c

Video

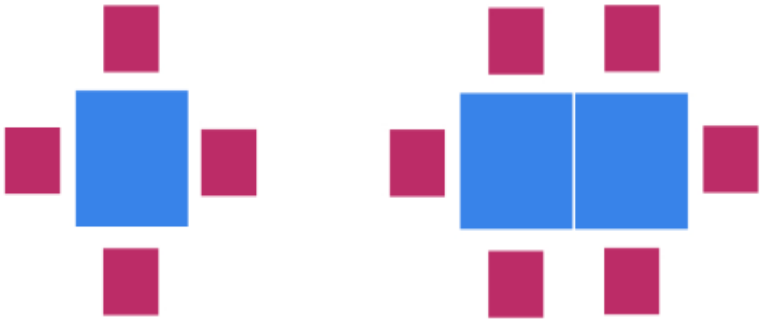
What is our Instructional Model?

	Teacher Role	Student Role
I do 	Explains, models & provides direct instruction using think aloud. The teacher 'does' the learning, sharing aloud their internal thinking and processes whilst taking students through the steps to success.	Students actively listen and observe the steps and internal cognitive processes needed to be a successful reader, writer, mathematician etc.
We do 	The teacher begins to share the learning responsibility with the students, using strategic questions, prompts, cues and scaffolds to facilitate understanding. The teacher monitors and checks student understanding, giving feedback & adapting the instruction as needed.	After observing success, students do the learning with the teacher, adding their thinking and engaging in the steps with high teacher presence, close monitoring and use of models and examples.
You do 	The teacher gradually withdraws the scaffolds and supports to increase student independence, confidence and fluency. Teacher is able to provide purposeful feedback and measure progress towards the goal.	Students spend extensive time practising what they have observed and learnt, either collaboratively or independently. Students experience high rates of success due to the scaffolding, guidance and practice that has already occurred.

How do we teach Numeracy at GHPS?

- Daily Reviews
- Rich Tasks
- Enabling and Extending Prompts
- Lesson Closure – Check Ins

Four chairs fit around one square table. When two tables are pushed together, it will seat six people. Find a pattern you can use to predict the number of people (chairs) that may be seated at any size table.



Daily Reviews

- PowerPoint presentations built from previously-taught content
- Short, regular sessions
- Selection of topics from previous lessons
- Short explanations – shorter than a normal lesson
- Quick Pace

SKIP COUNTING BY 3s

Let's skip count backwards by 3s, starting from 45.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

SUBITISING

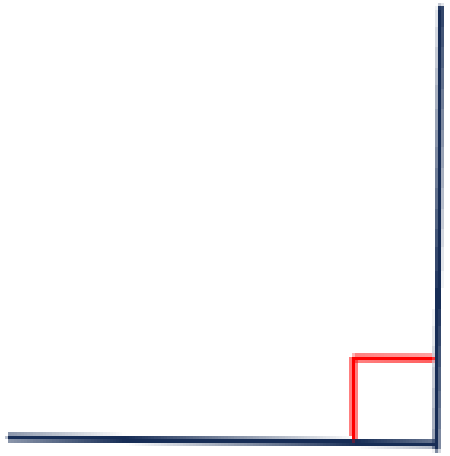
How many objects are there? 29

Double this collection. 58

Add two more groups of 3 stars. 35

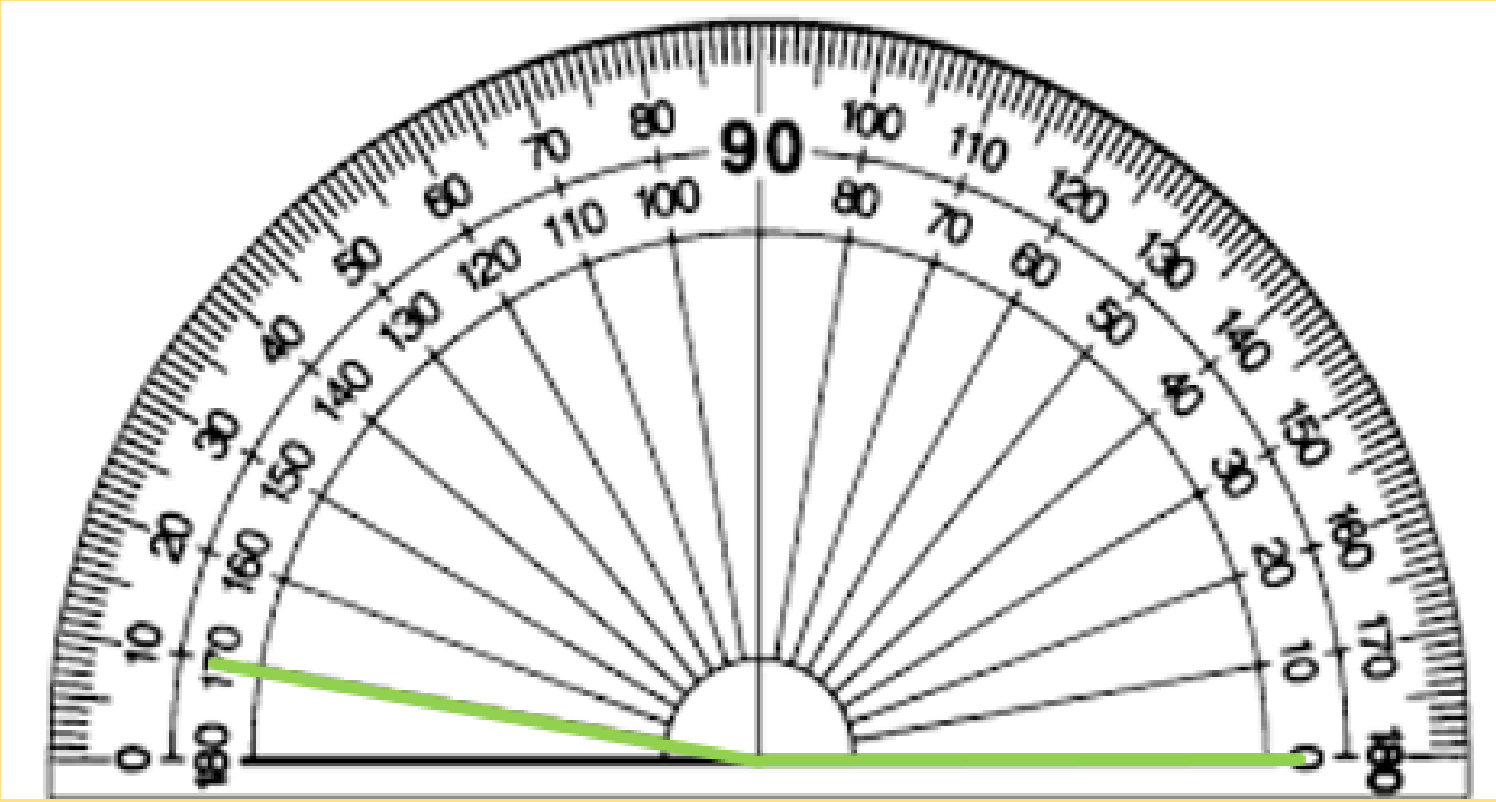
Take your previous answer and divide it by 7. 5

ANGLES



right angle

ANGLES



170°

A Common Myth About Numeracy

There is one right way to do a maths problem

- A strong message that we want to convey is that there are lots of ways to do mathematical problems. Some ways are more efficient than others, but we shouldn't say that there is one right way to do any given problem.
- Mathematics is full of uncertainty. It is more about exploring and making conjectures, rather than coming up with the right answers (Boaler, 2016).

Assessments

Resources	Formative Assessments included in Unit Planners for each topic/concept
Numeracy learning progressions Victorian Curriculum F–10: Mathematics Mathematics Online Interview (MOI) Fractions and Decimals Online Interview Mathematics growth points Assessment for Common Misunderstandings NAPLAN - Numeracy mathematics and numeracy assessment Mathematics Teaching Toolkit	• Use of student self assessments • Exit slips • Student work samples • Strategies used for Number Talks/Reviews • Discussions and recording of anecdotal notes • Guttman Charts of student skills
Pre and Post Tests for Numeracy Units	**Ongoing for each new unit of Numeracy introduced** • Essential Assessment • Teacher generated pre/post tests • One on one assessments • PVAT (Place Value Assessment Tool)
Teacher Judgements **March Data**	All levels – Identify students above and below expected levels in Numeracy (March Data and Sept Data)

GHPS Numeracy Assessment Schedule Term 1

Tools	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10
Maths Online Interview/PAT PVAT	Prep Induction Assessments PVAT conducted with all students 2-6				PAT MATHS	PAT MATHS	Analysis of MOI/PAT IData w Numeracy LS			
Teacher/Parent Get to Know You interviews	School Entry Assessments (New students and students 'at risk'			Class Parent/Teacher Interviews						
Individual Learning Plans https://www2.education.vic.gov.au/pal/individual-education-plans-ieps/resources	ILPs developed All students working towards year		ILPs developed						(SSG) Meetings	

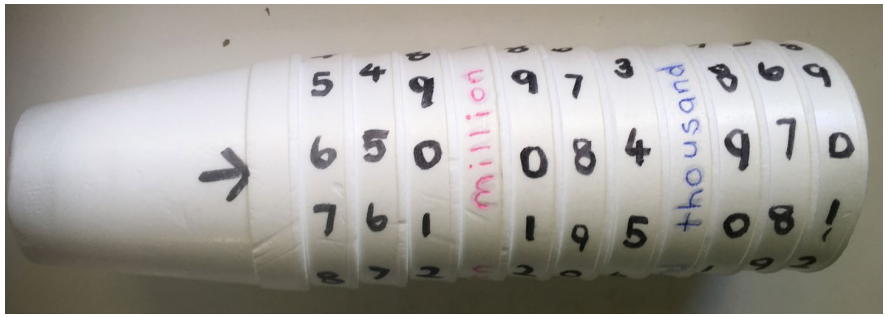
PVAT

The PVAT (Place Value Assessment Tool) is the culmination of 4 years of PhD research and it has since been trialed in many schools

Whole number place value knowledge in Years 2-6

Link to test sample-

https://www.numeracyteachersacademy.com/PVATFormA



How can you support your child at home?

Best Maths Resources for parents to assist students

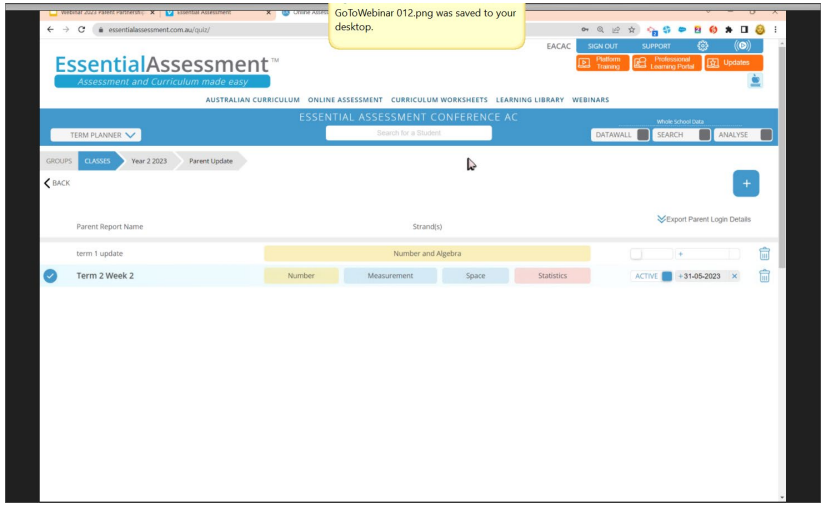
- Khan Academy https://www.khanacademy.org/math
- Wolfram Math World (Years 5+)
- Victoran Education Department – FUSE (Instructional videos and games) https://fuse.education.vic.gov.au/VC/Primary?mathematics

- Number Talks Strategy Signals
- Mentor Texts for Mathematics (see list)

Mathematics Mentor Texts GHPS

- Essential Assessment – Parent Update (trial) Year 5/6

Click on questions to see question and 'how to' videos



Resources Continued - Curriculum

Education departments: Parents and carers can visit the websites of the state/territory education departments that have resources for learning from home:
New South Wales, Queensland, South Australia, Tasmania, Victoria, the Northern Territory, the Australian Capital Territory and Western Australia.
Some education sectors and individual schools will also have resources for home learning.

ABC Education provides access to more than 4,000 free videos, interactive resources and games mapped to the Australian curriculum – across subjects such as English, Maths, Science, History, Geography, Media Literacy, Financial Literacy, The Arts, and Technologies, including STEM.

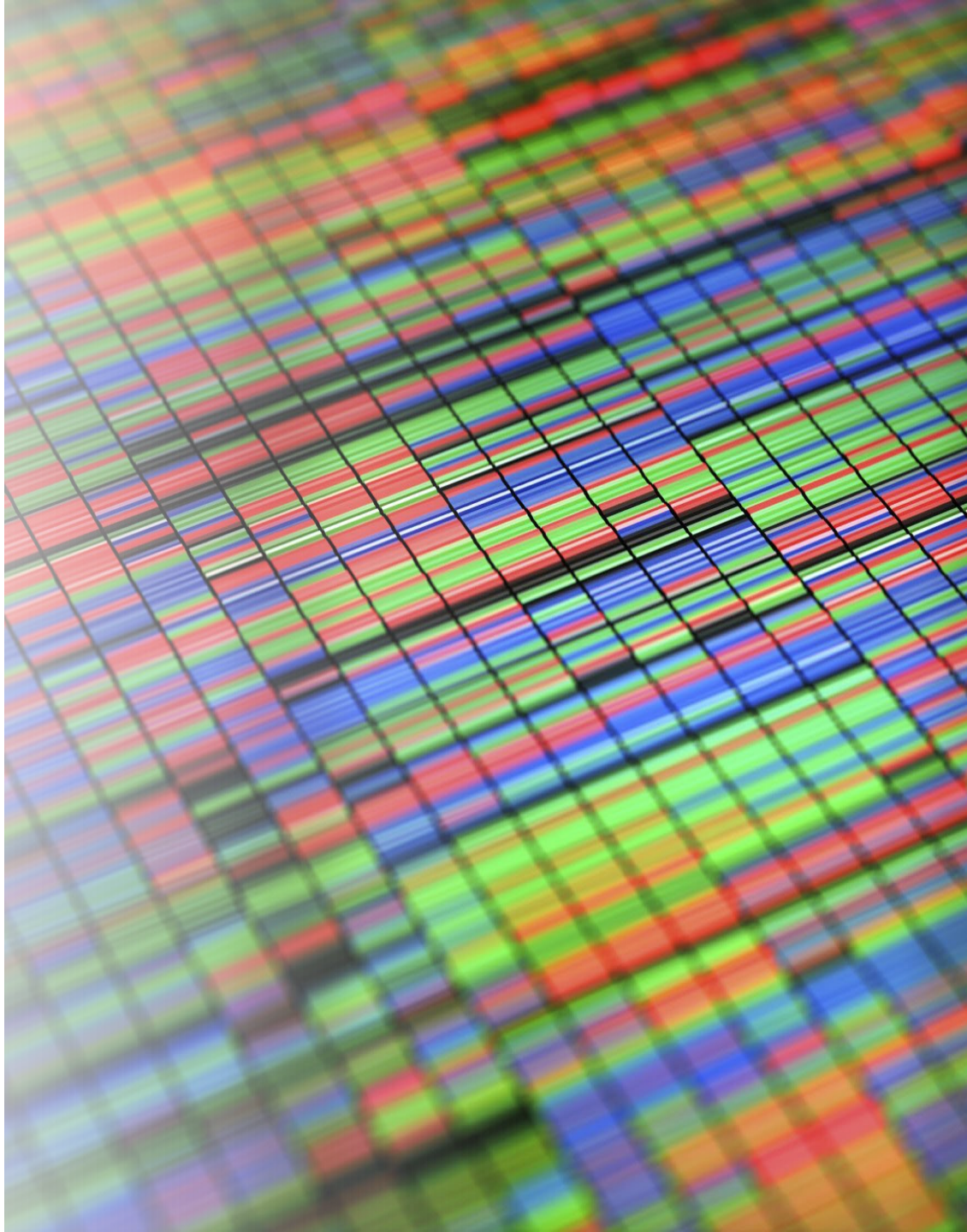
The ABC has thousands of free curriculum-linked resources for school teachers and students as well as a new ABC TV Education schedule.

Find quick guides to what your child will learn at each stage of their schooling: Victorian Curriculum

- Foundation (Kindergarten or equivalent) (PDF 1.6 mb)
- Years 1–2 (PDF 1.2 mb)
- Years 3–4 (PDF 1.4 mb)
- Years 5–6 (PDF 1.4 mb)
- Years 7–8 (PDF 1.5 mb)
- Years 9–10 (PDF 1.5 mb)

Each link is related to **computational and algorithmic thinking** and a teaching and learning activity that is designed to develop computational thinking and problem-solving skills.

[Foundation – Computational and algorithmic thinking in Mathematics]
[Level 1 - Computational and algorithmic thinking in Mathematics]
[Level 2 - Computational and algorithmic thinking in Mathematics]
[Level 3 - Computational and algorithmic thinking in Mathematics]
[Level 4 - Computational and algorithmic thinking in Mathematics]
[Level 5 - Computational and algorithmic thinking in Mathematics]
[Level 6 - Computational and algorithmic thinking in Mathematics]
[Level 7 - Computational and algorithmic thinking in Mathematics]
[Level 8 - Computational and algorithmic thinking in Mathematics]
[Level 9 - Computational and algorithmic thinking in Mathematics]
[Level 10 - Computational and algorithmic thinking in Mathematics]
[Level 10A - Computational and algorithmic thinking in Mathematics]



Intervention and Enrichment

VHAP Presentation Primary Maths Masterclass

Examples of Rich Tasks

https://www.mav.vic.edu.au/Resources/Primary-resources/Enrichment

Maths Talent Quest A National Competition run by the Mathematical Association of Victoria. A great way for students to follow their interests to design and complete a Maths investigation. Individual entries accepted.

Maths Enrichment Programs Run by DET. Students are chosen by the DET

The Maths Olympiad and Maths Games -Year 4-8 students. Five times throughout the year. Problem solving tasks

NRICH Maths Resources to provide extension to students from Foundation and throughout secondary school www.nrich.maths.org.

Key Take-Aways

Keep Mathematics/Numeracy learning in perspective. Think about the language you use.

Display/model a positive mindset around Maths/STEM – ‘We can do it!’ These subjects are so important.

Keep an open line of communication with teachers

Contacts

Classroom teacher – name@education.vic.gov.au

Melinda Oldham

melinda.Oldham@education.vic.gov.au

Parent Support – Maths Association Victoria

https://www.mav.vic.edu.au/Resources/parents