

Maths at A.I.S.

Aims of session

- 1) To give an insight into how Maths is taught at A.I.S.
- 2) To explain the strategies we use
- 3) To show some resources used in class
- 4) To give suggestions on how you can help your child at home



Maths is like....



Cabbage...

...you either love it or hate it depending on how it was served up to you as a child!



Pupils need to experience:

Success
Satisfaction
Self-confidence
Enjoyment
Excitement
Enthusiasm
Interest
Active involvement



The aim

- ▶ The aim is for children to do mathematics in their heads, and if the numbers are too large, to use pencil and paper to avoid losing track. To do this children need to learn quick and efficient methods, including appropriate written methods.
- ▶ To give children the chance to explore ways of finding an answer, and being able to explain why it works
- ▶ To give them the key skills needed to solve real world problems and examples
- ▶ To provide opportunities to apply these skills in practical situations



Cambridge International Primary Curriculum – 5 strands or content areas with further sub-strands

▶ **Number**

- ▶ • Numbers and the number system
- ▶ • Calculation – Mental strategies, Addition and subtraction, Multiplication and division

▶ **Geometry**

- ▶ • Shapes and geometric reasoning
- ▶ • Position and movement

▶ **Measure**

- ▶ • Money (until stage 3)
- ▶ • Length, mass and capacity
- ▶ • Time
- ▶ • Area and perimeter (from stage 4)

▶ **Handling data**

- ▶ • Organising, categorising and representing data
- ▶ • Probability (from stage 5)

▶ **Problem solving**

- ▶ • Using techniques and skills in solving mathematical problems
- ▶ • Using understanding and strategies in solving problems (from stage 4)

<http://nrich.maths.org>

- ▶ Investigations
- ▶ Problem solving
- ▶ Challenges

This month: [Stage 1&2](#) [Stage 2&3](#) [Stage 3&4](#) [Stage 4&5](#)

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ew edition of NRICH.

blems we invite you to experiment with a range of outcomes may surprise you. Can you use explain why you shouldn't be so surprised?

StemNRICH
Explore mathematics in scientific contexts
[▶ Show Menu...](#)

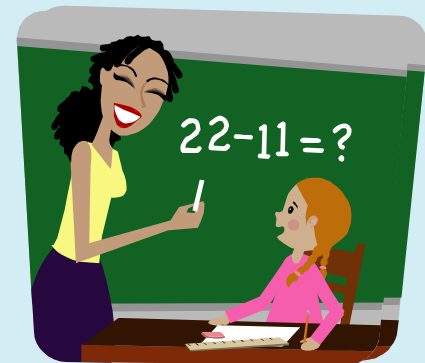
For Students
Get published! Send in your solutions by the 22nd of the month.
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Be p
of o
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Maths lessons

- ▶ Most daily maths lessons are approximately 45 minutes to 1 hour long.
 - ▶ Starting with a mental warm-up
 - ▶ Sharing WALT - 'We are learning to...'
 - ▶ Sharing WILF - 'What I'm looking for...'
 - ▶ Sharing the Success Criteria - 'I can.....'
 - ▶ Whole class teaching input
 - ▶ Differentiated tasks
 - ▶ A Plenary - recap, sharing outcomes
 - ▶ Self-assessment - how have you got on, success or more help needed, mark work with a traffic light
-
- ▶ Targeting teaching aims to challenge some and support others.
 - ▶ Regular intervention by Teacher and/or TAs helps focus and support.



Place value in Years 3 and 4

Year 3

Read, write and order whole numbers to at least 1000 and position them on a number line

Partition 3 digit number into multiples of 100, 10 and 1 in different ways

Year 4

Partition, round and order 4 digit whole numbers; use positive and negative numbers in context and position them on a number line

Use decimal notation for tenths and hundredths and partition decimals relate the notation to money and measurement

Place Value Chart

Use the place value charts to see how a number is made and written.

Press Gordon to reveal or show the place value cards.

Place Value Charts

Make the given number using the place value chart.

Use the place value chart to make a number.

round to nearest

guess the number

Learning written methods *is not the ultimate aim.*

- ❖ Mathematics is foremost an activity of the mind, and written calculations are an aid to that mental activity.
- ❖ We aim to develop children's mental strategies and then written methods that derive from and support mental methods.



We want children to ask themselves

- ▶ *Can I do this in my head?*
- ▶ *Can I do this in my head using drawings or jottings?*
- ▶ *Do I need to use an expanded/compact written method?*
- ▶ *Do I need a calculator?*



Right then, time for a warm up!

5

12

21

Which is the odd one out,
and why?

No hands up!
generalised!

1 min talk to a neighbour!

Everyone has

How do *you* add and subtract?

▶ $61 + 45$

$7800 - 5600$

▶ $5735 + 3657$

$5735 + 3990$

▶ $83 - 68$

$5002 - 4996$

▶ $538 - 295$

$267 + 267$

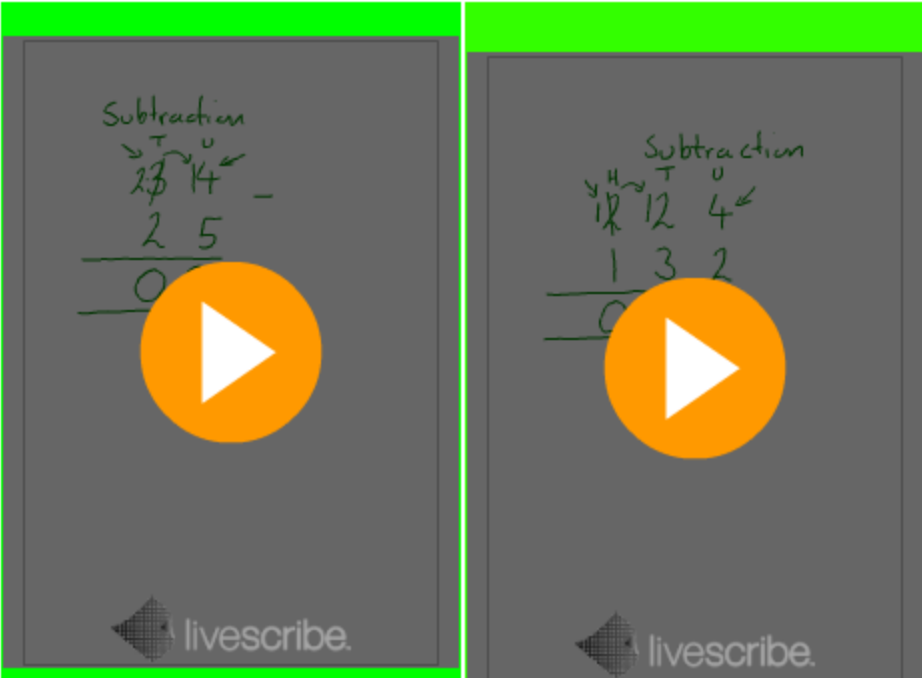
▶ $2.5 + 2.7$

$5.1 - 2.78$



<http://ictvideohelp.co.uk/maths2.html>

- ▶ Videos explaining how to work out number problems





Subtraction with exchange 2 columns
[Embedding Code](#)

Subtraction with exchange 3 columns
[Embedding Code](#)

www.theparentportal.co.uk

- ▶ Videos, links and ideas for supporting your child at home

The Parent Portal

Home	<h3>Supporting your Child in Mathematics</h3>  <ul style="list-style-type: none">• Interactive Maths Tutorials• Maths Vocabulary• Interactive Maths Games <p>Subpages (2): Interactive Maths Tutorials, Maths Vocabulary</p> <p>Attachments (1)</p> <p> Helping your Child with Maths.pdf - on 6 Oct 2010 08:12 by Simon Haughton (version 1) 4764k View Download</p>
Attendance	
Behaviour Management	
▼ Different Ways your Child May Learn Styles of Learning	
▼ Helping your Child Stay Physically and Emotionally Healthy Healthy Eating	
▼ Helping your Child to Read Reading Targets	
Helping your Child to Write	
Parent/Teacher Meetings	
Promoting E-Safety	
▼ Supporting your Child in Mathematics	
Interactive Maths Tutorials	
Maths Vocabulary	
Supporting your Child with Homework	
Sitemap	

Mental Maths

H T U

Times tables and division facts

Number bonds up to 100

Doubling and Halving

Rounding and estimating

$\times 10$, $\times 100$ (DON'T ADD A 0!)



Mental recall

- ▶ We have developed a Numeracy passport to embrace many mental objectives as well as key mental maths objectives from the Cambridge International Curriculum.



From mental to written methods of calculation 1

“Methods of calculation should always be chosen depending on the nature of the calculation and the numbers involved.”

- ▶ **Totally mental methods** (you can do it all in your head)
 - Instant recall
 - Rapid recall



From mental to written methods of calculation 2

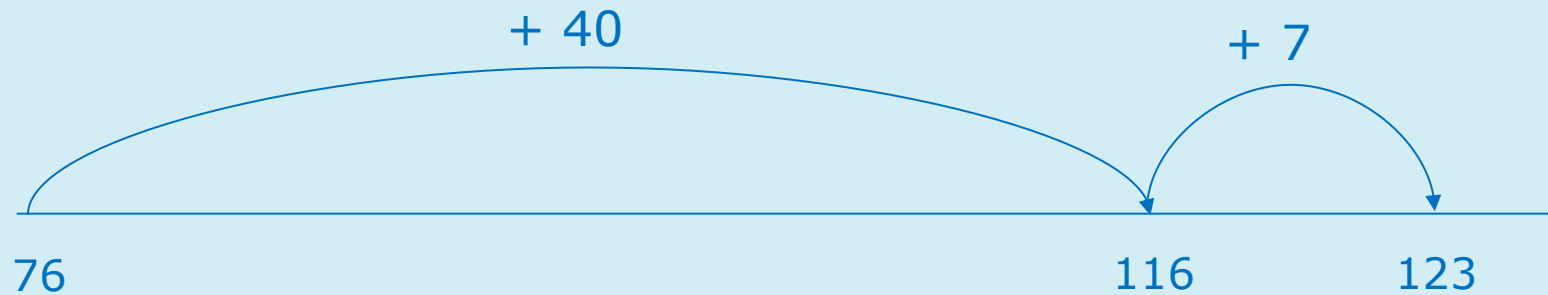
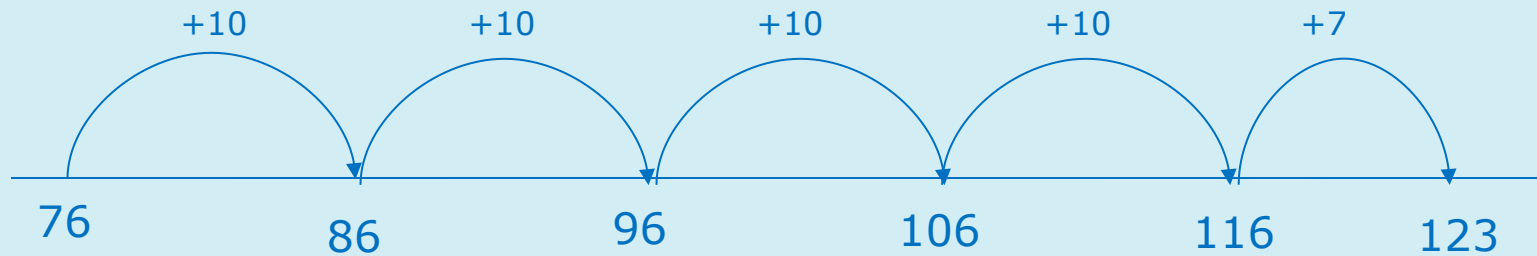
Partial written methods (you cannot do it all in your head)

- Informal jottings – idiosyncratic – keeping track as you work (back of an envelope)
- Informal written recording – to support intermediate mental steps e.g. using blank number lines, partition strategies



Addition

$$76 + 47 =$$



Easy or not

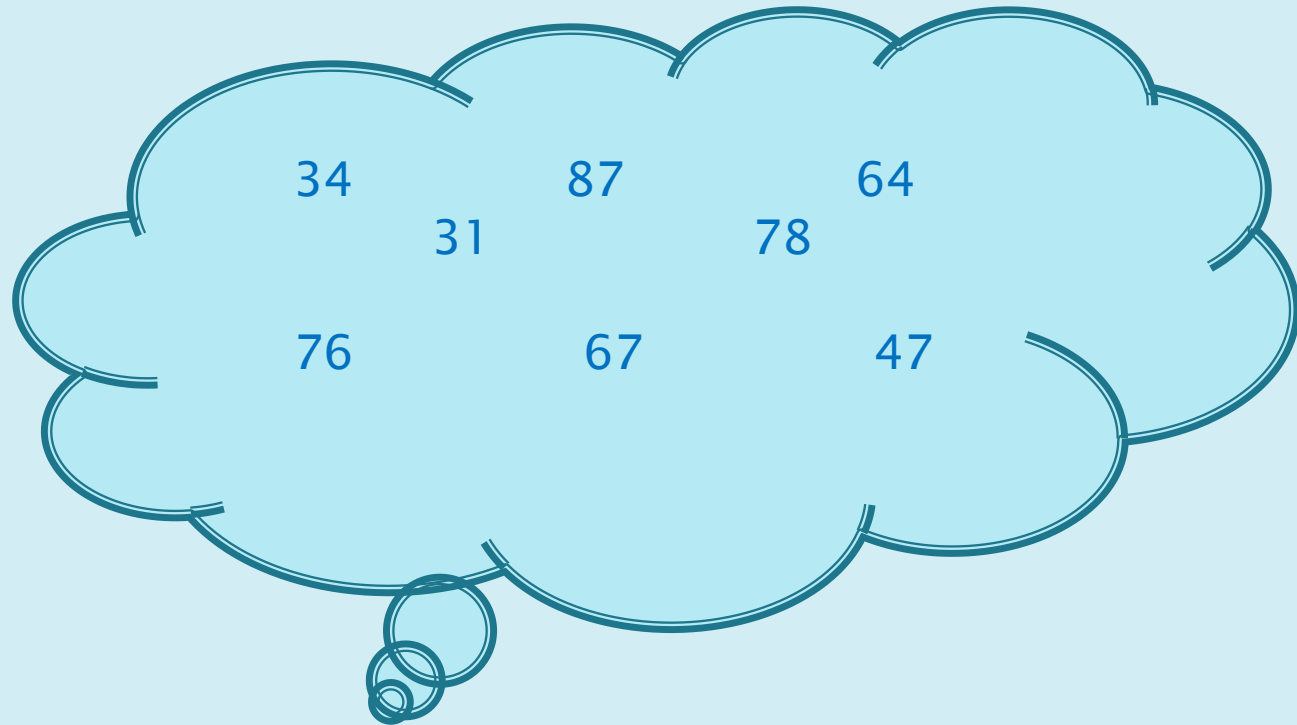
$$87 - 34 = ?$$

▶ $34 \xrightarrow{+6} 40 \xrightarrow{+40} 80 \xrightarrow{+7} 87 = 53$

▶ Or $34 \xrightarrow{+50} 84 \xrightarrow{+3} 87 = 53$

Easy or not?

- Choose any pair of numbers – add (or subtract)



From mental to written methods of calculation 3

- **Written methods** (for larger numbers, or too many numbers to deal with mentally)
- **Non-standard ‘algorithms’** e.g. expanded methods – most (then least) significant digits first – initially horizontal layout, then vertical layout
- **Standard algorithms (methods)**



Addition

$$358 + 473 =$$

$$\begin{array}{r} 358 \\ + 473 \\ \hline 11 \\ 120 \\ 700 \\ \hline 831 \end{array}$$

$$\begin{array}{r} 358 \\ + 473 \\ \hline 831 \\ \hline 1 \quad 1 \end{array}$$

How do *you* multiply ?



$$4 \times 2$$

$$2 \times 4$$

$$40 \times 5$$

$$24 \times 6$$

$$18 \times 15$$



Multiplication

$47 \times 8 =$

x	40	7	
8	320	56	376

$37 \times 46 =$

x	30	7	
40	1200	280	1480
6	180	42	222
			1702

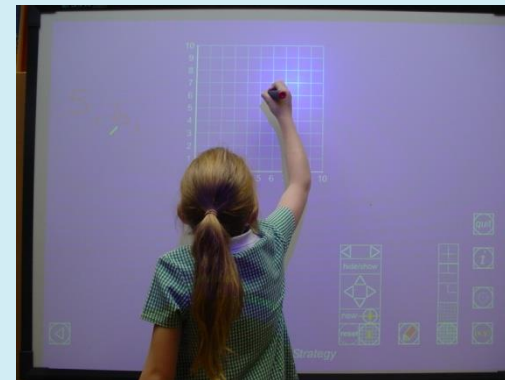
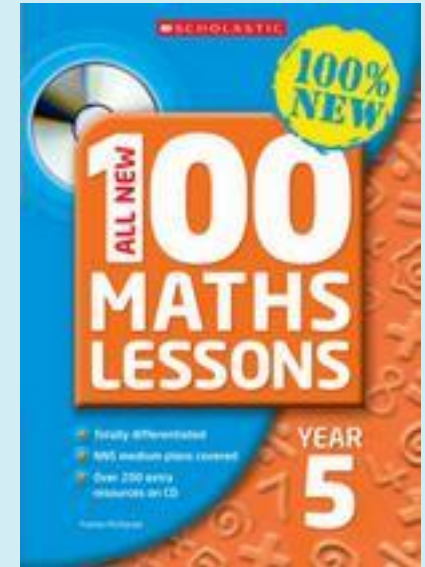


What resources do we use ?



UNIVERSITY of CAMBRIDGE
International Examinations

Cambridge International School



Why use games in to support learning in maths?

- ▶ They are fun, enjoyable and motivating
- ▶ Lessens anxiety in Insecure learners who don't view them as 'learning mathematics'.
- ▶ They encourage children to talk about different ways to solve problems
- ▶ They rehearse numeracy strategies used in class and support learning
- ▶ They can provide an opportunity to have focused time with an adult
- ▶ They give some children the opportunity to play board games for the first time
- ▶ They give the opportunity to be successful leading to increased confidence
- ▶ They can raise the profile of maths in school and can raise attainment



Health Warning!

- ▶ Homework!
- Related to class work
- Use method shown in class
- Check with teacher if unsure!
- It's the child's responsibility to complete their homework!



How can parents help?

- Discuss real life number tasks e.g. when shopping, setting the video, preparing for a party.
- Play card and board games
- Take and compare measurements – objects, people, pets!
- Measure ingredients for cooking
- Play maths games on the internet
- Encourage your child to help with shopping – how much money do we need? How much change?
- Take an interest in, and talk about, homework.
- Have a quiet, organised space for activities.

But **please don't** pressure them to use **YOUR** methods, try to understand theirs!



Maths Websites

- ▶ <http://www.woodlands-junior.kent.sch.uk/maths/index.html>
- ▶ <http://primarygamesarena.com/Math>
- ▶ <http://www.tutpup.com/>
- ▶ <http://www.coolmath4kids.com/>

Remember what is important in maths!

- ▶ A focus **on mental calculations**.
- ▶ The ability to **estimate**.
- ▶ To use maths in a **real life context**.
- ▶ To ask children to **explain** how they have calculated something using a method that suits them.
- ▶ Teach children **written calculations**, but only when children are ready.

