



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

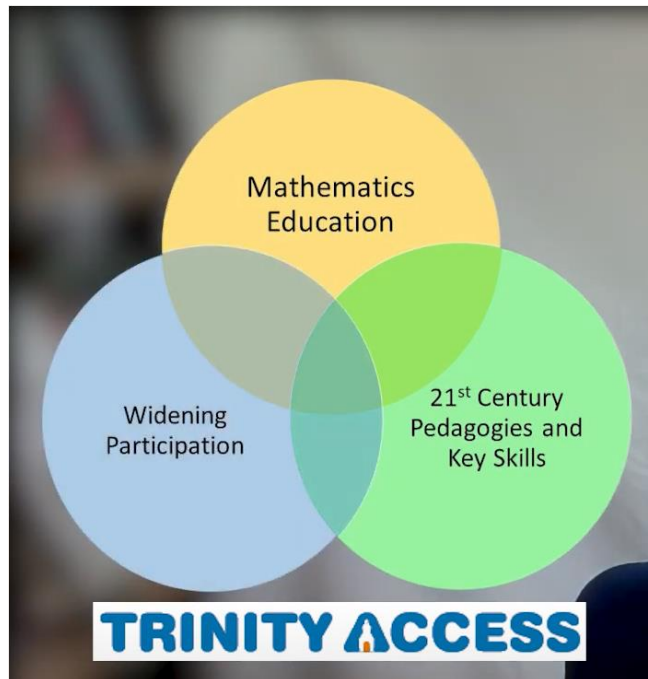
Family Numeracy

Numeracy-Meet

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Introductions

TRINITY ACCESS



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Aibhín is PME
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Trinity College Dublin
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School of Education



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Some theory to get started...

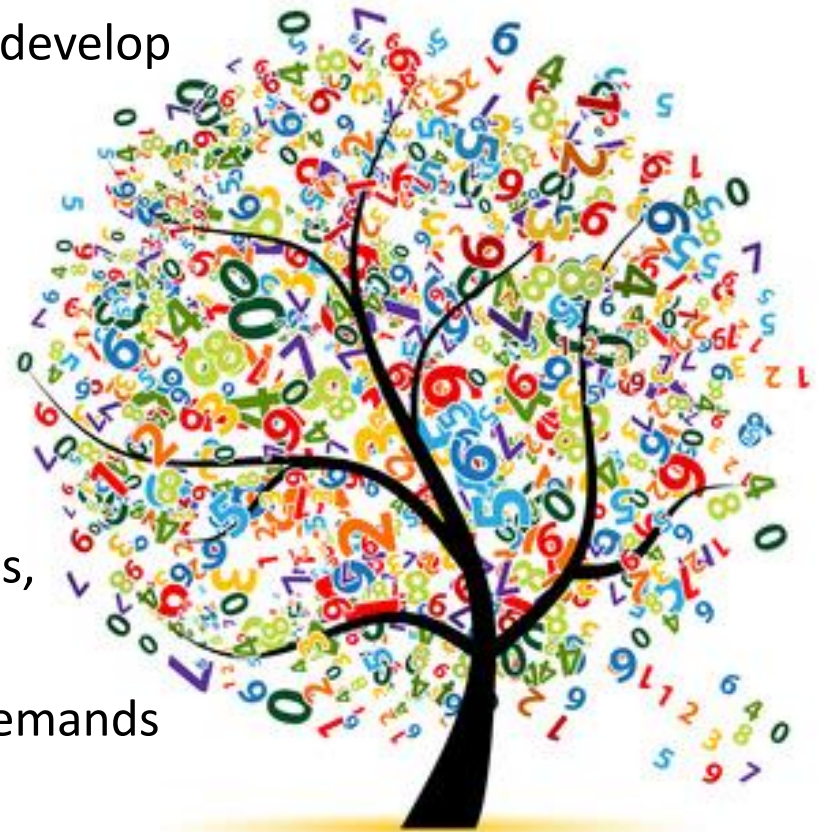
What is numeracy?

Fundamental numeracy skills begin to develop in very young children and involve:

1. Basic skills
2. Computational skills

More **sophisticated numeracy skills** include things like

1. estimation, fractions, proportions, percentages
2. “solve problems and meet the demands of day-to-day living.” (DES, 2011)



Literacy and Numeracy

National Literacy and Numeracy Strategy (DES, 2011)

Literacy: the capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media and digital media.

Numeracy: encompasses the ability to use mathematical understanding and skills to solve problems and to meet the demands of day-to-day living in complex social settings.

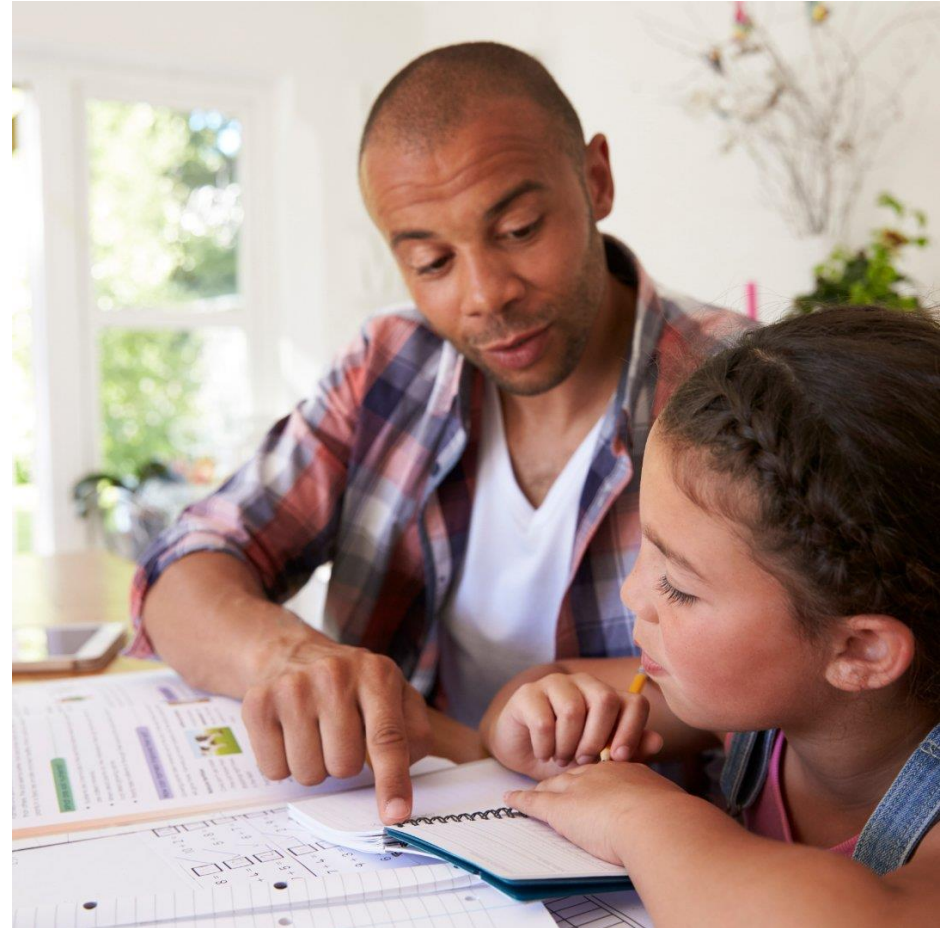


These intertwined skills support inclusivity and active global citizenship. They are necessary features of developing positive relationships and communicating effectively

Parental Involvement

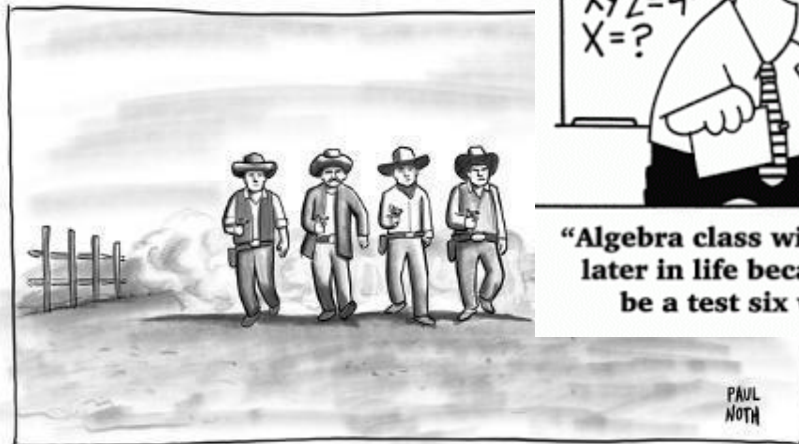
The positive impact that higher parent involvement with students' education has on their levels of engagement is well-established (*Bray et al., 2021; Smyth, 2017*).

However, research shows that some parents do not find it easy to teach their children at home and argue that parents need support with both **how maths is taught in school** and strategies for **bridging the home-school gap** (*Abreu & Cline, 2005*).

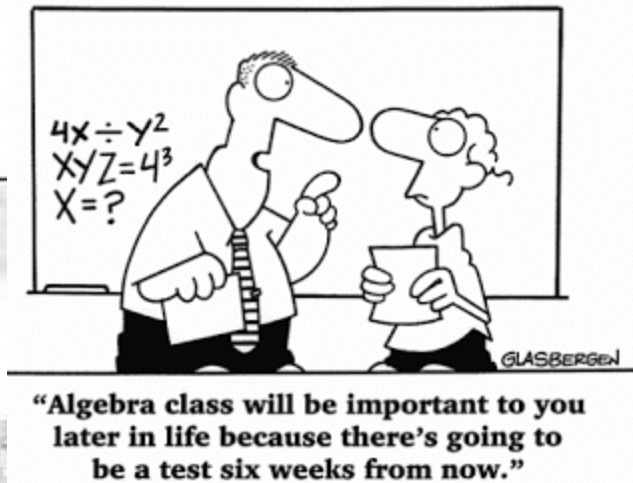


Public Perception

Is it okay to be innumerate?



Copyright 1997 Randy Glasbergen. www.glasbergen.com



THE
INNUMERATE
SEVEN

Lack of confidence

When parents are lacking in confidence or suffer from maths anxiety, their children learn significantly less maths over the school year and have higher levels of maths anxiety by the school year's end...

...but only if the maths-anxious parents report providing frequent help with math homework. (Maloney et al., 2015)



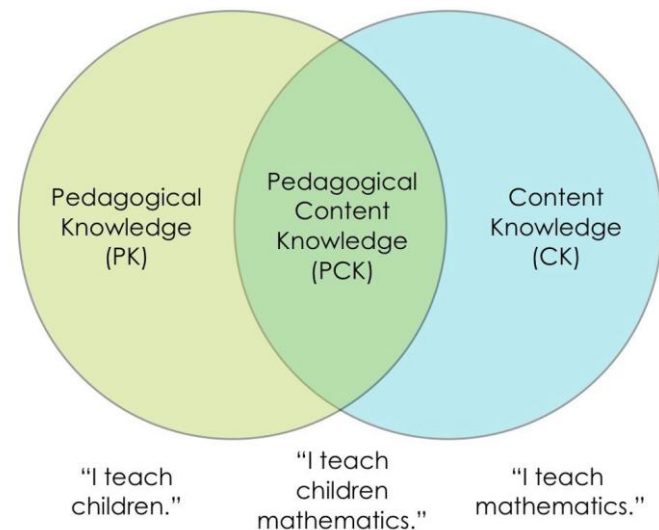
Family learning programmes can be provided to help support parental involvement by developing the **skills and confidence** of the adults

Provision of support

Broadly two types of family numeracy provision (Ashton et al., 2012)

1. One type (Type 1) focuses on children's learning and the content of the school curriculum, adult skills are discussed and developed as a secondary feature.
2. Another type (Type 2) of provision focuses on the development of adult skills with an awareness of children and the school curriculum.

It can be viewed that **Type 1** provision focuses more on content pedagogical knowledge, while **Type 2** is more of a mix between content knowledge and content pedagogical knowledge as classified by Shulman (1985).



(Ashton et al., 2012)

It appears however, that a more detailed initial assessment and diagnosis of learner motivations may be helpful in responding to parents needs and in the planning and delivery of provision.

the 'confident parents' gained more confidence from knowledge of school methods (Type 1), while the less confident parents needed to develop their own mathematics, as well as knowledge of school mathematics, before feeling equipped to help (Type 2).





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And now for the practical bits...

Go to www.menti.com and use the code 9511 7093

 Mentimeter

What everyday maths words can you think of?



Everyday maths

It's easier if you know the language

Size, shape, direction, weight, ... all the numbers in everyday conversation



- On top of, below, right, left,
- check the measurements,
- fitting into, too big, won't fit,
- how much, split that in two,
- what time, before, after, in two days,
- What's the temperature,
- out of date, ...

Everyday maths activities

Suggestions in the chat!

- Listening to weather forecast for daily temperature
- Shopping
- Buying stamps
- Cooking, baking, calculating the amount of food for family
- Estimating costs e.g. car service, bus or train tickets
- Weighing things
- Painting, tiling, wallpapering
- Taking medicine, times, length between tablets
- Directions for travelling
- Other suggestions?



MATH RICH

.....
everyday life skills

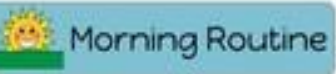
NurtureStore



Family Numeracy

Where do we encounter numerical/mathematical concepts?

Take a few minutes to think about your morning so far...



- 7:00 – alarm rings



- 7:05 – call kids, have shower



- 7:15 – make porridge



- 7:30 – wordle/nerdle...



- 7:45 – Teeth and turn on computer



- 7:50 – Check emails



- 7:55 – Shout at kids to get ready

- 8:00 – Out the door

1. Can I stay in bed for another 5 minutes?
2. Who needs a shower today?
3. How long will that take?

1. How many want porridge?
2. If it's 2 or 3 people, how much is that?

1. What's my average? Am I beating the husband/kids?

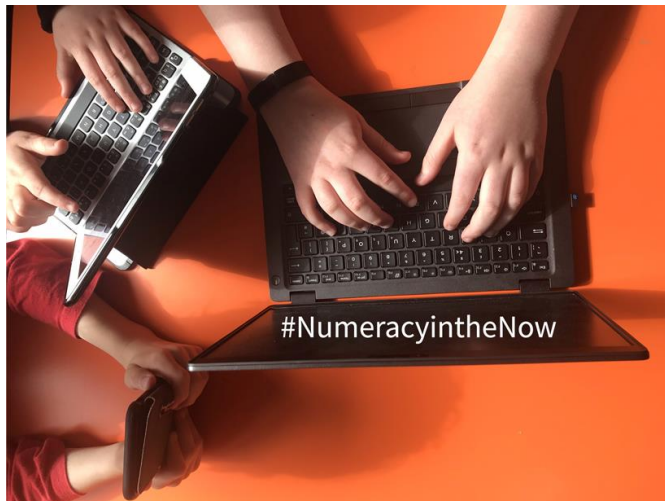
1. Takes 2 mins for teeth and computer!







1. Do I have time to answer the email?
2. How long will it take?
3. How long do I have?

Numeracy in the Now

<https://www.youtube.com/playlist?list=PL55XqDjybyL-BWsuM0jyzNQKT2khElmsA>

Supports for families at home during the first period of school closures




-  **Supporting Numeracy Development The Early Years**
Trinity College Dublin
3:33
-  **Numeracy in the forest**
Trinity College Dublin
2:28
-  **Numeracy with Lego**
Trinity College Dublin
4:24
-  **Cooking the numbers**
Trinity College Dublin
3:24
-  **Numeracy in our daily routine**
Trinity College Dublin
7:58
-  **Maths in the Meadow**
Trinity College Dublin
4:19

Cooking the Numbers

ESTIMATING





Readers of the *Courier-Mail* newspaper were invited to write in with questions such as the one below for the cookery expert (a well known chef).

Q. I am planning to make a small Christmas cake in a six-inch tin (15 cm) and would like to know how to calculate the quantities of ingredients needed if my recipe is for a larger tin.

A. Just break down the recipe accordingly; for example, if your cake recipe is for a 12-inch tin (30cm), then halve the recipe.



Is this answer good advice? Why/why not?

Baking fun...

If we assume that the heights of the tins are the same, is the larger one double the smaller one?

Area formula: $A = \pi r^2$

- **Tin A: 30 cm**

$$\text{Area Tin A} = \pi(15)\text{cm}^2$$

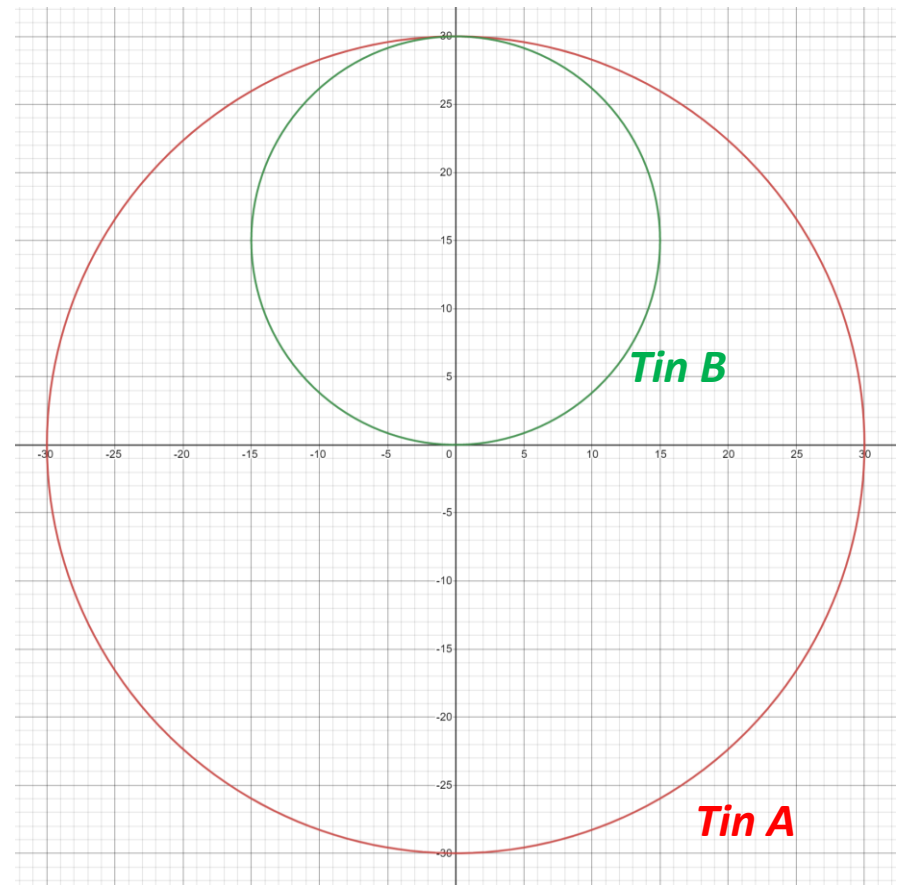
$$\text{Area Tin A} = \sim 707 \text{ cm}^2$$

- **Tin B: 15 cm**

$$\text{Area Tin B} = \pi(7.5)\text{cm}^2$$

$$\text{Area Tin B} = \sim 177 \text{ cm}^2$$

Area Tin A \neq 2(Area Tin B)



Pizza Maths

Which is bigger – 3x7” pizzas, 2x9” pizzas, or 1x16” pizza?

Challenge – the Big Problem:

You have a budget of €50 to feed your team

1. How can you get the most Margherita pizza?
2. What area of pizza is that?

Possible Websites:

- <https://www.just-eat.ie/restaurants-teach-pizza-dublin/menu>
- <https://www.just-eat.ie/restaurants-the pizzaslice/menu>
- <https://www.just-eat.ie/restaurants-basewoodfiredpizza-glenageary/menu>



Does the Vaccine Work?

THE SUNDAY TIMES

Today's sections ▾

Past six days

Explore ▾

Times Radio

Log in

CORONAVIRUS

Half of Covid hospital cases fully vaccinated

Sonja Tutty

Friday August 13 2021, 12.01am BST,
The Times



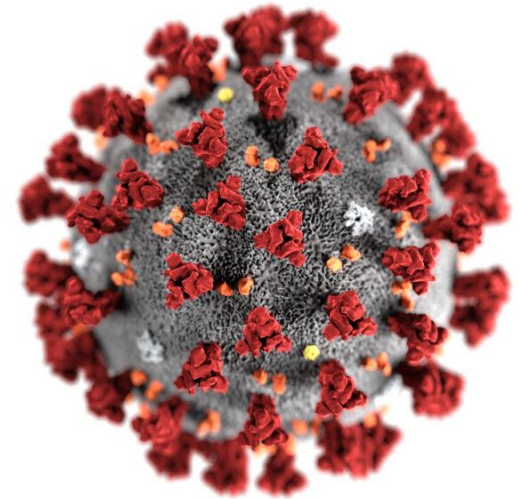
Let's assume 80% vaccinated

If the population is **1000**, with **10** people in hospital

- 80% is 800 **vaccinated** people
- 20% is 200 **unvaccinated** people

Of the 10 in hospital, 5 vaccinated, 5 not

- ... but...
- $\frac{5}{800} = \frac{1}{160}$ and $\frac{5}{200} = \frac{1}{40}$



Given this (made up!) model, your odds of ending up in hospital are 4 times higher if you are not vaccinated.

Confidence + Context = Empowered and Numerate



References

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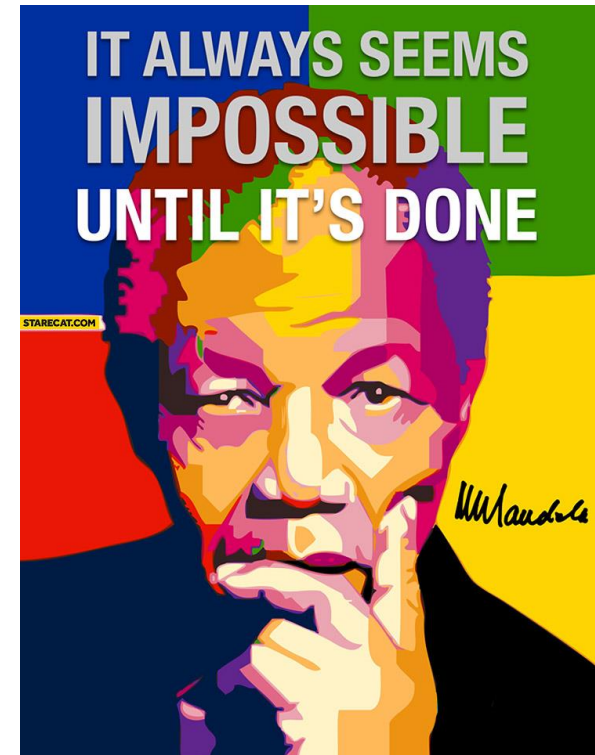
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Confidence + Context = Empowered and Numerate

Take away points

Initial assessment and 'diagnosis' of learner motivations may be helpful in responding to parents needs and in the planning and delivery of provision.

- 'confident parents' gain more confidence from knowledge of school methods (Type 1),
- less confident parents needed to develop their own mathematics, as well as knowledge of school mathematics, before feeling equipped to help (Type 2).





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Thank You

