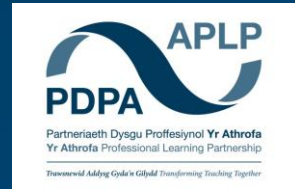




Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David



ECAD5012 – Session 2

Mathematics and Numeracy

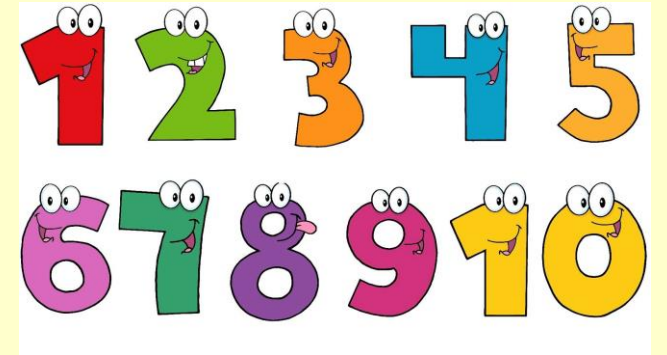
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Aims



- *Improving learning in Mathematics
- *Get ideas about how you can develop number skills in the classroom
- *Numeracy Framework
- *Teaching Mathematics across the Curriculum



How do pupils make progress?

How do you think pupils make progress?

Think of:

- The role of the educator
- Level of challenge
- Developing framework skills



A woman with dark hair tied back, wearing a white t-shirt with a striped long-sleeved shirt underneath, is writing on a whiteboard. She is looking down at the board with a focused expression. The whiteboard has several mathematical notations: a vertical list of numbers (40, 50, 60) on the left, a circled '30' next to '24', a large 'x3' in the center, and a fraction $\frac{9}{30}$ on the right. There are also some other faint markings and a plus sign on the right side of the board. The background shows a classroom environment with a window and some colorful posters on the wall.

Unlocking potential: Insights into improving teaching and leadership in mathematics education

June 2025

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Unlocking potential: Insights into improving teaching and leadership in mathematics education

Ideas for teaching Maths and Numeracy at Key Stage 2

Make a list of resources that can be used to support KS2 learners.



The Numeracy Framework

The Numeracy Framework (part of the Literacy and Numeracy Framework - LNF) is a national curriculum planning tool from the Welsh Government. It outlines expected skills per year to ensure pupils develop robust numeracy across all subjects between the ages of 5 and 14. [1, 2, 3, 4, 5]

The framework focuses on developing practical skills rather than just memorizing formulas. Its main features are:

- **Core Skills:** Develop an understanding of the number system, measures, and interpretation of data
- **Application:** Use numeracy skills to solve problems in real-life situations
- **Consistency across the curriculum:** Helping teachers to incorporate mathematics and numeracy only in math lessons, but across all subjects
- **Clear progress:** It provides a continuum that shows clear stages of development from year to year

The Numeracy Framework

Literacy Framework

Numeracy Framework						
Strand	Element	Progression step 1	Progression step 2	Progression step 3	Progression step 4	Progression step 5
Developing mathematical proficiency	Conceptual understanding	I can make connections so that basic mathematical concepts can be transferred during play and classroom activities.	I can make connections so that mathematical concepts can be transferred during play and classroom activities.	I can make connections so that mathematical concepts can be built on and deepened.	I can make connections so that mathematical concepts can be built on and deepened.	I can make connections so that mathematical concepts can be built on and deepened.
				I can draw on my understanding of the basic structures of mathematics and can apply them in different contexts.	I can draw on my understanding of the basic structures of mathematics and can apply them in different contexts.	I can draw on my understanding of the basic structures of mathematics and can apply them in different contexts.
				I can explain and express concepts, and find examples (or non-examples).	I can explain and express concepts, and find examples (or non-examples).	I can explain and express concepts, and find examples (or non-examples).
		I can understand and use basic mathematical concepts in a variety of ways.	I can represent a concept in different ways, flowing between different representations including verbal, concrete, visual, digital and abstract.	I can represent a concept in different ways, flowing between different representations including verbal, concrete, visual, digital and abstract.	I can represent a concept in different ways, flowing between different representations including verbal, concrete, visual, digital and abstract.	I can represent a concept in different ways, flowing between different representations including verbal, concrete, visual, digital and abstract.
	Logical reasoning	I can explore answers within the context of the problem and I am beginning to consider whether answers are sensible.	I can interpret answers within the context of the problem and consider whether answers are sensible.	I can interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible.	I can interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible.	I can interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible.
		I can use everyday and mathematical language to talk about my own ideas and choices.	I can use everyday and mathematical language to talk about and explain my own ideas and choices.	I can construct and develop a mathematical argument.	I can construct and develop a mathematical argument.	I can construct and develop a mathematical argument.
				I can justify my procedures and predictions.	I can justify my procedures, predictions and conjectures.	I can justify my procedures, predictions and conjectures.
			I can verify results and solutions.	I can verify results and solutions.	I can verify and prove results and solutions.	I can verify and prove results and solutions.
	Fluency	I am beginning to apply relevant facts and techniques.	I can identify relevant facts and techniques in order to apply an efficient method.	I can use firmly established, memorable and usable facts and techniques in order to apply the most efficient methods.	I can use firmly established, memorable and usable facts and techniques in order to apply the most efficient methods.	I can use firmly established, memorable and usable facts and techniques in order to apply the most efficient methods.
			I can use checking strategies to decide if answers are reasonable.	I can select and apply appropriate checking strategies.	I can select and apply appropriate checking strategies.	I can select and apply appropriate checking strategies.
				I can use a calculator effectively and efficiently to carry out calculations.	I can use a scientific calculator effectively and efficiently to carry out calculations.	I can use a scientific calculator effectively and efficiently to carry out calculations.



Discuss...

- What makes numeracy different from teaching math?
- How does the Numeracy Framework support progression?
- How can numeracy be naturally embedded across Curriculum Wales rather than being taught separately?

Teaching Cross-Curricular

Padlet

Bethan Sturrock • 5m

Ideas for cross-curricular (Numeracy) activities

Bethan Sturrock
3 minutes ago

1. Science: Which Material is the Most Waterproof?
Numeracy focus: Measuring, recording and interpreting data
Activity: Learners investigate different materials by measuring how much water passes through each one over a set time. They:

- Measure volumes of water (ml)
- Record results in a table
- Calculate totals or averages (upper KS2)

+ Add comment

Bethan Sturrock
2 minutes ago

2. Geography: Planning a School Trip
Numeracy focus: Money, time and problem-solving
Activity: Learners are given a budget (e.g. £600) and must plan a class trip. They need to:

- Calculate transport costs
- Compare entry prices
- Work out the total cost per pupil

+ Add comment

Bethan Sturrock
1 minute ago

3. PE and Health & Well-being: Olympic Data Challenge
Numeracy focus: Statistics and averages
Activity: Learners complete physical challenges such as:

- Sprinting
- Standing long jump

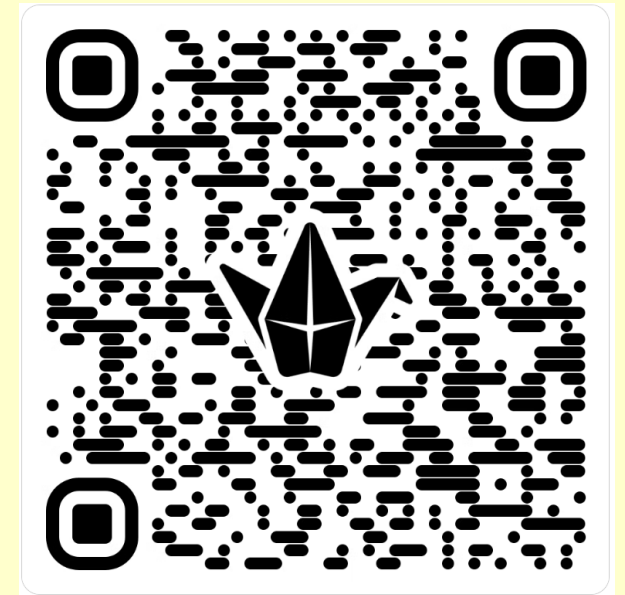
They then:

- Measure times or distances
- Record results in tables
- Find the highest, lowest and average scores

+ Add comment

Please add your ideas to the padlet below.

<https://padlet.com/bsturrock7/ideas-for-cross-curricular-numeracy-activities-27xrqfjbe4q4wgqf>



Planning Numeracy across the curriculum.

Task

- Select a year group (Year 4 or Year 6).
 - Select one strand from the Numeracy Framework
 - Identify one numeracy expectation that is appropriate for your chosen year group.
 - Design a 20-30 minute activity that teaches this skill through another curriculum area
 - (e.g. science, humanities, expressive arts).
-
- What Numeracy Framework skill are you developing.
 - Learning objective and success criteria.
 - How the activity is interesting and meaningful.
 - How would you differentiate for learners with different needs.
 - How you would assess whether learners have achieved the objective.

Prifysgol Cymru Y Drindod Dewi Sant University of Wales Trinity Saint David		Yr Athrofa Centre for Education Addysg i Gymru Education for Wales	
Darpar athro:		Dosbarth / Grŵp	
MDPh neu Bwnc:		Dyddiad (rwyf i gollu y soriem hon i'w gwneud)	
Cysylltiadau ystyrlon â'r Cwricwlwm (Datganiadau o'r hyn sy'n rhyng, llyfrllydau dygu, y cwricwlwm 'Sarnod'...)			
Cysylltiadau ystyrlon ar draws y Cwricwlwm (Cysylltiadau â MDPau swydd neu'r llyfrllydau addysg 'Sarnod'...)			
Targedau Personol (Targedau a'r effaith ganlyniadol ar ddysgu – cyfeirir at unrhyw dargedau sydd wedi'u nodi yn y dyddiwr dygu neu gyfarfod diagnostig y'r effaith a ddymuni'r ar ddysgu)			
Bwriad Dygu Dylai hyn ganiatáu i'r ysgolwyr y dygu gan y dyddiwr yn ystod y weir, yn hytrach na'r hyn y byddant yn ei wneud, a dylai fod yn ffrwyth y gwaith a'u H. a McDiarmid, A. 2016:1, 190.			
Meini prawf llywyddiant Yr hyn mae angen i'r dyddiwr ei ddangos i fodoni'r Bwriad Dygu yn llywyddiant.			