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Llygaid Mathemateg FP Christmas Edition 2015

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The Llygaid Mathemateg Concept

- Adults believe that the real world mathematics they can do in life and work is just 'common sense' the real world mathematics they can't do is mathematics.
- Having 'Llygaid Mathemateg' changes the view of mathematics as being something everyone does in school. With 'Llygaid Mathemateg' people see the mathematics they do every day - mathematics becomes real and meaningful.

Why is it important to have Llygaid Mathemateg?

- Having 'Llygaid Mathemateg' encourages the use of the real world as a starting point for the relevant exploration in the maths world.
- We need to model and teach mathematical language explicitly, giving children time and opportunity to practice the specific vocabulary for each area of maths. 'Llygaid Mathemateg' can be used as a starting point for mathematical language acquisition and development.
- Having 'Llygaid Mathemateg' promotes the usefulness of mathematics – Everyone has 'Llygaid Mathemateg' they just need to be opened.
- Having 'Llygaid Mathemateg' builds confidence in mathematics.
- Having 'Llygaid Mathemateg' provides excellent opportunities for linking education (primary, secondary, adult) and community.
- Having 'Llygaid Mathemateg' provides a platform for adults and children to share their maths eyes in their everyday life whether they are shopping, walking, driving, at sports events – everywhere. Open a channel for dialogue about real world mathematics.
- 'Llygaid Mathemateg' provides parents with opportunities to talk about mathematics that are not related to homework.
- Having 'Llygaid Mathemateg' promotes active citizenship and informed decision making.
- When teachers, and tutors have 'Llygaid Mathemateg' they can identify real world starting points for mathematics teaching and learning that are relevant to the social, cultural and educational context of their learners.
- Developing 'Llygaid Mathemateg' helps to create a new inheritance for future generations –'we are all real world maths people'.
- Developing 'Llygaid Mathemateg' resonates with the philosophy and approach to learning which underpin the curriculum in Wales e.g. 'A Curriculum for Wales, a Curriculum for Life' and the LNF.

How to use Llygaid Mathemateg images

- Llygaid Mathemateg can be used as a starting point for a topic, as a plenary activity or at a regular time in the school day such as a morning task or settling down task after play.
- Each image has some question prompts for the adult leading the discussion. These questions have been aligned to the 'Curriculum for Wales: revised Areas of Learning' for Foundation Phase and can be used as a starting point for developing questions appropriate for the learners discussing the image. It is not an exhaustive list of questions and teachers should tailor the questions to suit their class. As staff and learners become more familiar with 'Llygaid Mathemateg' they will begin to develop their own mathematical questions.
- 'Make it Reasoning' ideas are also available for each image and these could be completed verbally, used as a resource for a guided reasoning group or printed for learners to complete individually.

1
8
3
23
14
7
15
22
9
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2
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17
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24
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12

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Remember to start with general questions about the picture

- What do you think this is?
- Do you have one of these at home?
- Why does it have numbers on it?
- What might be behind the numbers?
- Have you been anywhere like the picture?
- What time of year do you think it is?

Put your "Llygaid Mathemateg" on. What do you see now?

Llygaid Mathemateg

- What shapes are the number boxes?
- Are all the boxes the same shape?
- What other shapes can you see?
- Can you find any right angles?
- How many number boxes are there?
- Which number has the largest box?
- How many small boxes tall is the largest box?
- Find number 2.
- What is the largest number?
- What is the smallest number?
- What number is above 24? Below 17?
- Where is the 22nd box?
- What is the fourth number in the first row?
- Describe where the doubles for these numbers are. 1 2 3 4 5 6 7 8 9 10
- Where is the number that is one less than the fifth number in the second row?
- If you opened box 11 on a Sunday, what day would you open box 14?

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The number 2 is half of 4 and double 1. Find all the other numbers that are half of one number on the calendar and double another number on the calendar.

Advent Calendar 'Make it Reasoning

How many numbers on the calendar can you make by adding/subtracting 9 or 11 to other numbers on the calendar?

How many ways can you find to sort the numbers using one or two criterion?

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Make it reasoning....

True or false? Half the numbers on the calendar are odd.
Convince me. There are more two digit numbers than one digit numbers on the calendar.

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Remember to start with general questions about the picture

- What do you think these are?
- Where might you find them?
- What do you do with them?

Put your "Llygaid Mathemateg" on. What do you see now?

- What time of year would you have these?
- What shapes are the presents?
- What other shapes can you see?
- Can you find any right angles?
- Can you see any patterns?
- What colour Santa hat would be next?
- What colour is the third Santa hat?
- What colour would the eighth Santa hat be?
- Is the first Santa smaller than the fourth Santa?
- What colour hat is to the right of the third Santa?
- What fraction of the presents have red dots?
- If we ate a Santa, how many would we have left?
- How many dots can you see on the presents?
- If there weren't any red dots, how many dots would there be?
- If all the presents have the same number of dots, how many dots are there?

The first, third and fifth Santa hats are gold. The second and fourth Santa hats are red. What colour will the 17th hat be?

Chocolate Santa 'Make it Reasoning

What colour will the 56th hat be?
Will it be the same colour as the 79th hat?
How do you know?

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Make it reasoning....

True or false? Half the Santa hats are red.

Convince me. If there were 20 Santa hats, there would be 10 gold hats.

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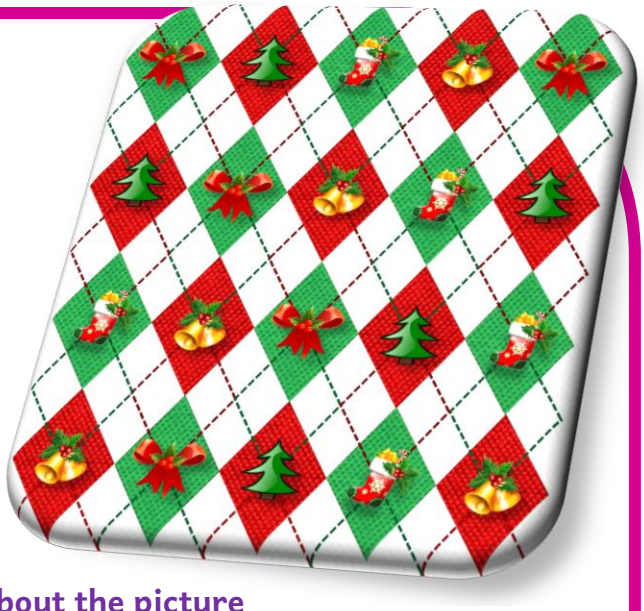

Remember to start with general questions about the picture

- What do you think this might be?
- When would this be used?
- Would you use it? Why/why not?

Put your "Llygaid Mathemateg" on. What do you see now?

Llygaid Mathemateg

- What shapes can you see?
- How many coloured diamonds can you see?
- What properties does a diamond have?
- Can you find any right angles?
- Can you show me a half/quarter of a diamond?
- What fraction has each coloured diamond been divided into?
- Can you find a line of symmetry in any of the diamonds?
- Can you see any patterns?
- If you could see the next line on the bottom of the paper what do you know you would see?
- How many different colours have been used?
- How many Christmas trees/bells/stockings/bows are there?
- If you had one more Christmas tree, how many would you have?
- Add the green diamonds in the 2nd and 4th lines. How many are there?
- Take away all the coloured diamonds with Christmas trees on. How many are left?
- Which Christmas symbol is on the fourth coloured diamond? What is the position and colour of the other diamonds it is on?
- Which Christmas symbol is above the bells on the third line?
- Which multiplication table will help you count the coloured diamonds?

The penguin is hiding some diamonds.
How many green diamonds altogether?

Christmas Paper 'Make it Reasoning

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Make it reasoning....

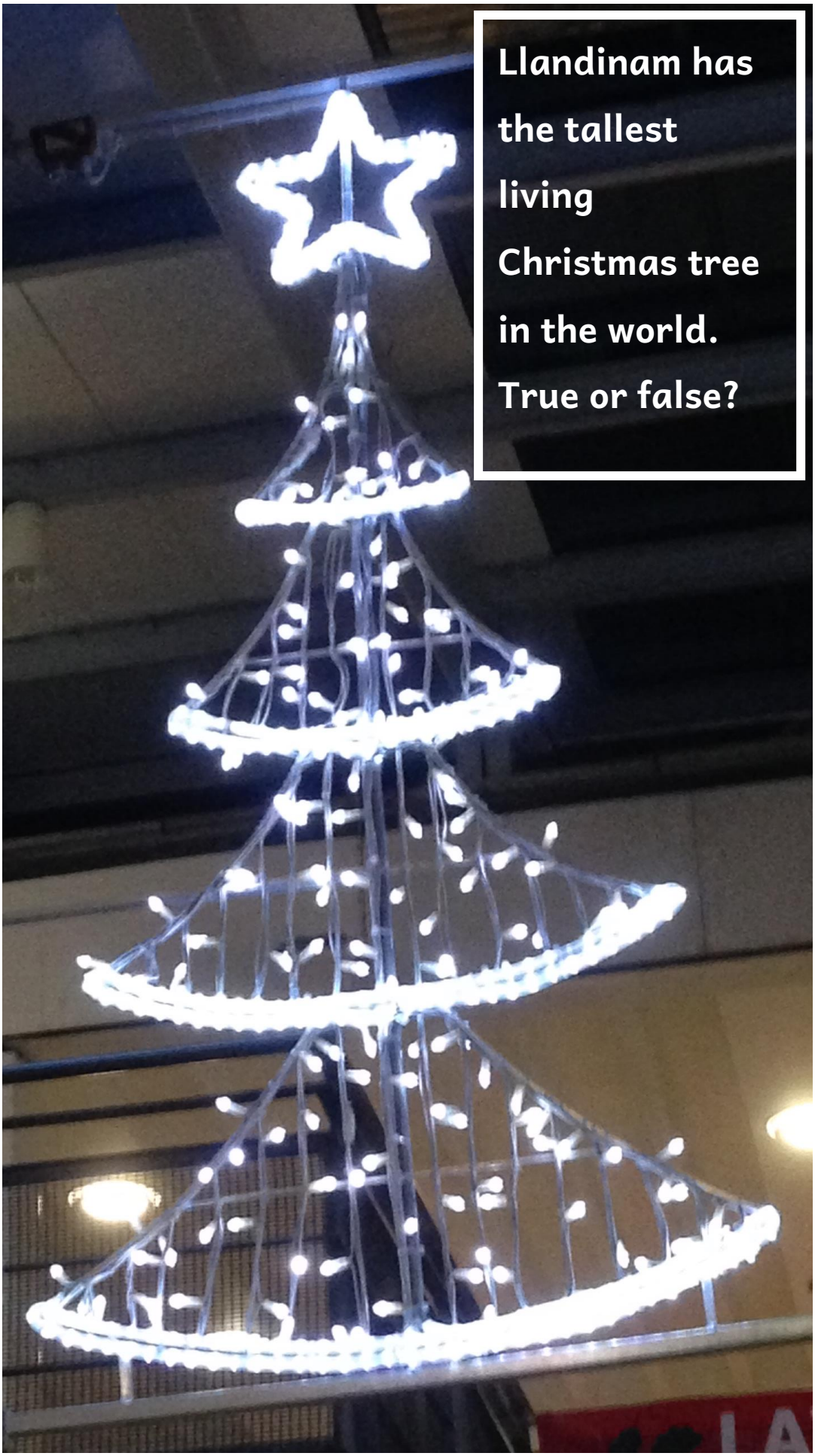
True or false? Half the coloured diamonds are red.

Convince me. The diamond below the 2nd diamond in the 4th row would be a red diamond with a Christmas tree.

How long will it take Santa to get around the world on his sleigh?

All stars have five points.

True or false?


Llandinam has the tallest living Christmas tree in the world. True or false?

Llygaid Mathemateg Posters mapped to POS skills

Foundation Phase Mathematical Development Area of Learning					
		NURSERY	RECEPTION	YEAR 1	YEAR 2
Developing numerical reasoning	Identify processes and connections	transfer mathematical skills to play and classroom activities	transfer mathematical skills to play and classroom activities	transfer mathematical skills to play and classroom activities	transfer mathematical skills to play and classroom activities
		All appropriate numerical reasoning activities			
		identify steps to complete the task or reach a solution	identify steps to complete the task or reach a solution	identify steps to complete the task or reach a solution	identify steps to complete the task or reach a solution
		Christmas Paper	**Christmas Paper**	**Christmas Paper** **Chocolate Santa**	**Christmas Paper** **Chocolate Santa**
		select appropriate mathematics and techniques to use	select appropriate mathematics and techniques to use	select appropriate mathematics and techniques to use	select appropriate mathematics and techniques to use
		Christmas Paper	**Christmas Paper**	**Christmas Paper** **Chocolate Santa**	**Christmas Paper** **Chocolate Santa**
		select and use relevant number facts and mental strategies	select and use relevant number facts and mental strategies	select and use relevant number facts and mental strategies	select and use relevant number facts and mental strategies
		Christmas Paper	**Christmas Paper**	**Christmas Paper** **Chocolate Santa**	**Christmas Paper** **Chocolate Santa**
		select appropriate equipment and resources	select appropriate equipment and resources	select appropriate equipment and resources	select appropriate equipment and resources
		use knowledge and practical experience to inform estimations	use knowledge and practical experience to inform estimations	use knowledge and practical experience to inform estimations	use knowledge and practical experience to inform estimations

Llygaid Mathemateg Poster mapped to POS skills

Foundation Phase Mathematical Development Area of Learning					
		NURSERY	RECEPTION	YEAR 1	YEAR 2
Developing numerical reasoning	Represent and communicate	use everyday and mathematical language to talk about their own ideas and choices	use everyday and mathematical language to talk about their own ideas and choices	use everyday and mathematical language to talk about their own ideas and choices	use everyday and mathematical language to talk about their own ideas and choices
		All appropriate numerical reasoning activities			
		present work orally, pictorially and in written form, and use a variety of ways to represent collected data	present work orally, pictorially and in written form, and use a variety of ways to represent collected data	present work orally, pictorially and in written form, and use a variety of ways to represent collected data	present work orally, pictorially and in written form, and use a variety of ways to represent collected data
		Christmas Paper	**Christmas Paper**	**Christmas Paper** **Chocolate Santa**	**Christmas Paper** **Chocolate Santa**
		devise and refine informal, personal methods of recording, moving to using words and symbols in number sentences	devise and refine informal, personal methods of recording, moving to using words and symbols in number sentences	devise and refine informal, personal methods of recording, moving to using words and symbols in number sentences	devise and refine informal, personal methods of recording, moving to using words and symbols in number sentences
				Chocolate Santa	**Chocolate Santa**
	Review	use checking strategies to decide if answers are reasonable	use checking strategies to decide if answers are reasonable	use checking strategies to decide if answers are reasonable	use checking strategies to decide if answers are reasonable
		Christmas Paper	**Christmas Paper**	**Christmas Paper** **Chocolate Santa**	**Christmas Paper** **Chocolate Santa**
		interpret answers within the context of the problem and consider whether answers are sensible	interpret answers within the context of the problem and consider whether answers are sensible	interpret answers within the context of the problem and consider whether answers are sensible	interpret answers within the context of the problem and consider whether answers are sensible
		Christmas Paper	**Christmas Paper**	**Christmas Paper** **Chocolate Santa**	**Christmas Paper** **Chocolate Santa**
		interpret information presented in charts and diagrams and draw appropriate conclusions	interpret information presented in charts and diagrams and draw appropriate conclusions	interpret information presented in charts and diagrams and draw appropriate conclusions	interpret information presented in charts and diagrams and draw appropriate conclusions

Llygaid Mathemateg Poster mapped to POS skills

Foundation Phase Mathematical Development Area of Learning

		NURSERY	RECEPTION	YEAR 1	YEAR 2
Using number skills	Use number facts and relationships	**listen to and join in with rhymes, songs, stories and games that have a mathematical theme**	**recite a range of number rhymes and songs**		
		realise that anything can be counted, not just objects, *e.g. claps, steps*			
		count reliably up to 5 objects	count reliably up to 10 objects	count reliably up to 20 objects	count sets of objects by grouping in 2s, 5s or 10s
		recite numbers from 0 to 10 forwards and backwards using songs and rhymes	**recite numbers up to 20, forwards and backwards, and from different starting points**	**recite numbers up to 100, forwards and backwards and from different starting points**	**recite numbers beyond 100, forwards and backwards and from different starting points**
		recognise numbers 0 to 5 and relate a number 0 to 5 to its respective quantity	read and write numbers to at least 10	read and write numbers to at least 20 **forming and orientating them correctly**	read and write numbers **to at least** 100
		use mark making to represent numbers in play activities that can be interpreted and explained			
		compare and order numbers to at least 5	compare and order numbers to at least 10	compare and order numbers to at least 20	compare and order 2-digit numbers
		demonstrate an understanding of one-to-one correspondence by matching pairs of objects or pictures	**understand that zero means 'none'**	**demonstrate an understanding of place value, *e.g. one 10 and four units equal 14*, up to at least 20**	**demonstrate an understanding of place value up to at least 100**
			use number facts up to 5	use number facts within 10, i.e.: doubling and halving, *e.g. 4 + 4* bonds of 10, *e.g. 6 + 4*	use mental recall of number facts to 10 to derive other facts, i.e.: doubling and halving, *e.g. derive 40 + 40 from knowing 4 + 4* bonds of 10, *e.g. derive 60 + 40 from knowing 6 + 4*
				recall doubles and near doubles up to 10	**recall doubles up to 20**
				recognise and understand odd and even numbers up to 20	**recognise and understand odd and even numbers up to 100**
			count in 2s to 10 and in 10s to 100	**count in 2s, 10s and 5s to 100**	**count on in 2s, 5s and 10s from any given number**
					recall and use 2, 5 and 10 multiplication tables
					begin to link multiplication with simple division, *e.g. grouping and sharing in 2s, 5s and 10s*
		use the terms 'first', 'second', 'third' and 'last' in daily activities and play	**use ordinal numbers to 10 in daily activities and play**	**use ordinal numbers to 20 in practical situations**	**use and record ordinal numbers in practical situations**
			begin to read number words	**read and write number words to 10**	**read and write number words to 100**
		Signposts **Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Signposts** **Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Signposts** **Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa** **Advent Calendar**

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Llygaid Mathemateg Poster mapped to POS skills

Foundation Phase Mathematical Development Area of Learning

Using number — Fractions,

NURSERY	RECEPTION	YEAR 1	YEAR 2
		find halves in practical situations	find halves and quarters in practical situations
		recall halves up to 10	**partition 2-digit numbers and know the value of each digit**
		Christmas Paper **Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa**

Foundation Phase Mathematical Development Area of Learning

Using number skills — Calculate using mental and

NURSERY	RECEPTION	YEAR 1	YEAR 2
understand and use the concept of 'one more' in their play	**mentally recall 'one more' of a number within 10**	**mentally recall 'one more' of a number within 20**	**mentally add 10 or 20 to a given number up to 100**
understand and use the concept of 'one less' in their play	**mentally recall 'one less' of a number within 10**	**mentally recall 'one less' of a number within 20**	**mentally subtract 10 or 20 from a given number up to 100**
	combine two groups of objects to find 'how many altogether?'	use 'counting on' strategies to add two collections, starting with the larger number, *e.g. 8 + 5*	find small differences within 20 by using 'counting on' strategies
	take away objects to find 'how many are left?'	add and subtract numbers involving up to 10 objects	use mental recall of number facts to 10 and place value to add or subtract larger numbers, *e.g. 24 + 4, 30 + 5, 34 + 10*
Christmas Paper **Chocolate Santa**	**Signposts** **Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Signposts** **Christmas Paper** **Chocolate Santa**

Foundation Phase Mathematical Development Area of Learning

Using number skills — Calculate using mental and written methods

NURSERY	RECEPTION	YEAR 1	YEAR 2
		use a range of strategies to mentally solve problems within 10	**find a small difference between two numbers by counting on, *e.g. 44 – 28 = ¨***
use counting to solve simple mathematics problems in everyday and play situations	**solve simple problems in a practical situation that involve simple addition and subtraction up to 5**	**solve one-step problems that involve addition and subtraction, including missing number problems, *e.g. 7 + ¨ = 9,* using concrete objects and pictorial representations**	**solve one- and two-step problems that involve addition and subtraction, multiplication and simple division including missing number problems, *e.g. 40 – ¨ = 19***
		use known facts to solve simple problems within 10, *e.g. doubling and halving, number bonds*	**use partitioning strategies to double and halve 2-digit numbers**
		use known number facts when adding three single digit numbers and realise addition can be done in any order	**understand that multiplication is repeated addition, *e.g. 2 + 2 + 2 is the same as 'three twos'***
			add/subtract 9 or 11 from given number by adding/subtracting 10 and adjusting
	talk about addition and subtraction instructions in play activities	**understand and use the mathematical symbols for addition, subtraction and equals**	**understand and use mathematical symbols for addition, subtraction, multiplication, division and equals**
		understand and use the different mathematical terms for addition and subtraction, *e.g. add, combine, find the difference*	**understand and use the different mathematical terms for addition, subtraction, multiplication, division and equals, *e.g. find the total, share, goes into***
		Chocolate Santa	**Signposts** **Christmas Paper** **Advent Calendar**

Llygaid Mathemateg Poster mapped to POS skills

Foundation Phase Mathematical Development Area of Learning

Using number skills – Estimate and check	NURSERY	RECEPTION	YEAR 1	YEAR 2
		make a sensible estimate of up to 10 objects that can be checked by counting	make a sensible estimate of a number of objects that can be checked by counting	use checking strategies: repeat addition in a different order use halving and doubling within 20
			make a sensible estimate of measurement in length, height, weight and capacity that can be checked using non-standard measures	**make a sensible estimate of measurement in length, height, weight and capacity that can be checked using standard measures**
		Signposts **Chocolate Santa**	**Signposts** **Chocolate Santa** **Advent Calendar**	**Chocolate Santa** **Advent Calendar**

Foundation Phase Mathematical Development Area of Learning

Using – Manage money	NURSERY	RECEPTION	YEAR 1	YEAR 2
	demonstrate an awareness of the purpose of money through role play	use 1p, 2p, 5p and 10p coins to pay for items	use different combinations of money to pay for items up to 20p	use different combinations of money to pay for items up to £1
			find totals and give change from 10p	find totals and give change from multiples of 10p

Foundation Phase Mathematical Development Area of Learning

Using measuring skills – Length, weight/mass,	NURSERY	RECEPTION	YEAR 1	YEAR 2
	compare, sort and order two objects in terms of size, weight or capacity by direct observation	use direct comparisons with: length, height and distance, *e.g. longer/shorter than* weight/mass, *e.g. heavier/lighter than* capacity, *e.g. holds more/less than*	use non-standard units to measure: length, height and distance weight/mass capacity	use standard units to measure: length, height and distance: metres, half metres or centimetres weight/mass: kilograms or 10 gram weights capacity: litres
				use symbols related to length, weight/mass and capacity
	Advent Calendar	**Chocolate Santa** **Advent Calendar**	**Advent Calendar**	

Foundation Phase Mathematical Development Area of Learning

Using measuring skills – Time	NURSERY	RECEPTION	YEAR 1	YEAR 2
				read hours and minutes on a 12-hour digital clock
	anticipate events related to elements of daily routines and use the terms 'before' and 'after'	use the concept of time in terms of their daily activities	use the concept of time in terms of their daily and weekly activities and the seasons of the year	
	sing/chant the days of the week	**sing/chant the days of the week, months and seasons of the year in meaningful contexts, *e.g. when changing the class calendar***	**understand and order the days of the week, the months and seasons of the year in meaningful contexts**	**record the days of the week, the months and seasons of the year**
		demonstrate a developing sense of how long tasks and everyday events take	use standard units of time to read 'o'clock' using both analogue and 12-hour digital clocks	read 'half past', 'quarter past' and 'quarter to' on an analogue clock
		Chocolate Santa	**Chocolate Santa** **Advent Calendar**	

Llygaid Mathemateg Poster mapped to POS skills

Foundation Phase Mathematical Development Area of Learning

Using – Temperature

NURSERY	RECEPTION	YEAR 1	YEAR 2
use words that describe temperature during everyday activities, *e.g. hot/cold*	use direct comparisons when describing temperature, *e.g. hot/cold*	use descriptive words for a range of temperatures, *e.g. cooler/warmer*	compare daily temperatures using a thermometer (°C)

Foundation Phase Mathematical Development Area of Learning

Using measuring skills – Area and volume Angle

NURSERY	RECEPTION	YEAR 1	YEAR 2
follow two-step instructions for simple movements within games and play activities	move in given directions	make whole turns and half turns	recognise half and quarter turns, clockwise and anti-clockwise recognise that a quarter turn is a right angle
demonstrate an awareness of prepositions and movement during their own physical activities	**use prepositions to describe position**	**describe position, direction and movement**	**use mathematical vocabulary to describe position, direction and movement**
	Chocolate Santa **Advent Calendar**	**Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa** **Advent Calendar**

Foundation Phase Mathematical Development Area of Learning

Using geometry skills – Shape

NURSERY	RECEPTION	YEAR 1	YEAR 2
recognise and use the names for 2D shapes (*circle, square and triangle*) within play activities and the environment	**recognise and name common 2D shapes (*circle, square, triangle and rectangle*) and some 3D shapes (*cube, cuboid and sphere*) within play activities and the environment**	**recognise and name common 2D shapes (*square, triangle, rectangle, circle and semi-circle*) and 3D shapes (*cube, cuboid, cone and sphere*) in order to begin to compare and sort**	**recognise and name regular and irregular 2D and 3D shapes, understand and use the properties of shape**
use and build with 2D and 3D shapes within play-based activities	**use 2D and 3D shapes to make models and pictures**	**use 2D and 3D shapes and describe how they fit together**	**make increasingly more complex or accurate models with 3D shapes and tessellate 2D shapes**
Christmas Paper **Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa** **Advent Calendar**	**Christmas Paper** **Chocolate Santa** **Advent Calendar**

Foundation Phase Mathematical Development Area of Learning

Using geometry skills – Movement

NURSERY	RECEPTION	YEAR 1	YEAR 2
use a variety of media to develop concept of symmetry	**complete a simple symmetrical picture through a variety of media**	**recognise and complete a symmetrical picture or simple shape**	**identify a line of symmetry for 2D shapes and complete symmetrical pictures**
			Christmas Paper

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Foundation Phase Mathematical Development Area of Learning					
		NURSERY	RECEPTION	YEAR 1	YEAR 2
Using data skills	Collect and record data Present	sort and match sets of objects by recognising similarities	sort and classify objects using one criterion	sort and classify objects using more than one criterion	**sort and classify objects using more than two criterion**
		use mark making to begin to record collections	record collections using marks, numbers or pictures	collect information by voting or sorting and represent it in pictures, objects or drawings	gather and record data from: lists and tables diagrams block graphs pictograms where the symbol represents one unit
				make lists and tables based on data collected	extract and interpret information from lists, tables, diagrams and graphs
		Signposts **Chocolate Santa** **Advent Calendar**	**Signposts** **Chocolate Santa** **Advent Calendar**	**Advent Calendar**	**Advent Calendar**

Foundation Phase Mathematical Development Area of Learning					
		NURSERY	RECEPTION	YEAR 1	YEAR 2
Using data skills	Pattern	**copy a range of simple patterns and sequences visually and aurally, *e.g. clapped patterns, threading activities***	**recognise and repeat three object/colour/clapped patterns and sequences**	**demonstrate an understanding of repeating patterns, including shape and number, by describing, reproducing and extending.**	**order and identify patterns in combinations of mathematical objects, including number and number tables, and discuss the relationship between them.**
		Chocolate Santa		**Chocolate Santa**	