



Ysgol John Bright



Centre of Excellence

Ysgol John Bright

Numeracy

The school is working on a project to support all schools in the GWE consortia. This includes an overview of a survey conducted across the consortia and examples of the resources being developed. You will be provided with the latest information on numeracy and the numeracy project by the end of the session. Included will be some quick ideas on promoting numeracy across the school, an understanding of the differences between mathematics and numeracy, and examples of tasks that are enriching.

Presentation by: Delyth Ellis - Maths, GwE Lead school for KS3 Numeracy, Ysgol John Bright.

RHIFEDD YN CA3 NUMERACY AT KS3

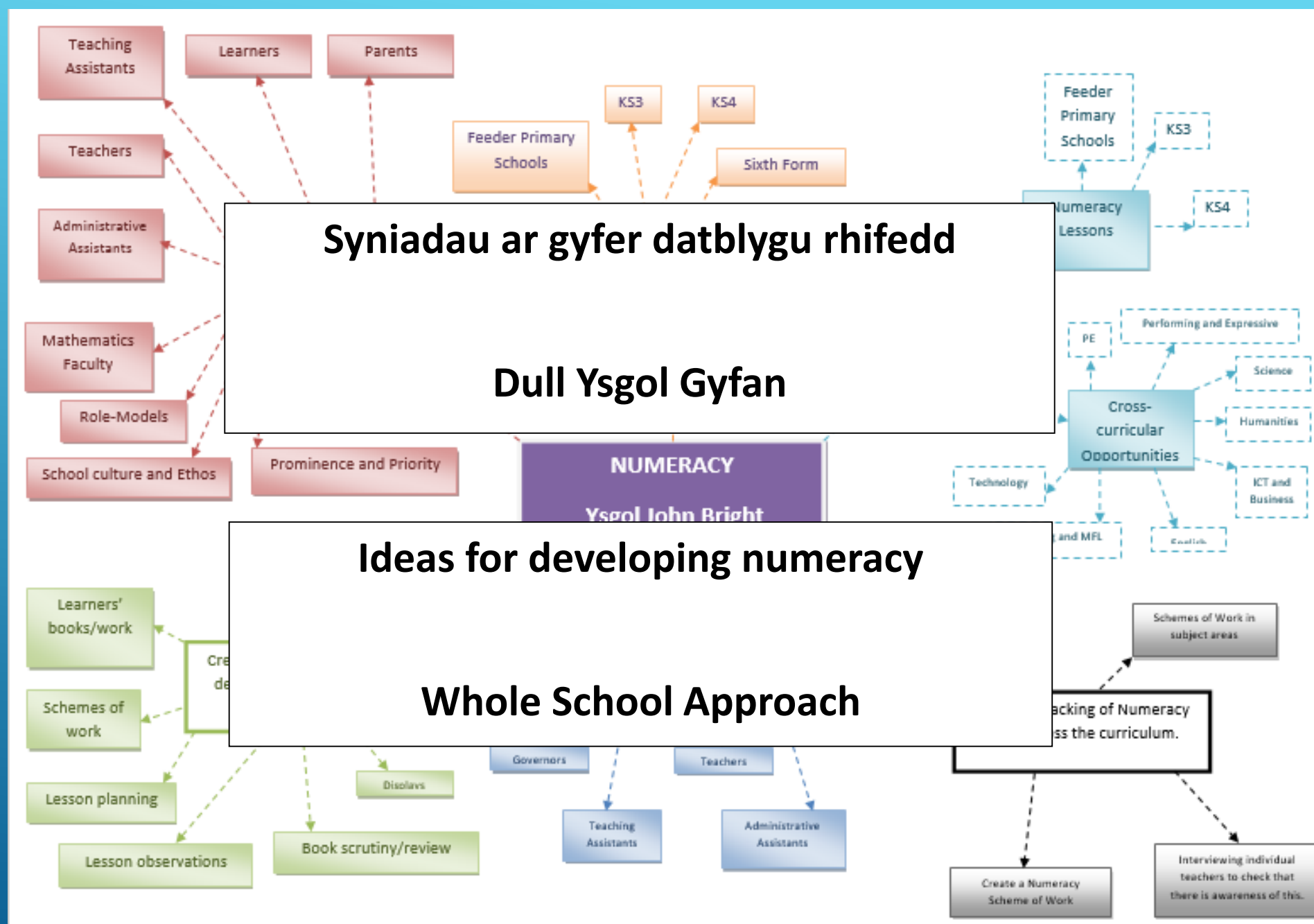
Rhifedd yng nghwricwlwm CA3 – y newidiadau o'n blaen.

Numeracy within the KS3 curriculum – the changes ahead.

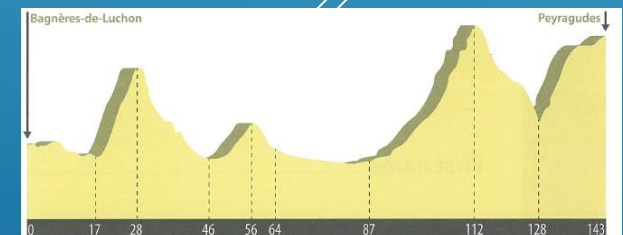
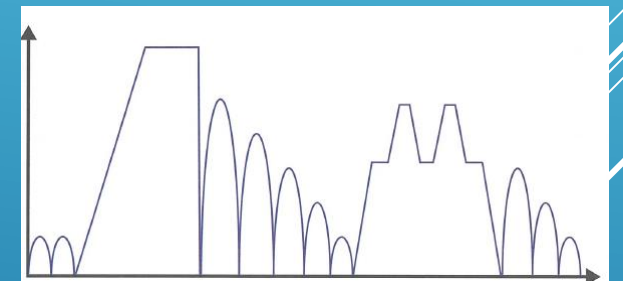
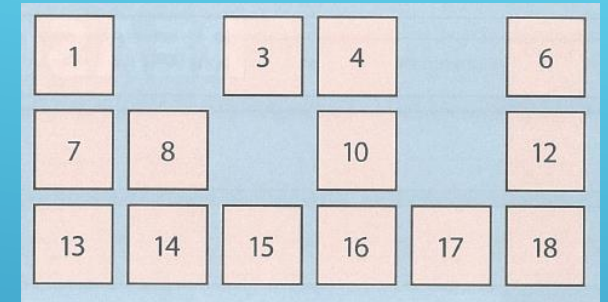
Delyth Ellis, Numeracy Co-ordinator. Ysgol John Bright

“ COMPETENCY IN NUMERACY IS ESSENTIAL FOR INDEPENDENT LIVING AND WORK... CHILDREN AND YOUNG PEOPLE NEED REGULAR OPPORTUNITIES TO DEEPEN THEIR UNDERSTANDING OF NUMBER AND... TO REINFORCE AND USE THEIR NUMERACY SKILLS IN DIFFERENT CONTEXTS.... IT IS IMPORTANT THAT ALL TEACHERS... HAVE AN UNDERSTANDING OF HOW BEST TO REINFORCE THESE SKILLS ”

Adroddiad Donaldson (2015) / Donaldson's Report (2015)



Pecynnau ar y byrddau
Packs on the tables



TRACIO AC ADRODD I RIENI

TRACKING AND REPORTING TO PARENTS

Year Group	Code	Strand	Elements	Learners should be able to...	Maths	Science	History	Geography	Art	Music	PSHE	RE	DT	WFL	WLB	WLB	WLB	Reporting on
5	D2	Using data skills	Collect and record data	test hypotheses, making decisions about how best to record and analyse the information from large data sets	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	D3	Using data skills	Present and analyse data	select and justify statistical model appropriate to the problem considering relevant values (nullivers)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	English
5	D3a	Using data skills	Interpret results	examine results critically, select and justify choice of statistical reasoning the limitations of any assumptions and their effect on the conclusions drawn	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Welsh
5	D4	Using data skills	Collect and record data	construct and interpret graphs and diagrams (including pie charts) to represent discrete or continuous data, with the learner choosing an appropriate scale	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	D5	Using data skills	Interpret results	use appropriate mathematical instruments and methods to construct accurate drawings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	English
5	M18	Using measuring skills	Area and volume	find areas of circles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M2	Using measuring skills	Length, weight/mass, capacity	find circumferences of circles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M3	Using measuring skills	Length, weight/mass, capacity	make links between speed, distance and time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M8	Using measuring skills	Temperature	convert temperatures between appropriate temperature scales	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M9	Using measuring skills	Angle and position	apply understanding of bearings and plans on	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M18	Using number skills	Fractions, decimals, percentages & ratios	express one quantity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M18a	Using number skills	Fractions, decimals, percentages & ratios	calculate a price	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M14	Using number skills	Fractions, decimals, percentages & ratios	use ratio and proportion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M12	Using number skills	Calculate using mental and written methods	use official written methods to add, including a mixture of large and small	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M13	Using number skills	Calculate using mental and written methods	multiply and divide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M14	Using number skills	Calculate using mental and written methods	use the order of operations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M15a	Using number skills	Estimate and check	choose the appropriate division	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE
5	M18	Using number skills	Measure money	calculate using four	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RE

Literacy and Numeracy in Subject

■ has the ability to choose an appropriate mental or written strategy and know when it is appropriate to use a calculator with challenging, real-life problems within the numeracy lessons.

Literacy and Numeracy in Subject

When writing about his best friend ■ is able to use a range of punctuation to convey his ideas. He is able to spell familiar words accurately and his handwriting is consistently neat and tidy.

When writing about his best friend, ■ is able to construct sentences which connect ideas together and show main and subsidiary points clearly.

When analysing class surveys about television and film, ■ can construct and interpret graphs and diagrams (including pie charts) to represent discrete or continuous data, choosing an appropriate scale.

The work of ■ is consistently accurate, using punctuation and paragraphs very confidently when writing about his best friend.

Surname Forename	Ma/NR3 Full Report - Yr09	Ma/NR4 Full Report - Yr09	Ma/NR8 Full Report - Yr09	Ma/RA4 Full Report - Yr09	Mu/WL2 Full Report - Yr09	MU/WL2 Full Report - Yr09	RE/D2 Full Report - Yr09	RE/NR10 Full Report - Yr09	RE/RA3 Full Report - Yr09	RE/WL1 Full Report - Yr09
	4	4	4	4	4	2	1	1	1	1
	3	2	2	2	2	3	1	1	1	1
	3	3	3	2	1	2	2	1	1	1
	3	3	3	3	2	2	2	1	1	1
	2	2	2	2	3	2	1	1	1	1
	2	2	2	2	2	2	2	1	1	1
	2	2	2	2	2	2	1	1	1	1
	3	3	3	2	2	2	1	1	1	1
	2	2	2	2	2	2	1	1	1	1
	2	2	2	2	1	3	1	1	1	1
	1	2	2	2	1	2	1	1	1	1
	2	2	2	2	2	2	1	1	1	1
	4	4	4	4	2	2	1	1	1	1
	4	4	4	4	1	2	2	1	1	1
	2	2	2	2	1	1	1	1	1	1
	4	4	4	4	1	2	1	1	1	1
	3	3	3	3	1	2	1	1	1	1

YSGOL ARWEINIOL RHIFEDD CA3 LEAD SCHOOL FOR NUMERACY AT KS3

Y Coetsis
Allwch rannu'r teuluoedd i'r coetsis fel nad oes angen gwahanu teuluoedd unigol? Mae pob coets yn dal 11 person.

Can you assign the families to the coaches without splitting any families up? Remember, each coach seats 11 people.

Teulu 'Jones' Family

Teulu 'Williams' Family

Teulu 'Robinson' Family

Teulu 'Huws' Family

Teulu 'Roberts' Family

Teulu 'Parry' Family

Teulu 'Tyler' Family

Y Gogarth ~ The Great Orme
Roedd Mr a Mrs Martin wedi blino ar ol cerdded ar y Gogarth, felly penderfynon nhw ddal y car cebl lawr o'r copa. Darlennodd Mr Martin yn ei lyfryn gwybodaeth bod y weiren sy'n dal y ceir cebl yn 3 cilometr mewn hyd. Mae'n amcangyfrif fod 250 medr rhwng pob car cebl.

Mr and Mrs Martin after their walk on the Great Orme. Mr Martin's leaflet that the cars are 3km long that there are 250 between each car. If his estimate is correct, how many individual cable cars should there be?

Rhifedd@YJB Dyddiau allan yng Nghonwy

Days out in Conwy Numeracy@YJB

Sw Mynyddig Cymreig ~ The Welsh Mountain Zoo

The Robinson's family decide to visit the Mountain Zoo in Colwyn Bay. Mr and Mrs Robinson have two children, Bethan who is 12 years old and Sioned who is 5 years old. Below are the admission prices

Adult (16+ years) - £10.95
Children (3-15 years inclusive) - £8.25
Family Ticket (2 adults and 2 children) - £34.55

Mr Robinson decides he says it will be 12.50 for the family.

Y Gogarth ~ The Great Orme

The Martins family love bird watching and there are many to see on the Great Orme! They decide to keep a record of the birds which they see during their walk on the Orme. They see 60 birds!

The birds they see are Guillemots, Kittiwakes, razorbills and Ravens. Calculate how many ravens the Martins spotted?

Sioe Cyfarfod y Tsimpansi	11:30, 13:00, 14:30, 16:00	Chimp encounter show
Sioe Fferm y Plant	13:30	Children's farm show
Sw yn cau	18:00	Zoo closes

Disgrifiad / Description	Amseriad / Timing	Sut / How?
Creu taflenni 'powerpoint' ar gyfer yr holl agweddau rhifedd gwrthianol. Create powerpoint slides for all of the procedural numeracy aspects.	Erbyn 24^{ain} Ebrill, 2015. By the 17th April 2015.	Cyfarfod Pennaethiaid Mathemateg (GwE) Head of Mathematics Meeting (GwE)
Creu dogfen dracio ar gyfer holl llinynau rhifedd Create a tracking document for all of the numeracy strands	Erbyn 24^{ain} Ebrill, 2015. By the 17th April 2015.	Cyfarfod Pennaethiaid Mathemateg (GwE) Head of Mathematics Meeting (GwE)
Mapio tasgau Bowland / Mathshell / MEI yn ol y llinynau y maent fwyaf perthnasol iddynt. Map out all of the Bowland/ Mathshell/ MEI tasks according to the strands that they are most suited.	Erbyn 24^{ain} Ebrill, 2015. By the 17th April 2015.	Cyfarfod Pennaethiaid Mathemateg (GwE) Head of Mathematics Meeting (GwE)
Creu tasgau i ddatblygu rhifedd rhesymegol ar gyfer y llinynau sydd angen cyfleoedd pellach. Create tasks to develop numerical reasoning for the strands that need further development.	Erbyn 31^{ain} Mai, 2015. By the 31st May, 2015.	Cyfarfodydd y Cyd-lynnydd Rhifedd (Sirol) Numeracy Co-ordinator's Meetings (County)

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Marking for Numeracy

The following symbols will highlight the use of Numeracy in your work across the school:

- N - Numeracy was used within this task.
- M - Method used must be shown in full.
- Un - Correct units must be included.
- D - An appropriate degree of accuracy is needed.
- NR - You have used Numerical Reasoning skills here.



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Numeracy was used within this task.
Please annotate the learners' work with 'N' when they have used numeracy within the task.

Method used must be shown in full.
Please annotate the learners' work with 'M' when they need to show their full working out.

Correct units must be included.
Please annotate the learners' work with 'Un' when they need to include units / when the units noted are incorrect.

An appropriate degree of accuracy is needed.
Please annotate the learners' work with 'D' when they need to round the numbers appropriately / correctly.

You have used your Numerical Reasoning skills here.
Please annotate the learners' work with 'NR' when they have used their numerical reasoning skills.



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AVERAGES

Mean, Median, Mode and Range.

Using these numbers: 7, 9, 11, 6, 13, 6, 6, 3, 11

Mean

The mean is the total of the numbers divided by how many numbers there are.

To work out the mean:

1. Add up all the numbers. $7 + 9 + 11 + 6 + 13 + 6 + 6 + 3 + 11 = 72$
2. Divide the answer by how many numbers there are. There are 9 numbers. $72 \div 9 = 8$

So the mean value is 8.

Median

The median is the middle value.

To work out the median:

1. Put the numbers in order: 3 6 6 6 7 9 11 11 13
2. The number in the middle of the list is the median.

So the median value is 7.

Mode

The mode is the value that appears the most.

To work out the mode:

1. Put the numbers in order: 3 6 6 6 7 9 11 11 13
2. Look for the number that appears the most. 6 appears more than any other number.

the mode value is 6.

Range

The range is the difference between the biggest and the smallest number.

To work out the range:

1. Put the numbers in order: 3 6 6 6 7 9 11 11 13
2. Subtract the smallest number from the biggest number: $13 - 3 = 10$

So the range of this set of numbers is 10.



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Square Numbers	1 ²	2 ²	3 ²	4 ²	5 ²	6 ²	7 ²	8 ²	9 ²	10 ²	11 ²	12 ²
1x1	1	4	9	16	25	36	49	64	81	100	121	144
2x2												
3x3												
4x4												
5x5												
6x6												
7x7												
8x8												
9x9												
10x10												
11x11												
12x12												

SQUARE ROOTS		
√1	(1x1)	1
√4	(2x2)	2
√9	(3x3)	3
√16	(4x4)	4
√25	(5x5)	5
√36	(6x6)	6
√49	(7x7)	7
√64	(8x8)	8
√81	(9x9)	9
√100	(10x10)	10
√121	(11x11)	11
√144	(12x12)	12

CUBE NUMBERS	
1 ³	1x1x1
2 ³	2x2x2
3 ³	3x3x3
4 ³	4x4x4
5 ³	5x5x5
10 ³	10x10x10

CUBE NUMBERS	
7 ³	7x7x7
8 ³	8x8x8
9 ³	9x9x9
10 ³	10x10x10

Cube Roots	³ √1	³ √8	³ √27	³ √64	³ √125
(1x1x1)	1	(2x2x2)	2	(3x3x3)	3
(4x4x4)	4	(5x5x5)	5		

Powers of 10	10 ⁰	10 ¹	10 ²	10 ³	10 ⁴	10 ⁵	10 ⁶
	1	10	100	1000	10000	100000	1000000



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Decimals, Percentages and Fractions

Fraction	Percentage	Decimal
1 or 1/1	100%	1
1/2	50%	0.5/0.50
1/3	33.3...%	0.33...
2/3	66.6...%	0.66...
1/4	25%	0.25
1/5	20%	0.2/0.20
1/6	16.7%	0.167
1/8	12.5%	0.125
1/10	10%	0.1/0.10
1/12	8.3%	0.083

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