


How to revise for GCSE Mathematics



Follow us on Twitter @CamsMaths for good questions to support revision, key dates, sharing resources and top tips.

NUMΣR4CY

Notes for the slides

- 1 - New Twitter account for Maths Dept. Please follow us – pupils and parents for reasons on slide.
 - 4 - All recommended websites. We can measure useage on Mathswatch, Pixl Maths App and Seneca Learning. On Maths – includes practice papers which will give you a running total of marks, which help build confidence to next grade. Gojimo – free app with 5Q quizzes – best way to revise Maths is little and often. Maths Genie has past papers. Corbett Maths also very good.
 - 7 - Examples of pupils' revision – completing checklist, look up Mathswatch clips, practice at target topics. Other ways pupils revise – Corbett Maths postcards
 - 8 - Different examples as pupils revise in different ways but we share these in class, as it may help less reluctant pupils find a way that works for them. Post-it notes around the house can also help.
 - 9 - Some sheets handed in (for evidence of time doing hw revision) have been sparse but as long as evidence is available in other forms – time on Mathswatch, practice papers, progress in test scores – we don't mind.
 - 10 - We like to celebrate success by picking out individuals for specific questions and skills they have got right.
 - 13 - Top scores in a class are also celebrated, as well as progress from the previous week! Some staff put this to pop chart countdown music!
 - 14 - Staff make notes whilst marking papers, so they can celebrate the successes and identify key errors and topics that need revisiting in either whole class revision or small group intervention.
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Notes for the slides continued

15 - Records of data kept to monitor progress and deal with any concerns. The RAG-ing of topics is also done with the sets of Mock papers and pupils/parents receive copies of these after each round of mocks.

16 - Staff can track time spent on Mathswatch. This is a first port of call for pupils who are underperforming on tests and have not been spending time on this site.

17 - One member of staff noticed that those who had been on Mathswatch were coming up around 5 marks higher the next week. Others had actually gone down, partly due to a harder paper but not helped by not submitting any evidence of revising.

18 - Pros and cons here. The peaks correspond to the night before the tests! Pupils will perform better over time if they spend around 20 mins per night revising Maths rather than bulk revision close to the exam, where it is less likely to stick.

19 - Staff can see exactly how much time each pupil is spending on Mathswatch, down to which videos they have watched, etc.

20 - Data for Year 11 during February.

21 - Pupils have revision sheets like this example to support their revision for the Mocks in March. Some topics they already know, so have been advised to make the revision worthwhile by focusing on the “Red” topics. These lists are not absolutely everything (a full list is available on Mathswatch) but we have picked out common topics that always seem to come up and if they know all these skills well, they are giving themselves the best chance of securing their target grade or better!

Useful websites:

- ▶ Mathswatch

<https://vle.mathswatch.co.uk/vle/>

- ▶ Pixl Maths App

<https://mathsapp.pixl.org.uk/PMA2.html>

- ▶ Maths Genie

<https://www.mathsgenie.co.uk/>

- ▶ On Maths

<https://www.onmaths.com/>

- ▶ Seneca Learning

<https://app.senecalearning.com>


- ▶ Gojimo App

New initiative:

Weekly past paper done in test conditions every Friday.

50–55 minute tests with focus on improving skills in first half of the paper but with other multi-step questions available to stretch and challenge those who need it.

We provide loads of resources in the build up to the final exams and decided we need to start modelling these activities now, to ensure the pupils are ready for same format later.



Testing

- ▶ Support for tests – revision sheet devised with key skills listed in sections in alphabetical order, with hints/reminders of key info, errors to avoid, etc.
- ▶ Space given for pupils to look up and use Mathswatch clips, RAG their understanding and write notes.

Results and feedback

- sharing good practice

Handwritten notes on a grid paper. The top part contains a table with columns for 'W/N', 'S/N', 'Final', 'Answer', and 'Status'. Below the table are several mathematical problems and solutions:

$4a = 2$ when $a = 3, x = 9$
 $5 = \frac{8}{4} = 2$
 Find y when $x = 10$
 $y = 3x - 4 = 26$
 $4x = 2$ when $y = 6, x = 1.5$
 $6 = \frac{8}{4} = 2$
 $x = 9.5$
 Find y when $x = 12$
 $y = 3x - 4 = 32$
 $2x = \frac{1}{12}$ when $P = 10, Q = 1.2$
 $x = \frac{1}{24}$
 $P = \frac{10}{12}$
 Find $Q = 2, P = \frac{10}{12}, R = 6$
 Find $Q = 1.25, R = \frac{10}{12}, Q = 9.6$
 $\frac{1}{2}$
 $11, 11, 15, 16, 20, 23, 27$
 A box plot with labels 'Lower LQ median UQ' and a scale from 0 to 20.
 13.5
 $14, 14, 17, 20, 22, 24, 26$

Handwritten notes on a grid paper. The top part contains a table with columns for 'W/N', 'S/N', 'Final', 'Answer', and 'Status'. Below the table are several mathematical problems and solutions:

Revision questions - Q162 (Algebraically)
 2 unknowns
 $2x + 6 = 2x + 6 = 12$ apple = £3
 $2x + 6 = 12$ banana = £2
 $8x - 5y = 21 \times 2$
 $3x - 2y = 8 \times 5$
 $16x - 10y = 42$
 $15x - 10y = 40$
 $1x = 2$ decrease original $\times 10$
 7.5
 $1 = 9$
 1.5
 $7x + 2y = 46$
 $3x + 4y = 20 \times 2$
 $6x + 8y = 40$
 $6x + 2y = 40$
 $x = 6, y = 2$
 $3x - 2y = 17 \times 3$
 $2x - 3y = 8 \times 2$
 $9x - 6y = 51$
 $4x - 6y = 16$
 $5x = 35, y = 7$
 $2x + 3y = 53$
 $9x - 3y = 57$
 $11x = 110$
 $x = 10$
 $3.5, y = 11$

Handwritten notes on a grid paper. The top part contains a table with columns for 'W/N', 'S/N', 'Final', 'Answer', and 'Status'. Below the table are several mathematical problems and solutions:

Revision Notes / examples (use back of sheet if necessary plus additional paper)
 Algebra
 Simultaneous Equations
 Number
 Compound Interest
 Simple proportion
 Multiple percentage changes
 Sharing in a ratio
 Standard form
 Statistics
 Box Plots
 Venn diagrams, set notation
 Biggest important in score and longest time spent on mathswatch.

Results and feedback – sharing good practice

Mathematics

Area	Value
Area of a circle	πr^2
Area of a sector	$\frac{\theta}{360} \times \pi r^2$
Area of a segment	$\frac{\theta}{360} \times \pi r^2 - \frac{1}{2} r^2 \sin \theta$
Area of a composite figure	Sum of areas of individual shapes

Simultaneous Equations

$$\begin{aligned} 2x + 3y &= 21 \\ 3x - y &= 8 \end{aligned}$$

$$\begin{aligned} 4x &= 4 \\ x &= 1 \\ 2(1) + 3y &= 21 \\ 2 + 3y &= 21 \\ 3y &= 19 \\ y &= \frac{19}{3} \end{aligned}$$

Comparative Interest

Initial x multiplier

Eg. 10000 x 1.05 = 10500

How long 10000 to 3 years + some 5% interest per year

Venn Diagrams

$A \cap B$ = intersection
 $A \cup B$ = union
 $A \setminus B$ = A minus B
 $B \setminus A$ = B minus A
 $A \cap B^c$ = A minus intersection

Area of a Trapezium

$$2 \times (\frac{1}{2})h$$

Interior Angle of Regular Polygon

$$\frac{(n-2) \times 180}{n}$$

Interior Angles of Regular Polygon

$$\frac{(n-2) \times 180}{n} = 60$$

Interior Angles of Regular Polygon

$$\frac{(n-2) \times 180}{n} = 1080$$

Compound Interest

Interest = $\frac{P \times R \times T}{100}$

Sharing in a Ratio

A:B has a height and width in the ratio 5:4

If we height width, what is it?

$4 : 3$

$7 \times 4 = 28$

$2 \times 3 = 6$

Mathematics

Min IQ, Max IQ, Max Composite mean & spread (COM)	1.87
Interquartile range (IQR)	1.27
Range (R)	

Linear Equations

$$2x + 8y = 21$$

$$5x + 3x - 2y = 8$$

$$16x - 10y = 40$$

$$-15x - 10y = 2$$

$$x = \frac{45}{10} = 4.5$$

Simultaneous Equations

$$\begin{aligned} 3x + y &= 9 \\ 7.5 + y &= 9 \\ y &= 1.5 \\ 3x + 1.5 &= 9 \\ 3x &= 7.5 \\ x &= 2.5 \end{aligned}$$

Simultaneous Equations

$$\begin{aligned} 7x + 2y &= 46 \\ 2x + 3y &= 46 \\ 7x + 2y - 2x - 3y &= 46 - 46 \\ 5x - y &= 0 \\ y &= 5x \\ 7x + 2(5x) &= 46 \\ 7x + 10x &= 46 \\ 17x &= 46 \\ x &= \frac{46}{17} \end{aligned}$$

Quadratic Equations

$$x^2 - 2x - 6 = 0$$

$$x^2 - 2x + 1 - 6 - 1 = 0$$

$$(x-1)^2 - 7 = 0$$

$$(x-1)^2 = 7$$

$$x-1 = \pm \sqrt{7}$$

$$x = 1 \pm \sqrt{7}$$

Mathematics

Min IQ, Max IQ, Max Composite mean & spread (COM)	1.87
Interquartile range (IQR)	1.27
Range (R)	

Area of a circle

$$A = \pi r^2$$

Area of a sector

$$A = \frac{\theta}{360} \times \pi r^2$$

Area of a segment

$$A = \frac{\theta}{360} \times \pi r^2 - \frac{1}{2} r^2 \sin \theta$$

Simultaneous Equations

$$\begin{aligned} 2x + 3y &= 21 \\ 3x - y &= 8 \end{aligned}$$

Comparative Interest

Initial x multiplier

Eg. 10000 x 1.05 = 10500

How long 10000 to 3 years + some 5% interest per year

Venn Diagrams

$A \cap B$ = intersection
 $A \cup B$ = union
 $A \setminus B$ = A minus B
 $B \setminus A$ = B minus A
 $A \cap B^c$ = A minus intersection

Results and feedback – sharing good practice

Hints for third half of next paper on Friday 30th January (calculator paper)
*bring this sheet next Friday

Name: Uche

Checklist for revision

Algebra	Hints/reminders:	M/W	Red	Amber	Green
Simultaneous Equations					
Geometry					
Area of a circle	πr^2				
Area of a trapezium	$\frac{1}{2}(a+b)h$				
Interior angles of regular polygons	Sum of Interior = $(n-2) \times 180$, Exterior = 360 , $I + E = 180$	Sum of			
Pythagoras' Theorem	$c^2 = a^2 + b^2$				
Number					
Compound Interest	$A = P(1 + \frac{r}{100})^n$				
Inverse Proportion	$U = \frac{P}{V}$				
Multiple percentage changes	using multipliers, e.g. 5% decrease followed by 12% increase means $\times 0.95 \times 1.12$				
Sharing in a ratio	$A = \frac{T}{T_1} \times (T_1) / (T_2)$				
Standard form	e.g. $1.6 \times 10^4 = 16000$, $0.019 = 1.9 \times 10^{-2}$				
Statistics	Min, LQ, M, UQ, Max				
Box Plots	Comparing medians & spread (IQR) Intersection: $(T_1) \cap (T_2)$				
Venn diagrams, set notation	Union $(U) = \cup$				

Revision Notes / examples (use back of sheet if necessary plus additional paper)

$\frac{1}{2}(12+15) \times 2 = 27$ (Minimal evidence.)
13.5

$U = \text{union}$
 $\cap = \text{and}$

Min, LQ, UQ, Max

$1.9 \times 10^{-2} = 0.019$

$(A \cap B) = A \cap B$

Name: _____

Exam Style Questions

Direct and Inverse Proportion

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser
You may use tracing paper if needed

Guidance


1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 254

Video 255



Corbettmaths Revision Cards

Available for GCSE Higher or Foundation Tier



CELEBRATE THE SUCCESSES

Jaydn - always puts the brackets in factorising!, Q9, Q11-13, Surface area, VECTORS and TRIG!!

Adele - Q5, factorising - yes!, Q9, Q11 and correct with simple interest!

Mollie - Q10, full marks on stem and leaf!, Q12 scale drawing and excellent number problems (Q13&15)

CELEBRATE THE SUCCESSES

Brad- Q7 correct, Q18 (2/3 marks) and one of only 2 people to get Q20 correct

Daisy - Q2, Q4, Q8 (2/3 marks), Q9 and Q13 fully correct and.....

BEAT PREVIOUS SET OF PAPERS BY 12 MARKS!!!!

Ben T - Q1 (one of only 2 people!), Q4 and Q5 fully correct

Ben H— one of only six to get Q13a fully correct!

CELEBRATE THE SUCCESSES

Lara- Q1, Q13 fully correct!

Henry - Q7 full marks, Q11 (3 marks), Q18 correct...
(only one in the class!)

Lewis - Q1, Q5 (1 of only 4 people!), Q7, Q9 fully
correct!

Alfie - Q2 (1 of only 5 people!) and Q11 (2 marks),

Results and Feedback – top scores!

Session 3	Yellow		
This week	Last time	Name	Total marks

Results and Feedback

- Celebrating success!

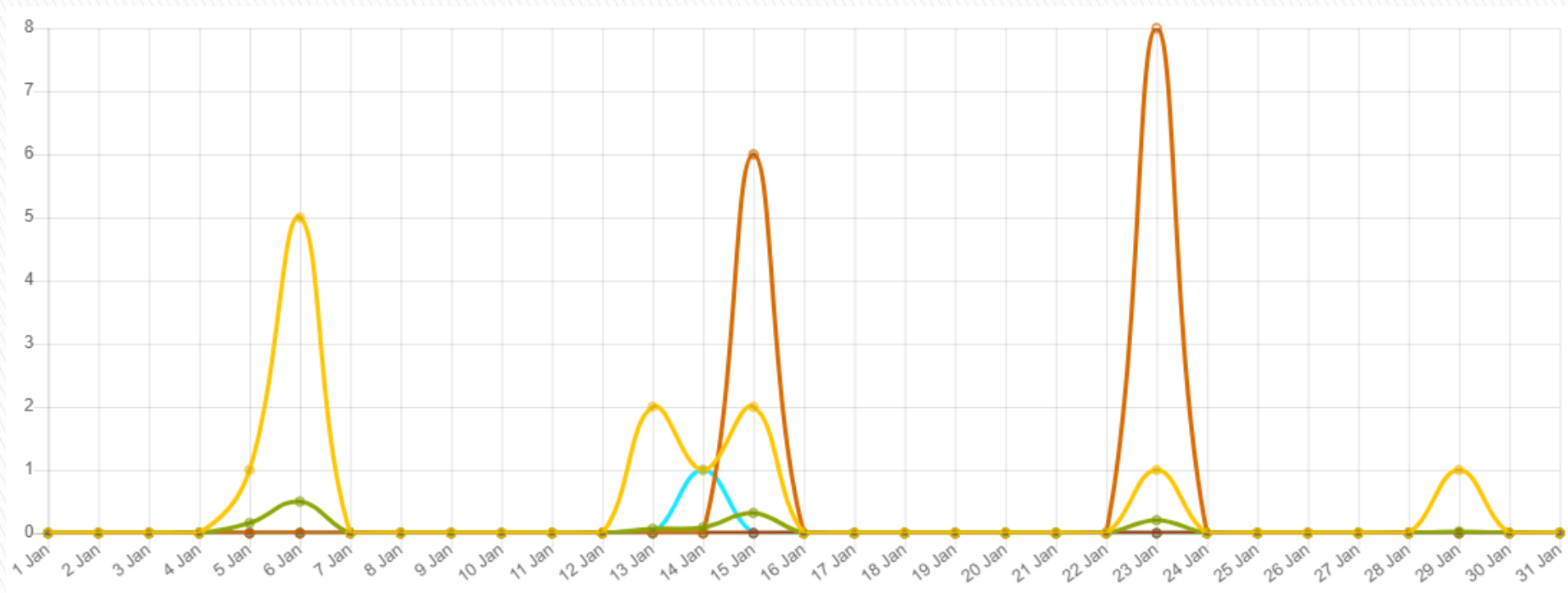
Ms. Charlie M = 24.5
MARKING AND FEEDBACK RECORD SHEET L - Sam
CLASS: 11X2 DATE: 18/1/19 Math set 4 P2 ② 71 H - Beth

Outline of work being marked: Skills Check Phoebe - episode at
with revision sheet time: 1/3 starters

Successes	Areas which need improvement
Q7 Inverse props - Louis, Mae, Ethan, Beth, Nadia Q8 Shape areas - reverse - Ella M, Mae, Jason Q8 - Reverse Comp. Int. - Mae, Lewis (nearly!) Beth, Alfie, Issay, Zoe Q9 Polygon angles - Zoe, Issay, Jack, Beth Q10 Sim. Eqs. - Zoe, Lewis, Charlie, Issay, Gus, Jack, Daisy, Ella N, Alfie, Beth, Ethan, Seffon (nearly), Mae, Ella M, Lara, Louis, Gus!! , Sam (1), Charlotte (1), Lewis (1) Q11 Ella M (close), Mae (1), Hollie (1), Henry (1), Beth (1), Jack (1) Q13C - Alfie, Ella N, Beth, Ella, Phoebe + Mae, Elizabeth - DIS	Targets: A = Set notation (Q2) B = Using areas of shapes C = Reverse Compound Int. D = Angles in Polygons (Q9) E = Sim. Eqs. (Q10) F = Comparing box plots
Opportunities to address areas for improvement: Q12 - Charlotte (1), Lewis (2) $0.5\% \text{ comp. int} = 1.005$ (not 1.5 or 1.05) Comparing box plots - refer to <u>MEQR</u> in context $n^{\frac{3}{2}} = 8 \Rightarrow (\sqrt[3]{n})^2 = 8 \Rightarrow (\sqrt{8})^3$ on calc. leaves in proportion \rightarrow <u>fraction</u> Louis - Show method ABC, ... (G)	

Results and Feedback

Number of Greens	Average test Score	P1 Total marks - no RAG	Simultaneous Equations	Area of a circle	Area of a trapezium	Interior angles of regular polygons	Pythagoras' Theorem	Compound Interest	Inverse proportion	Multiple percentage changes	Sharing in a ratio	Standard form	Box Plots	Venn diagrams, set notation	P2 Total marks	Minutes spent on Mathswatch
4	26	27	g	r	a	r	g	r	r	g	g	a	a	a	25	0
4	27	29	a	g	g	a	g	r	a	a	g	a	a	a	24	32
6	26	25	g	r	a	r	g	r	g	g	g	g	a	a	27	63
5	24	25	g	r	r	r	g	r	g	g	g	a	a	a	22	2
5	30	34	a	g	a	r	g	r	a	g	g	g	a	a	25	16
5	21	21	r	g	a	r	a	a	r	g	g	g	a	g	20	0
10	36	30	g	g	g	g	g	a	g	g	g	g	a	g	41	47
9	35	33	g	g	g	r	g	g	g	g	g	a	a	g	36	78



13

Total Logins

1.4

Hours Spent

14

Practice Questions Attempted

0

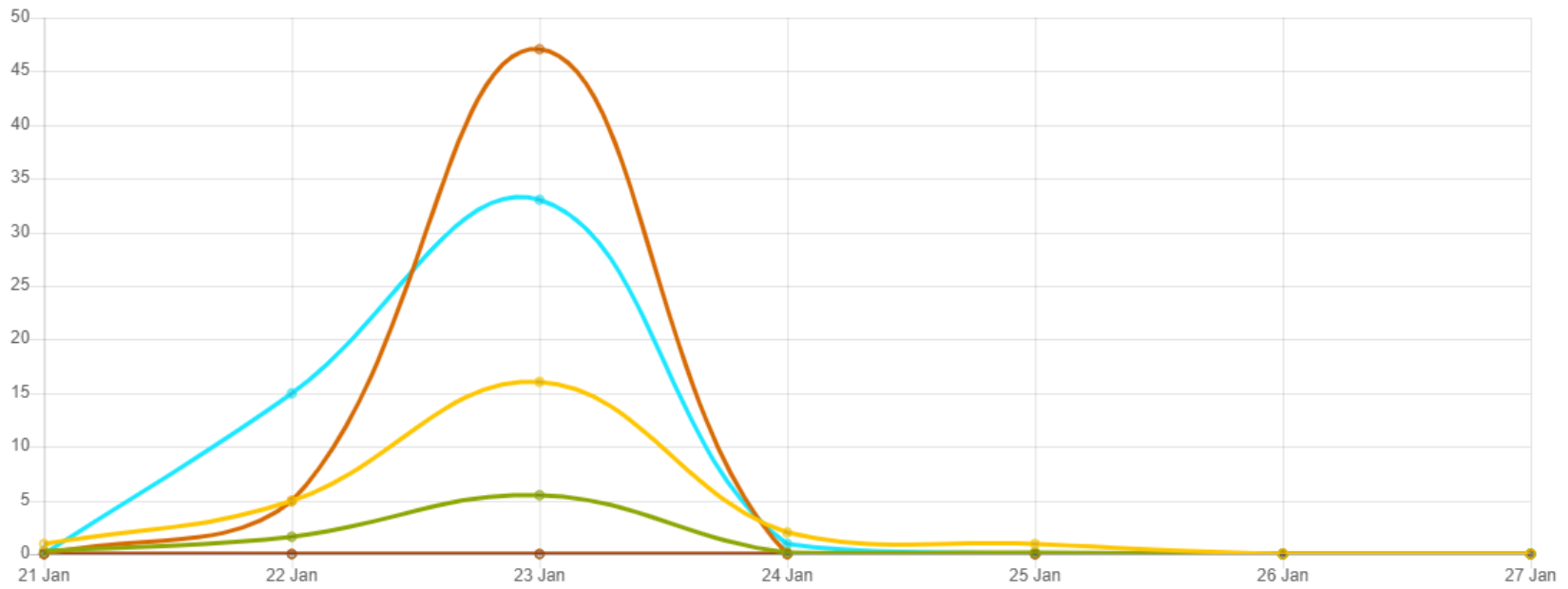
Assignment Questions Attempted

1

Videos Watched

0

Assignments Due

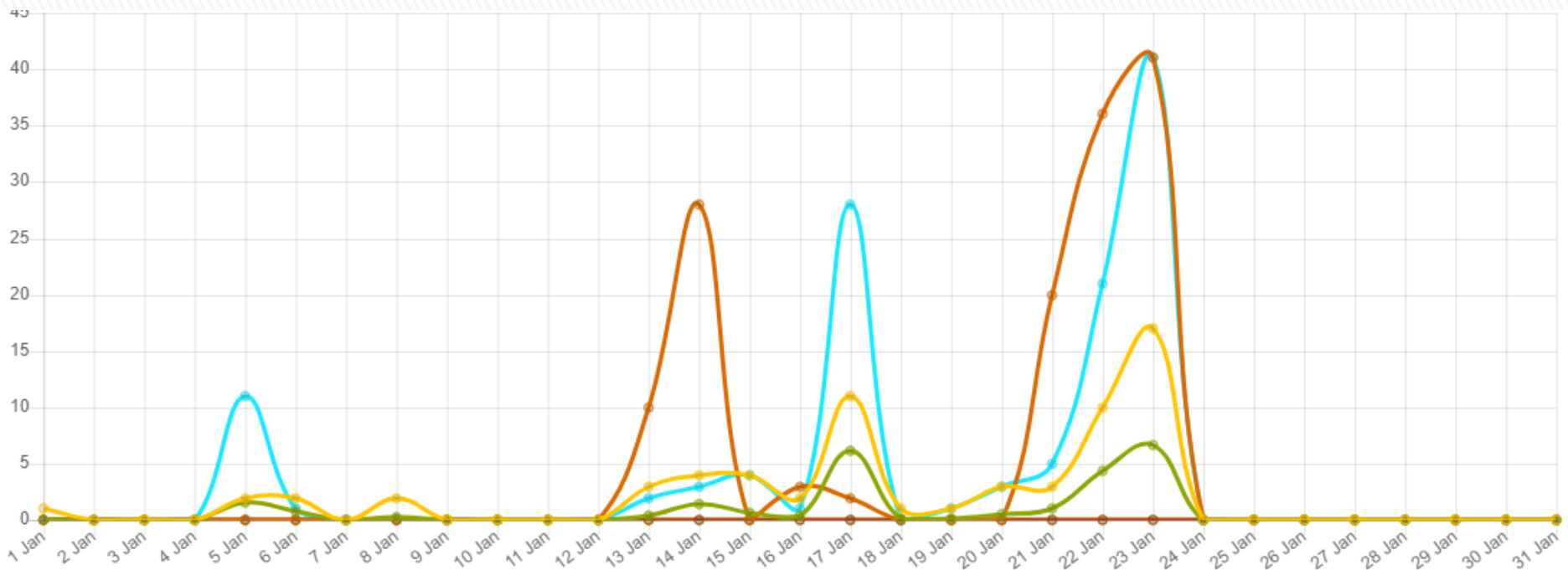


25 Total Logins	7.5 Hours Spent	52 Practice Questions Attempted	0 Assignment Questions Attempted	49 Videos Watched	0 Assignments Due
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Paper 2 Average = 24
 Paper 3 Average = 26.5

Average = +4.5 marks
 Average = + 2.3 marks
 Average = - 3.2 marks

Mathswatch usage



66

Total Logins

25.1

Hours Spent

140

Practice Questions Attempted

0

Assignment Questions Attempted

121

Videos Watched

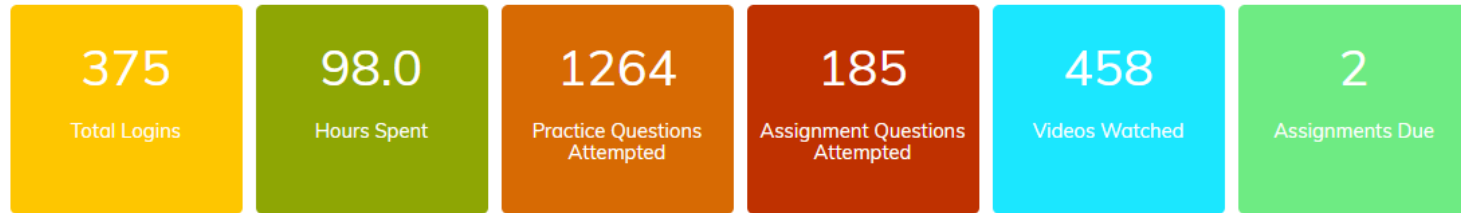
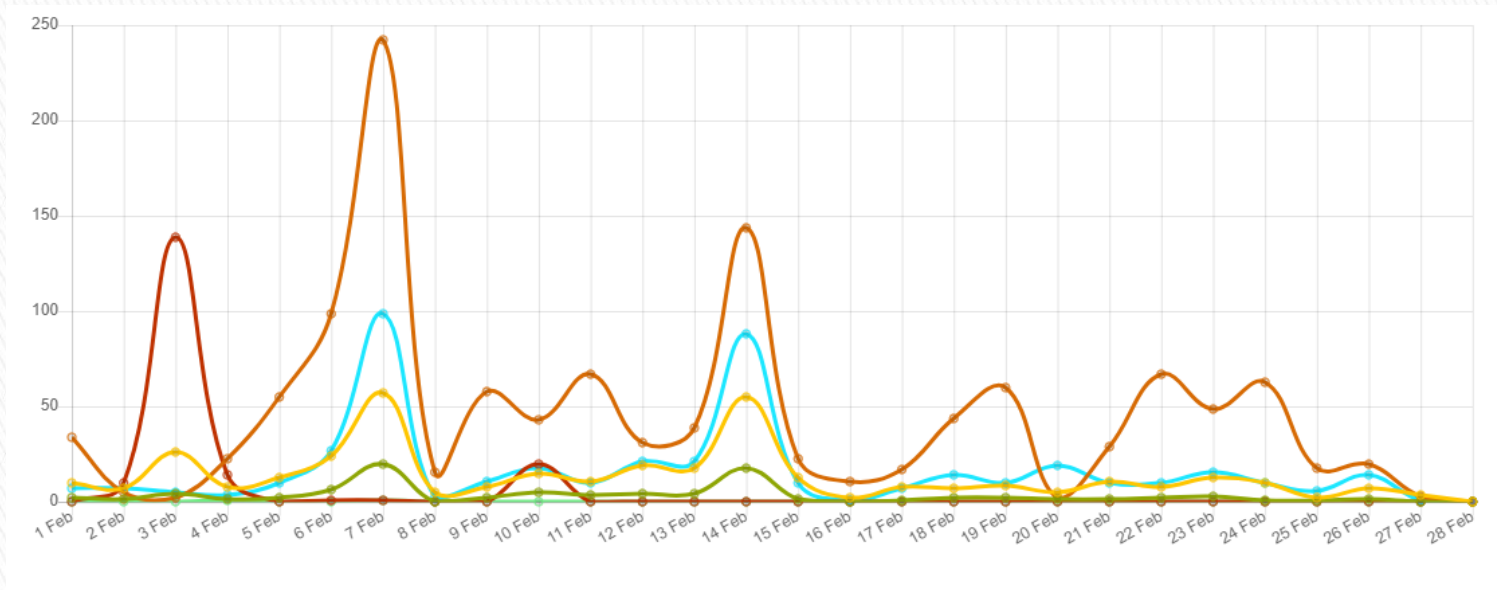
0

Assignments Due

Mathswatch usage

Logins	Minutes Spent ▾	Practice Questions	Assignment Questions	Videos
8	176	61	0	14
7	175	0	0	14
2	162	0	0	16
3	146	22	0	13
4	113	0	0	8
2	95	0	0	5
3	89	2	0	9
4	82	0	0	8
5	80	0	0	5
3	70	0	0	8
3	69	31	0	1
6	59	0	0	3
4	49	0	0	3
3	33	0	0	5
2	32	9	0	3

Year 11 activity on Mathswatch during February



Top 10 Year 11 users who are present tonight:

Cams Hill's Top Topics (Higher)

Data Handling	MW	R	A	G	Number and Algebra	MW	R	A	G
1. Stem-and-Leaf	128b				28. Index notation and index laws, reciprocals	29, 76, 82, 131, 154, 188			
2. Two Way table <i>inc.</i> text questions	61				29. Standard Form	83			
3. Frequency polygon	65b				30. BIDMAS, negatives, long multiplication and division	19, 20, 68, 75			
4. Scatter Graphs	129				31. Prime Factors, product of primes, HCF & LCM	28, 78-80			
5. Averages – grouped table	130				32. Error intervals	132, 155			
6. Stratified Sampling	176				33. Estimation	90-1			
7. Tree Diagrams	151, 175, 204				34. Forming expressions/equations, solving linear equations	135, 137			
8. Probability with Venn diagrams	127, 185				35. Inequalities	138-9, 198			
9. Cumulative Frequency	186				36. Direct and inverse proportion	199			
10. Boxplots	187				37. Equation of a circle	197			
Shape, Space and Measure					38. Iterative processes	180			
11. Loci / Constructions	145-7, 165				39. Fractions – 4 operations	70-4			
12. Basic vectors	174				40. Linear and geometric sequences, nth term	102-3, 163			
13. Reflections, rotations, translations	48-50				41. Quadratic sequences	213			
14. Enlargements	148, 181				42. Simplifying expressions, substitution, factorising	33-35, 94, 95			