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Supporting your child in Senior Phase Apps

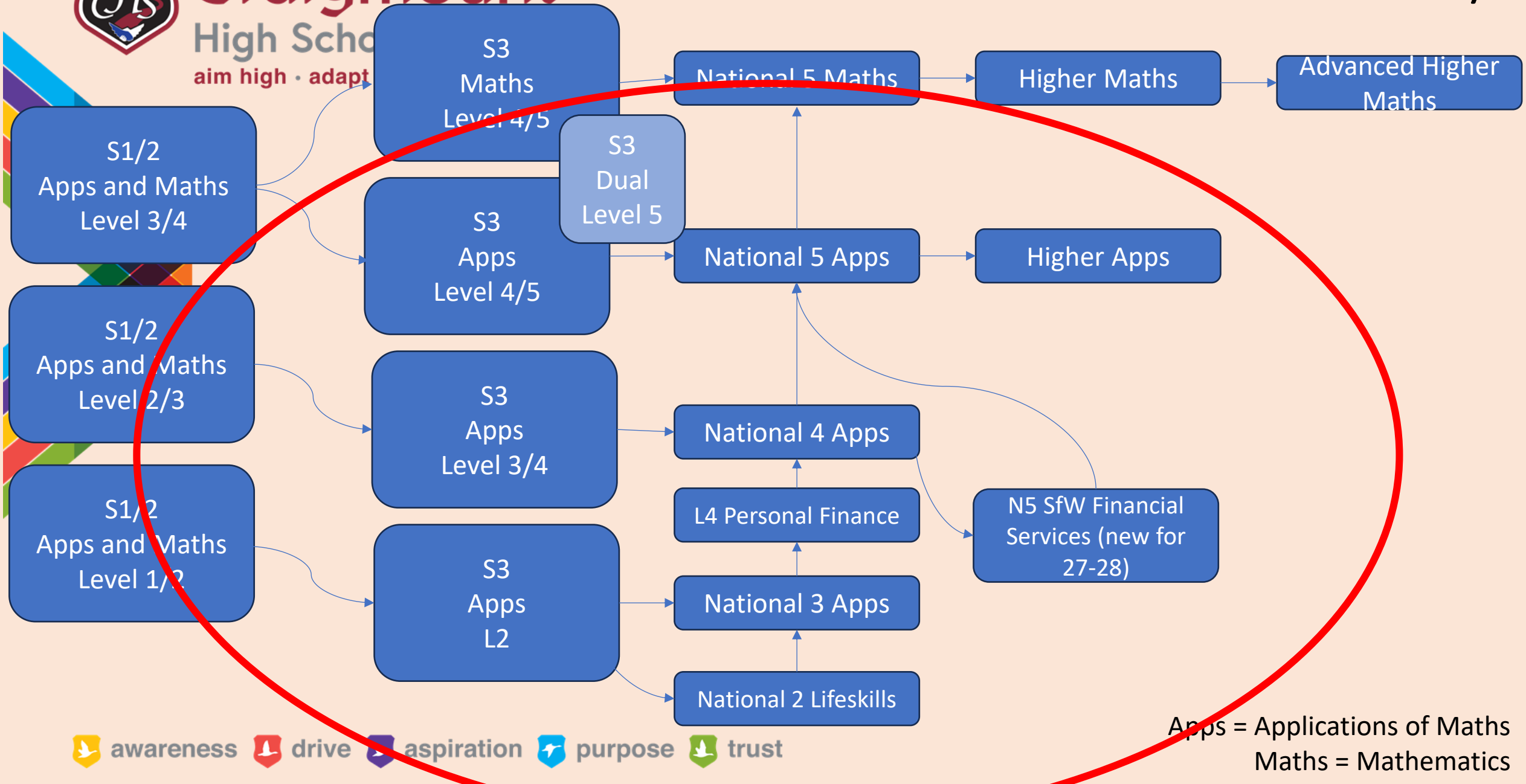
Mrs Mitchell (Curriculum Leader)

Please Note:

1. **This session is for S3 Apps Pathway, N5 Apps and H Apps only (all Maths courses are in a different session).**
2. **Our website has information about timelines and resources.**
3. **Slides from all workshops will be shared after this evening.**

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Our Pathways



awareness drive aspiration purpose trust

Apps = Applications of Maths
Maths = Mathematics

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S3 Apps

L3 -> 4 Pathway

- Miss Montgomery's and Mrs Atkinson's classes.
- Flexible approach.
- Have been working on Managing Finances and Statistics either at L3 or L4.
- Aiming to achieve N3/4 Apps in S4.

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S3 Apps

L4 -> 5 Pathway

- Miss McCavana's and Ms Muir's classes.
- Practicing non-calculator skills since August. They sat an assessment on these skills before October. They have now moved onto calculator skills.
- They will complete a calculator assessment around November. Topics include:
  - Pay
  - Area
  - Further Statistical Diagrams
  - Foreign Currency.
- Regular homework being set as revision.
- Aiming to achieve N5 Apps in S4.

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N5 Apps of Maths

- To gain a full award, pupils must pass a final exam, consisting of two papers:
  - Non-calculator: 50 min
  - Calculator: 1h 40min
- When a pupil sits the exam, they will achieve a grade (A – No Award). Grades are split into bands: A1; A2; B3; B4; C5; C6; D7; No Award 8/9. **Please note progression to Higher requires an A-C.**
- The topics covered in N5 Apps are:
  - Numeracy
  - Managing Finance and Statistics
  - Geometry and Measures
- Pupils are assessed throughout the year to support learning:
  - Unit Assessments (throughout the year in class). **These will be important for those tracking as a D or No Award.**
  - Formal Assessments (Nov/Dec and Feb/March) – these are representative of the final exam and will evidence for estimate grades and pathway recommendations.
- Pupils can be presented for units alone, but these do not have the same standing as the full graded award.
- Please see the school website for course timeline of topics.

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N5 Apps of Maths

Keys skills learners need to be fluent in (lessons from QS Exams):

- Numeracy skills for non-calculator:
  - Understanding that multiplication can be completed in any order.
  - Being able to multiply and divide whole numbers and decimals by 10, 100 and 1000.
  - Being able to multiply by 3.14.
  - Splitting numbers up to multiply (e.g., $\times 70$ becomes $\times 7 \times 10$ or $\times 10 \times 7$ or $\times 12$ becomes $\times 4 \times 3$).
  - Finding fraction of an amount (e.g., $\frac{1}{3} of\ 1860$).
  - Rounding to decimal places and significant figures – understanding not to do this too early. Using estimation
  - Percentages of an amount with and without a calculator.
  - Calculating area/perimeter.
  - Working with units correctly (e.g., converting and writing correct units – 12-hr time must have am/pm).

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N5 Mathematics

Keys skills learners need to be fluent in (lessons from QS Exams):

- Using formulae list.
- Writing full working clearly – use our examples!
- Learn relevant statements:
  - Comparing Mean, Median, Standard Deviation and Interquartile Range.
- Remembering previous formulae not given to you:
  - Area of a rectangle and triangle.
  - Perimeter.
  - Volume of a cuboid.
  - Pay calculations, e.g., Net Pay = Gross Pay – Deductions.
- Using decimal multipliers for percentages with a calculator, particularly compound.

Fractions — I do

At a restaurant:

- $\frac{2}{7}$ of the dishes were chicken
- $\frac{3}{5}$ of the dishes were beef
- the remaining dishes were vegetarian

Calculate the fraction of votes that were vegetarian.

3 marks

$\frac{2}{7} \times 5 + \frac{3}{5} \times 7$

$= \frac{10}{35} + \frac{21}{35}$ ✓

$= \frac{31}{35}$ ✓

Remaining $= \frac{4}{35}$ ✓

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Remaining $= \frac{4}{35}$ ✓

Probability

I do

WAGOLL I do

If you roll two normal 6 sided dice, what is the probability that you would get a total score of at least 10?

1,1 2,1 3,1 4,1 5,1 6,1
1,2 2,2 3,2 4,2 5,2 6,2
1,3 2,3 3,3 4,3 5,3 6,3
1,4 2,4 3,4 4,4 5,4 6,4
1,5 2,5 3,5 4,5 5,5 6,5
1,6 2,6 3,6 4,6 5,6 6,6

6 ✓

36 ✓

3marks

You do

If you roll two normal 6 sided dice, what is the probability that you would get a total score less than 8? 3 marks

1,1 2,1 3,1 4,1 5,1 6,1
1,2 2,2 3,2 4,2 5,2 6,2
1,3 2,3 3,3 4,3 5,3 6,3
1,4 2,4 3,4 4,4 5,4 6,4 ✓
1,5 2,5 3,5 4,5 5,5 6,5
1,6 2,6 3,6 4,6 5,6 6,6

21 ✓

36 ✓



Standard Deviation

I do

A frozen food company uses machines to pack sprouts into bags.

A sample of six bags is taken from Machine A and the number of sprouts in each bag is counted.

The results are shown below.

23 19 21 20 19 24

(a) Calculate the mean and standard deviation of this sample. 4 marks



$\text{mean} = \frac{23+19+21+20+19+24}{6}$

$= \frac{126}{6}$ ✓

$= 21$ ✓

standard deviation

23	$-21 = 2$	$2^2 = 4$
19	$-21 = -2$	$(-2)^2 = 4$
21	$-21 = 0$	$0^2 = 0$ ✓
20	$-21 = -1$	$(-1)^2 = 1$
19	$-21 = -2$	$(-2)^2 = 4$
24	$-21 = 3$	$3^2 = 9$
126	0	22

$\sqrt{\frac{22}{6-1}}$ ✓

$= 2.097\ldots$

$= 2.1$ ✓

I do

Net Pay

Pietra usually works 30 hours each week.
She is paid **time and a half** for any additional hours that she works.
Her basic rate of pay is £12.50 per hour.
Last week, she worked an additional 7 hours overtime.
Pietra paid £157.65 in income tax, £75.21 in National Insurance and £58.47 towards her pension.
Calculate Pietra's net pay for last week.

3

OK

Basic pay $30 \times 12.50 = £375$ ✓

overtime $12.50 \times 1.5 = £18.75$ per hour
$£18.75 \times 7 = £131.25$

total pay $= 375 + 131.25$
$= £506.25$ ✓

Deductions $= 157.65 + 75.21 + 58.47$
$= £291.33$

Net pay = total pay - deductions
$= 506.25 - 291.33$
$= £214.92$ ✓

I do

Tolerance

(2) A baking company will reject cakes if they do not weigh 400 g ± 3%.
The weights of a sample of 13 cakes are shown below.

385, 391, 409, 403, 386, 412, 413, 407, 400, 390, 387, 405, 388

Calculate the fraction of cakes that will be rejected.
Use your working to justify your answer.

3 marks

Source: 2018 P1 Q1 N5 Applications of Mathematics

400g ± 3%
$= 400g \pm 12g$

max $= 400 + 12g = 412g$
min $= 400 - 12g = 388g$ ✓

3% of 400g
10% = 40
1% = 40 ÷ 10
= 4
3% = 4 × 3
= 12g

385 391 409 403 ~~386~~ 412 ~~413~~ 407
400 390 ~~387~~ 405 388 ✓

Reject $\frac{3}{13}$ ✓

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Higher Apps of Maths

- To gain a full award, pupils must pass a 2h 5min final exam and 8-hour project.
- A calculator is allowed throughout Higher Apps.
- At the end of the course, pupils will achieve a grade (A – No Award). Grades are split into bands: A1; A2; B3; B4; C5; C6; D7; No Award 8/9. **Please note there is no Advanced Higher Progression from Higher Apps at the moment at Craigmount. However, we can potentially arrange for pupils to study Advanced Higher Statistics at another school.**
- The topics covered in Higher Apps are:
    - Mathematical Modelling (written and using Excel)
    - Statistics and Probability (written and using R Studio)
    - Finance (written and using Excel)
    - Planning and Decision Making (written)
- Pupils are assessed throughout the year to support learning:
    - Project – we have been learning the skills required for this since August. Pupils will complete their project in class in January. I will then be submitted to the SQA. This makes up 27% of the grade.
    - Formal Assessments (October, December and March) – these are representative of the final exam and will evidence for estimate grades and pathway recommendations. **These are particularly helpful as pupils need practice using the software in an exam and printing their work correctly.**

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Higher Apps of Maths

Keys skills learners need to be fluent in (lessons from QS Exams):

- Working with the data booklet provided. This is released prior to the exam so that pupils know what R Studio code they are provided with and can read some of the contextual information in advance.
- Clear, concise statistical language (in both the Project and Exam). Higher Apps will include qualitative questions, such as ‘Why could this data be considered Biased?’.
- Using Excel, R Studio and Word. They will need Word to display their work. They will need Excel and R Studio to complete spreadsheets and produce charts.
- Writing working clearly – use our examples!
- Use calculator sensibly so not to round prematurely.

For reference

Grades, assessments and course content

1	2	3	4	5	6	7	8	9
A Approx >85%	A Approx >70%	B Approx >65%	B Approx >60%	C Approx >55%	C Approx >50%	D Approx >40%	No Award	No Award

Grade bands at the end of the course. Moving from N5 Apps to Higher Apps needs an A to C.

Unit assessments

In class through the year. Most important for pupils tracking at D or No Award. Units can be taken alone, but don't carry the standing of the full graded award.

Formal assessments

Exam-style. N5 Apps: Nov/Dec and Feb/March. Higher Apps: October, December and March — good practice using the software and printing work under exam conditions.

Higher Apps project

Skills taught since August; completed in class in Jan over 8 hours, then submitted to Qualifications Scotland. Worth 27% of the grade.

National 5 Apps

Numeracy
Managing Finance and Statistics
Geometry and Measures

Higher Apps

Mathematical Modelling (written and Excel)
Statistics and Probability (written and R Studio)
Finance (written and Excel)
Planning and Decision Making (written)

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How to be successful

1) Complete classwork (in class and continue at home).

2) Complete homework (including revision provided).

3) Start personal revision early – use completed course notes/examples/checklists to develop mathematical rigour.

4) Attend supported study.

5) Complete and repeat past paper questions.

6) Ask for help when you need it.

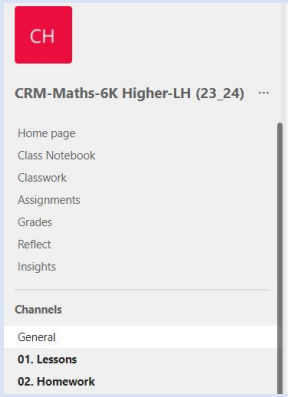
+ Ensure you have your own Casio Scientific Calculator

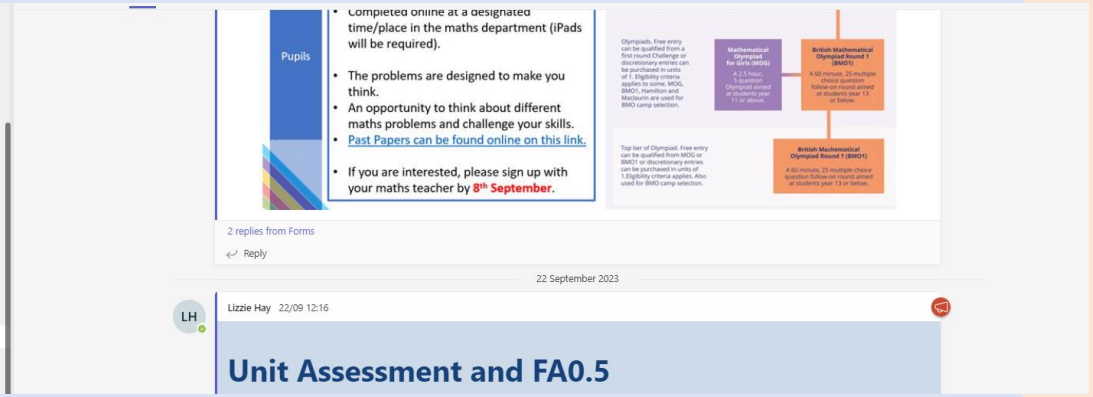
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1) Complete classwork (in class and continue at home).

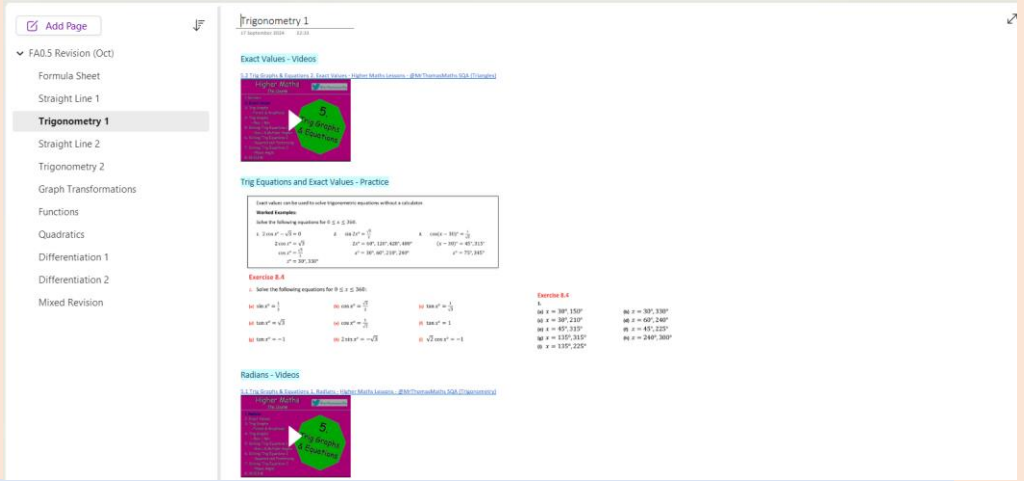
- Classwork strategies:
  - Modelling examples.
  - Mini whiteboards.
  - Group/partner discussions.
  - Practice questions.
  - Quizzes.
  - Exit Cards.





- MS Teams:
  - Lessons are provided on MS Teams for any work missed or unfinished. These can be in the format of OneNote, PDF, PowerPoints etc.
  - **Pupils should work through more questions from a lesson at home if they are unfinished and have not fully consolidated the skill yet.**
  - There are instructions on OneNote about how to download R Studio at home.

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2) Complete homework.

- All homework is available on MS Teams. It is given regularly to exam classes.
- Completion of homework is crucial for consolidation of skills.
- We also provide detailed revision in advance of any assessment. The revision includes videos, practice and answers for each topic in the assessment.

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3) Start personal revision early

- Apps courses are not ones you can ‘memorise’ answers, you need to practice the skills. Flash cards can also be helpful.
- This means that when you go over examples from class, you then need to practice questions to help master concepts.
- These can be the practice questions from the lesson, homework questions or past paper questions.

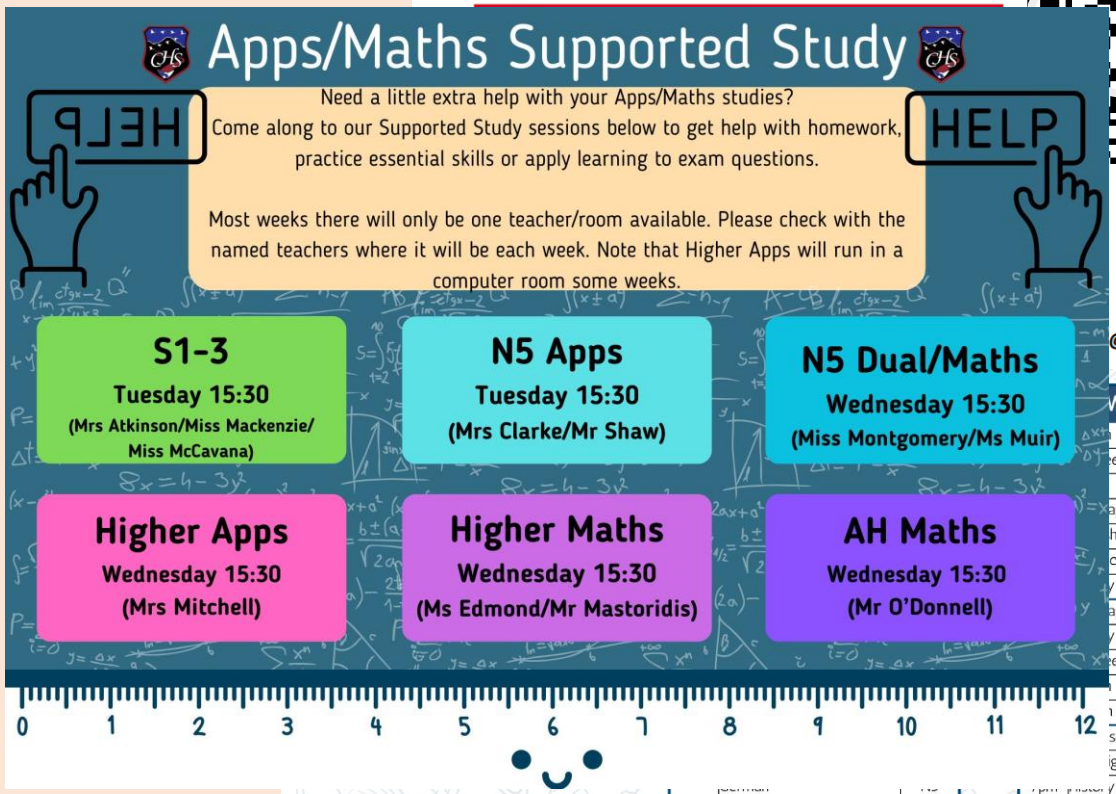
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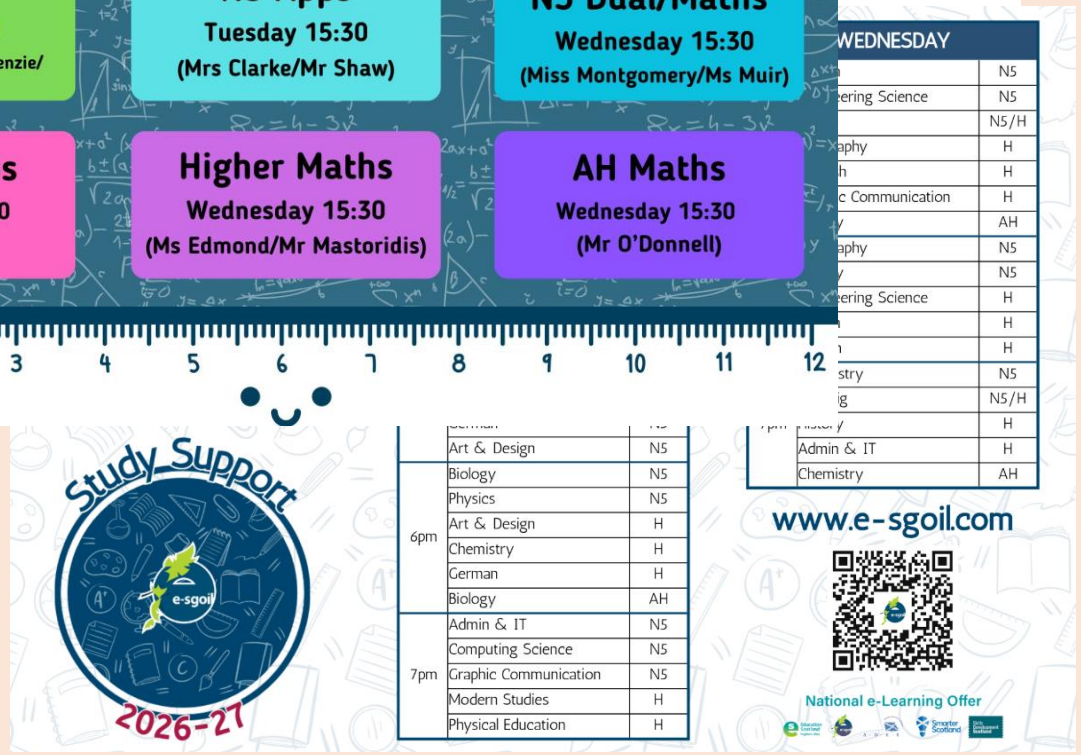
4) Attend supported study

- School Supported Study
- E-Sgoil (online) supported study
- Maths Coach

Maths Coach SCOTLAND



@mathscoachscot



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5) Complete and repeat past paper questions

- Past Papers are your friend when it comes to Apps! It helps you apply your skills and get used to the type of questions that can be asked, particularly how they ask them.
- Pupils should start doing past paper questions now for the topics they have learned. The easiest place to access this is on the website Free N5 Maths. Despite the name, they now have course pages for N5 Apps, Higher etc.
- Since pupils will not be able to complete full past papers yet, we suggest using the 'Exam Worksheets by Topic (SQA)' section so that they can select the topics they have already completed.
- We will now show you this website.

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5) Complete and repeat past paper questions

- How to use past paper questions:
    1. Answer what you can without any notes/class work.
    2. Use your notes/class work to help with anything you are unsure about.
    3. Check with the marking scheme that you have completed the question correctly or check for the solution if you could not complete the question after steps 1 and 2.
    4. Repeat the same past paper again later in the your revision.
- How to find/use a marking scheme:
    1. Go to Free N5 Maths website andelect relevant course.
    2. Go to “SQA Past & Practice Papers” section.
    3. Click on relevant marking scheme.
    4. The marking schemes gives the following information:
        - Generic scheme – describes what the steps are.
        - Illustrative scheme – shows the steps to solve.
        - Notes/CORs – help with marking if pupils are part but not fully correct.

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6) Ask for help when you need it

- Don’t wait until the end of the course to ask for help with a topic. Do it now, so we can support you to understand.

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Questions

We thank you for your time this evening.

If you have any questions, please scan the QR code.

