5 hours in... Maths and Further Maths

Research shows that the most successful students (i.e. those that make the most progress and get the highest grades) are doing between 20 and 25 hours of independent study per week by the end of Year 13. That may seem a lot, but it's something that you would build up to over the course of your A-Levels. In Year 12, we're talking something more like 15 hours per week. This equates to roughly 5 hours of independent study per A-Level per subject.

Remember that your independent study is divided into three types – Consolidation, Reactive and Proactive.

Consolidation

The evening following a Maths lesson, you should spend 12-15 minutes (24-30 minutes for a double) rereading your notes, writing the summary section at the bottom of your Cornell notes and making relevant flashcards e.g. for equations, definitions, facts you need to recall etc.

Reactive

This is your 'homework'. Each of your maths teachers should give you at least 1 hours' worth of homework each week. If they don't – ask them for some! If you find this takes more than 1 hour, that's fine, you can take this from the proactive phase (not from the consolidation phase though). Equally, if you find you finish your reactive work quickly, spend more time on your proactive work.

Proactive

This is the section that will broaden and deepen your overall understanding of the subject you are studying. It will not necessarily involve work that has been set by your teacher, but instead it is about you doing the extra practice questions, reading articles, watching videos, TED talks etc. In Maths, this might contain some of the following:

- Complete a set of practice past paper questions – available on the AQA website **(1 hour)**
- Use websites to complete and add to class notes **(30 minutes)**
- Use the specification checklist to evaluate your understanding **(10 mins)**
- Answer questions from the review sections in your CGP textbook **(30 mins)**
- Answer and mark questions from the alpha mathematics booklet given by your teacher **(20 min)**
- Practice exam questions from your CGP Maths/Further Maths revision guide **(30 mins)**
- "Read, Cover, Write and Check" sections of Key Facts **(30 mins)**
- Complete an AQA topic test **(30 minutes)**
- Watch a TED talk on a Maths topic **(20 mins)**
- Try a Maths Olympiad question, and analyse mark scheme **(20 mins)**
- Attempt some interesting questions from the UKMT **(20 mins)**
- Read one of our recommended books from the maths reading list (Homelearning Map), all available in the LRC **(30 mins)**

Useful links

- **AQA Past papers** https://www.aqa.org.uk/find-past-papers-and-mark-schemes
- **Maths and Physics Tutor:** https://www.physicsandmathstutor.com
- **Mymaths:** https://www.mymaths.co.uk/
- **AMSP:** https://integralmaths.org/terms.php.
  Individual Logins
- **TED Talks** https://www.ted.com/playlists/189/math_talks_to_blow_your_mind
- **UKMT** https://www.ukmt.org.uk/
- **MAT Tests** https://www.maths.ox.ac.uk/study-here/undergraduate-study/maths-admissions-test
- **STEP Tests** https://www.admissionstesting.org/for-test-takers/step/preparing-for-step/

5 hours in… Maths and Further Maths – your weekly review

Week beginning: _____

What have I been learning with _____?   _____

What have I been learning with _____?   _____

Consolidation (tick when complete)		Reactive 1	Reactive 2	Proactive 1	Proactive 2	Proactive 3
Lesson 1						
Lesson 2						
Lesson 3						
Lesson 4						
Lesson 5						
Time spent						

Total time spent on Independent Learning in Maths/Further Maths this week: _____

Areas that require further review	Things I need to ask _____

Checked by: _____ (teacher)

5 hours in... Maths and Further Maths – your weekly review (an example)

Week beginning: 09/03/2020

What have I been learning with Miss McLean?   **Normal Distribution Problems and Binomial Approximation**

Consolidation (tick when complete)		Reactive 1	Reactive 2	Proactive 1	Proactive 2	Proactive 3
Lesson 1	✓	Complete exercise on worded normal distribution started in class (Ex. 2.2 Page 403) by the next lesson on Monday.	Complete the set task on Normal distribution (AQA Topic Test) to be handed in on Monday.	Complete questions on previous topics based on personal QLA using the CGP A Level papers/Alpha books.	Attempt a UKMT problem solving question.	Watch TED talk – "Why you should love Statistics" by Alan Smith
Lesson 2	✓					
Lesson 3	✓					
Lesson 4	✓					
Lesson 5	✓					
Time spent	1 hour	40 minutes	1 hour	1 hour 20 minutes	35 minutes	20 minutes

What have I been learning with Mr Illingworth?   **Integration by Parts**

Total time spent on Independent Learning in Maths this week: 4 hours 55 minutes

Areas that require further review	Things I need to ask Miss McLean/Mr Illingworth
• Binomial Approximation • Deciding when to use the standard normal distribution • Reasoning in Statistics	• Q3 on the normal distribution questions – why do we standardise? • Conditional probability – can you explain this to me again? • How do I get full marks on the reasoning question 8c?

Checked by: HLM(teacher)