Skills in Mathematics Study
"The Secrets to Achieving Mathematical Ecstasy"

Success in Maths does not come just from learning formulae. You need to understand the work and to practise the problems. In this way you will find that, magically, you will know the formulae and understand the work better.

People often say that their study techniques do not apply to studying maths - "But maths is different !" Well, perhaps it is. It is, for instance, one of the few subjects in which you can get full marks. But maths has a bad reputation. People may say that they weren't any good at it when they were young, they had a bad teacher, they don't have a maths brain, it was too hard, or it was boring or irrelevant. Don't believe it! Maths is not too hard. Nor is there such a thing as a maths brain or a non-maths brain. As for being bored, you won't be if you start getting the right answers, and perhaps those 100 percents! (Mathematical Ecstasy).

Well, how is it done? Here's a formula that will help.

The Maths Formula: LARDY

Listen in class
Ask questions
Read and understand
Do the homework
Yes, it's right!

Lardy means fatty, but don't interrupt your maths homework with too many trips to the fridge for snacks or you'll be taking things too literally.
By using this formula you will be assuming responsibility for your own learning in maths.

Listen in class

Listening is the most important skill in maths as it is vital that you understand the work. Teachers call maths a cumulative subject, because each new topic builds on the understanding of the topic before it.

When the teacher is going over work that has already been done :

- If they are doing a problem you got right, listen anyway. They may do it in a different way, or bring up different ideas in discussion, both of which will add to your depth of understanding of the topic.

- If they do not go over a problem you got wrong, don't just sit there confused, ask during a work period in the lesson.

During the main body of the lesson, listen to what is said. This is where a lot of your understanding will come from. Remember to listen actively, taking down everything from the blackboard and any important comments the teacher makes during discussion.

Ask questions

Use questions to...

- fill in steps in a problem, eg 'How did you get the x by itself?'
- help you understand a general principle, eg 'Does the x always have to end up by itself in this type of problem?'

Ask specific questions - never just say 'I don't get it' - and frame your questions to get the answer you want.

Read and understand

At homework time:

- Read through the notes you took in class.
- Work through the examples from the textbook or your notes.
- Check any points you don't understand.
- Make sure you understand what is going on.
- Fill in your notes where they are sketchy, and highlight important formulae or points.

Now your brain is in maths mode and you are ready to...

Do your homework

No matter what happens, always keep up with your maths homework, otherwise you will find the next lesson twice as hard to understand. If you do have a full schedule, or you are running out of time...

- Don't skip the reading and understanding time, it will only make the doing time even longer.
- If you must leave out problems, do every second one, not the first half. This way you cover all types of problems.

Don't make difficult problems an excuse for stopping altogether. Try again, and if you are still lost, continue with the next problem; it is not necessarily any harder.
Keep note of the questions you have difficulty with so you can re-do them during revision. Remember to keep your homework just as organised as you would your notes. Quite often if you return to a problem that you couldn't solve your subconscious mind has already solved it and consequently your conscious mind is able to work it out.

How to cope with maths exams

Many students falsely believe that you cannot study for maths exams. Wrong! For revision you should go through your notebook, topic by topic, just as you did during the year - the R-D-Y of LARDY. Read each topic and do some of the problems from the book. You should have your earlier worked solutions to refer to if you get stuck.

It is better to revise topic by topic at first, rather than tackle old exam papers. This way, each topic is 'pigeonholed' in your head and will be easier to recall during an exam. Look at old exams to check yourself later on.

Make sure you know all the necessary formulae. There is a lot of understanding built into a formula, and if you know it well you are more likely to recognise when you need to use it.

Doing maths exams

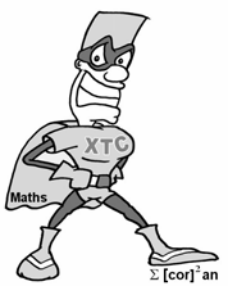
No matter how hard the questions are, it is always possible to get some marks for working, or a diagram, even if you can't get the whole question out.

Read the paper carefully during the reading time, and decide the order in which you will tackle the questions. Always do the easy questions first, they are worth less marks, but they are marks you will definitely get. Keep in mind the time you will need to approach the harder questions.

For each question, read it, do it, then re-read it to make sure you have answered the question correctly (not the question you wish they had asked!). Make sure your answer gives appropriate units of measurement, decimal places etc, and always give a word answer to a word question.

Difficult questions	- Leave these until last. If you don't know where to start... - Write down key information as you go, and draw diagrams if necessary. - If possible, put yourself in the question, perhaps simplifying the figures involved. - Think about the method you used for similar questions, or alternative methods you have been taught.
Checking answers	- Do not simply re-do what you have already done, you are likely to make the same mistake again. Substitute the solution back into the equation, or try a different method. - Re-do the question completely on a separate sheet of paper and compare. If they come out differently, you must select one to submit, so check them both thoroughly. - Check that your answer is reasonable, eg the height of a building should not come out as 37 kilometres. - Have your pressed the right buttons on your calculator ?

Remember - a calculator is only as good as the person using it, so always check the answers roughly in your head.



Keys to Success in Maths, or, The Secrets of Mathematical Ecstasy!

Remember the LARDY formula and use it every day

Use the revision period wisely - don't just rely on having done your homework all year

Use the exam to show the examiner how much you know; there may be marks in your working and diagrams which you never knew existed.

Never leave a blank on an exam paper - there are no marks for blank spaces.

Steady work day by day throughout the year is a simple pattern to get into, and will pay off come exams. In other words, don't neglect regular work in the hope that a study burst before exams will save you - it won't.

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St Stephen's School Carramar
Mathematics Department
Exam Preparation and Study Pointers

- Use your classroom time wisely. Work hard and ask questions about *anything* you don't understand. Listen to your teachers.
- Be vigilant about understanding "why things work" not just "how to do" questions.
- Don't underestimate the power of "getting it out on your own." Results in a greater understanding and better memory recall.
- Working backwards from the answers to questions that you can't get right can be a useful technique but it should be used sparingly.
- Complete your homework. If you have completed all your set homework early then you should take advantage of this extra time to revise, consolidate and read ahead.
- Don't allow yourself to fall behind. You should be doing Mathematics homework every night of the week and at least one session on the weekend.
- Design a revision timetable at least six weeks before your exam. This way you can do a little revision each night over a long period of time. Try not to cram your whole course revision into the week or nights just before the exam. This requires discipline and effort but the results are worth it.
- Make sure you revise all topics. Spend more time on the earlier topics that you may have forgotten or the topics you find most difficult. Don't just study what you can do.
- Try and do as many past papers and problems that you can. Practice, Practice, Practice.
- Seek help if you can't do something no matter how trivial it might be.
- Keep trying. Don't give up on difficult questions. If you can work things out on your own then you will develop a greater understanding and a better memory recall for examinations. You will also achieve mathematical ecstasy. You can always come back to a question later and try again.
- Carefully prepare *your own* two A4 sheets of paper that you will take into the exam. Don't use somebody else's. Type them up on a computer so that you can fit more onto them and you can easily edit and modify them in the future. Start these sheets now and prepare them as you go. Be warned that you shouldn't have to rely too heavily on these pages in your exam.
- Know how to use and interpret your Graphics Calculator. Don't just copy down what your calculator is displaying. Interpret calculator answers in terms of the context of the question and correct setting out or mathematical conventions as assumed in the WA syllabus. Calculators don't think.
- Try working under exam conditions. Time yourself. Mark the questions you are practicing.
- Think about your exam technique. Use your reading time wisely. It is the most important ten minutes of your exam. Plan your strategy in this time. Do the questions you can first. Read the questions carefully and think about them. Keep an eye on the clock. A mark a minute. Don't use any correction fluid.
- Be prepared. Organise your tables book, graphics calculator, spare batteries, Math Aid, A4 notes, pens, pencils etc well before the exam.
- Get a good nights sleep before the exam.
- Spend some time on stress management if you "freeze up" in exams. If you "freeze up" in exams or keep thinking "we haven't been taught this", then ask yourself the question "Do I really understand my maths or am I just trying to survive and learn how to do different questions without really knowing why things work" Remember exams will contain new questions in different contexts to test to see if you understand your maths.
- A rigorous and well organized study program takes effort and discipline but it does wonders for ones confidence.
- You can only do your best. Are you giving of your best?

GOOD LUCK AND MAY YOU ACHIEVE MATHEMATICAL ECSTASY !!!!