Effective revision – the road to success

This document has been produced to assist parents and carers wishing to support their children in the run-up to examinations. It will consider the following issues:

- The importance of a growth mindset
- The theory behind boosting long term memory and recall abilities
- Practical revision strategies
- Technology: friend or foe?
- Effective revision planning
- A home learning environment geared to effective revision
- How parents and carers can support their children when revising

A prerequisite to being successful at school and having the right attitude that will help with all school work and examinations is having what we term a growth mindset, the opposite of a fixed mindset.

<table>
<thead>
<tr>
<th>Fixed Mindset</th>
<th>Growth Mindset</th>
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<tbody>
<tr>
<td>Intelligence is a fixed trait &amp; can't change much</td>
<td>Intelligence can be increased through practice</td>
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<tr>
<td>Focus on performance</td>
<td>Focus on learning</td>
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<tr>
<td>Failure and/or effort perceived as being sign of low ability</td>
<td>Not threatened by hard work or failure</td>
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<tr>
<td>Choose activities to maximise performance (easy ones to feel clever)</td>
<td>Seek new challenges for a sense of achievement</td>
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<tr>
<td>Don’t recover well from setbacks</td>
<td>Mistakes are perceived as a good thing as they help the learning processes</td>
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The word YET is important in having the right attitude:

See what Michael Jordan has to say about the importance of learning from failure

https://www.youtube.com/watch?v=45mMioJ5szc
Revision is the process of going over what has been learned earlier in the school year to make sure that examination questions can be successfully answered.

It is the key to success. Some students work hard in class and carry out homework tasks but just do not revise effectively. As a result they do not achieve as well in the examinations as they could have done.

It has been said that we learn:

- 10% of what we read
- 20% of what we hear
- 50% of what we see and hear
- 70% of what is discussed with others
- 80% of what we experience personally
- 90% of what we teach someone else

The key point about revision is that it is necessary to be active not passive. Just reading through an exercise book is not the recipe for success. Engaging with past notes is. This can involve a wide range of activities which will be dealt with in this booklet.
Our capacity to process information is limited. People can manipulate only a few pieces of information at any one time. Rote learning — simple memorization based on repetition — is short-lived, poorly organized and does not support the ability to transfer knowledge, make inferences or solve new problems.

Meaningful learning is essentially the opposite of rote learning: It is long-lasting and durable, coherent and well organized, and supports transfer, inferencing and problem solving. If we demonstrate our learning through various means, the stronger it will be stored, the more easily it will be retrieved, and the better we will be at transferring learning to different contexts.

**Retrieval practice** is, as the name implies, the practice of retrieving information from memory.

Retrieval practice makes learning effortful and challenging. Because retrieving information requires mental effort, we often think we are doing poorly if we can’t remember something. We may feel like progress is slow, but that’s when our best learning takes place. The more difficult the retrieval practice, the better it is for long-term learning.

For instance, recalling an answer to a science question improves learning to a greater extent than looking up the answer in a textbook. And having to actually recall and write down an answer to a flashcard improves learning more than thinking that you know the answer and flipping the card over prematurely.

Struggling to learn – through the act of “practising” what you know and recalling information – is much more effective than re-reading, taking notes, or listening to lectures. Slower, effortful retrieval leads to long-term learning. In contrast, fast, easy strategies only lead to short-term learning.
Some research has been conducted on learning vocabulary. The chart on the right shows the proportion of words that students remembered one week after the initial learning session. Merely studying the words once without ever recalling them produced extremely poor performance (average recall was 1 percent, barely visible on the figure). Practising until each translation was recalled once was much better. But what about the effects of repeated retrieval practice? Massed retrieval — repeating the translations three times immediately — produced no additional gain in learning. Repeated retrieval enhanced learning only when the repetitions were spaced, and indeed, the effects of repeated spaced retrieval were very large.

In a single experiment, simple changes that incorporated spaced retrieval practice took performance from nearly total forgetting to extremely good retention (about 80 percent correct) one week after an initial learning experience.

Spaced Practice

_How To Do It_

After you review information from the most recent class, make sure to go back and study important older information to keep it fresh.

Forgetting Curve

_Ways to Retrieve_

Initial Learning Event

- 15 Day Retrieval
- 30 Day Retrieval
- 60 Day Retrieval

Memorization Accuracy (%)
Our brain is like the back of an electrician’s van: a tangle of coloured wires – about 100 billion to be imprecise. These wires are called neurones and they are connected to each other by synapses.

Each time we practise something, a different highly specific circuit is illuminated in our heads like fairy lights strung round a Christmas tree.

Each time we practise something – be it a mental or physical skill – our nerve fibres are coated in a layer of insulation called myelin which acts in much the same way as the rubber insulation that coats a copper wire: it makes the electrical impulses stronger and faster by preventing the signals from leaking.

Deliberate practice is about struggling in certain targeted ways – placing artificial barriers in the way of our success in order to make it harder to learn something. In other words, we slow our learning down and force ourselves to make mistakes.

So the best form of practice – and therefore the best way to create more myelin – is to set yourself a target just beyond your current ability but within your reach. If the task is hard yet just within our grasp, then we will learn. And because we struggle but overcome the challenge, our brains are rewarded with a dose of the naturally occurring chemical dopamine which makes us feel good and encourages us to keep on learning.

That microsecond makes all the difference – in that moment, we don’t practise any harder but we do practise deeper. We slow down and locate what Robert Bjork calls “the sweet spot” – the optimal gap between what we know and what we’re trying to do. When we find that sweet spot, Bjork says, “learning takes off”.

This is why, once we have taught something for the first time and pupils have encoded it in long-term memory, we must return to it again and again and, each time, ensure that retrieval practice is hard work.

Only by repeating learning in deliberate, targeted ways, will there be an improvement in the storage and retrieval strength of that information.

Dual coding is the combination of words and images.

We have two specific, yet connected, cognitive subsystems:

one specialises in representing and processing non-verbal objects or events;

the other specialises in language.

In other words, we process verbal and visual information separately and so can double the capacity of our working memory if we utilise both verbal and visual processing at the same time.

What’s more, dual coding allows us to boost the information traces in our long-term memory (as two connected traces are stronger than one single trace) and it enables us to recall – or recognise – the information in two different ways.
Producing a mind map on a blank sheet of A4 on a topic being revised based on notes is a good idea.
**HOLD ON!**

Work your way up so that you can describe and explain without looking at your class materials.

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**A home learning environment conducive to effective revision**

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Not conducive to an uncluttered mind or finding your revision notes!
Many students make the most of the spaces in their homes to display their learning materials such as posters, mind maps and key words, for example. Producing these materials helps with revision and if they are displayed seeing these key bits of information on a daily basis will help consolidate that learning.

Putting post it notes round the house with key bits of information can also help.

Highlight key words in notes so they are easier to spot.
There is a lot of advice for students on BBC Bitesize such as this one:

http://www.bbc.co.uk/guides/z6pv3k7#zh2th39

Sometimes students think they know what they have just read. To make sure they do, they should adopt this approach:

**Study** notes and diagrams

**Cover** them

**Write** them on a separate sheet or say them aloud to yourself

**Check** them

**Good and bad stress**

Those revising will not perform well if they are too stressed but a certain amount of stress is needed:

**EUSTRESS**

Eustress or positive stress occurs when your level of stress is high enough to motivate you to move into action to get things accomplished.

**DISTRESS**

Distress or negative stress occurs when your level of stress is either too high or too low and your body and/or mind begin to respond negatively to the stressors.

Another method is to cut up squares of paper or card. Questions can be written in one side and answers in the back. Sets of cards for different subjects can be put into separate envelopes.

This is ideal for self-testing on a regular basis or getting someone else to test you.
Relaxation techniques

For those who are getting too stressed various techniques can be tried

- Having a hot bath
- Breathing deeply and slowly
- Meditating
- Running
- Playing sports
- Working out
- Dancing

Mindfulness is increasingly popular as a technique. There are many websites about this. Here is one:

https://youthmindfulness.org/what-is-mindfulness/?gclid=EAIaIQobChMI1sCugoGH4gIYVYbftCh3ctg4vEAAYASABEgluq_D_BwE

Over time concentration wanes as revision proceeds so it is best for every student to know how long they can usefully concentrate before needing a bit of a break.
What would happen if you continued to work?
In the run up to an examination period it is useful to have a revision timetable to make sure that all topics are covered and that there is a suitable balance between studying and breaks.

**How to get your revision plan right**

- Be realistic and plan time away from your work to avoid burn-out!
- Make sure you study the hardest subjects first, and not at end of day when you are tired
- Be focused: 20 minutes working followed by 10 minutes rest is a good starting point.
- Planning helps you to balance your time so that you don’t spend all your time revising one subject
- If you share your revision plan with friends or family then you are more likely to stick to it

http://www.bbc.co.uk/guides/z83cqhv
http://www.bbc.co.uk/guides/zn3497h
Technology – friend or foe

There are clearly some disadvantages to technology use when revising. It can be very tempting and very distracting. Phones are best kept out of sight and even better out of the room.

On the other hand there are so many ways in which technology can help.
Youtube can be a distraction, but there are so many revision clips on there that it is a useful tool.

BBC bitesize has a lot to offer for Key Stages 3 and 4.

http://www.bbc.co.uk/schools/ks3bitesize

Quizlet has a range of topics with so many sets of questions for every topic imaginable

https://quizlet.com/en-gb

The School subscribes to Educake and that is excellent for Science.

MyMaths continues to be very useful for practising a range of Maths skills.

GCSEPod is accessible for current Year 11 students and covers many subjects.

**Website with advice for parents and carers**

Exam time can be very challenging and stressful for both students and their families. So how do you help teenagers stay calm, motivated and reach their full potential?

In this series of short films, experts, parents and students offer practical advice to parents of teenagers, to help exam season pass more smoothly for everyone.

http://www.bbc.co.uk/programmes/articles/2Qf86MGyCkHITq4h1tWfknn/advice-for-parents-whose-children-are-sitting-exams

Being a parent for children revising can be very difficult. You need to strike the right balance. You want to support and help without alienating them.
We hope that you have found this document of use. All students receive advice on revision in Year 7 in their Learning to Learn lessons and this is added to as they work their way up the school in the run up to examinations but hopefully the advice in this document allows you to feel better equipped to support and guide your children in the stressful examination season or in the build-up to any tests during the year.