



Learning Centre

## **EXAM PREPARATION & MEMORY**

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There is no quick and easy way to succeed on exams. You have to work steadily throughout the term and have to study hard prior to a test. Unfortunately, many students do not do as well on exams as they could because they do not know how to put information into memory in such a way as to get it out easily. Outlined below are some suggestions on preparing to study and for moving information from short-term to long-term memory.

### **Getting Started**

#### **USE A SCARE TACTIC**

Two weeks before an important exam, make a list of all the topics you have to study for the test. Use your course outline or textbook to help you do this. Then write the exam date on a calendar and fill in all the other academic deadlines and personal commitments you have between now and then. Then compare what you have to cover for the exam with the amount of time you have available. Remember, it will take you twice as long to complete the work than you think it will and there are always unexpected events that will interfere with your study time.

#### **PICK A START DATE AND STICK TO IT**

Based on the information on your calendar pick a start date. Circle the date in red. Make a neon coloured poster with the date on it and stick it in your room or write it in big letters on your memo board. Now that you have made a solid commitment and have set a goal, you will be more likely to start.

#### **START WITH SOMETHING SMALL**

Once you have listed all the topics you have to study for the exam, pick just one. Pick a topic or unit that you particularly enjoyed and found interesting and start there. A small success makes you feel good and relieves some of the anxiety associated with studying. Once you have the ball rolling it will keep rolling until all the exam topics are covered.

**GROUP THE MATERIAL TO BE STUDIED ACCORDING TO TOPICS**

For each topic to be studied collect together your class notes, textbook notes, handouts, and assignments that all deal with that particular topic. By studying everything to do with that particular topic. By studying everything to do with that topic together your learning will be reinforced and everything to do with that topic will be stored together in memory.

**BE SELECTIVE**

For each topic and chapter, there will be some ideas that are more important than others. This is usually indicated by the amount of time spent on a subject or the emphasis given verbally by the instructor. If you have an assignment that focused on a particular topic, this too is an indication of importance. For each topic or chapter try to focus on the most important material. It is better to know the main material well rather than having covered everything little point very generally.

**Moving Information for Short-Term to Long-Term Memory****BE AN ACTIVE/MULTI-SENSORY LEARNER**

One of the most common ways we move information into long-term memory is through repetition. The more ways and senses we use to repeat information, the better it sticks in memory. To become a multi-sensory learner follow the steps below:

- a) Read the material and decide what you need to commit to memory.
- b) Take a scrap piece of paper and take summary notes on the material to be learned; use your own words if you can.
- c) Work with the material until you can write it out without looking back at the source.
- d) Now cover up the material and practice verbally reciting the material.
- e) Once you can recite the material try and visualize what you are learning. You can visualize charts, graphs, diagrams from your notes and textbooks. You can even make up your own visualizations by visualizing reactions in chemistry, formulae, examples, time lines in history, etc.

**ORGANIZE MATERIAL INTO STUDY SHEETS**

Material that is organized in meaningful ways is four times faster to learn than information that is random. Organized material stays in memory longer and is easier to recall.

Making study sheets is one way to organize material. There are many ways to create summary sheets, some of these are outlined below.

### A concept summary sheet

On a piece of paper write down the most important concepts for a topic and list underneath each concept the most important details. By doing this you are relating the concepts to the topic and the important detail to the concepts.

### A comparison summary sheet

Make as many columns as you have things to compare. Maybe you are comparing the three different Gas Laws: the Ideal Gas Law, Charles' Law and Boyles' Law. You would create three columns and summarize each law and its related formulas in its respective columns. This enables you to see information side by side and clearly see their similarities and differences.

### A table summary sheet

Use a table when you want to categorize different aspects of a topic. Tables are often made for you in textbooks, but you can create your own. See overleaf for an example.

Table 9.1 Classification of Nutrients

CATEGORY	TYPE OF NUTRIENT	COMMENT
MACRO-NUTRIENTS	<ol style="list-style-type: none"> <li>1. carbohydrates</li> <li>2. fats and other lipids</li> <li>3. protein</li> </ol>	required in large amounts; measured in grams per kilogram of body mass per day (g/kg/24 h)
-MICRO-NUTRIENTS	<ol style="list-style-type: none"> <li>4. vitamins</li> <li>5. minerals</li> </ol>	Required in small amounts; measured in milligrams or micrograms per kilogram of body mass per day (mg or ug/kg/24 h)
SPECIAL NUTRIENT	<ol style="list-style-type: none"> <li>6. water</li> </ol>	Involved in most chemical reactions within the body; is a major component of blood and serves as many other functions

**USE FILE CARDS TO OVERLEARN MATERIAL**

In some subjects like languages, sciences, math, for instance, the process known as overlearning is required to get information to stay in memory. Overlearning is defined as “practice beyond the point of mastery.” This means that you know your definitions, formulae, vocabulary, verb tenses, etc. so well that you do not have to make a conscious effort to recall them.

The best way to learn information beyond the point of mastery is to use a pack of file or recipe cards. If you are learning terminology for example, you can write a term on one side and the definition on the other. Flip through the pack front side up and try using multi-sensory rehearsal to recall what is on the back. Then reverse the process. Then start at the middle of the pack and work forwards or backwards. Changing the order in which you learn items is important due to the **serial positioning effect**. This effect refers to the fact that when we learn a long list of things, we tend to remember things at the beginning of the list and at the end of the list but tend to forget the items in the middle. Consequently, by changing the order of the items, you prevent this from happening.

**USE MNEMONIC DEVICES**

Mnemonic devices have a limited use as they are mainly helpful for learning a simple list of items. Mnemonic devices create a forged association between something we already know and something new we have to learn. The main types of mnemonic devices are acronyms, Acrostics, and stories.

**Acronyms:** take the first letters of the terms you want to remember and arrange them into a word that you would remember. For example, you can memorize the colours of the spectrum by remembering the nonsense name **Roy G. Biv**: red, orange, yellow, green, blue, indigo, violet.

**Acrostics:** when the items you have to remember have to be in a set order, use an acrostic. You take the first letter of each item you want to remember and make up a silly sentence using these letters. For example, if you had to remember the order of the planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, you could make up the following silly sentence:

*Men Very Easily Make Jugs Serve Useful & Numerous Purposes*

**Stories:** making up a story with the items you want to remember embedded in it is a fun and excellent way to remember things in a set order. The story must make some sense, but if it is creative and outrageous you will be more likely to remember it.

**MEMORY NEEDS VARIETY**

There is no one way to learn material; it depends on the type of material being mastered. If you are learning definitions you may use file cards; if you are learning concepts you might use a concept summary sheet. Your preferences as a learner will affect which strategies you use. Some people find that visualization is a very powerful memory tool for them, others find that writing information or reciting out loud makes the information stick. So don't worry if what you do is different from your friend, you just have different learning styles.

**MEMORY NEEDS TIME**

A job well done always takes time and hard work. You may find that you are making great progress and then all of a sudden there seems to be a lull in learning. This is natural and is called a "plateau". During this time information is being consolidated and combined into a unified whole. Don't be discouraged; keep working and sooner or later you will make progress again.