

Successful Learning Strategies

SLS-Memory 4

IMPROVING YOUR MEMORY SKILLS

MNEMONICS

Mnemonic devices are used for remembering information that is to be memorized, but not necessarily understood. A general rule for any type of mnemonic device is that it must be simple, clear and vivid. We tend to remember the unusual, the funny, or the personal.

1. *Grouping* - Classify lists on the basis of some common characteristic. Remembering the key element of the group is a key to remembering all the items. An example would be grouping bacteria by gram negative or gram positive staining procedures. Another example would be to group the cranial nerves into sensory, motor and mixed function
2. *Rhymes* - Set what you need to remember to a common rhyme. One example is: "**O**n **o**ld **O**lympus **t**owering **t**op, **a** **F**inn **a**nd **G**erman **v**iewed **s**ome **h**ops" for the twelve cranial nerves. This is also an example of an acronym (OOOTAFAGVSH).
3. *Acronyms* - Acrostics - Use acronyms or acrostics to help you remember lists of words. The first letter from each word in a list forms a key word, name, or sentence. One example is **NLMEB** for leukocytes (WBCs with the normal differential count); "**N**ever **L**et **M**y **E**ngine **B**low" stands for neutrophils (60%), lymphocytes (30%), monocytes (8%), eosinophils (3%) and basophils (0%) arranged respectively in their normal average percentages. Acronyms are now part of our language. Consider IBM, AT&T, CIA, MGM, PSAF, and FBI. Another good mnemonic for heart murmurs which occur in the more clinically significant "diastole" is **ARMS PRTS** which stands for **A**ortic **R**egurgitation, **M**itral **S**tenosis and **P**ulmonic **R**egurgitation, **T**ricuspid **S**tenosis. The opposite would occur in systole...
4. *Visual Association* - Association involves **linking** two ideas. When you are memorizing lists of words, you can link words by using images. The **PEG** system allows you to remember sequences of ten unrelated items in the appropriate order. It requires you to first remember 10 "peg words" (i.e. One = bun, two = shoe, three = tree, etc.).

If you have ten words that you need to remember, visualize each word *interacting* with the "peg word" that you already know, e.g., visualize the first word wrapped in a bun, the second word stepped on by a shoe, and the third one falling from a tree.
5. *Loci* - Greek and Roman orators who had to remember long speeches used the method of "loci" to trigger their memories. In using the method of *loci*, visualize a room or route that is familiar to you. Then

place each item you wish to remember in a location along that route and "pick it up" as you take a mental walk around that room.

This is especially helpful in giving speeches or having to remember lists of important points in a correct sequence. For example, if you wish to memorize the presidents of the United States in order, you might deposit a dramatic image of each president in strategic location around your house. This would also be useful in the anatomy labs.

Remember that mnemonic devices increase your ability to recall information. They should be abandoned as soon as you know the material so well that you do not need them. Mnemonics also have certain drawbacks. They do not help you to understand the material, they can be time consuming to learn, and under stress you may forget the mnemonic, therefore, being unable to retrieve the information you need.

Expanded examples of *loci*, PEG system, acronyms, and linking

Loci. Perhaps the oldest mnemonic device is **method of place**, said to have been first used around 500 B.C. by the Greek orators. There are several important steps involved in using this method.

- First, the learner must use a well-known street, building, room or "layout" where there are as many distinctive locations as there are items in the list to be remembered. The list of these locations is memorized in a particular order.
- Next the learner must make up a vivid, concrete image of each of the items in the list to be remembered.
- Then associate each item in some vivid, concrete way with the "mental snapshot" of these distinctive locations in their proper order.

Example: Memorize the nuclei of termination within the medulla oblongata where cochlear nerve fibers end.

1. Your familiar location will be the infield of a baseball diamond. Use the pitcher's mound and the four bases as key reference points.
2. Mentally place each nucleus at one of these five locations.
 - a. Accessory nucleus, "at home" = home base

- b. Tuberculum nucleus = first base
- c. Trapezoid nucleus = second base
- d. Superior Olivary nucleus = third base
- e. Trapezium (bank of fibers) = pitcher's mound

This would also be a good way to remember the bones of the hand or foot.

Peg System. In the **PEG** system, items that are to be learned are hooked by vivid mental images onto the "pegs" that have already been learned in a certain order. This system is especially useful when something is to be learned in order or in steps. Here is a list of peg words from one to ten.

- | | |
|-----------------|------------------|
| One is a bun | Six is sticks. |
| Two is a shoe. | Seven is heaven. |
| Three is a tree | Eight is a gate. |
| Four is a door. | Nine is a mine. |
| Five is a hive. | Ten is a hen. |

All the peg words are concrete nouns that can easily be associated mentally with the items to be learned. For example, if the fourth word to be learned is "chlorophyll", it will be retained better if it is translated into something like the opening of a **green door**.

A similar system involves visualizing the numbers themselves as pictures.

- 1- is a pen.
- 2- is a swan.
- 3- is a bird in flight.
- 4- is a sailboat.
- 5- is a hook.
- 6 -is a golf club.
- 7- is a cliff.
- 8- is a snow man.
- 9- is a lollipop.
- 10- is a bat and ball.

Figure out why each of these numbers looks like the word and you can easily remember 10 things by associating them with the picture.

Acronyms. There are two steps involved in using **acronyms** as a memory device. First write down the first letter of each word after arranging the words in the order that you want to remember them. Then choose words that start with the same letters and also seem to go together to form a memorable sentence or phrase.

Bell's palsy symptoms:

"Blink reflex abnormal, Earache, Lacrimation, Loss of taste, Sudden onset, Palsy of VII nerve muscles."

Facial nerve branches: "Ten Zebra Bit My Cat in the Face"

Temporal branch, Zygomatic branch, Buccal branch, Mandibular branch, Cervical branch

Bile: *For the properties of bile:*

"Bile from the liver emulsifies greases,
Tinges the urine and colors the feces,
Aids peristalsis, prevents putrefaction.
If you remember all this, you'll give satisfaction."

Excretion: *For the excretory organs of the body:*

"SKILL"

(Skin, Kidneys, Intestines, Liver, Lungs).

There are certain limitations to the use of acronyms. If your list is too long, it will be difficult to make a meaningful sentence. If several of the words to be memorized (in a particular order) start with the same letter, you will simply have to remember which one came first. Also visual imagery is not used for forming associations between the letters and the words because the words that should be remembered are already familiar as a group (first nine presidents of the United States).

Linking. Another memory technique is the **link system**. Instead of associating the item to be remembered with a "layout" or a "peg" we link them with each other. The link system is used to remember whatever needs to be remembered is sequence only.

grocery store	bread	milk	hamburger
image #1	image #2	image #3	image #4

Remember to use concrete images, adding lots of color, detail, and action. Visualize the grocery store with a huge loaf of bread on the roof. See the image in your head. Then make up an image for bread and milk. For example, visualize yourself dumping a gallon of milk over a loaf of bread. See the action in your head. Now, do the same for milk and hamburger. You might visualize a cow with a picture of a burger and a glass of milk tattooed to its side since both of these items come from a cow. Visualize the cow. Now if you trigger your memories by actually going to the grocery store, you will be able to remember this sequence using your linked visualizations.

Conclusion:

The key to good memorization is review. Spend time creating your mnemonic, but spend more time reviewing it, practicing it, saying it out loud, and quizzing yourself.

Referenced Resources: Utah State University Academic Program, Susie Mirick, College of William & Mary,
<http://www.medicalmnemonics.com>