



# Mnemonics—Memory Assisted Retention Strategy (MARS)

## Introduction

Students often have trouble recalling certain pieces of information for tests. Mnemonics may be just the answer to help students retain some of that elusive information!

## Science Concepts

- Mnemonics
- Memory aids

## Background

"Red on yellow, kill a fellow—red on black, friend of Jack" is a handy way to remember if a snake is poisonous. This verse, which reminds users of the color patterns of poisonous snakes, is an example of a memory aid called a mnemonic device. One of the most common mnemonic devices used in the science classroom is ROY G BIV, which is used to help students remember the colors of the visible spectrum or rainbow (red, orange, yellow, green, blue, indigo, and violet).

The mnemonic device in the title, MARS, is an example of a strategy used to remember the definition of a concept, in this case mnemonics, by forming an easy-to-remember construct with the first letter of each word in the definition. Mnemonics are memory aids—devices intended to assist the memory. Mnemonics can be formulas or verses that assist the user with retaining and recalling past experiences. The repetition and associations formed with mnemonics create easy-to-remember constructs based on personal, special or meaningful information, which otherwise occurs in meaningless sequences.

The word mnemonics comes from the name of the Greek god *Mnemosyne*, who in Greek mythology was considered the personification of memory. Mnemonic devices are important techniques associated with brain-based learning strategies, because the meaningful constructs that result are key to retaining the concepts.

Some popular mnemonics are listed below.

### Roman Numerals

**I** Value **X**ylophones **L**ike **C**ows **D**ig **M**ilk

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

### Planets

**M**y **V**ery **E**ager **M**other **J**ust **S**erved **U**s **N**ine **P**izzas

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto

I bought a Mercury to go to visit Venus, but how on Earth can I afford to visit Mars? Jumpin' Jupiter, Saturn's sale is Saturday. Uranus said that Neptune's selling Pluto's cars.

### Stellar Classification

**O**h **B**e **A** Fine **G**irl/**G**uy, **K**iss **M**y Lips **T**enderly

O, B, A, F, G, K, M, L, T

## Metric System Prefixes

King Henry Died Drinking Chocolate Milk

kilo	hecta	deca	deci	centi	milli
1000	100	10	0.1	0.01	0.001

## Taxonomy

King Phillip Could Order Fairly Good Soup

King Phillip Could Only Find Green Socks

Kingdom, Phylum, Class, Order, Family, Genus, Species

## Kingdoms of Life

All Pilots Fly Planes Every Afternoon

Animalia, Plantae, Fungi, Protista, Eubacteria, Archaea

## Stages of Mitosis

I Pet My Awful Tiger

Interphase, Prophase, Metaphase, Anaphase, and Telophase

## Diatomic Elements

I Bring Clay For Our New House

Iodine, Bromine, Chlorine, Fluorine, Oxygen, Nitrogen, and Hydrogen

## Common Elements

CHONPS CaFe

Carbon, Hydrogen, Oxygen, Nitrogen, Phosphorus, Sulfur, Calcium, and Iron

## Macronutrients

C HOPKINS CaFe is Mighty good.

Carbon, Hydrogen, Oxygen, Phosphorus, Potassium, Iodine, Nitrogen, Sulfur, Calcium, Iron, and Magnesium

## Relationship between electricity and magnetism as they relate to force

F BIL

Force = Magnetism  $\times$  Current  $\times$  Length

## 8 Simple Sugars (Isomers of glucose)

All Altruists Gladly Make Gum In Gallon Tanks

Allose, Altrose, Glucose, Mannose, Gulose, Idose, Galactose, and Talose

## Redox Reactions

Red Cat And Ox

Reduction occurs at the cathode, the anode is where oxidation occurs.

LEO the lion says GER

Loss of Electrons is Oxidation while Gain of Electrons is Reduction

OIL RIG

Oxidation Is Loss, Reduction Is Gain

### **Cardinal Points of the Compass—clockwise**

Never Eat Slimy Worms  
Never Eat Soggy Waffles

North, East, South, and West

### **Geologic Time Periods**

Paleozoic Era

Campbell's Ordinary Soup Developed Mysterious Pains in Percy

Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, Permian

Mesozoic Era

Try Judy's Cooking

Triassic, Jurassic, and Cretaceous

### **Math**

**SOH CAH TOA [so ca tō a]**

Sine is opposite divided by hypotenuse

Cosine is adjacent divided by hypotenuse

Tangent is opposite divided by adjacent

### **Graphing**

**DRY MIX**

Dependent or responding variable is on the Y axis and the manipulated or independent variable is on the X axis

### **Tips**

- Encourage students to think of definitions or terminology that have been difficult to remember and have them come up with mnemonics to help them remember these concepts in the future.
- Have students teach each other concepts using mnemonics.

### **Connecting to the National Standards**

This laboratory activity relates to the following National Science Education Standards (1996):

*Unifying Concepts and Process: Grades K–12*

Systems, order, and organization