WELCOME TO XTRAGENIUS

ABACUS MENTAL ARITHMETIC LEARNING PROGRAM

XTRAGENIUS is not a class for teaching mental arithmetic but its aim is to bring around complete brain development. Mental math’s is an added advantage garnered through the whole exercise. Initially Mental arithmetic is taught with the help of an ABACUS.

XTRAGENIUS Mental Arithmetic is a form of training which will enhance a child’s ability to calculate without the aid of any instrument such as paper, pen, calculator or abacus, after initial abacus training. The child will be able to calculate with speed and accuracy using his/her own mental power. XTRAGENIUS Mental Arithmetic is fun filled learning.

XTRAGENIUS is a mental development program based on mental arithmetic system. It starts with the use of an abacus and soon the child learns to do calculations in his mind itself without a physical abacus. This training will enhance a child's ability to do calculation without the aid of any instrument such as the calculator, abacus etc. The child will be able to calculate with speed and accuracy using his own mental power and can surpass the speed of even a calculator.

Children who undergo XTRAGENIUS arithmetic training would have several positive benefits. Some of these are:

- Greater concentration
- Keen Listening skills
- Better reflexes
- Better application skills
- Improved analytical skills
- Better creative and imaginative skills
- Improved reading writing and learning skills
- Better Memory
- Sharper observation
- Self – confidence
- Better expression
- Better comprehension and calculation skills

Mental Arithmetic + Practice = Brain Development.
Guideline for Parents

Concept

Our cerebrum is divided into right brain and left brain. The left brain is in charge of the logic, literate, numerical, analytical, sequential facts and remembrance whereas right brain is responsible for color, music, imagination, senses, rhyming, daydreaming, pattern and overall thinking. Left brain governs the right limbs and the right brain governs the left limbs. Conversely the action of the limbs also has an influence on the development of the brain. So, in order to give rain to the overall intelligence of the cerebrum, both the right and left brain must be trained at the same time. The creativity will be at its greatest only when both brains are communicating and co-operating with each other. To achieve the above goal we make the students work on Abacus with both their hands thus ensuring improved coordination between both the hemispheres of the brain.

CLASS 1

Definition of ABACUS

Abacus is a Latin word meaning sand tray. The word originates with the Arabic "abq", which means dust or fine sand. In Greek this would become abax or abakon which means table or tablet.

Abacus is an ancient tool which is used for fast and accurate calculation.
Components of an Abacus

Abacus is made up of a frame with vertical rods on which beads move up and down. Dividing the upper and lower portion of the abacus is a horizontal bar called a beam or reckoning bar.

Sitting Posture

Sit upright with both legs perpendicular. Inhale with broad chest. Occupy only half of the chair while sitting. Before using the Abacus, the Abacus must be placed vertically on left side of the table, pencil on right side and both hands placed on thighs.

Position of Abacus

Abacus is to be placed exactly below the sum being solved, with 'Unit Point' aligned straight with the sum and your nose. As you go to another sum, move Abacus so that it is now under the new sum being solved, just below the sum.

How to Hold Abacus

Abacus is to be placed on the table at a distance of 4 fingers from the edge of the table. Unit point of the abacus should be aligned with your nose. Hold the upper and lower frames of abacus with the thumb and last two fingers of your left hand.
How to Hold Pencil

Allow 2.5 cms projection at the end of the pencil

Right Hand: The Pencil should run through thumb and index finger
Left Hand: Hold the pencil with first three fingers & thumb, and end of
the pencil is supported by the last/ little finger

Fingering

Home Rod or Unit Rod – Right Hand To Add Lower Beads, use
Thumb (1~4)

To Add Upper Beads, use Pointer (5)

To Add Lower and Upper Beads together, use Thumb and Pointer
together like a pinch (6~9)
To Less(MINUS) upper & Lower Beads, use pointer.

To Add & Minus Upper & Lower Beads together, use open Pinch
(6~9) Rods on the left of Home Rod – Left Hand

To Add & Minus Lower Beads, use Pointer (10~40)

To Add & Less Upper Beads, use Middle Finger (50)

To Add & Minus Lower and Upper Beads together, use Middle and
Pointer together as a Scissors. (60~90)

Clearing abacus

Calculations normally begin with an empty or cleared abacus. Place the abacus flat on the
table, then tilt the frame toward you. Gravity pulls all the beads down. At this point only
the upper beads have been cleared away from the beam. Place the abacus back onto the
table and hold it with the left hand. Then, using the back of the right index finger, make a
sweeping motion from left to right between the top of the beam and the bottom of the
upper beads. This forces the upper beads up away from the beam. When none of the rods
shows any value, this is what is known as a cleared frame.
Abacus one bead sits above the beam and four beads sit below. The beads above the beam are often called **upper beads** and each has a value of 5. The beads below are often called **lower beads** and each has a value of 1.

Along the length of the beam, you'll notice that every third rod is marked with a dot. These specially marked rods are called **unit rods** because any one of them can be designated to carry the unit number. While the abacus operator makes the final decision as to which rod will carry the unit number, it is common practice to choose a unit rod just to the right of center on the abacus.

The dots also serve as markers by which larger numbers can be quickly and efficiently recognized.

### Always Work from Left to Right

Fundamental to good abacus technique is the rule **always work from left to right**. This may seem a little odd at first but it's extremely important. It's one of the abacus's biggest advantages. It allows us to solve mathematical problems with great agility and speed, in part, because numbers are added and subtracted in exactly the same way we read and hear them.

### Setting Numbers on ABACUS

Use only the thumb and index fingers to manipulate beads on a abacus. The thumb moves the lower beads up toward the beam. The index finger moves everything else (all upper beads down away from the beam and all upper beads up & down).
Place the abacus flat on the table, then Hold the abacus with left hand and hold pencil in the right hand

Bringing up 1 lower bead so that it touches the beam gives a rod a value of 1.

Three lower beads touching the beam give that rod a value of 3.

To make a value of 5 clear all the lower beads and move one upper bead down so that it touches the beam.

Pinching together one upper bead and one lower bead sets a value of 6 and

Pinching together one upper bead and two lower beads sets a value of 7

Pinching together one upper bead and three lower beads sets a value of 8

Pinching together one upper bead and four lower beads sets a value of 9
Setting Numbers 1 to 9 on the ABACUS
Clear the ABACUS first

**LESSON 1**

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**Fingering Exercise:**

1. Set +1 on all the rods

2. Set -1 on all the rods

Using right hand thumb, move lower bead up which means PLUS 1 (+1)

Using right hand index finger, move lower beads down which means MINUS 1 (-1)
DO IT YOURSELF:

PRACTICE for 5 times and similarly for +2, -2, +3, -3, +4, -4 and upto +9, -9

Simple Exercise

Write the values for the beads shown (Flash the beads)

6, 8, 3, 2, 5, 8, 1, 9, 4
Heading: Draw the beads for the numbers shown

3,7,4,8,4,6,1,9
### Simple addition & subtraction

When using an abacus to solve problems of addition and subtraction, the process can often be quite straightforward and easy to understand. In each of the examples below, beads are either added or subtracted as needed.
Simple Addition

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Do it Yourself

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### Do it Yourself

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<tr>
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<th>Expression</th>
<th>Answer</th>
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<tr>
<td>Q2</td>
<td><img src="image3" alt="Expression" /></td>
<td><img src="image4" alt="Answer" /></td>
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### Some Examples

- 1 + 2 = 3
- 237 + 152 = 389
Simple Subtraction

12 + 31 = 43

9 - 6 = 3

43 - 12 = 31

187 - 125 = 62
### Do it Yourself

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<td>2</td>
<td><img src="50+40=90.png" alt="Image" /></td>
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<td>3</td>
<td><img src="90-70=20.png" alt="Image" /></td>
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**Slogan for oral sums:** Ready ………. that is. E.g. for the sum $2+1+5-1-5+1$, say Ready two…+ one… five… minus one… five…+ one. that is?

**Book Work**

Maximum 5 to 6 pages should be done in a week, but have to finish only one page a day (one page will take approximately 5-12 minutes)
Everyday Practice

SPEEDWRITING Fun

0123456789 or 9876543210

Speedwriting should be written horizontally and should be properly aligned

START writing the above number continuously when your count starts 1 and STOP when it reaches 60 which means the time limit is set for 1 minute. You will hear a BEEP sound to STOP.

OK get ready!! Take your Book and Pencil

YOUR COUNT STARTS now!!!!!
In the case of 10, the operator uses five groups of complementary numbers:
9 & 1, 8 & 2, 7 & 3, 6 & 4, 5 & 5.

With time and practice using complementary numbers becomes effortless and mechanical. Once these techniques are learned, a good operator has little difficulty in keeping up with (even surpassing) someone doing the same addition and subtraction work on an electronic calculator.

The following examples illustrate how complementary numbers are used to help solve problems of addition and subtraction. In all cases try not to think beforehand what the answer to a problem will be. Learn these simple techniques and you'll be amazed at how quickly and easily correct answers materialize, even when problems contain large strings of numbers.

### Addition

In addition, always subtract the complement.

Add: 3 + 3 = 6

Set 3 on rod A.
Add 3.
Because rod A doesn't have 3 available, use the complementary number.

The complementary number for 3 with respect to 5 is 2.
Therefore add 5 and subtract the complementary 2 from 3 on rod A.
The answer 6 remains. (Fig.8)
$3 + 3 = 6$ becomes $3 + 5 - 2 = 6$

Fig. 8

\[ \text{Add: } 4 + 4 = 8 \]

Set 4 on rod A.
Add 4.
Rod A doesn't have 4 available so use the complement again.

The complementary number for 4 with respect to 5 is 1.
Therefore add 5 and subtract the complementary 1 from 4 on rod A.
This leaves the answer 8. (Fig. 8a)

\[ 4 + 4 \text{ becomes } 4 + 5 - 1 = 8 \]

Fig. 8a

\[ \text{Add: } 4 + 8 = 12 \]

Similar exercises:

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