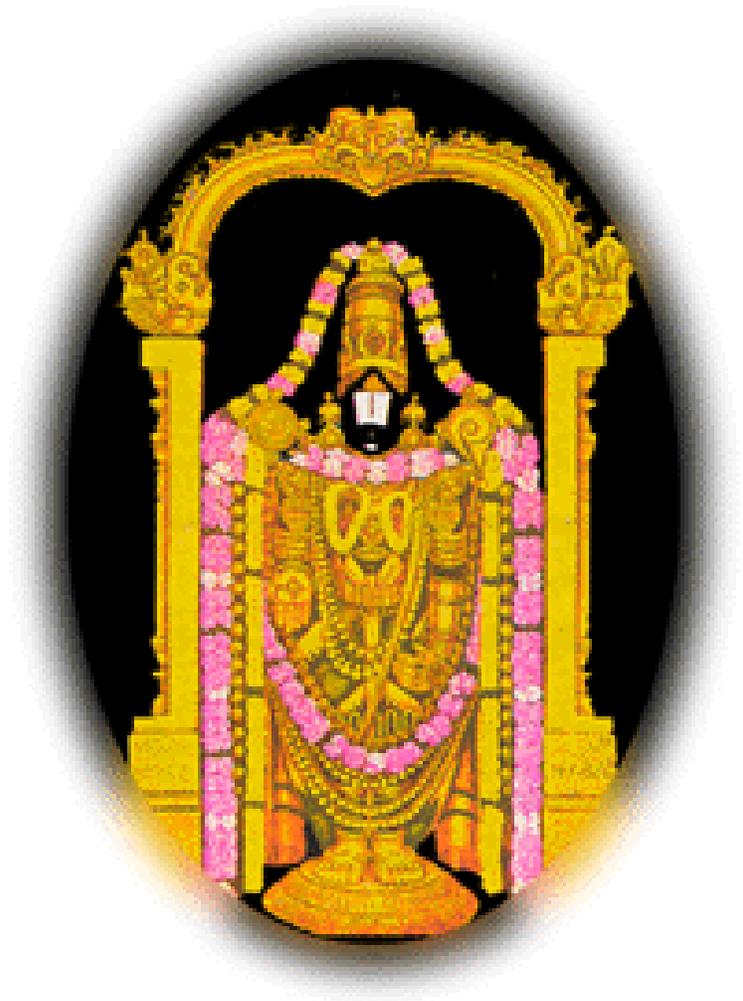




Youth Group for Indian Culture



YEAR IX

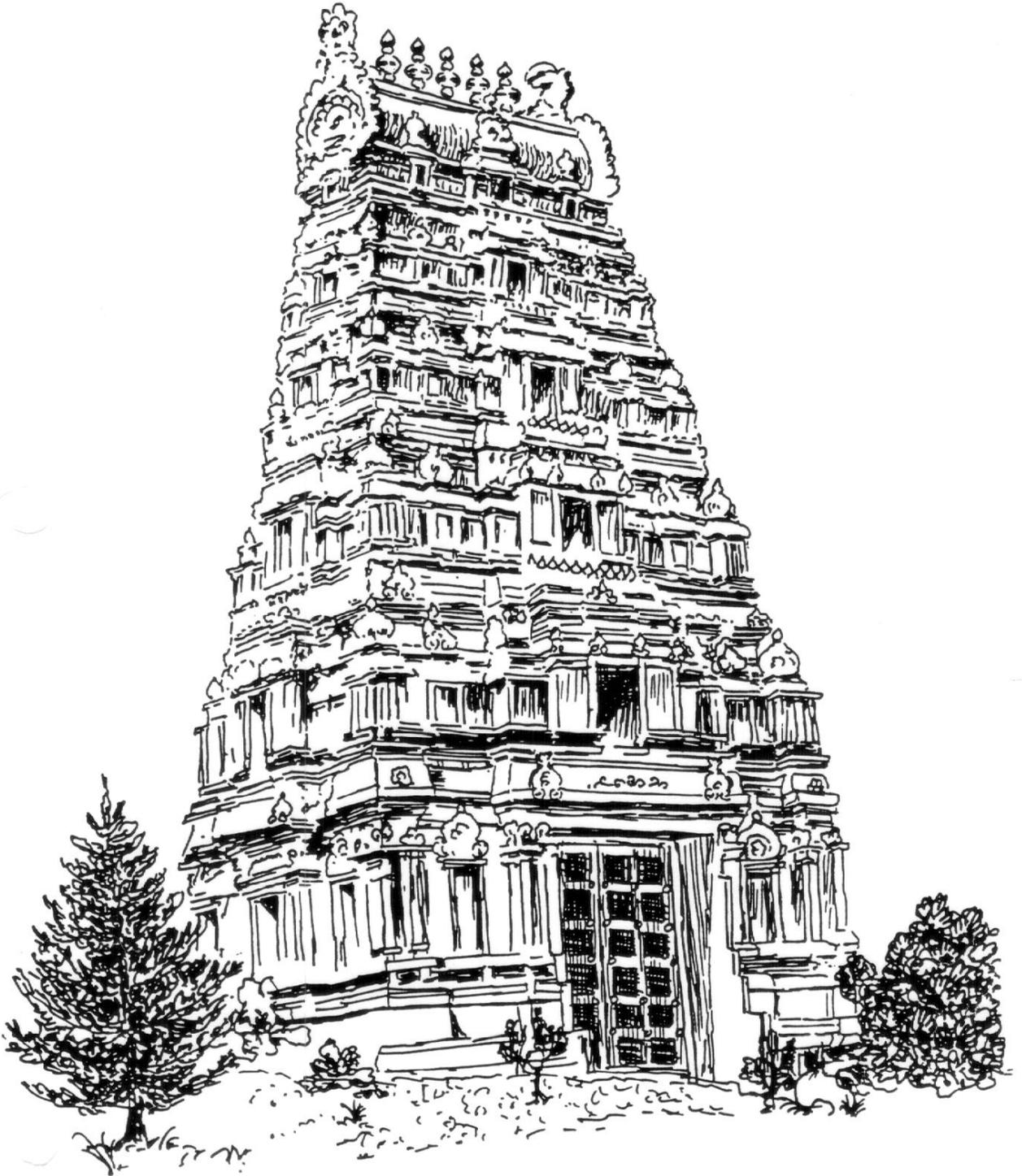
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The left hand side pages in this book are left blank on purpose. They can be used for taking notes.

The book is strictly for non-profit use only. Feel free to make copies and circulate it and should not be sold for Profit. Any questions or comments please refer to www.ygic.us.

RAJAGOPURAM



CHAPTER ONE

Multiplication Table (Vedic Square)

x	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	1	3	5	7	9
3	3	6	9	3	6	9	3	6	9
4	4	8	3	7	2	6	1	5	9
5	5	1	6	2	7	3	8	4	9
6	6	3	9	6	3	9	6	3	9
7	7	5	3	1	8	6	4	2	9
8	8	7	6	5	4	3	2	1	9
9	9	9	9	9	9	9	9	9	9

Vedic Mathematics

The goal of introducing a sampler of “Vedic Mathematics” to kids (nine years of age and older) is to expose them to our rich heritage, and to ancient thoughts that continue to be relevant to modern mathematics. Specifically, the readily available “Vedic Mathematics” resources on the Web and in books contain short-cuts for performing basic arithmetic, but they do not contain easy-to-see justifications for why the short-cuts work, when they fail, and how one can recover from apparent failures, by fixing the intermediate solutions in a systematic way. To remedy this gap, presentations accessible to kids (with some assistance from parents) have been developed. (The parents may also benefit from additional advanced material included.) The entire current set of presentations in MS PowerPoint is provided in electronic form with this book, and will continue to be updated and hosted at:

<http://www.cs.wright.edu/~tkprasad/assortedbookmarks.html>

An overview of the mathematical content of the presentations follows.

(1) *Abstraction*: This lecture introduces the idea of abstraction to distinguish the concept of number and its numerical representation. It covers Egyptian numerals, Roman numerals, and Hindu-Arabic numerals to better motivate the characteristics of a desirable system of representation.

(2) *Positional Number System*: This lecture discusses the benefits of positional number system by explaining the invention of zero (credited to Hindu Mathematicians) and the Hindu Arabic Numerals.

(3) *Arithmetic Operations I*: This lecture discusses single digit multiplication of large digits in terms of multiplication of smaller digits using Vedic method. It illustrates the approach with simple examples and provides a rigorous justification for why it works for the examples shown. It then shows examples where the approach breaks down and explains how to fix the problem systematically.

(4) *Arithmetic Operations II*: This lecture discusses 2-digit multiplication of numbers in terms of “easier” multiplication of smaller numbers using Vedic method. It generalizes single digit approach to 2-digits.

(5) *Divisibility*: This lecture discusses and justifies tests for divisibility by 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11.

(6) *Division by 9*: This lecture discusses an efficient Vedic method for dividing a number by 9.

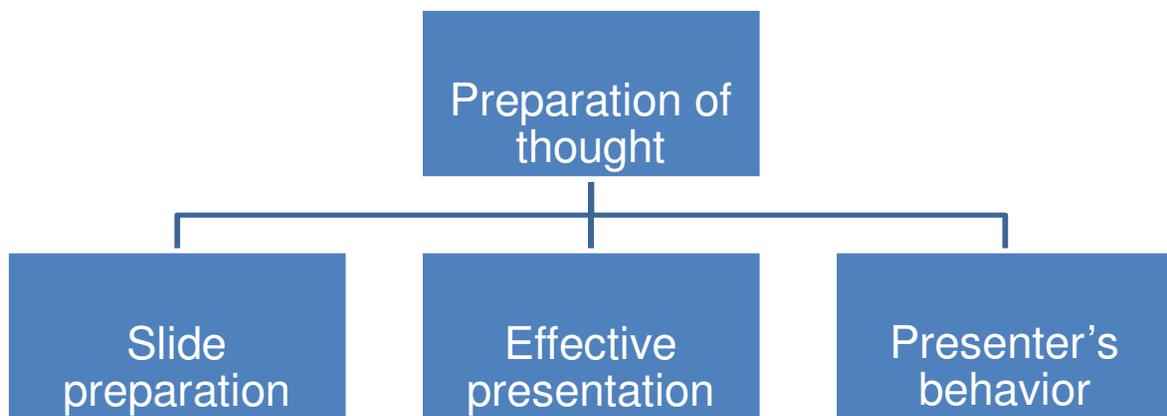
(7) *Digital Sum/Root*: This lecture defines digital sum/root and explores its properties. It also introduces the Vedic Square, Checksums, and Additive Persistence of a number (a rapidly growing function).

(8) *Arithmetic Operations Revisited*: This lecture builds on earlier lectures to square a number, and generalizes multiplication of 3-digit numbers using “Working Base”.

(9) *Prime Numbers*: This lecture defines prime numbers (the fundamental building blocks of Number Theory) and perfect numbers, and explores their relationships. It explains the well-known Eratosthenes Sieve Method of generating primes. It also lists a few easy to describe but very hard to prove claims in Number Theory, to shed light on the intrinsic nature of pure mathematics (Ramanujam’s forte).

(10) *Evolution of Numbers*: This lecture introduces various kinds of numbers: whole numbers, integers, rationals, irrationals, reals, and complex numbers. It explains Pythagoras' Theorem and its proofs (including the one attributed to Bhaskara). It illustrates “proof by contradiction” and “non-constructive proofs”. ■

CHAPTER TWO



Presentation Skills

Why do we need a presentation?

Communication can be done in many ways. It does not have to be verbal either - like a policeman standing in a traffic junction. When we need to explain a subject with more complexity, using visual aids makes it a lot easier to explain.

The word “Presentation” has come to represent slides and talking about the slides in front of an audience. Making it a file makes it easy to share over email. It can be explained in detail with animation, video and picture - it could become self explanatory.

A presentation is a rare opportunity to make an impression that might impact your future. It can be a gateway to big things ahead, but it can just as easily be a roadblock to professional growth. As for becoming a project leader, manager, or executive, good presentation skills are a requirement.

Presentation Basics

- Content - Preparation of thought – 7 items - page 9
- Slide preparation – 7 items - pages 11, 12
- Presenter - Behavioral items – 7 items - page 13
- Q and A Session – 4 items - page 15
- How to do an Effective Presentation – 5 items - page 15
- Evolve as the best – 4 items - page 16

Content - Preparation of thought

1. Evaluate the audience and decide on the content
2. Have always a beginning and an end to finish with a punch line
3. Keep less animation for business crowds - Don't loose them
4. Example and anecdotes are important - Keep them tied to the topic
5. Be ready to modify the method to GET ACROSS your Point.
6. Don't have to tell everything you know, but make sure audience gets it
7. Presentation is "NOT ABOUT YOU". It is about selling your idea or product

Exercise 1: 15 minutes

You are asked to give a presentation to a group of class children who are about the age of 15. They are planning to take a joint overseas trip. You are trying to convince them they should take a trip to India. You have 10 minutes time to convince. Fill up all the items below towards preparation.

Audience Age:

What do they like:

Few important points about their background:

What should be starting line?

What should be the ending line?

What interesting story can I add on this mix?

Write 6 lines on what items you will be touching on:

Group Discussion on everyone's work.

Class 2

Exercise 2: 20 Minutes

You are asked to give a presentation to a group of adults who want to watch a movie. You will select a movie you like and try to convince them they should watch that movie. You have 10 minutes time to give a presentation. Prepare content below for a 10 minute talk.

Audience Age:

What do they like:

Few important points about their background:

What should be starting line?

What should be the ending line?

What interesting story can I add on this mix?

Write 6 lines on what items you will be touching on

Group Discussion on everyone's work.

Class 3

Slide preparation

1. Make sure you have a header and page number
2. Do not go below Font size 14
3. Have at least one picture and have enough colors to match the topic
4. Use animation if necessary without making it a distraction

5. Do not write too much in one page. Preferably 5, max 8 lines
6. It is great to have Index at left if possible
7. Try to keep the slide uniform in color, font and header sizes

Exercise 3

You have been given a presentation - 45 minutes

Rearrange the presentation and do the following:

- 1) Header for each page
- 2) Page numbers
- 3) Uniform Font size to the extent possible

Exercise 3a

- 4) One simple animation
- 5) Right amount of lines in the page
- 6) Uniform color, fonts and font sizes

Class 4: Slide preparation

Exercise 4: 60 minutes

Every one will be given a same presentation. Every one gets 30 minutes to work on the slides and see who has the best looking slides. All students get to evaluate each others work and give grade out of 6. Who ever gets the highest is the winner.

Class 5

Exercise 5: 60 minutes

You take your own topic

Prepare your content like in exercise 1 - 5 minutes

Prepare roughly 10 slides - 20 minutes

Make it professional - 15 minutes

Show it to each other in the class.

Class 6

Presenter - Behavioral items

1. You are who you are – Improvise but not imitate to be someone else
2. Make the eye contact and Control the involuntary moves
3. Be active - Show Gestures and Voice modulation
4. It is absolutely Ok to be funny. But limit it.
5. Interact – Take the audience along with you as Train Engine
6. How to Act on nervousness – Holding On, Pens etc.
7. Dress to be catchy but not become a distraction – Content is the Boss

Eye contact: When you give a presentation you have to move your eye contact from one side to the other side of the room. This way the audience is engaged in the conversation.

Exercise 6

Every student will be given the exact same slide for 3 minutes. Every student gets to come to the podium and speak the content of the slide. This exercise is to make sure the eye contact is good. All the other students get to evaluate each other in a scale 1 to 10.

Class 7

Posture and relaxed feel: You are expected to keep your hands together. Not in your pocket. You should not play with your hands. The hands should not fly all over. There should be a moderate smile and sincerity.

Exercise 7

Every student will be given the exact same slide of 3 minutes. Every student gets to come to the podium and speak the content of the slide. This exercise is to make sure the eye contact, posture and the relaxed feel is good. All the other students get to evaluate each other in a scale 1 to 10.

Class 8

Voice Modulation: You are expected to deliver the story with voice modulated properly to create interest in the topic delivered. This makes the audience not go to sleep and want to hear more.

Exercise 8

Every student will be given the exact same slide of 3 minutes. Every student gets to come to the podium and speak the content of the slide. This exercise is to make sure the voice modulation is proper. All the other students get to evaluate each other in a scale 1 to 10.

Class 9**Overall 3 minute presentation****Exercise 9**

Every student will be given the exact same slide of 3 minutes. Every student gets to come to the podium and speak the content of the slide. This exercise is to evaluate how you perform in eye contact, posture, relaxed feel, voice modulation and overall audience gripping. All the other students get to evaluate each other in a scale 1 to 10 in all these 5 qualities and grade you for a total of 50.

Class 10

Q & A: At the end of presentation there will always be a question and answer session. When audience ask you a question

1. Listen to the question completely. Ask more questions to the questioner.
2. Appreciate the validity of the question. Try your best to answer it. IF you don't know, Say, "I need to think more about it"; "I will get back to you."
3. If someone unfairly criticizes you "DON'T loose your head". Take the high road, smile and **answer the substance** and **not the manner** in which it was asked. Also see if you can reframe the question to the substance.
4. Always leave your contact info for more questions at a later time.

Exercise 10

Every student will be given a different slide of 3 minutes. Every student gets to come to the podium and speak the content of the slide. After the 3 minutes other students get to ask questions on the spoken topic. Based on the reply given the other students get to evaluate each other in a scale 1 to 10.

Class 11**How to do an Effective Presentation**

1. Prepare Well – Organize your thoughts and position them
2. Practice well and Grab the attention
3. First few seconds are the key to take charge
4. Memorize the initial and end lines
5. Beat the surprises - Tech items

Exercise 11: 60 minutes

All the students bring their own topic and prepare 10 slides by sitting in the class. All the students prepare a speech plan for 10 minutes.

Class 12: 60 minutes

Four students give presentation of 10 minutes each followed by 2 minutes of Q and A

Class 13: 60 minutes

Next four students give presentation of 10 minutes each followed by 2 minutes of Q and A

Class 14: 60 minutes

Next four students give presentation of 10 minutes each followed by 2 minutes of Q and A

Class 15: 60 minutes

Next four students give presentation of 10 minutes each followed by 2 minutes of Q and A

Evolve as the best

1. After the presentation take feedback
 2. Do your own evaluation on the points system
 3. The more presentation the merrier.
 4. YES, any one can do it... With Practice this art can become science.
-

Class 16

Extempore: You will be given a topic. You will be given 1 minute to prepare and you will have to make an effective speech of two minutes.

In this book on left hand side, scribble all your ideas for 40 seconds. For the rest 20 seconds organize your thoughts.

1. Have a starting objective
2. See if you can connect with a story
3. Show some variety
4. Have a punch line end

Exercise 12:

Everyone gets a topic and speak in front of others

Class 17

Extempore Championship

Round 1: 4 people move to semifinals

Round 2: 2 people move to finals

Round 3: finals

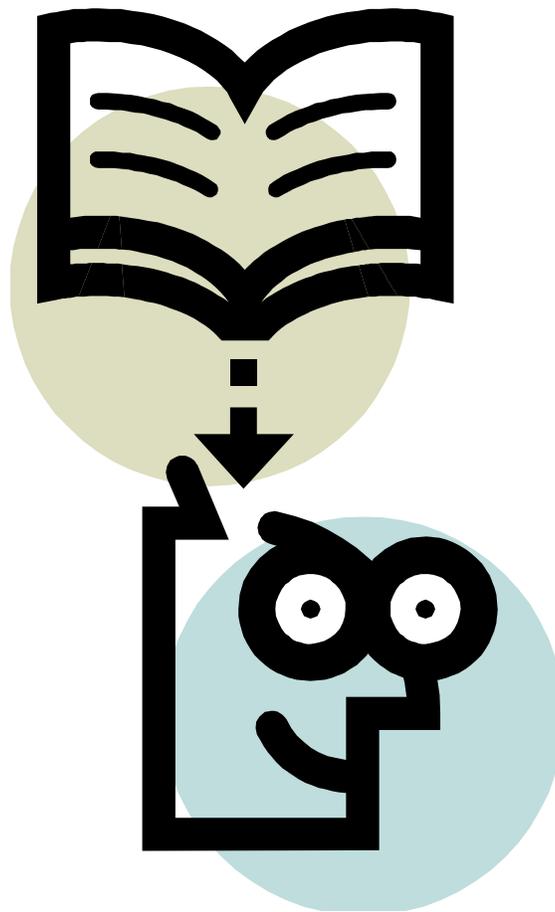
Class 18

Exercise 13: Elevator Speech

Everyone would be given the same topic. You will be given 30 minutes to prepare an exact one minute speech. You can use the blank page on the left hand side of this book to write down the points. Every one comes to the podium and makes a speech. All other students get to grade you and a winner will be picked.

Class 19

Creative writing: All of you get to sit in the class and write one page in this book (on left hand side) about presentation skills in any form you would like showing your creativity. All other students get to evaluate your writing skills based on creativity in writing skills.



Class 20 will be left to the teacher and students to decide.