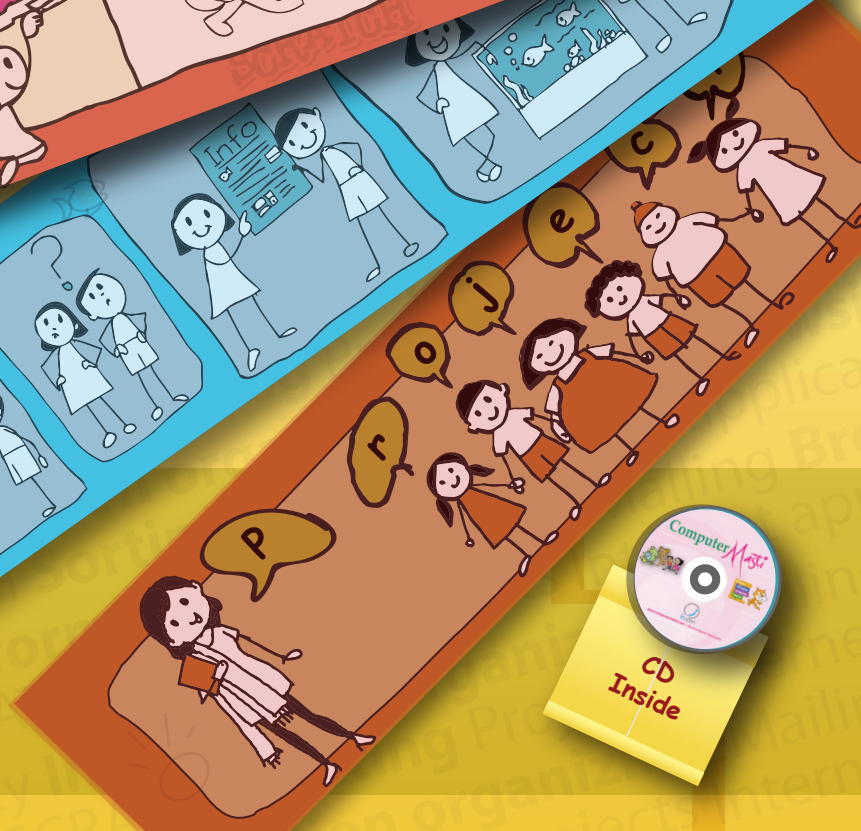
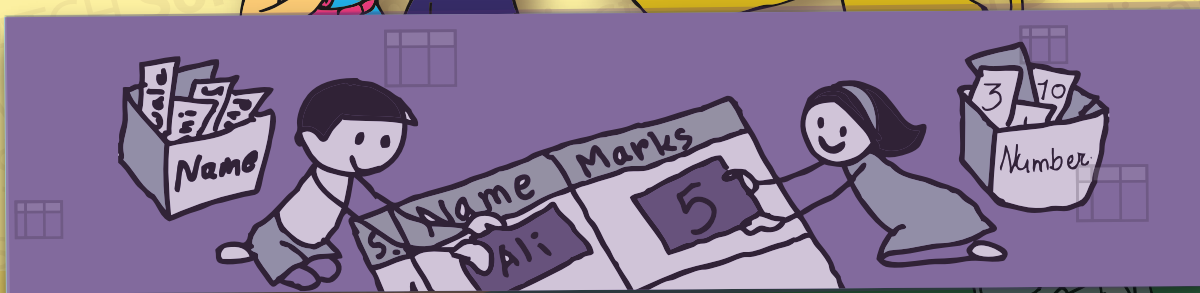
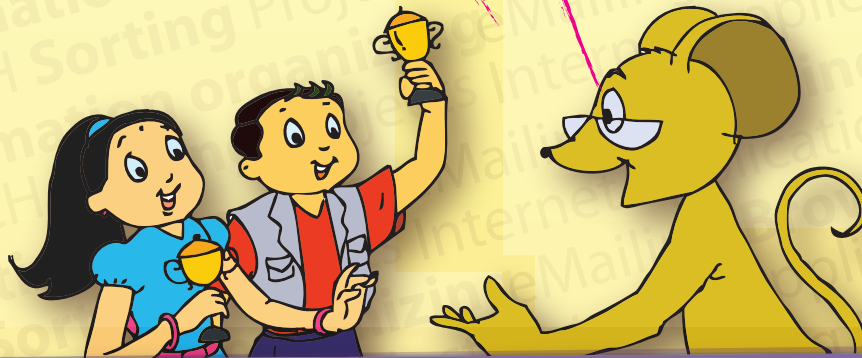


# Computer Masti

Level

V





## A Collaborative Product from IIT Bombay and InOpen Technologies



# Computer *Masti*

Level V



Created at:  
Department of Computer Science & Engineering  
Indian Institute of Technology Bombay  
Mumbai, India.  
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## About This Book

This book has evolved out of contributions from many authors, bringing together a variety of creative ideas. The salient features of this book are:

- The book is based on a detailed computer science syllabus that has been reviewed by many experts. This syllabus is available for download from [www.computermasti.com](http://www.computermasti.com).
- Establishing clarity of thought and developing computer fluency is the main objective of Computer Masti.
- Fun is an important element of learning.
- The lesson contents are woven around interactions between an imaginary teacher and two students. The teacher mostly asks questions that guide the students to discover and learn topics on their own.
- Each lesson focusses on specific concepts and associated skills. These concepts are selected such that: (i) They lay a strong foundation for learning computers. (ii) They contribute towards general intellectual development, and (iii) They are age appropriate.
- The Worksheets and Activities are designed in such a way that they supplement topics being covered in other subjects, to the extent possible. Group activities are included in each lesson to encourage collaborative learning. Projects are also suggested to reinforce the learning of topics across multiple lessons.
- 21st century skills of critical thinking, collaboration, communication and creativity are addressed in the lesson content and supplementary activities.
- The book meets the standards suggested for Continuous and Comprehensive Evaluation (Right To Education).
- The lessons and activities are based on free and open source software. The Computer Masti Toolkit (in the CD) is easy to install on commonly used operating systems.
- The book includes child friendly illustrations that are sensitive to body image and gender issues.
- Each Lesson has a Teacher's Corner section, which gives a lesson plan outline, some dos and don'ts, and pointers to when each worksheet has to be given to students.
- Emphasis on healthy computer practices, including SMART rules of Internet safety, AWARE guidelines for responsible use of Internet resources are addressed in the lesson content and supplementary activities. Poster about these are available on the website. You can put these on the display boards. This would serve as quick reference and memory trigger for the students.
- The online (e-book) version is available freely for individual use, under the conditions described earlier in the Copyright Statement. You may download it from: [www.computermasti.com](http://www.computermasti.com).
- Comments on the book and suggestions may be sent to Sridhar Iyer ([sri@iitb.ac.in](mailto:sri@iitb.ac.in)).

### **Acknowledgements:**

We are thankful to Sahana Murthy for reviewing this book and participating in discussions at various stages. We acknowledge the support provided by Annapurna Chitta for giving us the photographs included in the book. We are grateful to IIT Bombay for support during the creation of this book. We are also grateful to the SSRVM Trust, especially the staff of SSRVM Mulund, for support during the pilot implementation. Last but not the least, the teachings of Sri Sri Ravishankar have been a major source of inspiration for this book.



## How To Use This Book

This book is meant to be used for teaching computers to children in a way that is mostly fun (as indicated by the “Masti” in the title). The teacher’s role is primarily that of a facilitator encouraging active learning. Specific guidelines for each lesson can be found in the Teacher’s Corner of each lesson. Ensure that the conceptual understanding is mastered before proceeding to the skills. Allow students to play educational computer games included in each lesson in order to reinforce learning of the concepts/skills covered in the lesson. In the computer lab, if they are doing activities in groups, ensure that they switch “drivers” frequently, so that each student gets to do a fair amount of the computer based activities. The Worksheets include exercises to inculcate higher order thinking skills. Use the Group Activities and Projects to stimulate creativity and knowledge sharing. The book is designed so that it can be covered comfortably in one year, with one class (30 to 45 minutes) per week. See the table below for an overview of the concepts, skills and values covered in each lesson along with a week wise schedule.

Lesson No:	Topic Name	Concepts	Skills	Values reinforced	Weeks
1	Revision of Level IV	<ul style="list-style-type: none"> <li>o Reasoning and problem solving</li> <li>o Usage of Control statements</li> <li>o Storage and organization of files/folders</li> </ul>	<ul style="list-style-type: none"> <li>o Do Exercises for legs, ankles, foot muscles</li> <li>o Write scratch scripts</li> <li>o Create folders</li> </ul>	<ul style="list-style-type: none"> <li>Exchange of ideas</li> <li>Reinforcing imagination</li> </ul>	1st- 2nd
2	Step-wise Gathering of Information	<ul style="list-style-type: none"> <li>o Identification and analysis of goal for a given task</li> <li>o Identification of resources to gather information</li> <li>o Recording and categorization of information</li> <li>o Decision making</li> </ul>	<ul style="list-style-type: none"> <li>o Apply step wise thinking tools to achieve a goal</li> <li>o Break up a task into main task and sub-tasks</li> </ul>	<ul style="list-style-type: none"> <li>Work systematically and ask for Parental guidance</li> <li>Making a choice within the given constraints</li> </ul>	3rd- 5th
3	Organizing Information using Lists and Tables	<ul style="list-style-type: none"> <li>o Organization of information</li> <li>o Representation of information using tables, and lists</li> <li>o Softcopy and hardcopy</li> </ul>	<ul style="list-style-type: none"> <li>o Create a list, sub-list using Bullets and numbering</li> <li>o Create a table</li> <li>o Add/delete rows and columns in table</li> <li>o Insert pictures in documents</li> </ul>	<ul style="list-style-type: none"> <li>Be proactive and ask for more tasks to be assigned</li> <li>Explore independently</li> </ul>	6th – 8th
4	Advanced Scratch Programming	<ul style="list-style-type: none"> <li>o Capture of input from user</li> <li>o Conditional statements (if-else)</li> <li>o Program Variables, operators and Lists (arrays)</li> </ul>	<ul style="list-style-type: none"> <li>o Assign values to variables</li> <li>o Write scripts using variables and operators</li> <li>o Create lists</li> </ul>	<ul style="list-style-type: none"> <li>Reinforcing creativity to design new games</li> </ul>	9th – 11th
<b>REVISION</b>					<b>12th – 15th</b>
5	Introduction to Internet – Browsing	<ul style="list-style-type: none"> <li>o Network of computers : Internet</li> <li>o Unique address for a website</li> <li>o Sharing of information on Internet through web pages and websites</li> <li>o Hyperlinks on websites</li> </ul>	<ul style="list-style-type: none"> <li>o Use a browser to access Internet websites</li> <li>o Open a given URL</li> <li>o Bookmark a website</li> <li>o Use hyperlinks</li> <li>o Navigation of web pages</li> </ul>	<ul style="list-style-type: none"> <li>Sharing of information</li> <li>Appreciate the analogy between topics and real life examples</li> <li>Keen observation of other’s tasks and relating it to the context of the lesson (seen parents booking online)</li> </ul>	16th – 18th
6	Searching the Internet	<ul style="list-style-type: none"> <li>o Search engine</li> <li>o Search Keywords</li> </ul>	<ul style="list-style-type: none"> <li>o Use effective keywords to search for information</li> <li>o Follow parental/teacher guidance while browsing</li> </ul>	<ul style="list-style-type: none"> <li>Assimilate the given information and ask the right questions</li> <li>Go beyond the lesson content and look for information related to other subjects</li> </ul>	19th – 21st
7	Communication using E-mail	<ul style="list-style-type: none"> <li>o Communication through Email</li> <li>o Email address, login, password</li> <li>o Email spam</li> </ul>	<ul style="list-style-type: none"> <li>o Create an email account</li> <li>o Send and receive emails</li> <li>o Use options in email application</li> <li>o Attach files to email</li> </ul>	<ul style="list-style-type: none"> <li>Keeping in touch with friends and family</li> <li>Differentiate between the right and wrong content in emails</li> </ul>	22nd – 24th
8	Projects				28th- 32nd







## Legends used in the book



Indicator	Explanation
	Lists the topics covered in the lesson.
	Explains the concept discussed in that section of the lesson.
	Gives step by step instructions to do a task (on the computer) in the application being discussed.
	General recommendations that help to achieve a certain goal.
	Provides information and/or additional details about a skill or concept.
	Lists the expected measurable learning objective to be attained by the student after learning the topic.
	Pages with this icon have Worksheets; that test extent to which learning objectives of the lesson are attained.
	Pages with this icon have Activities, which reinforces students' learning.
	This icon represents after class collaborative activities to be presented later in the class for discussion and/or review.
	This image has tasks students can do to gain additional knowledge on the topic of the lesson.
	Pages with this icon gives pointers to the teacher on how to teach the lesson.
	This icon points to a list of websites that can be referred for self learning.
	This section provides quick tips for parents to gauge their children's knowledge.
<i>Black Italic text</i>	Search Keyword, examples and Web site address.
<b>Black text</b>	New word introduction.
<b>Orange text</b>	New Technical term introduction.





## Contents

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# Lesson 1

## Revision of Level IV



In this lesson you will:  
Revise the topics from Level IV.



Tejas and Jyoti were showing the cups that they had won in the summer vacation workshop.

Moz: Congratulations. What was the workshop about and how did you win these cups?

Tejas: We went for a workshop which was of five days duration. Each day we had a different theme. At the end of the day there was a competition, where

we had activities like solving problems, innovating and teaching something new to the participants.

Moz: Tell me more about these activities.

Jyoti: First, a drama was enacted. The actors were stuck at a point with a problem. We had to solve this problem. The actors stood like statues till the correct solution was found!

Moz: That is interesting. What was the problem?

Tejas: Four friends, Shyam, Seeja, Fatima and George, go on a trek one new moon night. They see a flooded stream that they have to cross. They find an old wooden bridge across the flooded stream. There is a notice near the bridge.

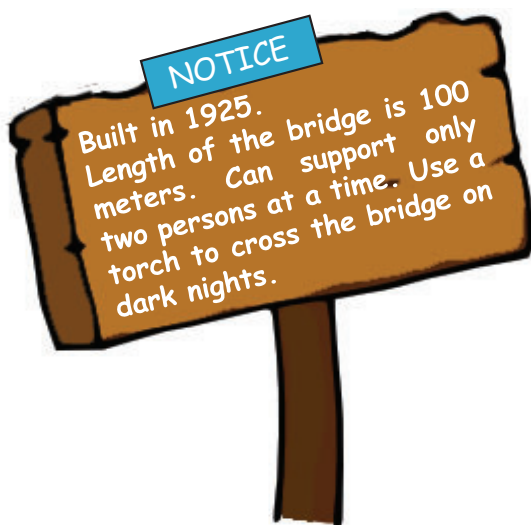
The water level in the stream is rising. A native of the place comes and tells the trekkers that they should cross the bridge in 20 to 25 minutes. Otherwise they will not be able to cross, as the water will start flooding the bridge. They have only one flash light. Each of the trekkers says aloud:

Shyam: I can cross in 1 minute.

Seeja: I can cross in 2 minutes.

Fatima: I can cross in 5 minutes.

George: I can cross in 10 minutes.





Jyoti: There were ten of us in the workshop, with two participants in each team. We were given five minutes to solve the problem.

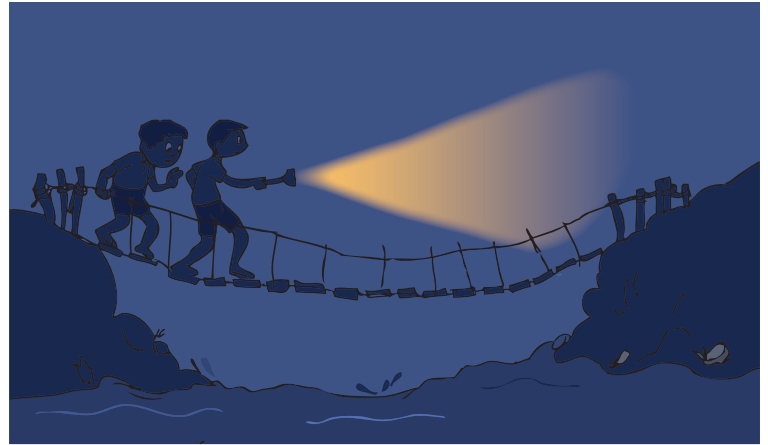
The first team to come up with the correct solution was given a golden star.

Moz: How did you solve the problem?

Jyoti: We discussed the goal, the information given, and conditions. Then we used the information and conditions for reasoning. We solved the problem in less than three minutes. We were the first to successfully solve the problem.

Moz: Good. Show me your approach to the problem and the solution.

Jyoti shows to Moz:



## Steps of Problem Solving using Logical Thinking

### I. Understand the problem

The four trekkers have to cross the bridge while satisfying the conditions.

### II. Identify

Goal: What is the goal?

The four trekkers have to cross the bridge.

Information: What is the information available?

- There are four friends - Seeja, Shyam, Fatima and George.
- It is dark. Shyam has a flash light in his hand.
- Length of bridge is 100 meters.
- Shyam can cross in 1 minute.
- Seeja can cross in 2 minutes.
- Fatima can cross in 5 minutes.
- George can cross in 10 minutes.
- Water level is rising.
- If they do not cross in 20-25 minutes they will not be able to cross.

Conditions: What are the conditions?

- Only two persons can cross the bridge at a time.
- Flash light should be used on dark nights.
- The trekkers have to cross the bridge within 25 minutes.

### III Solve

Achieve the goal by using the given information, while satisfying the conditions.

Reasoning:

One of the friends has to keep moving up and down the bridge as there is only one flash light. The one who takes least amount of time to cross the bridge, should keep coming back to accompany the next person.

Solution: Work out the solution in a step-wise manner.

Since Shyam can cross in the least amount of time, Shyam moves up and down the bridge. Shyam holds the flash light and one by one the others should accompany him and cross the bridge.

The sequence of crossing the bridge:

1. Shyam and Seeja cross the bridge and Shyam goes back.  
Time taken =  $2 + 1 = 3$  minutes.
2. Shyam and Fatima cross the bridge and Shyam goes back.  
Time taken =  $5 + 1 = 6$  minutes.
3. Shyam and George cross the bridge and no one goes back.  
Time taken =  $10 + 0 = 10$  minutes.  
Total time taken =  $3 + 6 + 10 = 19$  minutes.  
All four friends cross the bridge in 19 minutes.

Moz: Very good. You have used logical reasoning and step-wise thinking to solve the problem. What was the next task in the competition?

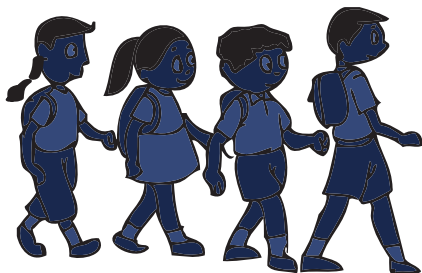
Tejas: We had to show the solution of the above problem creatively using an animation, an illustration, a puppet show or some other art form.

Moz: Interesting. So what did you do?

Jyoti: We chose to build an animation using Scratch.

Tejas: First, we decided on the Sprites and Background.

Jyoti: Tejas painted the Background.



Moz: Did you plan before starting to build Scratch blocks?

Tejas: Yes. Since the problem was enacted as a drama, it was easy to plan the blocks of each Sprite and the Background.

Main steps:

1. Four friends walk towards the bridge.
2. Read the notice.
3. Listen to the native.
4. Discuss the problem.
5. Implement the solution.

## Detailed steps:

The scripts for each sprite are listed below.

### 1. Four friends walk towards the bridge.

- Change costume to make the trekkers walk to the bridge.
- Stop at the bridge.

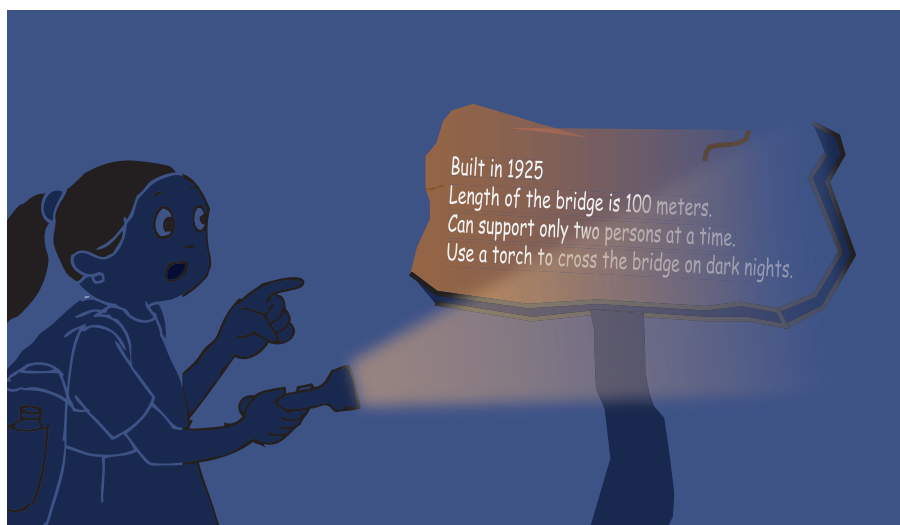
```
when clicked
go to x: -213 y: -50
repeat 10
  next costume
  wait 0.2 secs
  move 5 steps
say Hey! There is a bridge here! for 2 secs
broadcast noticeread and wait
```



### 2. Read the notice near the bridge.

- Seeja reads the notice.

```
when I receive noticeread
say Look. There is a notice. for 2 secs
say Welcome to Old oak bridge. Length of the bridge is 100 meters. for 2 secs
say Can support only two persons at a time. for 2 secs
say Use a torch to cross the bridge on dark nights. for 2 secs
broadcast noticedone and wait
```





### 3. Listen to the native.

- The native walks towards the trekkers.
- Tells the trekkers about the flooding and the time available to cross the bridge.

```
when I receive noticedone
show
repeat 30
  next costume
  wait 0.2 secs
  move 10 steps
point towards Sprite3
say If you do not cross the bridge in 20 to 25 minutes the bridge will get flooded with water. for 2 secs
say Then it is dangerous to cross the bridge. for 2 secs
broadcast nativedone
repeat 30
  next costume
  wait 0.2 secs
  move 10 steps
point towards Sprite3
```



### 4. Discuss the problem.

- Each trekker says the time he or she takes to cross the bridge.
- Reasoning is also discussed by the trekkers.

```
when I receive nativedone
say I can cross 100 meters in 2 mins. for 2 secs
broadcast george

when I receive george
say I need ten minutes to cross the bridge. for 2 secs
broadcast Fatima

when I receive Fatima
say I can cross 100 meters in 5 min. for 2 secs
broadcast shyam

when I receive shyam
say I can cross in 1 minute. for 2 secs
broadcast fatima1

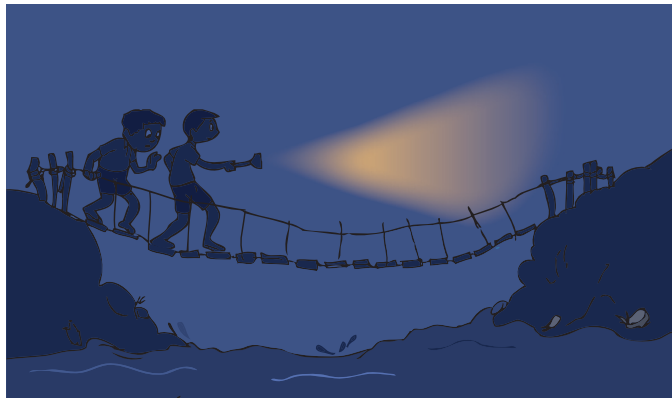
when I receive seeja1
say We have to consider that we have only one torch. for 2 secs
broadcast fatima1

when I receive fatima1
say The fastest one to cross the bridge will have to go up and down with the flash light. for 2 secs
broadcast shyam1
```

## 5. Implement the solution.



- Repeat till all trekkers have reached the other side of the bridge.
- Shyam moves with one trekker to the other side of the bridge.
- Shyam comes back to pick the next trekker.

```
when I receive shyam1
say Ok. I will do the honours! Let us hurry. Come Fatima. for 0.1 secs
broadcast george2
repeat 20
  next costume
  wait 0.2 secs
  move 20 steps
turn 180 degrees
repeat 20
  next costume
  move 20 steps
broadcast seeja2
say Come on Seeja for 0.1 secs
turn 180 degrees
repeat 20
  next costume
  wait 0.2 secs
  move 20 steps
turn 180 degrees
repeat 20
  next costume
  move 20 steps
broadcast fatima2
say Come on Fatima, hurry. for 0.1 secs
turn 180 degrees
repeat 20
  next costume
  wait 0.2 secs
  move 20 steps
```



Tejas: We decided to use the following two statements for coordination between the Sprites: 

Moz: Why these two and not  ?

Jyoti: If we use the  instruction, then we have to keep calculating the number of minutes and seconds that each Sprite has to wait before taking the next action. But when we use , the Sprite that has to take action does so when it receives the message that is broadcast.

Tejas: For example, after the trekkers walk towards the bridge and stop, a message is broadcast. Then Sprite Seeja will only receive the message and then read the notice.

- In Scratch a signal is sent to other Sprites through a message using the instruction **Broadcast**.
- The instructions **Broadcast** and **When I receive** enable us to coordinate the actions of multiple Sprites.

SKILLS

Moz: Have you done the magic project of class IV?

Tejas: Yes. In this project the magician keeps raising his magic wand slowly and the girl on the table also rises up without any support. The magician brings her back down by moving the wand downward.

Moz: Show me the Script where the girl is lifted up by the magician.

Jyoti: Here it is.

```

when clicked
go to x: 9 y: -32
wait 6.5 secs
glide 1 secs to x: 13 y: 24
wait 1 secs
glide 1 secs to x: 9 y: -32
  
```

Script for the girl Sprite

```

when clicked
go to x: 158 y: -58
say Hello! for 2 secs
switch to costume magician1
wait 0.5 secs
switch to costume magician2
wait 0.5 secs
switch to costume magician3
wait 0.5 secs
switch to costume magician4
wait 0.5 secs
switch to costume magician5
wait 0.5 secs
say Abracadabra! for 2 secs
  
```

Script for the magician Sprite



The Stage with the magician and the girl





- Each point on the stage is represented by two numbers. In Scratch, these numbers are called  $x$  and  $y$  values.
- The horizontal line is labeled the  $x$ -axis and the vertical line is labeled the  $y$ -axis. These two axes divide the Stage into four quadrants.
- The point at which the two axes meet is the center of the Stage and is called the **origin**. The origin has  $x:0$  and  $y:0$ .

Moz: Very good. What was the next activity where you collected the gold star?

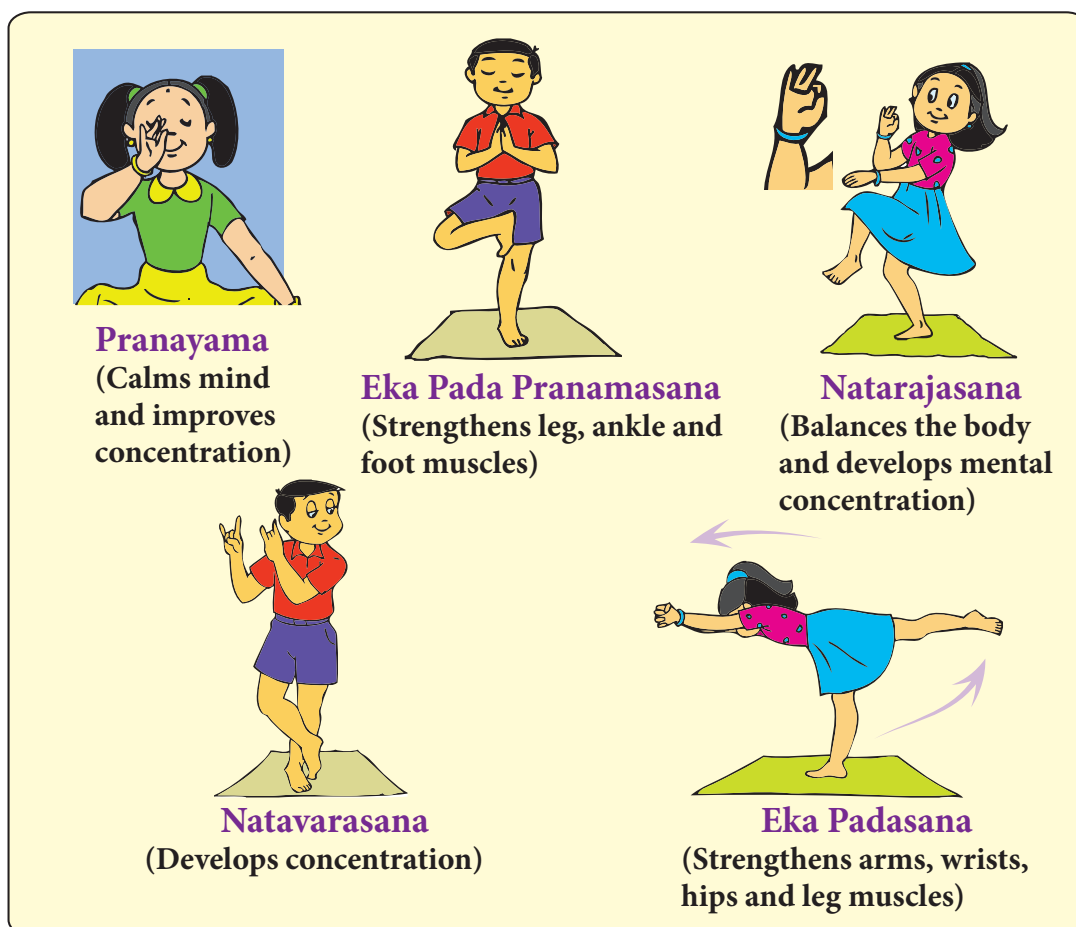
Jyoti: We had to teach other groups some game or exercises. We taught them the asanas.

Tejas: First, we explained the benefits of the asana before teaching it to others.

Jyoti: We also made sure that correct posture and breathing is followed by everyone.

Tejas: The judges appreciated our explanations about the asanas. This was one reason why we got the gold star for this activity.

Moz: What were the asanas that you taught?



Moz: Impressive. What was the last activity where you won the gold star?

Tejas: This was a big task. We were given 50 words. We were given 5 crossword boards. In this crossword puzzle there were no clues. We had to solve the crossword puzzles using the 50 words (See figures on pages 15 and 16).

Jyoti: First it looked enormous. But, when we started looking at the words we knew the answer.

Tejas: We could see that the words can be grouped into various categories:

Delicious, Kingfisher, France, Sweden, Cauvery, Ireland, Bangladesh, Dubai, Mississippi, England, Jetairways, Swiss, Lufthansa, Japan, Emirates, Missouri, Amazon, Ganges, Narmada, Krishna, India, America, Spicejet, Hilarious, Santro, Germany, Ford, Beautiful, Chevrolet, Charming, Slippery, Victorious, Nile, Fiat, Onyx, Mercedes Benz, Porsche, Hudson, Wasteful, Splendid, Northwest, United, Icelandair, Prickly, Jealous, Honda, BMW, Continental, Hyundai, Toyota .

Adjectives	Countries	Airlines	Car and Car makers	Rivers
Delicious	India	Kingfisher	Chevrolet	Nile
Hilarious	America	Jet Airways	Ford	Onyx
Beautiful	Germany	Spicejet	Honda	Hudson
Charming	France	Northwest	Mercedes Benz	Cauvery
Slippery	Sweden	United	Fiat	Krishna
Victorious	England	Icelandair	Porsche	Mississippi
Wasteful	Ireland	Swiss	BMW	Missouri
Splendid	Bangladesh	Lufthansa	Toyota	Amazon
Prickly	Japan	Emirates	Skoda	Ganges
Jealous	Dubai	Continental	Hyundai	Narmada

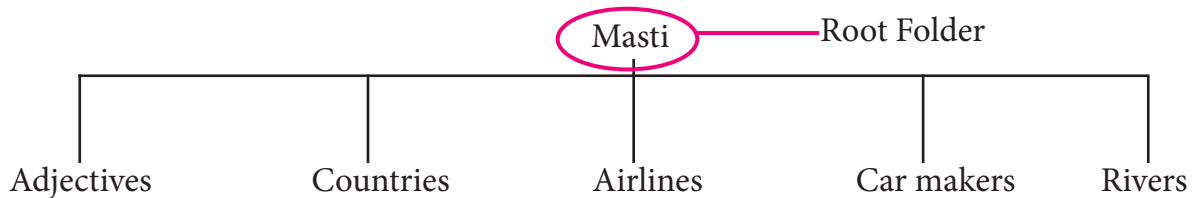
Tejas: After solving the crosswords with these words, we had to put the crossword boards in an envelope which was labelled with our group name “Masti” and give it to the judge.

Jyoti: We solved the puzzles quickly and won the gold star and the cups.

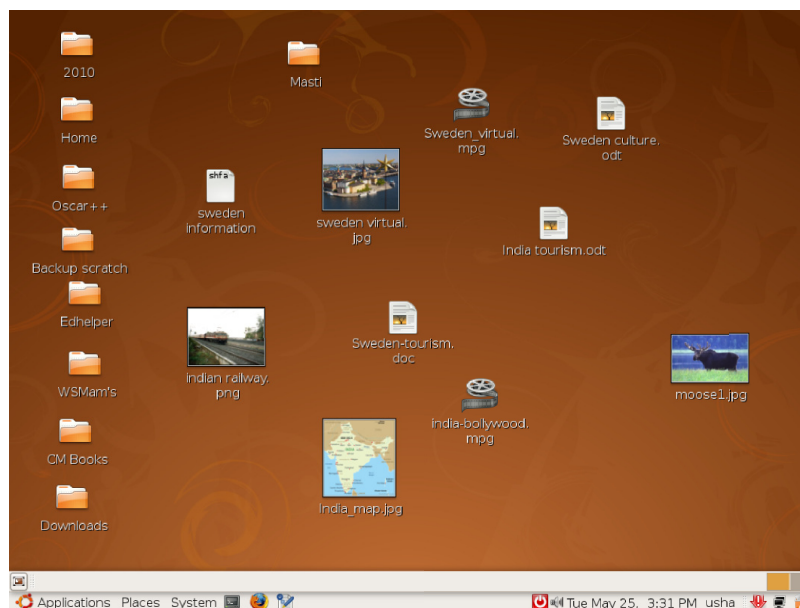
Tejas: This whole activity was like organizing files into folders.

Moz: Can you explain this with an example?

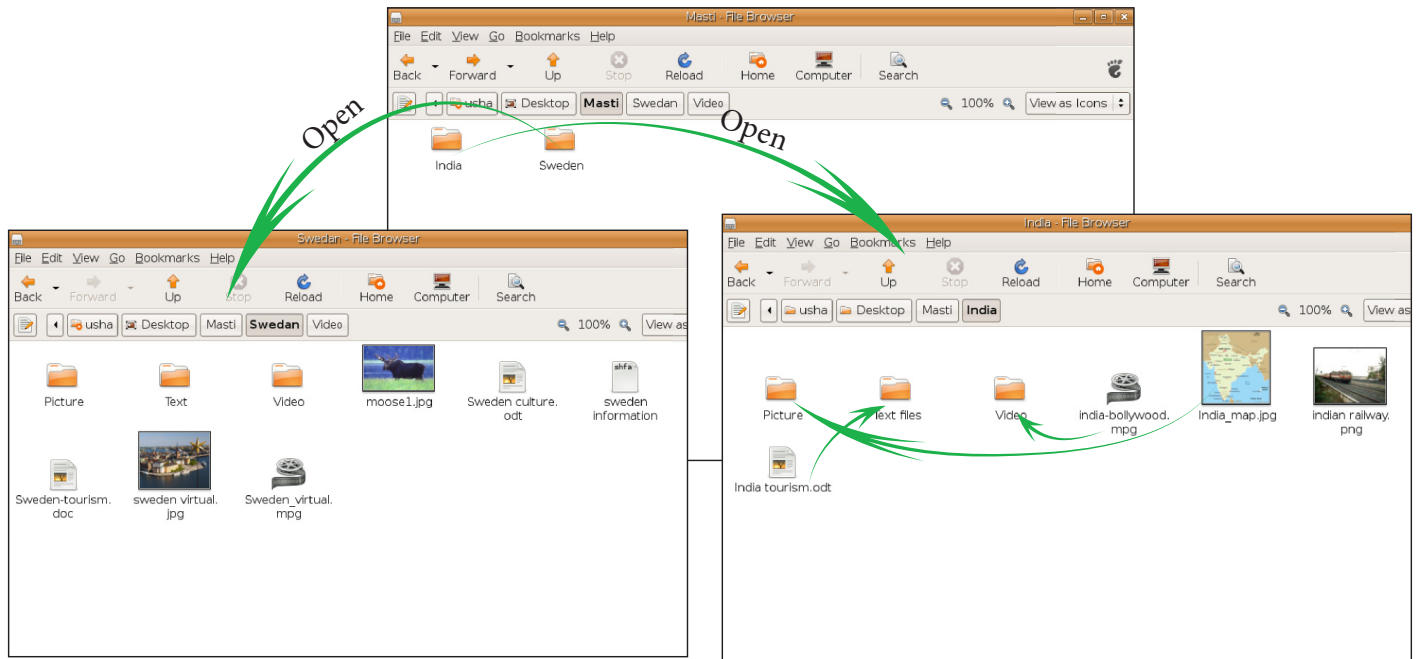
Jyoti and Tejas draw the following picture to show this.



Moz: Good. Look at the files that I have on the desktop. Now organize these. You can assume that these files belong to the group “Masti”.



Jyoti and Tejas open the folder Masti and organize the files as follows:



Moz: Very good. Did you come across any more file extensions while using the computer?

Jyoti: Yes. Scratch projects are stored with an extension `.sb`.

Moz: Good. Whenever you save a file, look at the extension of the file. This will help you to recognize the type of file.

File names have extensions. The extension is added to the name of the file by the activity with which you create the file. We can identify the type of content in a file by the file extensions.

Example:

- `.png` or `.jpg` - paintings, photographs or any image.
- `.avi` or `.mp3` - music
- `.txt` or `.doc` or `.odt` - text files

Info

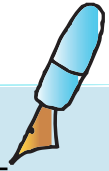
Tejas: How did you get the information in these files that are on the desktop?

Moz: From various resources like library, Internet and friends. You will soon learn about gathering information and organizing it. Chin Chinaki...

### Learning Outcome

After you have studied this lesson, you will be able to:

- Recall what was learnt in book IV, such as Logical thinking, Scratch programs, Asanas, naming and organizing files.



**1. Circle the date in the calendar given the following conditions.**

- The date is an even number.
- The date is divisible by 4.
- The date is also divisible by 3.
- If you divide the date by 8, the remainder is 4. What is the date?

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

**2. There were three little bears, Pintu, Chintu and Sawali, who built houses - one of straw, one of sticks, and one of bricks. By reading the six clues, find out which bear built which house, the size of each house, and the city in which each house was located.**

- Pintu bear did not build a brick house.
- The straw house was not medium sized.
- Chintu bear's house was made of sticks, and it was neither medium nor small.
- Sawali bear built her house in Pleasant city.
- The house in Hilly city was large.
- One house was in a town called Joy city.

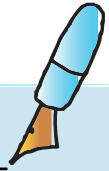


Use a chart to keep track of your information. For each column that you fill up write the logical reasoning used.

For example: Using the first and third clue we can logically say that Pintu bear built a straw house.



	City	Size	Material
Pintu			Straw
Chintu			
Sawali			



3. Scratch blocks for background and two Sprites are given below. Find out what the project is about. The costumes of the background are also given below.

Instruction blocks of background

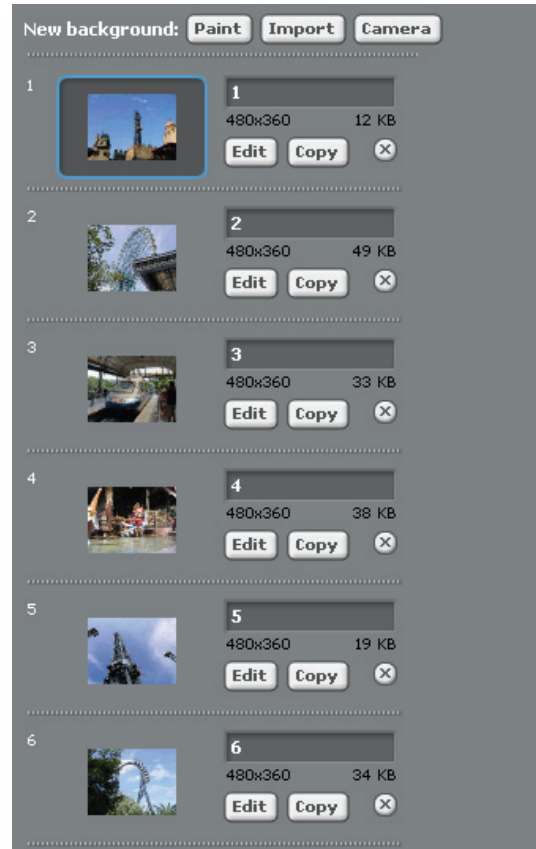
```

when clicked
  switch to background 1

when I receive next
  repeat 10
    change pixelate effect by 10
  next background
  repeat 10
    change pixelate effect by -10
  clear graphic effects

when I receive restart
  switch to background 1
    
```

Costumes of background



Script of Sprite restarts

```

1. Restart
when Restart clicked
  broadcast restart
    
```

Script of Sprite next

```

Next
when Next clicked
  broadcast next
    
```

Write your answer here:

---



---



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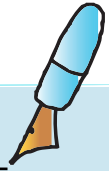


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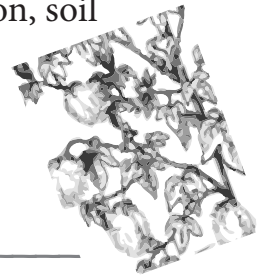


4. Some things are soft while some are hard. Some dissolve in water while some absorb water. Group the things listed below under their respective type. A thing can belong to multiple groups.

paper, stone, wooden rod, wire, tamarind, stone pillar, sugar, sponge, rope, cloth, mango, rice, salt, clay, bone, citric acid, clothes, pineapple, cotton, soil

a. Things which are soft:

Cotton



b. Things which are hard:

\_\_\_\_\_

c. Things which absorb water:

Cotton



d. Things which dissolve in water:

\_\_\_\_\_

e. Things which are made into a pulp:

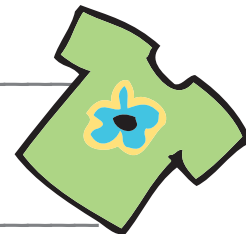
\_\_\_\_\_

f. Things which can be crumpled:

\_\_\_\_\_

g. Things which crumble:

\_\_\_\_\_

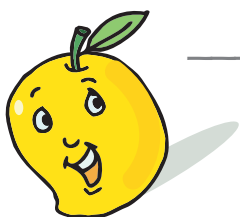
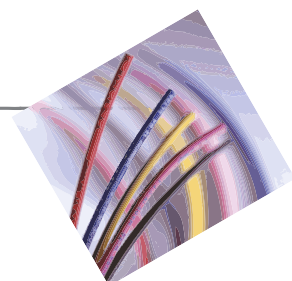


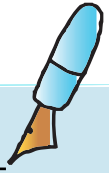
h. Things which can be twisted:

\_\_\_\_\_

i. Things which cannot be twisted:

\_\_\_\_\_





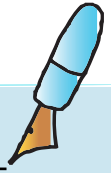
5. Solve the crosswords using the words in the lesson on page 10.

**Green Crossword:**

- Vertical word: **B** \_ \_ \_ \_ \_
- Horizontal word: \_ \_ \_ **k** \_ \_
- Vertical word: **S** \_ \_ \_ \_
- Horizontal word: \_ \_ \_ \_ **d** \_ \_
- Vertical word: \_ \_ \_ **s** \_ \_
- Vertical word: \_ \_ \_ **o** \_ \_
- Horizontal word: **a** \_ \_ \_ \_ \_
- Vertical word: \_ \_ \_ **r** \_ \_
- Horizontal word: \_ \_ \_ \_ **r** \_ \_ \_
- Vertical word: \_ \_ \_ **i** \_ \_
- Central box: **Adjectives**

**Yellow Crossword:**

- Horizontal word: \_ \_ \_ **r** \_ \_ \_ \_
- Vertical word: \_ \_ \_ **d** \_ \_
- Horizontal word: \_ \_ \_ \_ **f** \_ \_ \_ \_
- Vertical word: \_ \_ \_ **t** \_ \_
- Horizontal word: \_ \_ \_ \_ **a** \_ \_ \_
- Vertical word: \_ \_ \_ **j** \_ \_
- Horizontal word: \_ \_ \_ \_ **t** \_ \_ \_
- Horizontal word: \_ \_ \_ **w** \_ \_ \_
- Central box: **Airlines**



**Countries**

**Car and Car makers**

**Rivers**

Grid letters: e, n, d, m, r, a, P, a, e, n, w, o, y, d, a, C, s, i, x, n, g, o.



## ACTIVITY

Level V | Lesson 1

1. Open the following Scratch project and do the activities.

i. **NameSurprise:** Move your mouse over the letters to see a surprise. To open the project, follow the step: Scratch--> Examples---> Names ----> NameSurprise

Activities to do:

- Change the name to your name.
- Change the surprises to picture of things that start with that letter. For example: if you click on 'a' it should show an apple.

Click on the Green Flag, then Move the Mouse pointer over each letter to see a surprise.

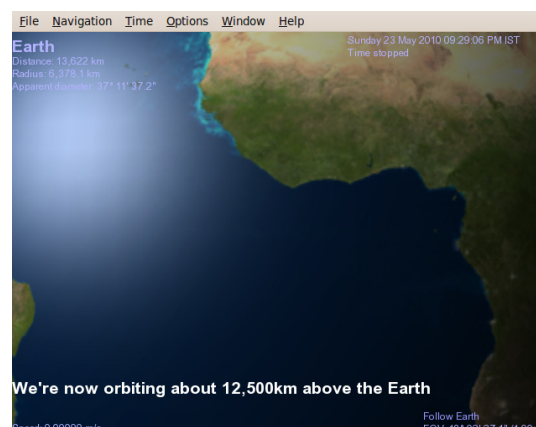
m i o k

2. **Psyache:** This consists of a variety of activities that you can play using mouse skills. In the move activity, movement of mouse erases the cache step by step and the picture appears. In the click activity, move the mouse all over the screen area to find photographs hidden in a landscape.

To play this game, do the following: Applications ---> Education ---> Psyache



3. **Celestia:** Celestia is an activity that allows you to see the universe in three dimensions. You can observe and explore the Solar System as well. Go on a journey from the surface of Earth to different planets. To enjoy this activity, do the following: Applications ---> Education ---> Celestia





## ACTIVITY

Level V | Lesson 1

4. Write Scratch program for the aeroplane.
  - v. Take off
  - vi. Landing



Hint: Use `go to x: 0 y: 0`, `turn 0 degrees`, `glide 0 secs to x: 0 y: 0`.

### Group Activity:

Divide the class into seven groups of students. On small sheets of paper write the following: hands, shoulders, legs, balancing, eyes, posture and care of computers.

Fold these papers and put them in a bowl. One student from each group picks up one of the folded papers from the bowl. The group then demonstrates one of the asanas which strengthens that part of the body which is mentioned on the paper. Note that if the paper has posture or care of computers, then the group should narrate at least two do's and don'ts. After one round, put the papers back into the bowl. Start another round of demos. Asanas that were demonstrated cannot be repeated in the subsequent rounds.



**Natarajasana**  
(Balances the body and develops mental concentration)

### Project

Do project 1.1 given in lesson 8.



### Explore!

1. Find out the different exercises/poses in different cultures that are similar to asanas you learned.
2. Find out what are the other programming languages besides Scratch.

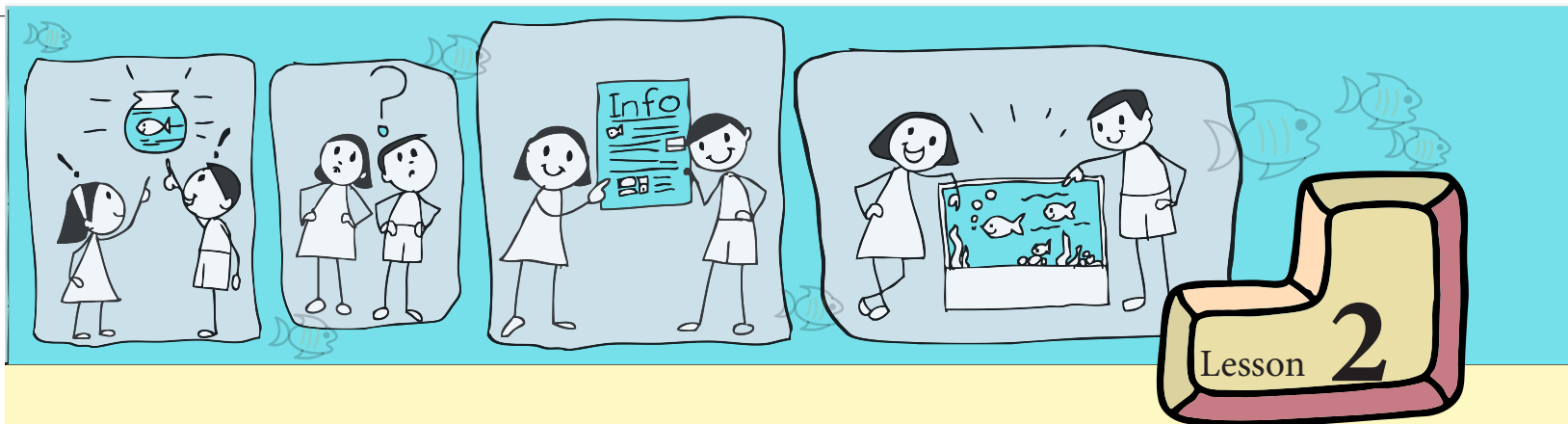


- The objective of this lesson is to revise the topics covered in Book IV. Learning is more profound if students build new knowledge on the basis of the concepts and skills already acquired. Hence, it is important to teach this lesson thoroughly. Begin by asking the students to list the different topics learnt last year.
- Ask the students to role play the situation presented in the lesson and solve the problem. Select four students to play the role of Seeja, Shyam, Fatima and George. You can tell the remaining students that they have to help their friends to solve the problem. Ask them to list the goal, the information available and conditions. Motivate them to apply reasoning to solve the problem in step by step manner.
- Now ask the students to program the situation using Scratch. The lesson provides the main and detailed steps for the activity. Use this as guideline to lead the discussion. You can get the students to write the script and make the Scratch project in the lab session. Use this opportunity to revise the functions of different instruction blocks in Scratch. Tell them that they will learn to use additional instructions that can help them write more interesting programs.
- Play a game (mentioned in the group activity) to revise the different exercises/asanas that they have learnt in previous classes. Emphasize that exercises for eyes, wrists, hands, shoulders, waist, neck help to prevent oneself from computer related injuries.
- Narrate a situation where the students have to organize the given material. For example, how things are organized in the teacher's room. Recall visit to a library and observe that the books are arranged according to a particular theme, such as subject, alphabetic order, author name and so on. Ask them why is it essential to organize the files on the computer. Then ask them how they can organize files.
- Question the students on different file extensions and how to identify the nature of the file from the extension. Encourage the students to give names of different file extensions. Ask them what is the function of folders and what is a directory structure. Summarize the discussion and emphasize the importance of organizing information. Tell them that they will learn more details about organising information this year.
- End the lesson by summarizing the different topics covered in the Level IV. Give students adequate hands-on practice, especially in Scratch so that students lagging behind/new to the subject can catch up with the rest of the class.



### Further Reading:

<http://school.discoveryeducation.com/brainboosters/>  
<http://www.aimsedu.org/Puzzle/categories/logical.html>  
<http://www.e-learningforkids.org/courses.html#science>

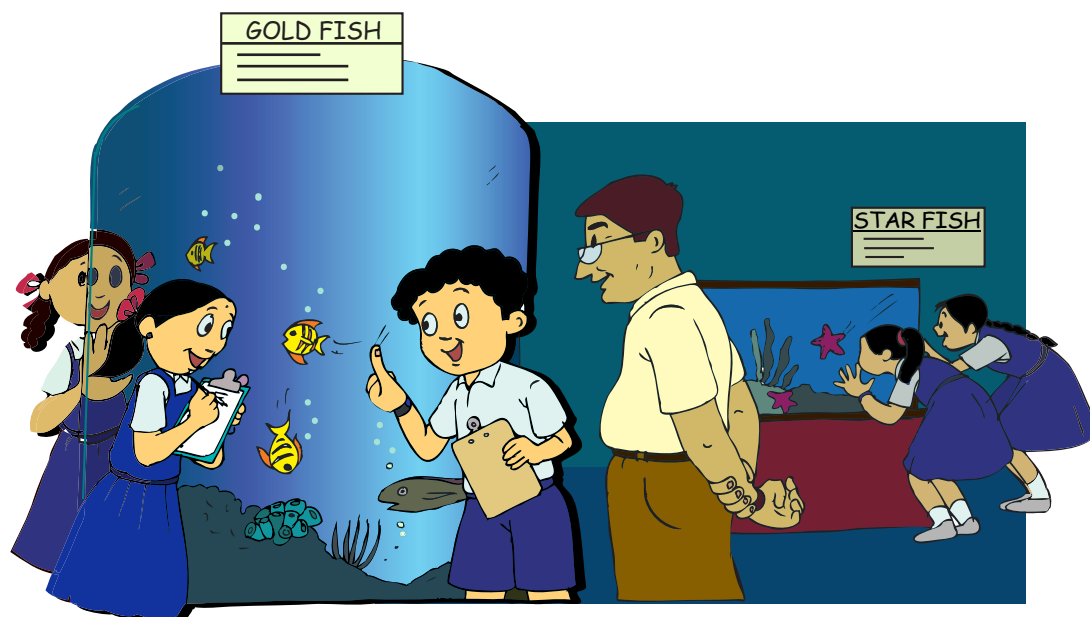


## Step-wise Gathering of Information



In this lesson you will learn:  
 How to gather information from various resources in a systematic manner.  
 How to consolidate the gathered information.

The students in fifth standard had been to the aquarium with their teacher. Most of them wanted to have a small aquarium at home.



Tejas: We would like to keep fish as pets in our house.

Moz: Why only fish as pets? Why not a dog?

Tejas: Both of us live in apartments and we cannot keep dogs in our apartment. I would like to have some pets.

Jyoti: Most of us like to have pets. So when we saw the aquarium, we thought of having a small fish tank at home.

Moz: This is a good idea. How will you go about it?

Tejas and Jyoti: First we asked our parents. They have agreed. However, they want us to find out about setting up an aquarium.

Jyoti: We know very little about setting up an aquarium at home. We need to gather the information. We should do this systematically.

Moz: Good. So how will you apply step-wise thinking?

We should first identify the main steps and then work out the details of each step.



Jyoti: Let us discuss what the main steps are and then break up each main step in to its sub-tasks (detailed steps).

Tejas: I think the first main step is to identify and state the goal clearly.

Jyoti: Our goal is to "Set up an aquarium at home".

Moz: How do you arrive at this goal?

Tejas: We can discuss with our partner, teachers or friends and arrive at the goal.

### Step 1: Identify the goal & State it clearly.



For any task, like planning a project, an event or problem solving

- Discuss about the task with your partners.
- Identify and define the goal. State it clearly.

Moz: What do you think is the next step ?

Tejas: We do not know the requirements for setting up an aquarium.

Jyoti: We only know that we need to buy fish, a tank to keep the fish and food to feed the fish.

Tejas: But how will I know what type of fish to buy, what size of tank is needed and the total cost for setting up an aquarium?

Jyoti: I also do not know how to maintain the fish or how to select food for fish.

Moz: Looks like you have many questions. How will you organize the questions?

Jyoti: List the known and unknown information.

known



1. We need:
  - A glass tank or bowl.
  - Fresh/ Marine Water.
  - A few fish.
  - Fish food.
  - Some decorations -plants.
  - Air pump.
2. Aquarium should be clean.
3. Water has to be changed.
4. Water filter.

unknown



1. What types of fish can be kept in the fish tank at home?
2. Which fish can be kept together in the tank?
3. How long do the fish live?
4. How do we keep the tanks clean so that fish do not fall ill or die?
5. What is the fish size suitable for the tank at your home?
6. When it is cold weather, do fish feel cold? What should we do?
7. What is the size of the tank for each type of fish?



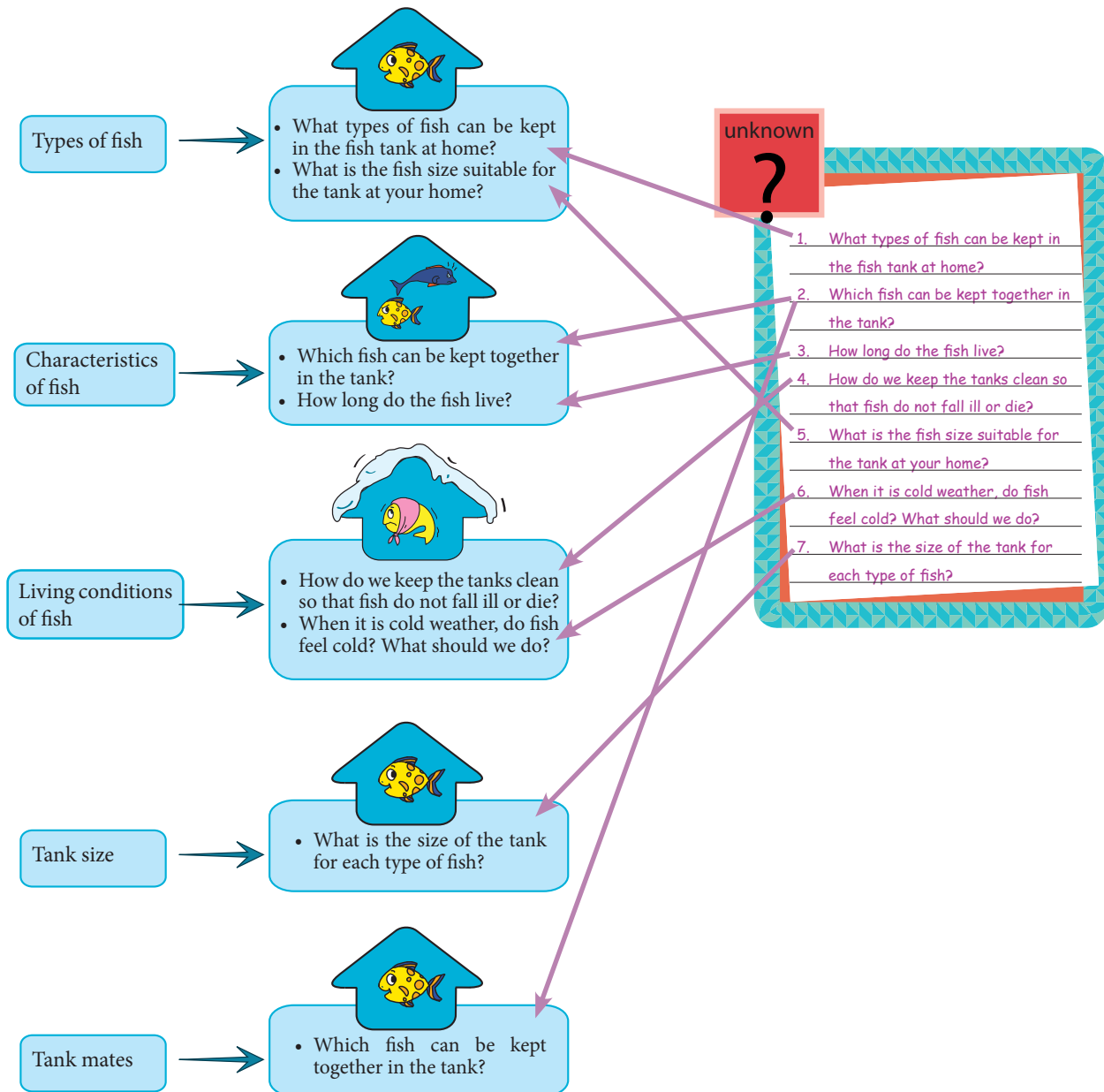
### Step 2: Analyze the goal and identify the requirements of sub-tasks.

- Identify various sub-tasks of the goal. (Example: aquarium needs fish, tank, water, etc.)
- Identify requirements related to each sub-task. (Example: Types of fish, size of tank, etc.)
- List what you already know about the requirements of each sub-task.
- List the questions to which, you need to find answers.
- Write down 'What you know' and 'What you do not know'.

Moz: After identifying the requirements what do you think is the next step?

Tejas: We need to identify the information required to accomplish each sub-task.

Moz: As there is a lot of information to be gathered, you can group the requirements into some categories like types of fish, characteristics of fish, living conditions of fish, tank size and tank mates.





### Step 3: Identify the information required to accomplish each sub-task.

- Gather the information required for each sub-task.
- Classify the information being gathered into categories.
- List the classifications of each sub-task.

Moz: All the information related to fish can now be recorded in a single table.

Table to record information about fish, tank size, tank mates						
Sr. No.	Types of fish	Image of the fish	Characteristics of fish	Living conditions of fish	Tank size requirements	Tank mates of the fish
1						
2						
3						
4						
5						

Moz: How and from where can you collect all this required information and fill the table?

Jyoti: We can start with asking friends who already have aquariums, or go to the library.

Tejas: We can also go to a pet shop. My brother sometimes gets information from the Internet for my projects. I will ask him to get us some information on aquariums at home.

Moz: Internet is a good resource to get information.

Tejas and Jyoti list the resources from where they can gather information.



### Step 4: Identify resources that can provide information about each sub-task:

Some sources of information are:

- Libraries, Internet, places related to the task.
- People like parents, grandparents, teachers, friends.

Tejas: Next, we should start gathering the information since we know the requirements and also the resources.

Jyoti: We should record this information as and when we are gathering.

Moz: Why should you record the information?

Jyoti: We can then combine the information from various sources. Sometimes we may not find all the information in one place.

Tejas: We can also refer to the information later when needed.

Jyoti: So, the next step is to gather and record the information in a book or on paper.

Moz: Would it not be better to also keep some specific questions ready? In case they forget to tell some points.

Tejas: Yes, I will make a list of questions.





### Step 5: Record information in a note-book:

- While finding information from people:
  - \* Be prepared with a set of questions. This helps you to not miss any important information.
- While finding information from resources like libraries, books and Internet:
  - \* Note down the information as you are reading.
  - \* Capture the information under appropriate categories.
  - \* A table is useful to record and classify information.
- Search all available resources to get answers for all the questions that you had listed.
- Lookout for other important information regarding the task.

Tejas and Jyoti go home early to collect the information. Next day they show the collected information to Moz.

Moz: Good work. Did you find any important information other than what you were seeking?

Tejas: I found that the temperature of water in the tank is important.

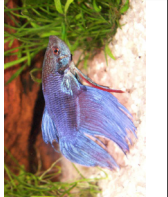

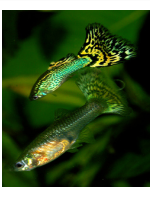

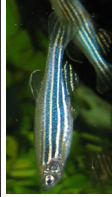
Jyoti: I collected the address and phone numbers of some of the pet shops and of people who have fish as pets. They will be useful if there is an emergency with the pet fish. I noted the information in the tables that we prepared.

Tejas: Many people advised us to start with a fresh water aquarium. So, we gathered information about fresh water fish. I collected information about Betta, Corydoras and Guppy.

Jyoti: While noting, I realised that we need to note the costs of fish, tanks, food and so on. I enquired about these in the pet shop nearby. So, I added another column to my table. I collected information for Gold fish, Zebra Danios and Betta.

Moz: This is good. Now let us consolidate this information into one table.

### Consolidation of information about fishes gathered by Tejas and Jyoti

Sr. Number	Types of fish	Image of the fish	Characteristics of the fish	Living conditions of the fish	Tank size requirements	Tank mates of the fish	Food for the fish	Price	Tank decorations
1	Betta		Easy to care for. Very colourful. Very aggressive. To be kept alone. Males fight with each other.	Water temperature 21-29 degree Celcius.	10 litres (Approximate Size 12" x 6" x 8") tank or a fish bowl is sufficient. Fish need about 4 litres per "inch of fish".	Can not be kept with any other fishes.	Betta is carnivorous. Fish should not be overfed.	Rs. 50-100 (according to the size)	Use live or plastic plants for decoration.
2	Corydoras		Easy to care for. Mostly swim along the bottom of the tank.	Water temperature 24 degree Celcius. Keep in schools of 3 or more.	40 litres (Approximate Size 20" x 10" x 12") or larger	Get along with most of the fishes			
3	Guppy		Peaceful fish. Lives for about 4 years.	Water temperature 25 degree Celcius.	Atleast 20 (Approximate Size 16" x 8" x 10") litres	Corydoras, Zebra Danios			
4	Gold fish		Easy to care for. Produce lot of waste. Peaceful fish.	Fresh water fish. Temperature 15-27 degree Celcius.	75 litres (Approximate Size: High 24" x 12" x 16", Long 30" x 12" x 12") or larger	Best to keep with other gold fish	Gold fish needs nutrient rich food. Fish should not be overfed.	Rs. 20-60 (according to the size)	Gold fish love to munch on aquarium plants. Keep decorations minimum as they need plenty of space.
5	Zebra Danios		Peaceful fish. Easy to care for. Can be kept with any other fish.	Temperature 18-24 degree Celcius.	40 litres (Approximate Size 20" x 10" x 12") or larger	Corydoras		Rs. 40-80 (according to the size)	

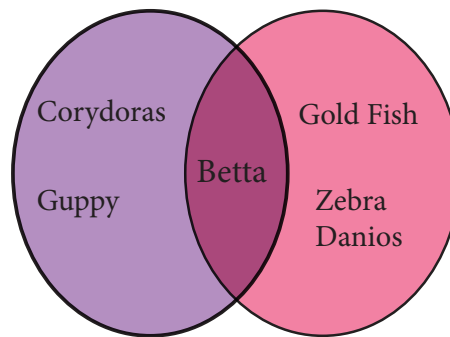
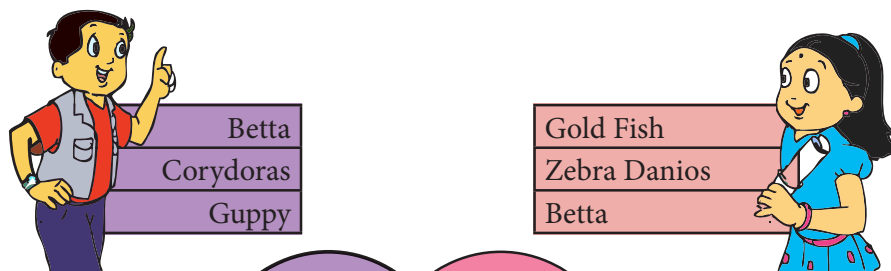
Jyoti and Tejas: Both of us have got information about Betta.  
 Moz: You can show the common information using **Venn diagram**.



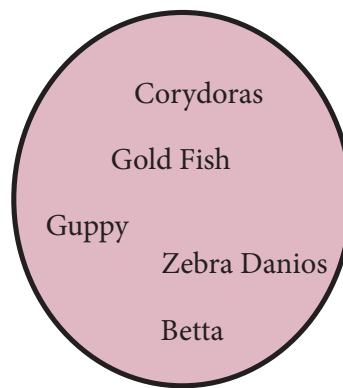
**Venn diagram** is one way of consolidating information.  
**Intersection** is a list of common items present in both lists.  
**Union** is a list of combined items present in both lists without any duplicates.

Jyoti: Hey! We have learnt this in Maths. Methods learnt in one subject can also be useful for another subject!

Tejas and Jyoti consolidate the information.



Intersection ( $\cap$ ) of two lists of fish.



Union ( $\cup$ ) of two lists of fish.



**Step 6: Consolidate and organize the information gathered from various resources.**

- Combine all the information sets into a single set using union.
- Group related information into categories.
- Two ways of consolidating information are table and Venn diagram.

Moz: Now, it is time to choose the fish based on the information table and your constraints.

Tejas and Jyoti consider the information in the table and take their decisions.

Moz: How did you decide which fish to choose?

Tejas: I love Gold fish. In the corner of my room, there is space for a long tank. I have a budget of only Rs.60/-. So, I decided to buy a Gold fish.

Jyoti: I share my room with my sister. So we will have space for a fish bowl only. So, I choose to buy Betta.

Moz: Congratulations. Notice that you have applied logical thinking to arrive at your decisions. Based on the given information, both of you could make decisions about which fish to buy.

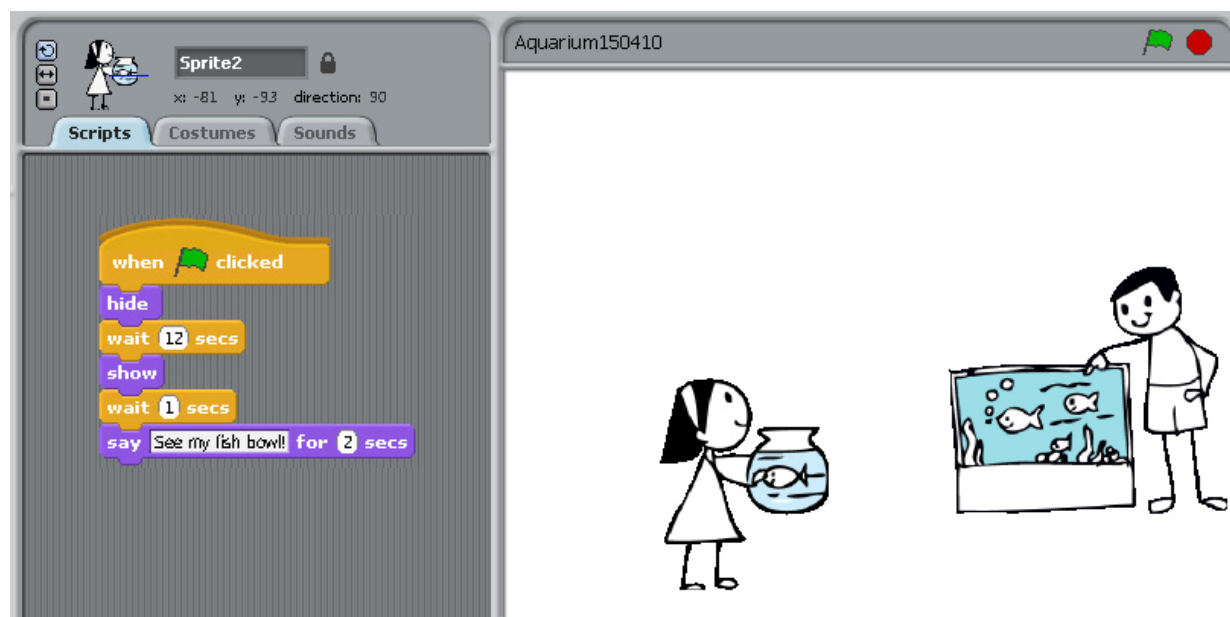
### Steps of decision making:

1. Identify the goal.
2. Gather and consolidate information.
3. Identify the constraints (conditions to be satisfied).
4. Use logical thinking to identify choices that satisfy the constraints.
5. Take the decision.



Tejas and Jyoti: Thanks Moz. Can we use the computer now to make Scratch program of the aquariums?

Moz: Sure. Go ahead.



Tejas: See how my Gold fish swim in the virtual aquarium. I am looking forward for my real aquarium.

Jyoti: My Betta is so beautiful swimming in the bowl. I am also looking forward for my aquarium at home.

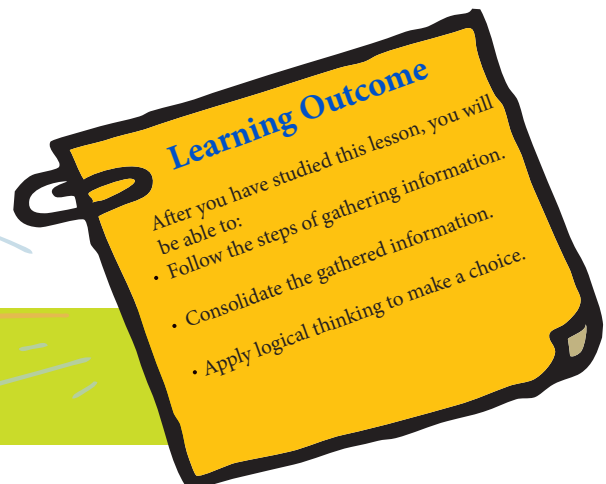
Moz: You have analyzed the requirements and gathered the information for setting up an aquarium very well.

Tejas: Wow! The logical thinking and step-wise thinking we learnt has really helped us to gather and consolidate the information for making our aquarium.

Moz: Let us summarize the steps to gather information. In the next class, you will learn more about how to organize and consolidate the information you gathered. Chin Chinaki...

### Steps of gathering information:

- Step 1: Identify the goal and State it clearly.
- Step 2: Analyze the goal and identify the requirements for sub-tasks.
- Step 3: Identify the information required to accomplish each sub-task.
- Step 4: Identify resources that provide information about each sub-task.
- Step 5: Record information in a note-book or paper.
- Step 6: Consolidate and organize the information gathered from various resources.







1. Annual day of the primary section is on February 21. You are given the following information about the programme.



Schedule of the Annual day function:

1. Welcome by the principal at 5 p.m.
2. Welcome song (10 minutes).
3. Dance.
4. Group song.
5. Drama (20 minutes).
6. Instrumental music by class IV students.
7. Awards ceremony.
8. Vote of thanks by school leader.

The Principal of the School has asked you to prepare the Programme sheet of the annual day function, with the following for each item:

- The timing of each item on the annual day.
- Name and the standard of participants.

To prepare the Programme sheet, what is the information that you know and what is the information that you do not know?

**Information that you know**

**Information that you do not know**

Welcome by the principal at 5 p.m.

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Duration of welcome speech

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2. Gurpreet has been given a camera to take pictures in a bird sanctuary. He has taken the pictures of the following birds.

iii. Help Gurpreet to identify the resources from where he can gather information about these birds. Discuss with friends and do a union of the information that you know.

iv. List the information gathered such as **Name of the bird**, **Place where found** and **Life span** about each of the birds. The teacher may provide a book or other resource, for information that you do not know.



Parrot

India

20 years



Kingfisher

\_\_\_\_\_

\_\_\_\_\_



Crow

\_\_\_\_\_

\_\_\_\_\_



Pigeon

\_\_\_\_\_


\_\_\_\_\_



Mynah

\_\_\_\_\_

\_\_\_\_\_



Wood pecker

\_\_\_\_\_

\_\_\_\_\_



Sparrow

\_\_\_\_\_


\_\_\_\_\_



Seagull

\_\_\_\_\_

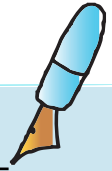
\_\_\_\_\_



Peacock

\_\_\_\_\_

\_\_\_\_\_



3. Pinky and Raju are having summer holidays. Their mother had asked them to prepare list of items they would like to have for breakfast in the holidays. Pinky and Raju have both prepared a list each. Consolidate the two lists.

**Pinky's List**

- Egg Omelette
- Dosa
- Vada
- Noodles
- Sabudana kichdi

**Raju's List**

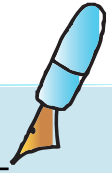
- Juice
- Poha
- Corn on the cob
- Dosa
- Milk shake

- i. To consolidate the lists, you have to do \_\_\_\_\_ of the lists.
- ii. Write the consolidated list:

- iii. Write the items common to both the lists:

4. Identify the category for the following:

- |            |          |          |               |
|------------|----------|----------|---------------|
| i. Winter  | Spring   | Summer   | Seasons _____ |
| ii. Snake  | Lizard   | Tortoise | _____         |
| iii. India | Japan    | France   | _____         |
| iv. Teak   | Rosewood | Pine     | _____         |
| v. Mars    | Earth    | Saturn   | _____         |
| vi. Indian | Pacific  | Atlantic | _____         |



### 5. Where am I found?

Here is a list of some living things:

lion, sparrow, earthworm, shark, elephant, wall spider, oyster, fish, human being, bee, flea, dung beetle, snake, rat, crab, red ant, bat, monkey, water hyacinth.

Classify the living things according to where they are found- under the ground, on the ground or some other place.

Note: Some of the living things are found in more than one place.

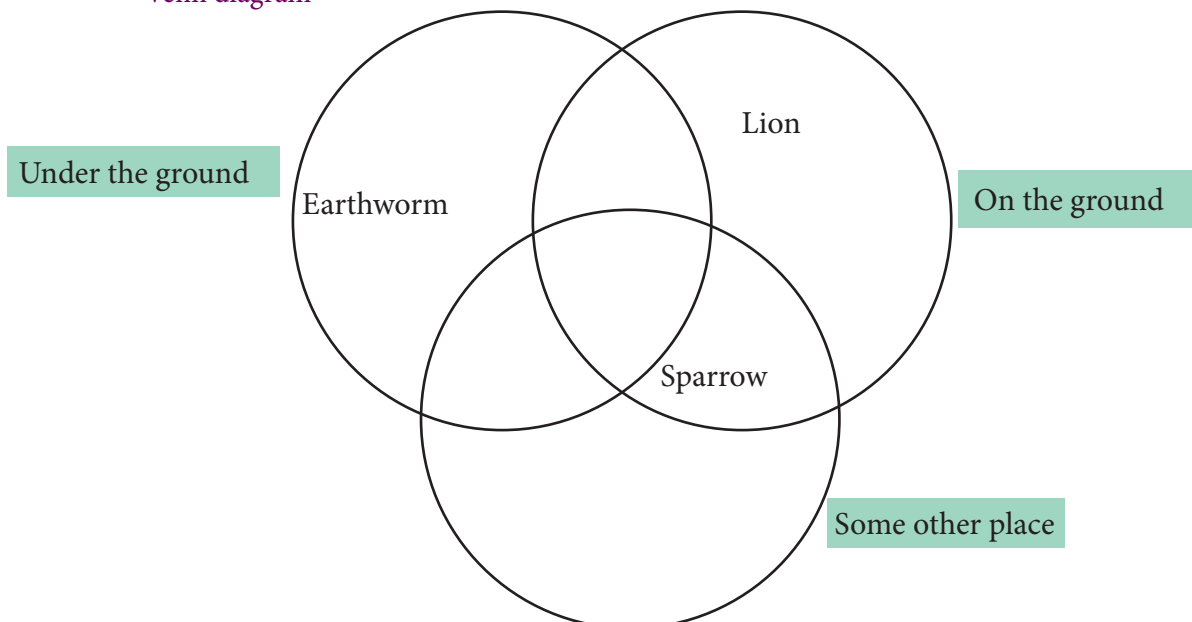
i. Prepare a table (on the computer) as follows:

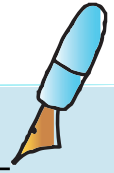
Example:

Living things	Under the ground	On the ground	Some other place
Ant	✓	✓	
Bee		✓	✓
Bat			
Earthworm			
Elephant			
Dung beetle			
Fish			
Human being			
..			
..			
..			
Wall spider			
Water hyacinth			

ii. Using the above table draw a Venn diagram and fill it as shown below.

Venn diagram





6. The teacher wants the students to plan an outdoor summer camp for the class. The students can discuss with each other and also take help from the teacher. Steps 1 and 2 have been filled up. Write details from Step 3 onwards.

Step 1: Identify and State the goal clearly.

To plan an adventurous outdoor summer camp for the class.

---

---

Step 2: Analyze the goal and identify the requirements.

Plan for booking tickets

---

Send notice to parents.

---

Fill student registration forms and collect fees.

---

Prepare camp activity schedule.

---

Create list of things to be carried.

---

Prepare list of Frequently Asked Questions asked by parents with answers.

---

Step 3: Identify the information required to accomplish the task.

For performing the tasks listed below, write what information is needed:

Plan for booking tickets:

Duration of the camp.

---

---

---

---

Send notice to parents:

Write about camp details.

---

---

---

---

Fill student registration forms and collect fees:

Create a registration form.

---

---

---

---

Prepare camp activity schedule:

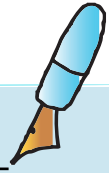
Swimming, Trekking

---

---

---

---



Create list of things to be carried:

Sleeping bags, Flash lights, medicines  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Prepare list of Frequently Asked Questions (FAQs) for parents:

Will there be trained people to guide our children?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Step 4: Identify resources from where you can gather information.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Step 5: Gather and record information from the identified resources in a book.

Step 6: Consolidate and organize the information gathered from various resources under these categories:

For Parents

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

For Students

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

For Teachers

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





## ACTIVITY

Level V | Lesson 2

1. **Ask a question:** Ask your friend to choose any one animal, bird, insect or amphibian from the following list:

Owl, eagle, crow, sparrow, cat, squirrel, mosquito, fly, spider, cobra, lizard, butterfly, frog, fish, shark, cow, horse, sun, bird, earthworm, moth, lion, tiger, elephant, zebra, giraffe, dog.

Your friend does not tell you his/her choice, but can answer yes or no to your questions. You have to ask questions which have ‘yes’ or ‘no’ answers to find out what did your friend choose. You have to guess within 10 questions.

Example: Shreya is asking questions. Samir is answering.

Q1. Is it a bird?

Ans: No.

Q2. Is it an insect?

Ans: No.

Shreya notes that Samir has chosen one of the animals - cow, horse, lion, tiger, elephant, zebra, giraffe or dog.

Q3. Is it a domesticated animal?

Ans: Yes.

Shreya notes that Samir has chosen one of the domestic animals - cow, dog, cat or horse.

Q4. Do we keep it as a house pet?

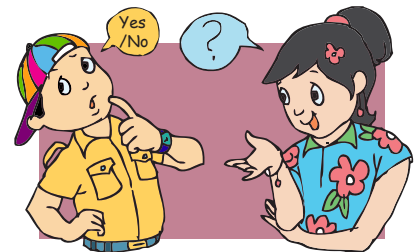
Ans: No

Shreya notes that the animal could be either cow or horse.

Q5. Do we use the product it gives to drink?

Ans: Yes.

Shreya says “Samir, your choice is cow”.



2. **Help me to take care of my doggy:** Shreya got a letter from her uncle that he is bringing a pet dog of breed “Golden retriever (Labrador)” for her birthday and that she should be ready with all the information to take care of it. Help Shreya to collect the following information about the dog.

- Origin
- Appearance
- Temperament
- Hair shedding
- Life span
- Food
- Height, weight
- Taking care of health (Vet, etc.)
- Exercises





## ACTIVITY

Level V | Lesson 2

### Group Activity:

1. Form groups of three students and ask them to play the following games together.

- i. **Lincity-NG:** You have to build your own village and manage its economy. The village contains basic resources - farms, water well, communes producing charcoal, ore and steel, residential areas, pottery and track.

To play this game, do the following:

Games ---> Strategy --> Lincity-NG (Select the option to play random village.)



Click to read the help to explore how to play the game.

- ii. **PIX Frogger:** Pick your frog and direct it to cross the road.

To play this game, do the following:

Games ---> Arcade ---> PIX Frogger





## ACTIVITY

Level V | Lesson 2

2. Form groups of two students. Imagine that you are journalists. You have been asked to interview a sports star. The interview is of 15 minutes duration. Pick your favourite sports personality. To plan for the interview, you need to know about the person, achievements, awards, interests etc. Discuss within the group about the following:
  - How much do you know about the sports star? What else do you need to know?
  - What are the resources (Ex: Internet, books, magazines) from where you can gather information.
  - How will you organize the information and prepare the questions that you would like to ask? (Ex: While interviewing, you may want to ask a question based on the information that you have. Then, you need to quickly refer to the information. A series of cards with information like personal details, recent achievements and awards may be useful. For each one of these, it may be a good idea to prepare a few questions). Remember that the interview is for 15 minutes.

Once you gather and organize the information, prepare the questions and enact the interview in the class. One student can dress up like the sports star and another becomes the interviewer. Hint: The interview has the following format: Introduction of the sports star followed by questions about the recent achievements, favourite moments, etc. And then the last question before saying good bye to the sports star!



### Project

Do project 2.1, 2.2 from lesson 8.



### Explore!

1. Explore the different ways in which information can be represented. For example: tree diagram, mind maps.
2. How will you gather information to build a model airplane?



# Teacher's Corner

Level V

Lesson 2

- At every level, a lesson dedicated to a particular thinking skill is included to inculcate clarity of thought. Book 3 has a lesson on step-wise thinking and Book 4 has a lesson on logical reasoning. In Book 5, this lesson takes an example of setting up an aquarium to teach gathering and organization of information.
- Begin the class by revising step-wise thinking and logical reasoning. You can ask the students to list the concepts learnt. Give them one or two puzzles to solve using step-wise thinking and logical reasoning. You can use the worksheets of previous classes for this. Use this opportunity to revise the 'thinking skills' chapters in Computer Masti book 3 and 4.
- Play a game with the students, where you ask them to guess a particular city/object by giving one piece of information at a time. For example, the first question that students can ask is what category (answer: eatable), whether it is sweet, sour, bitter (answer: sour), what is the shape (answer: round). Finally, the students narrow down their choices to the correct answer – lemon. Draw the students' attention to finding out how they gather information by asking appropriate questions. Teach them the importance of asking appropriate questions to narrow possible answers and arrive at the correct answer.
- Students are likely to be familiar with working on projects. Ask them how they get the information and write it. Most of them would say that they take the assistance of their parents/family members and so on. Educate them about the different sources of information.
- You can teach the different steps in gathering and organizing information using the same example covered in the lesson. Ask questions that Moz asks Tejas and Jyoti to teach the lesson. Now put forward a new task and ask the students to identify the goal and sub-goals. Let them list the main and detailed steps to do each task. Ask them to identify the different sources of information, gather the information, categorize it into what they know and what they do not know, organize the information and consolidate the details. Use minimalistic approach to facilitate learning of gathering and organizing information. In such an approach, students are given a task to do with minimal instruction. The teacher encourages students to explore independently and find out how to do the task.
- In order to teach intersection and union of sets, you can take an example of students in the same class staying in the same locality or travelling in the same vehicle to reach the school. The groups can include students from different classes and divisions. Draw a circle to represent each group and demonstrate how the intersection and union of sets are formed. Ask them what they already know about sets as taught in their mathematics book. Emphasize that what is learnt in one subject is useful in the other and knowledge in one area can be applied for understanding another area.
- Tell the students that this knowledge will enable them to take decisions. Give examples of real life situations where they have to make a choice (such as either go to an educational tour or an amusement park). Teach the steps of decision making. Emphasize the importance of following these steps to take informed decisions.
- Summarize the lesson by revising the different steps in gathering and organizing information.

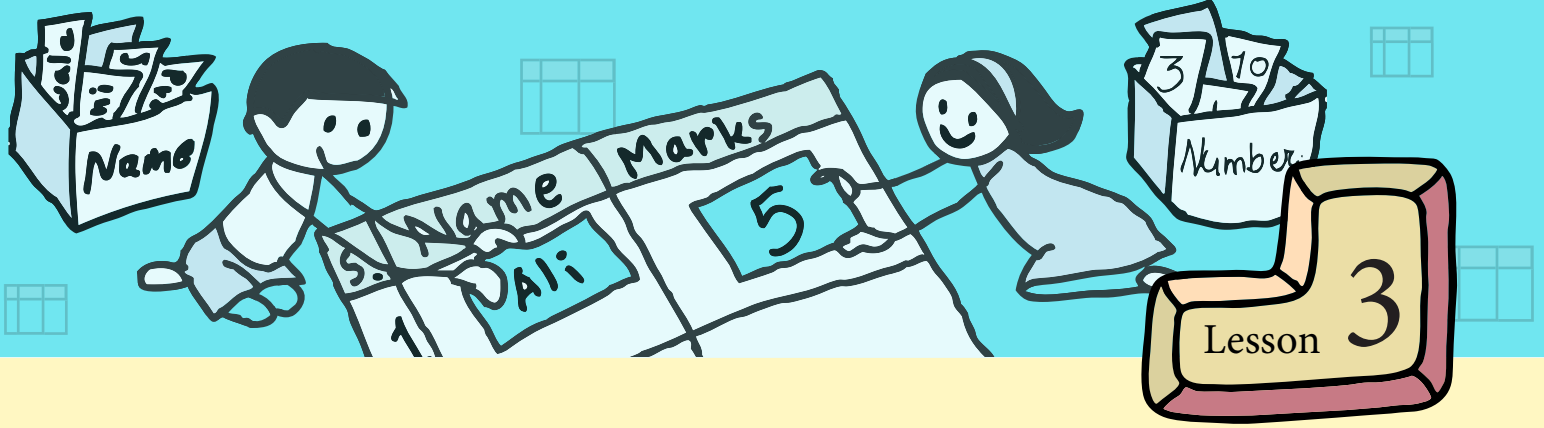


## Further Reading:

<http://freshaquarium.about.com/od/aquariumstartup/u/gettingstarted.htm#s4>  
<http://www.seaworld.org/infobooks/aquarium/aq.html>  
<http://www.aquariumguys.com/aquariums-fish-tanks.html>







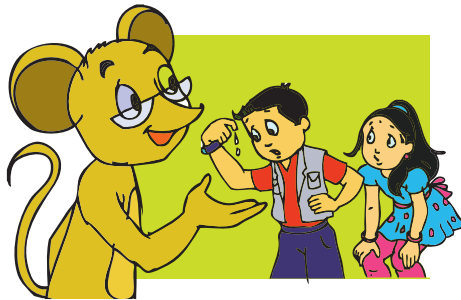
## Organizing Information using Lists and Tables



In this lesson you will learn:

How to organize information in lists and tables.

The advantages of using lists and tables.




Moz: Both of you are panting. What were you playing?

Tejas: I was practising for the sports day. I am participating in running race.

Jyoti: I am participating in three legged race.

Tejas: We have to prepare the lists of students participating in each game.

Jyoti: I remember using a list to record the information gathered in my notebook. We will use word processor (  ) to enter the list on the computer. This list can be saved as a document.

Jyoti: We have seen neat lists in many documents. Is there an option in word processor for making lists?

Moz: Yes, there is. First tell me for what purpose are lists used.

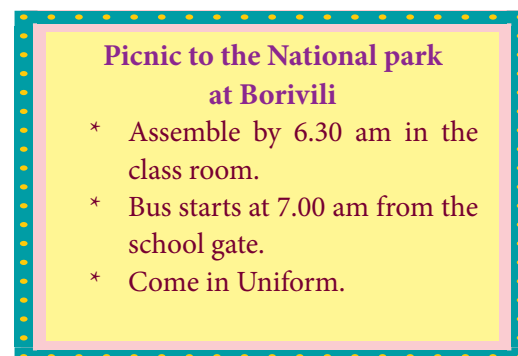
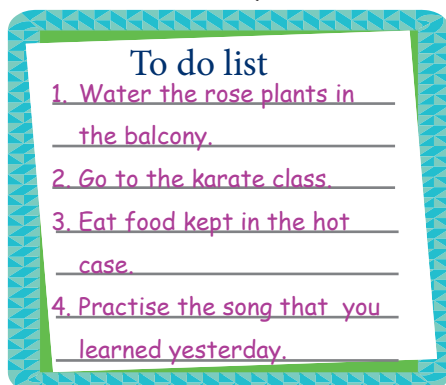
Tejas: Using lists, we can immediately know the number of students participating and their names.

Jyoti: Lists also make it easy to find information that we are looking for.

Tejas: I have a 'To do' list stuck on the fridge. This way I remember the tasks to be completed.

Jyoti: Our teacher gives instructions as a list.

To do list of Jyoti





Moz: What are the advantages of writing items as a list in the examples that you have given?  
Jyoti: The list helps us to easily remember instructions. It also helps us to check if we have completed all tasks.

Tejas: I have noticed that lists like our names in the attendance register are in alphabetical order. Our list of participants for running race can be rearranged accordingly.

Moz: Lists can be organized in multiple ways. One of the ways to arrange items in the list is in alphabetic order. This helps us to find the required information quickly.

Jyoti: I can arrange my 'to do' list sequentially.

Moz: Since the order in which the items listed are to be done is important, use numbers.

Tejas: That means our list of games need not be numbered.

Moz: Good! Use bullets where the items listed are not in sequence. For example, the names of the competitions on the sports day can be listed using bullets.


### List is useful to:

- Organize information systematically.
- Highlight important points in long sentences and paragraphs.
- Enhance readability and grab reader's attention.
- Remember instructions and announcements.
- Find the information that we need faster.
- Know order in which tasks need to be done.



Jyoti: Now, let us learn how to insert bullets and numbers in the list.

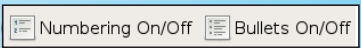
Moz: Recall that you had learnt how to format text in a word processor last year. Use that knowledge to search for bullets and numbering option on the tool bar.

Tejas: I found this icon(  ) for bullets and numbering option on the tool bar. In the tool bar I found icons for bullets and numbering.

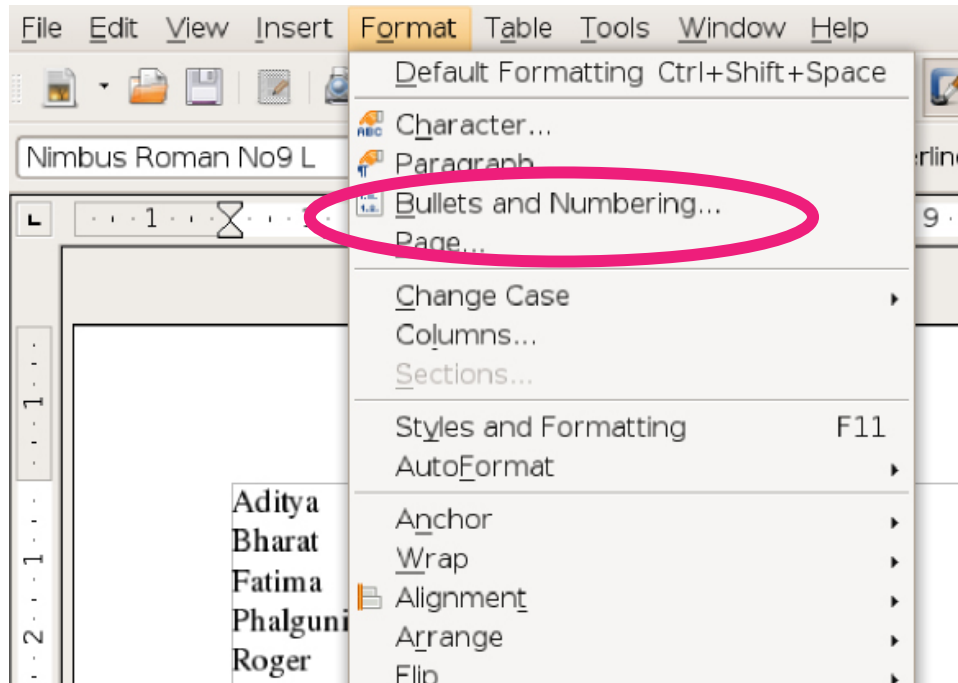
Jyoti: I just right clicked the mouse near the names entered and found the bullets and numbering option!

Moz: You can also find this under the format tool. Remember that there is more than one way to use any tool option in all the applications. You can discover these on your own while you use the computer.

### To insert bullets/numbers:

1. Get the *bullets and numbering* option using one of the following:
  - Click on format. Choose Bullets and numbering.
  - Right click near the lists and choose bullets and numbering.
  - Select the bullets and numbering icon (  ) on the Tool bar.
2. Enter one item in the list. Press *Enter* key to go to the next line.
3. Enter the next item.

SKILLS



Bullets and numbering option not only provides numbers/ bullets but also ensures that each item in the list comes exactly below the previous one.



Tejas clicks on the numbering option and then starts entering the names in alphabetic order.

Jyoti: Tejas! You forgot to add Roger.

Tejas: I have to put Roger below Phalguni. Let me check what happens if I take the cursor to Phalguni and press the *Enter* key.

Jyoti: Oh! The numbers are adjusted automatically in the list.

(See figure below.)

Running Race	Running Race
1. Aditya	1. Aditya
2. Bharat	2. Bharat
3. Fatima	3. Fatima
4. Phalguni	4. Phalguni
5. Savani	5. Roger
6. Tejas	6. Savani
7. Uma	7. Tejas
	8. Uma

Jyoti: Moz, can we insert numbers and create a list even after the names are already entered?

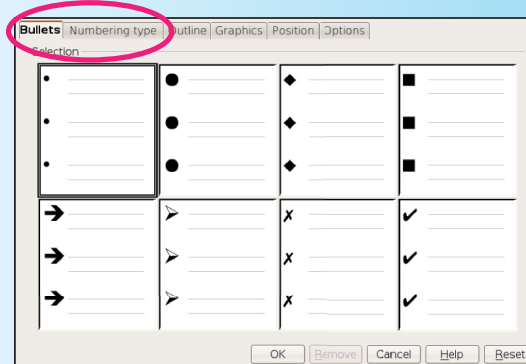
Moz: Yes. You can. The sequence of using this option is the same as for other formatting options like *bold*, *italics* etc.

Tejas: In some documents, I have seen different types of bullets. How can we change the style of numbers and bullets?

Moz: You can do as follows:

### Changing style of bullets and numbering

1. Select Format --> Bullets and Numbering.
2. Click on Bullets and Numbering to open the following pop-up window.
3. Select the bullets. 4. Select the style that you want to use.




If you want different **number** styles: Follow steps 1 and 2, then

3. Select numbering from the above menu.
4. Select the bullets style.

SKILLS

Jyoti: I want to create a list of all the competitions and participants.

Tejas: In our school we have four houses: Blue, Red, Green, Orange. Each student belongs to one of the houses. The competitions are held between these houses. How do we enter all these details in the list?

Moz: You need to use **sublist** for this. After you write the names of the competitions, press enter to go to the next line. Now press the **Tab** key (  ) on the key board. This not only creates indentation but also provides you with a formatted sublist.


Jyoti: For each competition we will have the house name and then list the participants.

- **Running race**
  - **Blue**
    1. Aditya
    2. Phalguni
  - **Red**
    3. Bharat
    4. Fatima
  - **Green**
    5. Roger
    6. Uma
  - **Orange**
    7. Savani
    8. Tejas
- **Three legged race**
- **Lemon and spoon race**
- **Long jump**



- To elaborate a point in a list, sublists are used.
- You can have any number of sublists. But more than three or four sublists is not advisable, as it reduces clarity.

### Creating sublists

1. Enter main items of the list.
2. Click on *Tab* key (  ) to create the sublist for the main items.

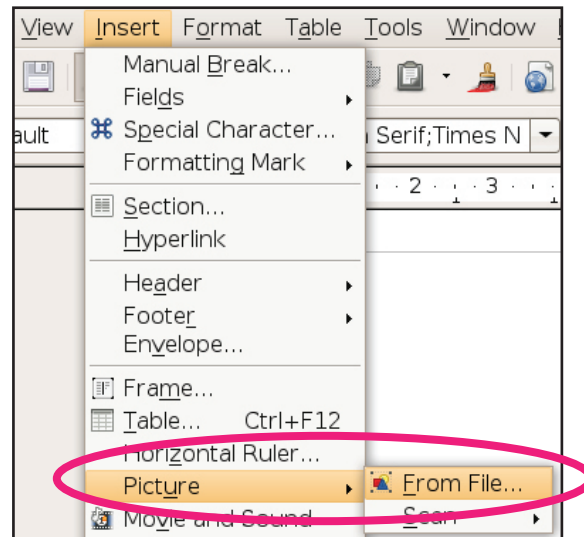
SKILLS

Moz: Now, complete the lists of students for the sports day.

Tejas: We want to put pictures of the games along with the list.

Jyoti: We have already painted the pictures and saved them in files.

Moz (points to the **From File**  option): Use this option to insert the picture file into the document.



### To insert a picture in a document:

1. Position the cursor on the location where the picture has to be inserted.
2. Click on **Insert** from the menu bar.
3. Select the option **Picture** and then **From File** option.
4. Select the directory that has the picture files.
5. Select the file that has the picture to be inserted.
6. Click on **OK**.

SKILLS

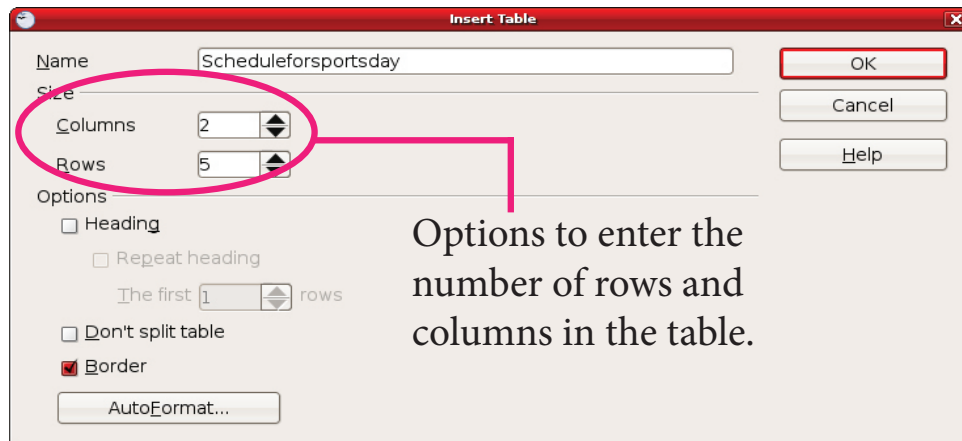
Tejas and Jyoti complete the lists for each competition.

Jyoti: We need to look at several lists to find out in which game each student is participating.

Moz: But if we create a table, it will be easy to find this information.

Tejas (points to the  table icon): Let us try this table option. Does it provide rows and columns to prepare a table?

Jyoti: Yes, it does! I have already prepared the table in my notebook. I know the number of rows and columns we will require.



Tejas: Did you count the title row as well? What if we need an extra row or column afterwards?


Jyoti: There are options *add row* and *add column*. I think these will be useful.



### Table is useful to:

- Organize a collection of related data in rows and columns.
- Find information easily.
- Catch attention of the reader.
- Compare information on different categories.

### Creating a table:

1. Click on table icon (  ).
2. Select the number of rows and columns by using the arrows.
3. Click on **OK** to get a blank table.

### Inserting data in the table:

1. Click in the first row of the first column. Enter the heading for the column.
2. Click on *Tab* key to move to the next column. You can also use the mouse to move the cursor to any cell in the table.
3. Click on *Enter* key in the last column to move to the next row.

SKILLS

The intersection of a row and column is called a cell.

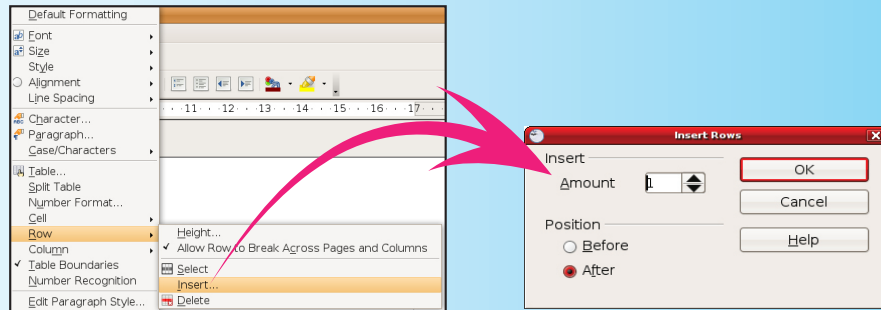


### To add a row to the table:

1. Click the last cell of the last row.
2. Press the *Tab* key. A new row is added to the table. You can add as many rows as you want using this method.

### To insert a row in between the table: (for example, between third and fourth row)

1. Click any cell in the row after which you want to insert a new row. In this case click a cell in the third row.
2. On the table menu, select Row and then **Insert**. You will get pop-up window.



3. Select the number of rows that you want to insert using the arrows. Since you want a row to be inserted above the fourth row select 'After'.
4. Click on **OK**.

### For inserting columns:

Follow the same procedure as above after selecting 'column' from the **Insert** menu.

SKILLS

Using the information in the previous lists, Tejas creates tables for each game and Jyoti creates tables for each house.

Moz: Great! I see that you are becoming confident in using the computer. You can experiment and see for yourself the effect of different options in the tool bar of any application.

### Tables created by Tejas for each game

**Running race**

No.	Name	House
1	Aditya	Blue
2	Phalguni	Blue
3	Bharat	Red
4	Fatima	Red
5	Roger	Green
6	Uma	Green
7	Savani	Orange
8	Tejas	Orange

**Long jump**


No.	Name	House
1	Sameer	Red
2	Swati	Red
3	Seeja	Blue
4	Sandeep	Blue
5	Vijaya	Green
6	Suhas	Green





Lemon and spoon race

No.	Name	House
1	Vijayan	Red
2	Usha	Red
3	Sheena	Blue
4	Rahul	Blue
5	Swati	Green
6	Vishal	Green



Three legged race

No.	Name	House
1	Asmit	Red
2	Pranita	Red
3	Rekha	Blue
4	Akshay	Blue
5	Prajyot	Green
6	Sanmati	Green
7	Sushant	Orange
8	Krishna	Orange
9	Jyoti	Orange

Tables created by Jyoti for each house

Red House

No.	Names	Game
1	Asmit	Three legged race
2	Bharat	Running race
3	Fatima	Running race
4	Pranita	Three legged race
5	Sameer	Long jump
6	Swati	Long jump
7	Usha	Lemon and spoon race
8	Vijayan	Lemon and spoon race

Green House

No.	Names	Game
1	Prajyot	Three legged race
2	Roger	Running race
3	Sanmati	Three legged race
4	Suhas	Long jump
5	Swati	Lemon and spoon race
6	Uma	Running race
7	Vijaya	Long jump
8	Vishal	Lemon and spoon race

Blue House

No.	Names	Game
1	Aditya	Running race
2	Akshay	Three legged race
3	Phalguni	Running race
4	Rahul	Lemon and spoon race
5	Rekha	Three legged race
6	Sandeep	Long jump
7	Seeja	Long jump
8	Sheena	Lemon and spoon race

Orange House

No.	Names	Game
1	Krishna	Three legged race
2	Savani	Running race
3	Sushant	Three legged race
4	Tejas	Running race
5	Jyoti	Three legged race

Moz: The same information is presented differently in tables prepared by each of you. The tables prepared by Tejas are useful to find out names of students participating in each game. Tables prepared by Jyoti are useful to find out names of students from each house.

Jyoti: That means different views are useful for different purposes.

Moz: Correct. Now let us combine the information presented in tables made by both of you.

Combined table

No.	Name	House	Game
1	Aditya	Blue	Running race
2	Ashmit	Red	Three legged race
3	Akshay	Blue	Three legged race
..			
..			
27	Vijaya	Green	Long jump
28	Vijayann	Red	Lemon and spoon race
29	Vishal	Green	Lemon and spoon race



- Lists and tables help us to organize and consolidate information.
- Use lists for information that can be contained in a single column.
- Use tables for information that requires multiple columns.
- Tables can be represented in multiple ways depending upon how you want to categorize the information.

Moz: Now, do you want to take a printout of the lists and tables you made?

Jyoti and Tejas: Yes. Let us first save these documents as files on the computer.

Moz: The file on computer is called **soft copy** of your document. And the printout of the document is called a **hard copy** of the document.

Jyoti: Are all files called soft copies?

Moz: Yes. Whatever is saved on the computer is a soft copy.

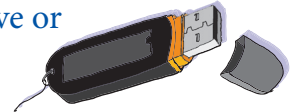
- A document or image saved on a computer as a file is called a **soft copy**.
- A printout of the files is called a **hard copy**.

Info



Tejas: I have heard people say “I will take a copy on my pen drive or a CD”. So, then the copy on pen drive or CD is also a soft copy.

Moz: Correct.



CD

Pen Drive

A **pen drive** and a **CD** are called removable storage devices. You can carry them anywhere and use the soft copy of the work copied on these devices on another computer.

Info



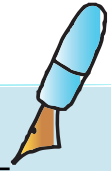
A soft copy is any work saved as a file on the computer. Soft copies can also be saved on storage devices like CD and pen drive. A hard copy is a printout of the file that is saved on a computer.

Jyoti: We can use what we have learnt today to prepare projects of other subjects. Often, we have to prepare posters and charts to present our work.

Moz: You can get information from the Internet for your projects. You will learn about these in the next class. Chin Chinaki...

### Learning Outcome


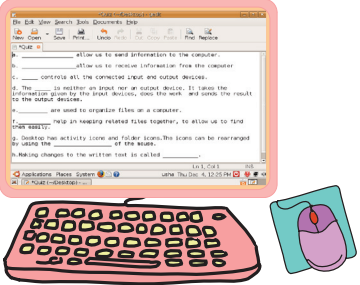
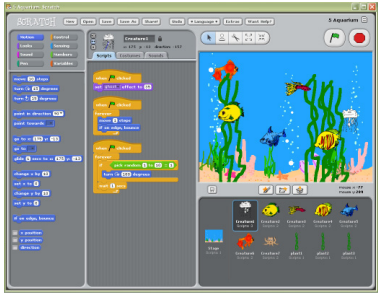

- After you have studied this lesson, you will be able to:
- Organise information using lists and tables.
  - Identify when to use lists and tables.
  - Insert bullets, numbers, pictures and tables in your document.
  - Differentiate between soft copy and hard copy.

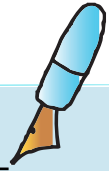


**1. State whether True or False.**

- a. The printout of a document is called a soft copy. True/ False
- b. Bullets and numbering increase the readability of a document. True/ False
- c. Storage devices help you to carry your files anywhere and use them on another computer. True/ False
- d. A pen drive helps you to format a document. True/ False
- e. Tables help you to organise a document. True/ False
- f. Train tickets, electricity bills and telephone bills are all examples of hard copy. True/ False

**2. Identify which of the following is a hard copy or a soft copy. Write the answer in the space provided.**

 <hr style="width: 100%;"/>	 <hr style="width: 100%;"/>
 <hr style="width: 100%;"/>	 <hr style="width: 100%;"/>



3. Three types of musical instruments are given below. The three types are:
- d. Instruments in which you blow air to make sound – Reed.
  - e. Instruments which are struck or beaten to make sound – Percussion.
  - f. Instruments that have strings which vibrate on plucking or rubbing with a bow and make sound – String.



- i. Group these instruments according to the type to which they belong to and prepare a list. One example is given. Fill in the rest.

Reed:	Percussion:	String:
<u>Flute</u>	<u>Tabla</u>	<u>Guitar</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

- ii. Group the instruments and complete the following table.

Reed	Flute,
Percussion	
String	

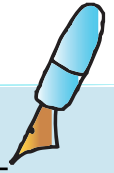


4. The teacher is planning for a picnic. Suhas and Shakuntala have been asked to collect information about the place.
- v. Help them to decide the format (paragraph, list or table) that they should use for each of the following. Note that there can be multiple correct answers.

	Suggest format Paragraph/List/Table
a. A brief description of the place.	
b. Interesting places to visit.	
c. Bus and train schedule to the place with fare per person.	
d. Bus and train schedule from the place to come back to school.	

- ii. The teacher looks at the information given by the students and discusses the date, time and other details about the picnic. Now, the students are asked to give announcements and instructions, which are listed below. Suggest the format for each of these documents. Also mention the number of rows, columns, sublists for each activity.

Activity	Suggest format List/Table
a. Prepare the announcement for the picnic.	
b. Collect the names of students who want to go to the picnic.	
c. Schedule of the picnic which gives the various places to visit and the time of visiting these places.	
d. Prepare instructions to be displayed on the notice board. The instructions are about time the bus starts, what students should wear, time when the students will return to school.	



5. Zaheer is given information about cities and rivers in the table below.

Name of the River	Name of the Cities
Yamuna	Delhi, Mathura, Agra, Allahabad
Ganga	Hrishikesh, Haridwar, Kanpur, Allahabad, Varanasi, Patna, Bhagalpur
Hoogly	Calcutta, Haldia
Narmada	Jabalpur, Hoshangabad, Bharuch
Tapi	Bhusaval, Surat
Sabarmati	Ahmedabad
Mahanadi	Cuttack
Godavari	Panchavati, Nanded, Bhadrachalam, Rajahmundry
Krishna	Sangli, Satara, Srisailam, Kurnool, Vijayawada
Cauvery	Mysore, Srirangapatnam, Kumbakonam, Thiruchirapalli



i. Open a word processor and help Zaheer to create a different view of the above table as shown below.

Name of the City	Name of the RIver
Agra	Yamuna,
Ahmedabad	Sabarmati
Allahabad	Yamuna, Ganga
..	
..	
..	
Vijayawada	Krishna





# ACTIVITY

Level V | Lesson 3

1. Get bills of grocery items that your family purchases. Note whether the items are arranged in alphabetic order. How many packets of each item were purchased? Is the cost of each item listed? Are discounts, if any, indicated in the bill?

Open a word processor and make a list of items printed on the bill as follows:

Group related items together, such as:

## I. Edible items:

- ii. dry fruits
  - almonds, cashew nuts, raisins, dates
- ii. food grains
  - pulses, rice, flour, sugar
- iii. oil
  - mustard, olive, sunflower
- iv. snacks
  - biscuits, chips
- v. others
  - jam, juice, butter

Mahaveer Stores Mumbai			
C. M. No. :		Date:	
Particulars	Qty	Rate	Value
Flour	1	110.00	110.00
Sugar	4	20.00	80.00
Olives	2	50.00	100.00
Snacks	1	20.00	20.00
Bisucits	5	10.00	50.00
Jam	1	30.00	30.00
Butter	1	60.00	60.00
Bathing soap	5	10.00	50.00
Pencils	10	3.00	30.00
Pens	2	25.00	50.00
<b>Total</b>			<b>580.00</b>

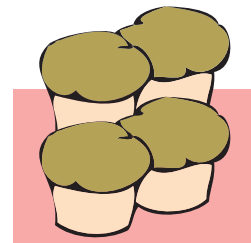
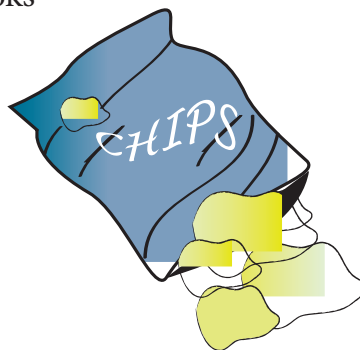
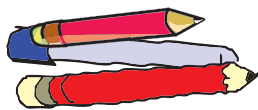
## II. Soap and detergent

- iii. bathing soap
- iv. detergent
- v. shampoo
- vi. utensil soap



## III. Stationery

- iv. colour pencils
- v. note books





## ACTIVITY

Level V | Lesson 3

- Open a word processor and draw your school time table. You can insert pictures of games to indicate the games period, tiffin box to indicate recess.
- Get a daily newspaper and refer the section that gives details of different program telecast on the television. Is this information arranged according to different channels? Draw a table to show what are the different programs you can choose to watch between 2.00 pm – 3.00 pm. Ask your grandparents what programs they want to watch between 3.00pm – 4.00pm. Enter this information in the table.

		Channel A	Channel B	Channel C	Channel D
My time	2.00-2.30				
	2.30-3.00				
Grandparents' time	3.00-3.30				
	3.30-4.00				

- Mines:** Mines is a puzzle game where you locate mines floating in an ocean. Clicking on a square reveals what is in it, empty ocean or a mine. If you uncover an empty square, you survive and get to try again. If you find an empty piece of ocean, a number is printed there telling you how many mines are in the adjacent squares. Once you find a few clear squares you can start to deduce which squares have mines in them. To mark a square as having a mine, right-click on it to place a flag there. If you do not mark the mines correctly, then an explosion will occur and the game is over.



### Group activity

- Prepare a directory of your class on the computer. List the names of students along with their addresses and telephone numbers. Now arrange this in alphabetic order. You can also add pictures of each student across their names. Choose a name for your directory and add this as the title.

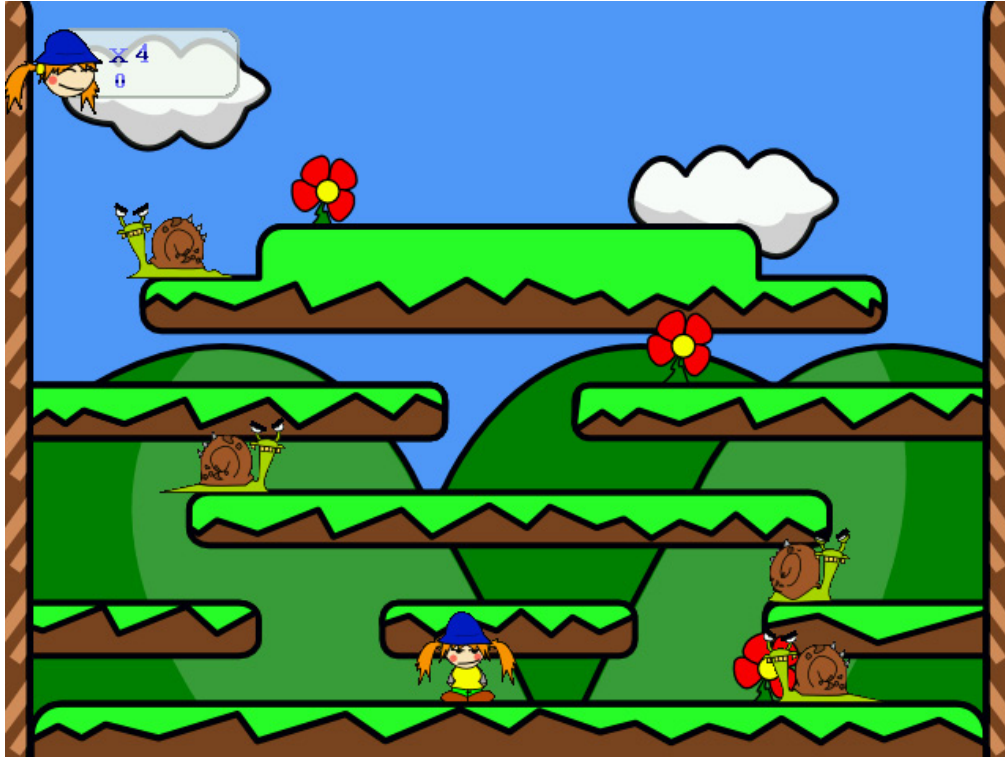
No.	Name	Picture	Telephone No.	Address
1	Arya			
2	Binoj			
..				
..				
..				
..				
40	Zareen			



## ACTIVITY

Level V | Lesson 3

2. **PixBros:** Upto three players can play the game. Form your group, read the story of the three brothers and learn to play the game.



### Project

Do project 3.1 from lesson 8.



### Explore!

1. Open an existing word processor file. Take the cursor to the first line and press F12 key on the keyboard. Observe what happens. Discover other keyboard shortcuts.
2. Explore what are the other icons available in a word processor. For example: Increase indent.

- The purpose of this lesson is to familiarize children with multiple ways of representing information, such as lists and tables.
- Begin the class by asking students to observe the table of contents in their textbooks. Ask them what is the information presented and why is it required? They might say that 'the index tells us about topics that we will study, page number of each chapter and so on. Now present the information in the index as a paragraph (the teacher can do this on the computer and show the printout of the same to the students). Ask the students which form do they prefer – paragraph or list to know the details about topics covered in the textbook. Question them on how they write an essay and most of them will say, that they write in paragraphs. Explain that depending on what information you want to share with others, sometimes a list is preferred, while sometimes a paragraph is required. Demonstrate how to create a list on a computer.
- Allow students to enact the first part of the lesson describing creation of the list in the class with appropriate interruptions to explain the relevant concepts. Select three students to role play the characters of Tejas, Jyoti and Moz.
- Inform the students that sometimes the information is more clearly shown in a table. Refer their class time table to explain this. Teach them what is a row, a column and a cell. Use the arrangement of desks in the classroom to explain this. Ask them to mention some instances where they have observed information presented in tables. Demonstrate how to draw a table using the computer. Teach them how to add a new row or column to the existing table.

Allow students to read the skill boxes to understand how to create the table and tell the

  - steps aloud while they observe you add a new row or column and enter the information.

Tell the students that they can also add pictures to the list or table they create. Demonstrate

  - this to the students.

Get a print of the list and table prepared in the class and explain the concept of hard copy

  - and soft copy. Emphasize that they can actually touch the hard copy while the soft copy is always seen through the medium of technology.

Summarize the lesson and give the students appropriate activities to practice preparation

  - of lists and tables. Emphasize that they need to understand where a paragraph, a list or table is appropriate to present the information clearly to others.



### Further Reading:

<http://www.beginlinux.org/course/view.php?id=11>

[this URL gives information from the manual for openoffice.org]

[http://wiki.services.openoffice.org/wiki/Documentation/OOoAuthors\\_User\\_Manual/Writer\\_Guide/Working\\_with\\_list\\_\(numbering\)\\_styles](http://wiki.services.openoffice.org/wiki/Documentation/OOoAuthors_User_Manual/Writer_Guide/Working_with_list_(numbering)_styles)

[wiki for openoffice]

Notes:

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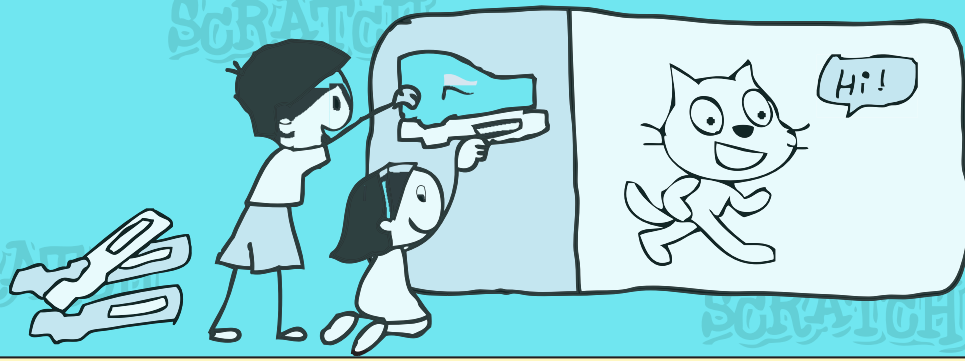
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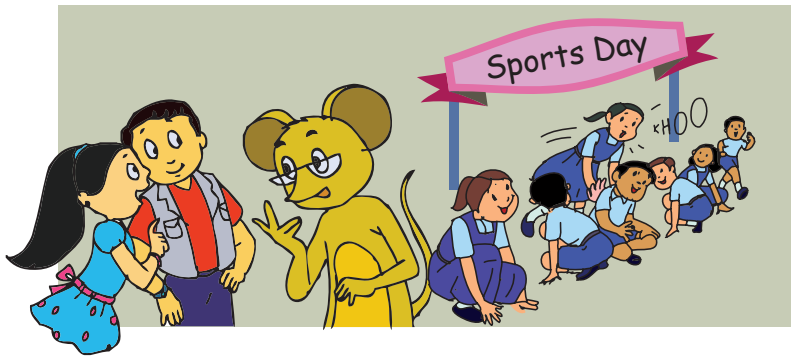
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## Advanced Scratch Programming



In this lesson you will learn:  
 How to capture the input from the user.  
 How to write programs using variables and lists.



Jyoti and Tejas are planning to create a game called “Logic Bingo” using Scratch programming language. They start discussing about it with Moz.

Moz: Why do you call it “Logic Bingo”?

Jyoti: In the game, there are some conditions. The players have to find these conditions using logical reasoning before getting to the answer. There are only four chances to win the game. So we named the game “Logic Bingo”.

Moz: So what is this game?

Tejas: For sports day in our school, each student can participate in two games from a list of six games.

Team games	Individual games
Foot ball Basket ball Kho kho	Athletics Swimming Gymnastics

Jyoti: Rules for combinations of games are as follows:

- Participation in two team games is not allowed (invalid choice).
- Participation in two individual games is allowed (valid choice).
- Participation in a team game and an individual game is valid.

Tejas: We want to convert this into a Scratch project. Students have to find the correct combination of games in four chances.

Jyoti: We will not reveal the rules for valid combinations to students. We will display only the names of the games. They have to guess the rules and find a valid choice.

Moz: Good project. So how do you start?



Tejas: The main steps in our project are:

Step 1: Display the games.

Step 2: Repeat the following sequence four times.

- i. Ask the student to enter the choice for first game. Receive the answer.
- ii. Ask the student to enter the choice for second game. Receive the answer.
- iii. Determine whether the two games are a valid combination.
- iv. Display whether the combination is valid or invalid.
- v. Keep score of valid choices.

Step 3: Display the final score.

Jyoti: We do not know the instructions for sub-steps in Step 2.

Moz: Let us start with sub-steps (i) and (ii) of Step 2. This is called receiving input from the keyboard.

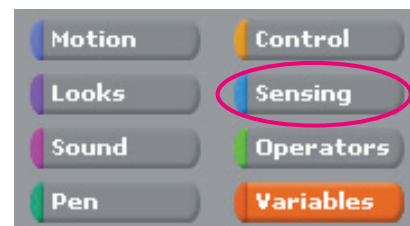
### Receiving input from the keyboard

Moz: In which block do you find instructions to sense a mouse click?

Tejas (thinks): Sensing. Oh! So, words entered using the keyboard is “sense the keyboard input”. Isn't it?

Moz: Correct.

Jyoti: Let us check Sensing.

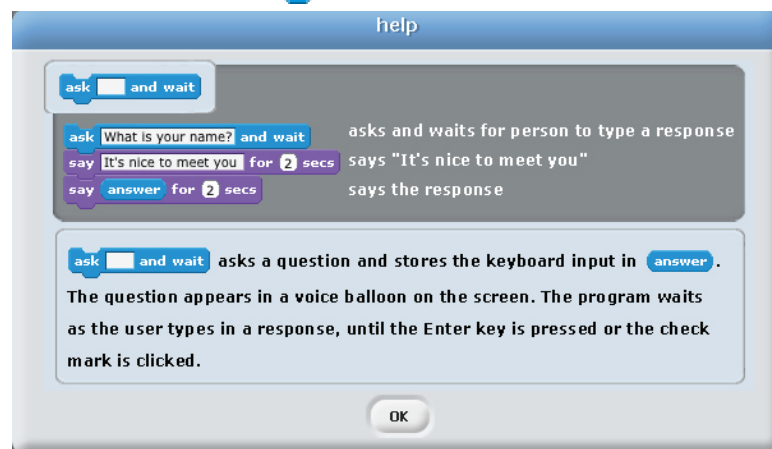


Look at this instruction



Moz: To learn how to use this instruction, right click on the instruction to get help.

Tejas right clicks on the instruction `ask [ ] and wait` and gets help for it.



### Using Help option:

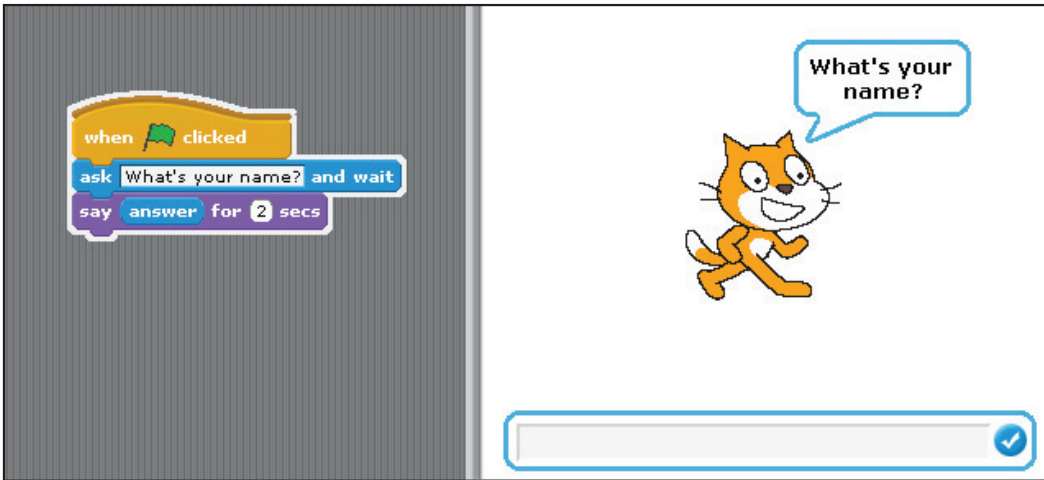
To learn about the functionality of an instruction, right click on the instruction. This gives you a help option. Help option displays how to use the instruction with an example.

SKILLS

Moz: Build a small block using the Sensing instructions and execute it.

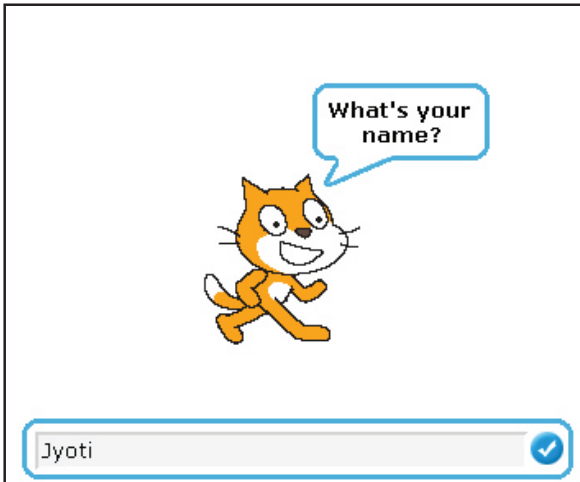
### Sensing input and its execution steps

1



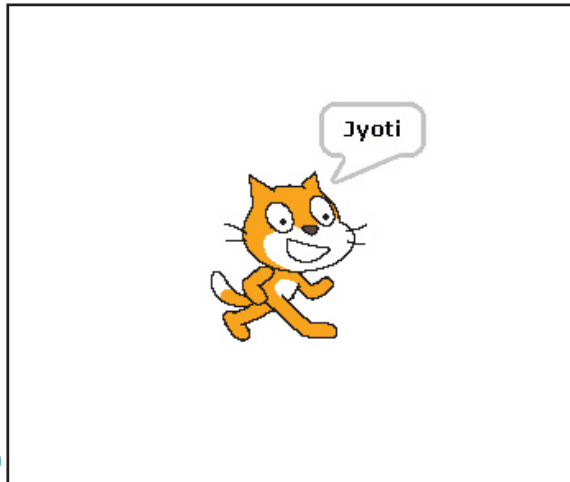
The Scratch script on the left contains three blocks: a yellow 'when green flag clicked' block, a blue 'ask What's your name? and wait' block, and a purple 'say answer for 2 secs' block. The stage on the right shows the Scratch cat with a speech bubble saying 'What's your name?'. Below the cat is an empty text input field with a blue checkmark icon on the right.

2



The stage shows the Scratch cat with a speech bubble saying 'What's your name?'. The text input field below now contains the name 'Jyoti' and has a blue checkmark icon on the right.

3

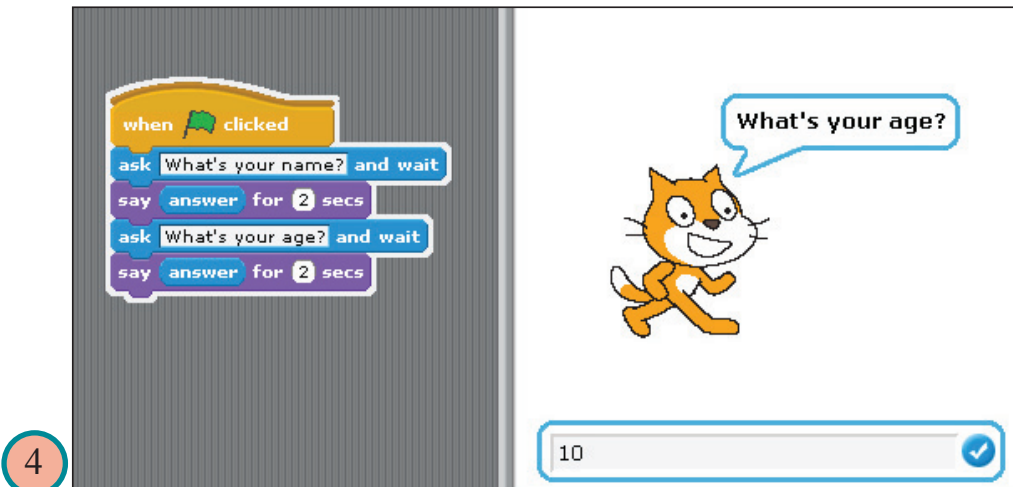


The stage shows the Scratch cat with a speech bubble saying 'Jyoti'. The text input field is no longer visible.

Tejas: This is good. We can ask a question and also capture the answer given by the user.

Jyoti: Let us enter another question using the ask instruction.

4



The Scratch script on the left contains five blocks: a yellow 'when green flag clicked' block, a blue 'ask What's your name? and wait' block, a purple 'say answer for 2 secs' block, a second blue 'ask What's your age? and wait' block, and a second purple 'say answer for 2 secs' block. The stage on the right shows the Scratch cat with a speech bubble saying 'What's your age?'. Below the cat is a text input field containing the number '10' and a blue checkmark icon on the right.



#### Keyboard input

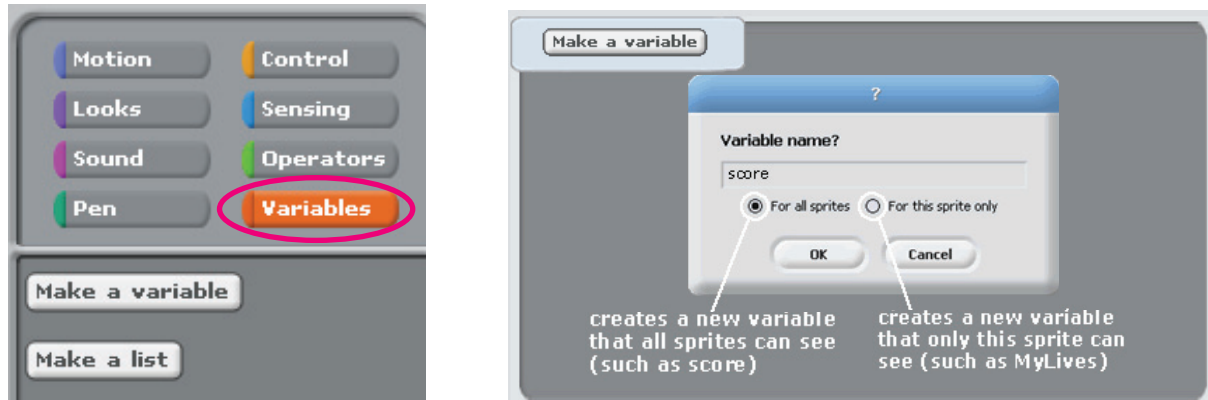
- *ask and wait* prompts users to type input using the keyboard.
- *answer* stores the keyboard input.

## Creation of Variables

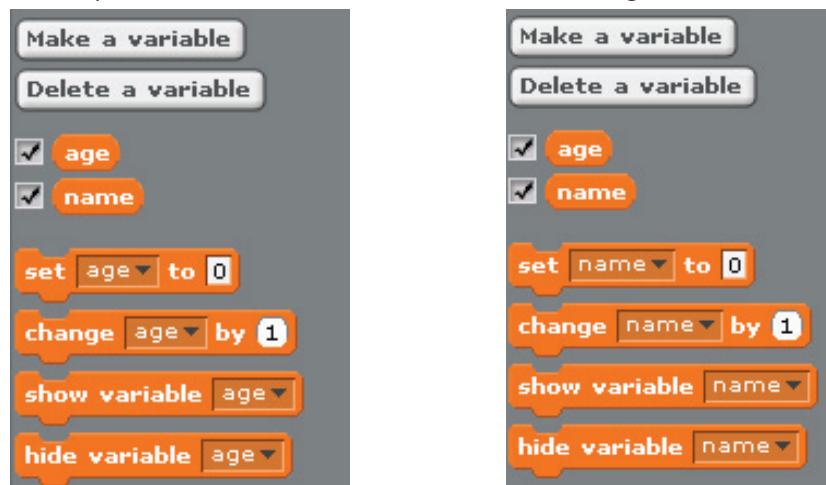
Tejas: What happens to the input entered for the first question. Is it lost?

Jyoti: I wish the computer can save the answer somewhere.

Moz: Sure it can. Check out the **Variables block**.



Tejas and Jyoti create Variables called *name* and *age*.



### Variables

The variable blocks allow you to create variables and use them in a program. The variables can store numbers or **strings** (sequence of characters). A variable can be created such that:

- Only one of the Sprites can use it or all Sprites can use the variable.

Info



Letters, words or sentences are called strings in Computer language.

### Assigning values to a Variable

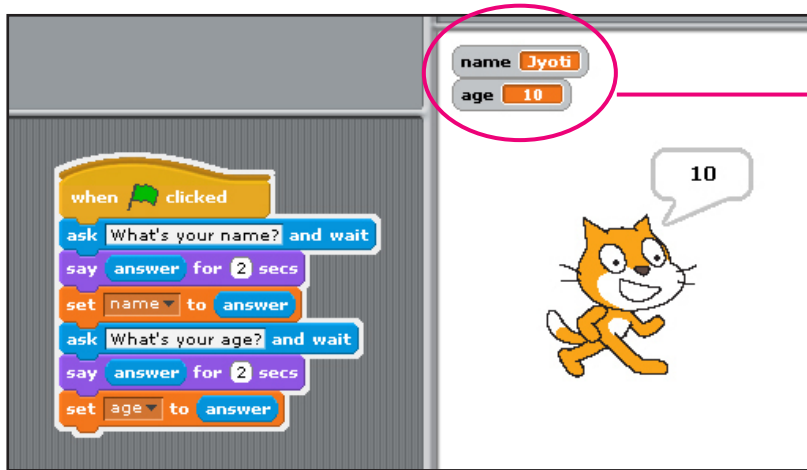
Tejas: Can we store a word in this variable?

Moz: Yes. When a word is saved in a variable, it is called a **string variable**.

Jyoti: I want to save answer in the string variable *name*.

Moz: Check out the *help* for *answer* under the Sensing block. If you want to save the current answer, you can store it in a variable.

Moz: Scratch allows you to save answer in a variable that you have already created.

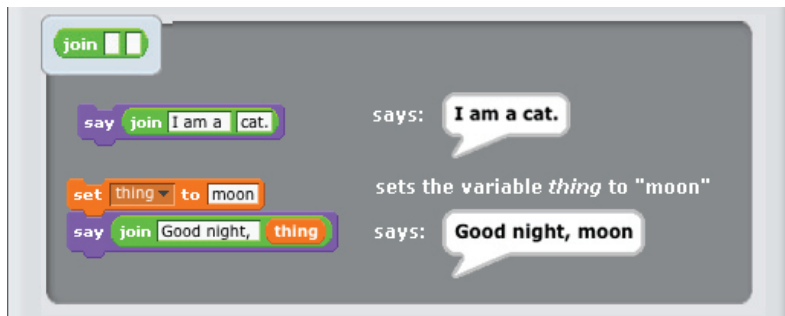


The variables are set to the *answer* entered by the user.

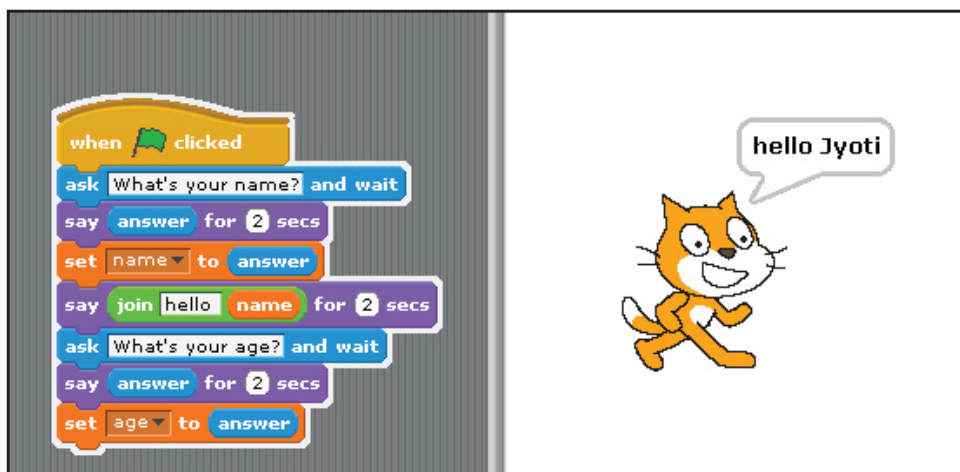
**Operators** (A symbol that represents a specific action. For example, a plus sign (+) is an operator that represents addition.)

Tejas: Suppose the name typed is “Jyoti” then I want to say “Hello Jyoti”. How do I get this?

Moz: You want to join two words and display it. **Join** is a string operator. Check out these instructions in **Operators block**.



Jyoti checks the help for string operator *join*. Then, she adds the *join* instruction to her scratch program and executes it.



Tejas: How do we compare strings? We will need it for our project, to compare the user's answer with ours.

Moz: How do you compare if two numbers are equal?

Jyoti: Using '=' (equal to) operator.

Moz: You can compare strings for equality also, just like numbers. Where do you find the comparison instruction?

Tejas: In Control block.

Tejas and Jyoti write the following blocks to see how operators and control statements can be used.



```
when green flag clicked
ask Enter Game1 and wait
set Game1 to answer
broadcast Game1 and wait
ask Enter Game2 and wait
set Game2 to answer
broadcast Game2 and wait
if Game1 = Game2
say You have entered the same game twice! for 2 secs
```

Script for the Cat Sprite



```
when I receive football
if game1 = football
say I am Game1

when I receive football
if game2 = football
say I am Game2
```

Script for the Football Sprite



Stage after execution of program

### Conditional statements:

- *if* and *if-else* in the control block are used to check for a condition.
- If the condition is true the set of instructions after *if* are executed.
- Otherwise, the set of instructions after *else* are executed.

Moz: Explore the other string operators too. You may get some more ideas to show comparisons.

Tejas and Jyoti explore the following string operators:

**join** [ ] [ ]

Concatenates (combines) strings.

**length of** [ ]

Reports the number of letters in a string.

**letter** [ ] **of** [ ]

Reports the letter at the specified position in a string.

## Logic Bingo by Tejas:

Tejas: Let us create a game called “Logic Bingo”. There are six Sprites for the six games. Cat Sprite will ask a question and capture the response. An Instruction Sprite will give the instructions of the game.



Moz: Have you decided on the variables that you will require for the game?

Jyoti: Since the player enters two games of his or her choice, we need two variables, *game1* and *game2*, to save the choices.

Moz: Good. What else do you need?

Tejas: We can decide if a game combination is valid or invalid by comparing the types of the two games. So, each time the player enters a choice, we should also save the type of the game. Later, we can do the comparison and decide if the choices are valid or invalid. So we need two variables, *team* and *individual*.


Moz: Good. So, what do you do next?

Tejas: Import the Sprites and position them on the stage.

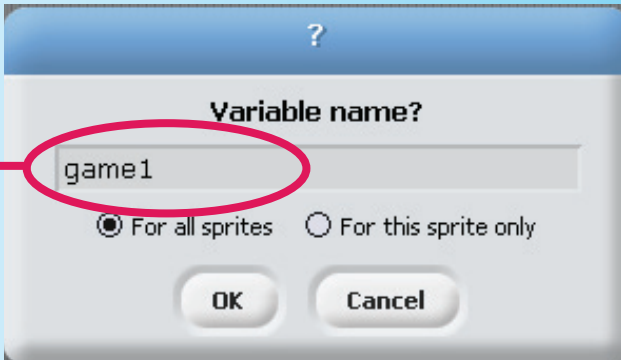
Jyoti: We have to also create the variables.

Moz: Good. Summarize the steps.

**Steps for creating Variables**



Step 1: Click on Make a variable to create a new variable.



Step 2: Type in the name of the variable in the pop-up box and click OK. The new variable *game1* is created.

SKILLS



## Steps for creating a game Logic Bingo

### 1. Import Sprites and position them on Stage:

Select Sprites from the available Sprites or paint the Sprites required for the game.

Six Sprites for six games and *Cat* Sprite as referee of the game. One Sprite which has instructions of the game.



### 2. Create the required variables:

Four variables are required. Two to save the names of games and two for the types of games.

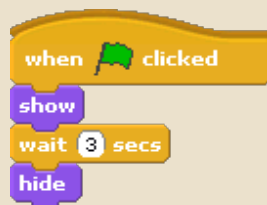
Moz: What is the next step? How does the program start?

Jyoti: The program starts as follows.

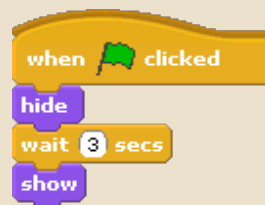
### How does the game start?

3. Hide the Sprites and show the instructions of playing the game.

4. Hide the instructions and show the Sprites.



Script for  
Instruction  
Sprite



Script for both  
Cat Sprite and the  
game Sprites

**LOGIC BINGO**  
You can participate in any 2  
games. Guess the correct  
combination and enter your 2  
choices of games.

Stage after running the Script

Moz: How do you take responses from the player?

Tejas: First, the Referee Sprite asks a question. Next, the Player responds. Then the response is saved in *game1*.

Jyoti: We have to also save the type of game. We can use Broadcast. Referee Sprite can Broadcast the name of the game. Then, the corresponding game sprite will receive and save the type of game in *choice1*.

Tejas: Let us use *join* while broadcasting. For example, if the first game is football then we can join it with '1'. So the Broadcast will go as *football1*.

Moz: Very good.

Tejas: If the choice of game is team game, then *choice1* = team. If the choice is individual type of game then *choice1* = individual.

Jyoti: We can again use *join* to display the type of game.

```
say join The first game selected is choice1 for 2 secs
```

Moz: Good.

Jyoti: We can use the same sequence and logic for the second choice of game too.

Moz: Correct. Go ahead and write the Scripts for referee and game Sprites.

**5. Referee - Cat Sprite block:**  
 Referee gives an instruction “Enter the name of the game you want to play on sports day”  
 Player responds by entering the name of the game.  
 Save the name of the game in the variable game1.  
 Broadcast game1.

**6. Game - Sprite:**  
 The game that has been chosen receives the Broadcast.  
 Type of game is also saved by the chosen game Sprite in a variable choice1.

**7. Referee - Cat Sprite:**  
 Receives the Broadcast and says the type of game (choice1) so that the player knows type of the first game that he/she chose to play on sports day.

```
ask Select the game that you want to play on sports day and wait
set game1 to answer
say game1 for 2 secs
broadcast join game1 1 and wait
say join The first game selected is a choice1 for 2 secs
```

Scripts for referee Sprite for choice1



Stage for choice1 of the player for the game **Logic Bingo**

```
when I receive swimming1
say I am game1.
set choice1 to individual game
```

Individual game Sprite Script, if choice1 is swimming

```
when I receive football1
say I am game1.
set choice1 to team game
```

Team game Sprite Scripts, if choice1 is football

Moz: Now that you have one choice, what should be your program for the next one?  
 Tejas: Program for *choice2* will be the same as for *choice1*, except that player's response will be saved in variable *game2*.

```
ask Select one more game that you want to play on sports day and wait
set game2 to answer
say game2 for 2 secs
broadcast join game2 2 and wait
say join The second game selected is a choice2 for 2 secs
```

Scripts for referee Sprite for choice2



Stage of the player for choice2 response

```
when I receive swimming2
say I am game2.
set choice2 to individual game
```

Individual game Sprite Script,  
if choice2 is swimming

```
when I receive football2
say I am game2.
set choice2 to team game
```

Team game Sprite Scripts,  
if choice2 is football

Jyoti: Now, we have to build the program for comparing *choice1* and *choice2*.

Moz: What would the referee Sprite do now?

Tejas: Referee Sprite compares the combination of selected games and says whether it is valid or invalid.

Moz: Good. Suppose someone enters their *choice1* again in *choice2*?

Jyoti: We can handle that easily. We will first write the logic to check duplicate. The full comparison logic is as follows:

1. If the same game is selected twice, then the combination is not valid.  
If  $game1 = game2$ , then say "Duplicate selection of games – invalid combination"
2. If the two games selected are team games, then the combination is not valid.  
If  $choice1 = team\ game$  and  
If  $choice2 = team\ game$ , say "invalid game combination".
3. Rest of the combinations are correct.  
 $choice1 = team, choice2 = individual$ , then valid combination.  
 $choice1 = individual, choice2 = individual$ , then valid combination.

Moz: That is a very good comparison sequence. First, you are making sure there are no duplicates. Next, since there is only one more invalid combination, you are checking for it. Rest of the combinations are valid.

Tejas: We will now complete the game.

## Final stage of Logic Bingo

Referee Sprite script to display the following choices:

```

if game 1 = game 2
  say You have selected the same game twice. Try again
else
  if choice 1 = team
    if choice 2 = team
      say Your choice of games is not valid. Try again.
    else
      say Your choice of games is valid. Go ahead and play the game. All the best.
  
```



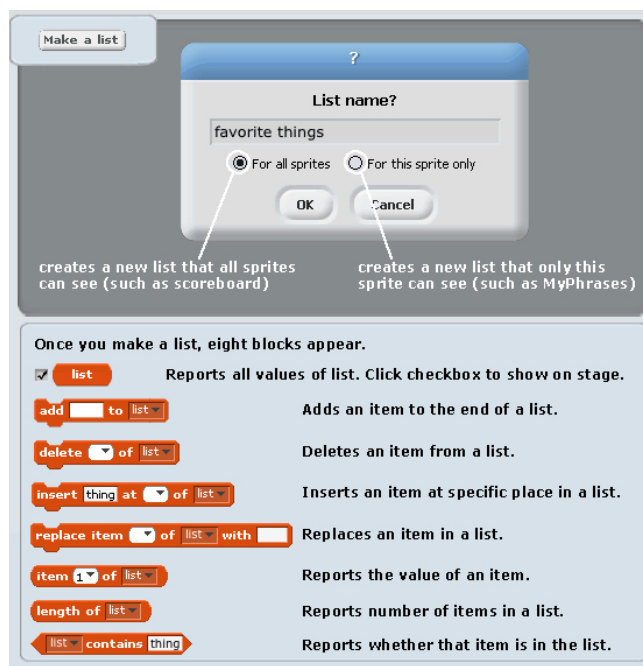
Moz: Have you noticed there is one more option under the Variables block: **Make a list** ?

Tejas: Is it something like the lists we make for purchasing things from the grocery store?

Moz: Yes, it is similar to lists that we normally use.

Jyoti: We will click on it and make a new list. Let us name it as *Mylist*.

Moz: When you create a list, you get eight different blocks under list. If you click on the help for **Make a list** you can get the functions of all these eight blocks.

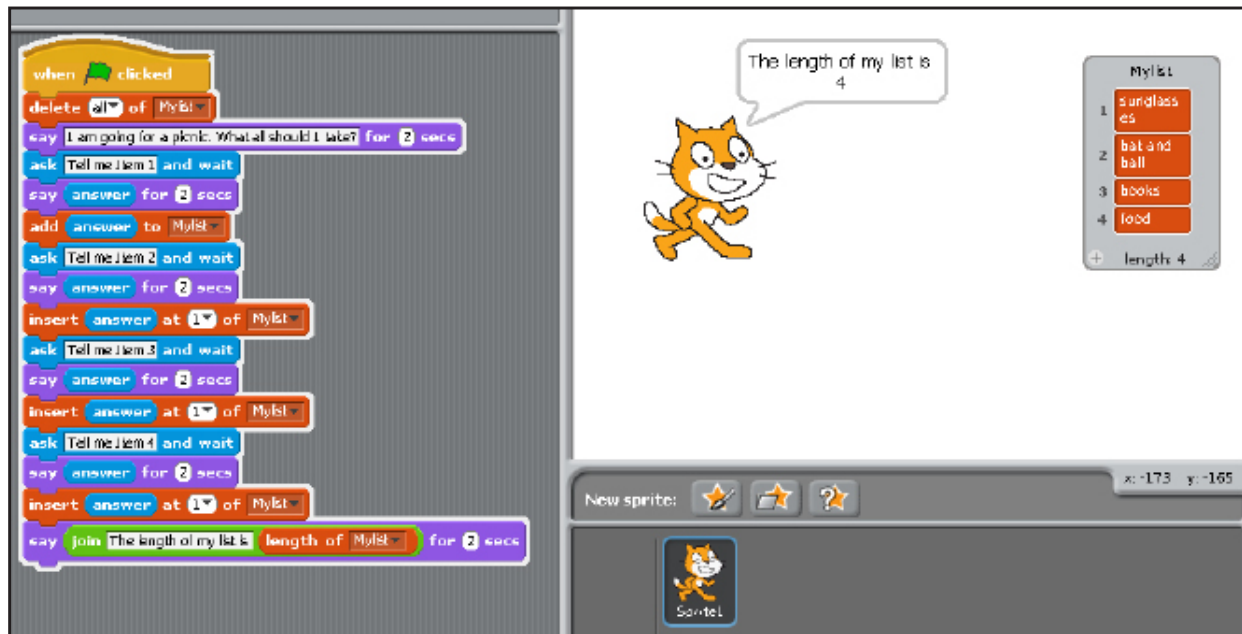


### Lists (arrays)

- Use list blocks to store a list of numbers and strings.

Tejas: Let us write a program to get four items from the user, which can be taken while going on a picnic.

Tejas and Jyoti explore the various commands for list and write the following program.



There are some blocks in Scratch such as **x position**, **mouse down?**, **variable** which are designed to fit in the input area of other blocks. These blocks are called **Reporters**. Reporters with rounded ends (such as **variable**, **mouse x**) report numbers or strings, and fit in blocks with rounded or rectangular holes (such as **say Hello!**). Reporters with pointed ends (such as **mouse down?**) report values (true or false) and fit inside blocks with pointed or rectangular holes (such as **wait until** or **say Hello!**).

Info

Moz: Good. Today you have learned to take input from user, use list and variables. Write more programs and have fun! Chin Chinaki...

### Learning Outcome

After you have studied this lesson, you will be able to:

- Write programs using commands under the Operators (like, Join) and Variables (variable, list) blocks.
- Provide input through keyboard for a Scratch program.



1. Gargi has written a program to capture the input from the user. She has created a variable named *Input*. What will be the final value of this variable after the execution of the program?

- a. Hello!
- b. User name
- c. User's friend's name
- d. answer

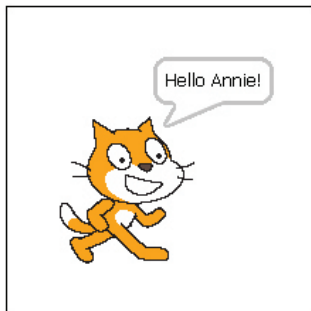
```

when clicked
ask Whats your name? and wait
set Input to answer
ask Whats your friend's name? and wait
set Input to answer
say Hello! for 2 secs
move 20 steps
    
```

2. The following is a small program. The last line of the program is missing. When executed the user gave the name as Annie. If you want the sprite to say "Hello Annie", what should be the last line of the program?

```

when clicked
move 50 steps
ask Whats your name? and wait
set Name to answer
    
```



- a) say Hello Annie for 2 secs
- b) say join Hello answer for 2 secs
- c) say Hello + Annie for 2 secs

3. A small program which compares two strings is given below. The user has entered the name of two items he likes to eat. Can you tell what the Sprite will say at the end of this program?

```

when clicked
say Please tell me what you like to eat? for 2 secs
ask Enter Item 1 and wait
set Item 1 to answer
ask Enter Item 2 and wait
set Item 2 to answer
if Item 1 = Item 2
say Oh! you entered the same thing for 2 secs
else
say join Item 1 Item 2 for 2 secs
            
```

Item 1 Cakes

Item 2 Cakes

- a. Oh! You entered the same thing
- b. Cakes Cakes
- c. Enter Item 2
- d. Enter Item 1





4. In the following program there are three variables: Choice1, Choice2 and Game. When the program runs fully, what will be the final value of the variable: Game?

- a. Basketball,
- b. 0
- c. Football
- d. 2

```

when clicked
  set choice 1 to Basketball
  set choice 2 to football
  ask 'What's your favourite game?' and wait
  set game to answer
  say join 'I like ' answer for 2 secs
  set game to 0
  say game
    
```

5. Here is a program to compare numbers. What will the Sprite say when the numbers entered by the user are 250 and 500. Circle the correct option.

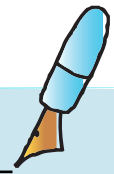
- a. Choice1 is less than Choice2
- b. 250 is less than 500
- c. Choice1 is greater than Choice2
- d. 500 is greater than 250

```

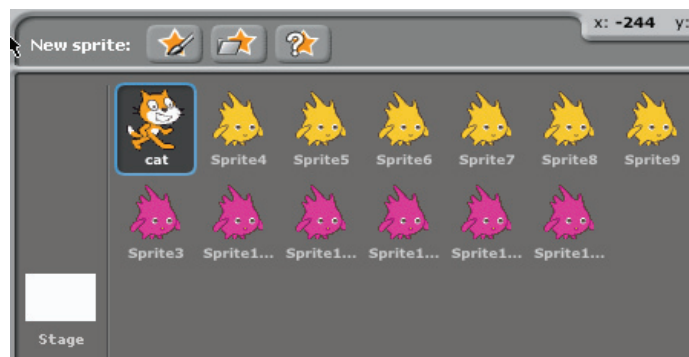
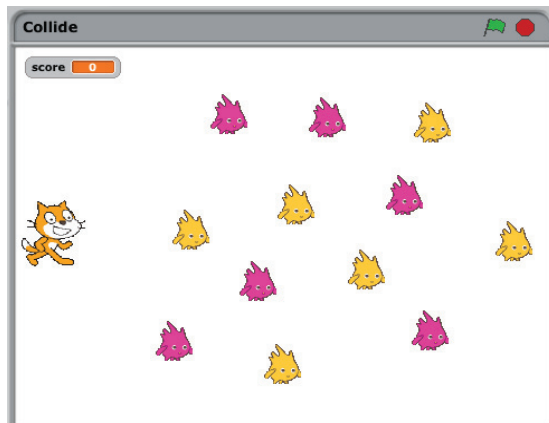
when clicked
  ask 'Enter a number?' and wait
  say answer for 2 secs
  set Choice1 to answer
  ask 'Enter another number?' and wait
  say answer for 2 secs
  set Choice2 to answer
  if Choice1 < Choice2
    say join Choice1 join ' is less than ' Choice2 for 2 secs
  else
    say join Choice1 join ' is greater than ' Choice2 for 2 secs
    
```

6. Here is a program which calculates the length of the name entered by a user. But the instructions are jumbled up. Rearrange the instructions by numbering them.

<pre> say length of answer for 2 secs         </pre>	<div style="border: 1px solid black; border-radius: 15px; width: 40px; height: 40px; background-color: #d4edda; margin: 5px;"></div>
<pre> say Hello! for 2 secs         </pre>	<div style="border: 1px solid black; border-radius: 15px; width: 40px; height: 40px; background-color: #d4edda; margin: 5px;"></div>
<pre> set Name to answer         </pre>	<div style="border: 1px solid black; border-radius: 15px; width: 40px; height: 40px; background-color: #d4edda; margin: 5px;"></div>
<pre> ask 'Whats your name?' and wait         </pre>	<div style="border: 1px solid black; border-radius: 15px; width: 40px; height: 40px; background-color: #d4edda; margin: 5px;"></div>
<pre> when clicked         </pre>	<div style="border: 1px solid black; border-radius: 15px; width: 40px; height: 40px; background-color: #d4edda; display: flex; align-items: center; justify-content: center; margin: 5px;"> <span style="font-size: 24px; font-weight: bold;">1</span> </div>



7. The stage of the game *Collide* (which has Cat and Gobos as sprites), and the scripts for the cat, yellow Gobos and the pink Gobos are given below.



Cat Script

```

when clicked
  go to x: -190 y: 0
  set score to 0

when clicked
  forever
    go to mouse-pointer
    
```

Script for yellow Gobo

```

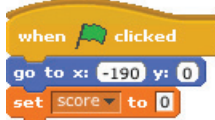
when clicked
  show
  wait until touching cat
  change score by 10
  hide
    
```

Script for pink Gobo

```

when clicked
  show
  wait until touching cat
  change score by -10
  hide
    
```

Using the scripts given above for the game *Collide* answer the following:

- i.  initializes the \_\_\_\_\_ of the Sprite and the variable \_\_\_\_\_.
- ii. What is the Goal of the game?  
Help the Cat \_\_\_\_\_ the mine field of Gobos with the \_\_\_\_\_.
- iii. What are the Rules of the game?  
Collect \_\_\_\_\_ Gobos to earn points, Avoid \_\_\_\_\_ Gobos to lose points.
- iv. What happens when you earn points?  
Maximize \_\_\_\_\_ while playing the game.

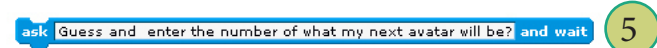
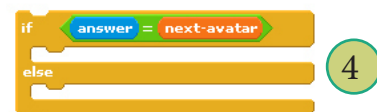
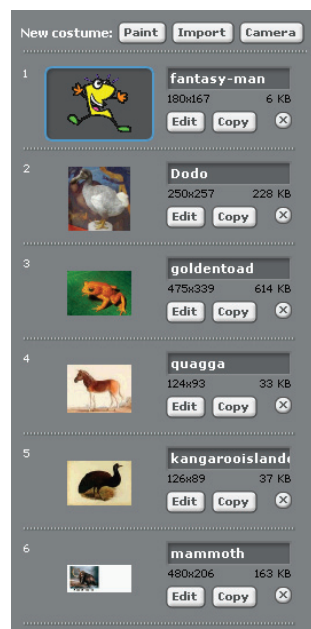
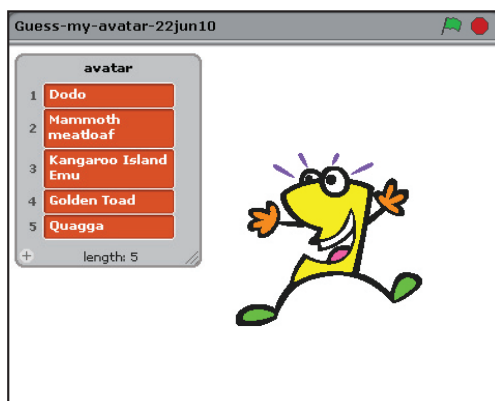


8. You are given a *Sprite* “fantasy man”, *costumes* for the *Sprite* which are “extinct birds and animals” and a *list* “avatar” with the names of the costumes and **jumbled up instructions for the *Sprite*. Arrange the instructions into a Scratch block by:**

9. Using the *Sprite* and costumes given.

10. Arranging the jumbled up *Scripts* such that the following actions are repeated:

- The fantasy man asks the user to guess the next avatar that he would change to from the list of extinct birds and animals given on the stage.
- The user guesses the next avatar and enters the corresponding number from the list on the stage.
- Fantasy man changes to a random costume.
- If the guess matches the costume that the fantasy man changes to then he makes a positive statement, else provides the name of the costume that he changed to.



Scratch block of *fantasy man*

1

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## ACTIVITY

Level V | Lesson 4

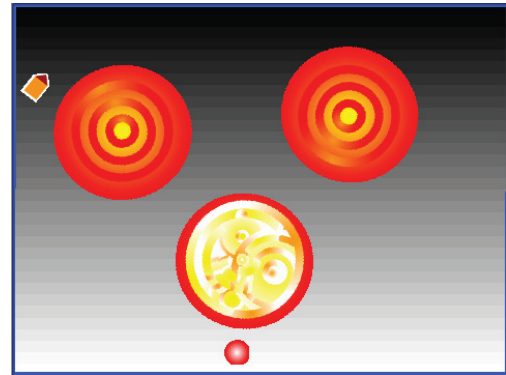
1. Open the following Scratch projects and do the activities.

**i. Bouncing Music Balls:** Use the arrow keys to move the small balls. When the small balls hit the big ball, music is produced. Follow these steps to start the project:

Scratch ---> Projects ---> Simulation ---> Bouncing Music Balls

Activities to do:




- Press H to read the help on how to play.
- Use arrow keys and + and - keys on the keyboard and observe what happens.

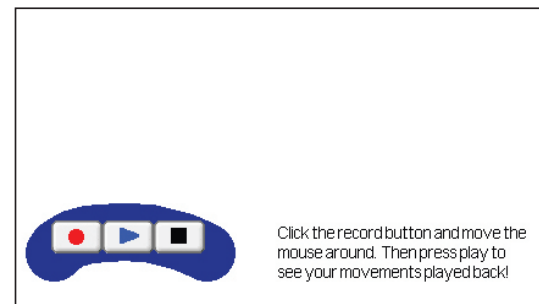


**ii. Mouse Recorder:** This project lets you record and play back movements of the mouse. It uses lists to store x and y positions of the mouse. Follow these steps to start the project:

Scratch ---> Projects ---> Interactive Art ---> Mouse Recorder

Activities to do:

- Press record button (  ). Move the mouse around to record the movements of the cursor. Press stop (  ). Press play (  ) to see the recording.
- Explore the Scripts to see how list is used in the program.

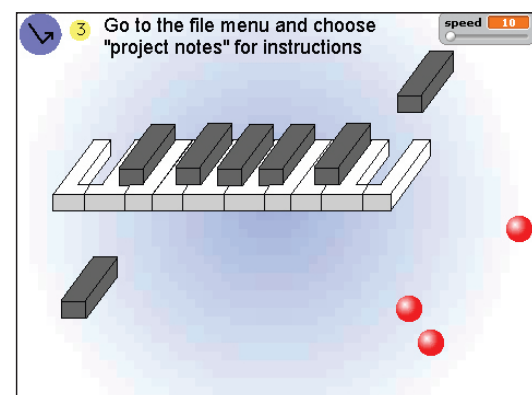


**iii. Piano Machine:** Balls bounce on the piano keys to make music. To start the project, follow these steps:

Scratch ---> Projects ---> Music and Dance ---> Piano Machine

Activities to do:

- Click and drag any piano key to a new position for different music.
- Click on the number icon to change the number of balls in motion.
- Change the program and create your own piano.





## ACTIVITY

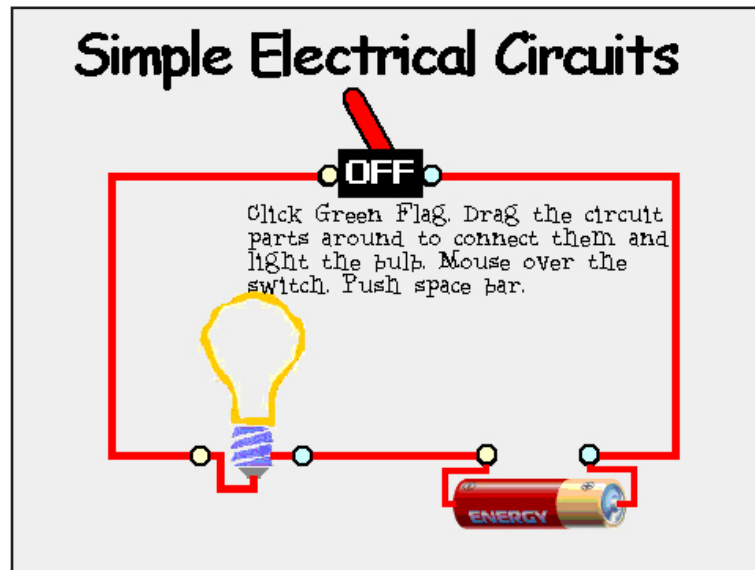
Level V | Lesson 4

iv. **Simple Electrical Circuits:** Place all the components in the circuit to light up the bulb.

Scratch ---> Projects ---> Simulations ---> SimpleElectricalCircuits

Activities to do:

- Position the circuit components and light up the bulb.
- Change the program to introduce another bulb and light up both the bulbs.





### Project

Do project 4.1, 4.2, 4.3 from lesson 8.



### Explore!

1. Explore what are Boolean operators?
2. Find out the functions of commands under Operators block like , .

- This lesson is best taught in front of a computer running Scratch.
- The purpose of this lesson is to teach students, how to use the instruction blocks related to conditional statements, variables, lists, operators and keyboard input, available in Scratch. Students are already familiar with this programming language and understand that they can make the computer do something using this activity.
- Begin by revising the functions of different instruction blocks already taught. You can ask them to write a small project to refresh their memory of what they already know. Tell the students that they will now learn to use additional instruction blocks to write a variety of interesting projects.
- Start Scratch and open an existing project (e.g. Examples --->Speak up ---> Global warming) that includes sensing and variable instructions. At this time, do not show the Script. Ask them to observe the animation. Now, show the Script area and ask them to observe if they find any new instruction blocks, and of what colour. Ask them to which instruction block set do they belong. Let them guess its functions, if they can. To do this, you can use the strategy of think pair share, where students can partner with their classmate and do this activity.
- Now explain the functions of different sensing options using the example mentioned in the book. Right click on the different block and open the help screen and ask them to read their functions. Do it for a couple of instructions and ask the students to explore the remaining instruction blocks themselves. Similarly, teach the functions of different variable options. Give a demonstration of the Script included in the lesson to show how to use the different instruction blocks.
- Emphasize that it is important to plan and organise the different activities you want to do using Scratch. Ask the students to write the Script for the Scratch project in their notebook. Now, ask them to exchange it with their partner and program using Scratch for each other's activity.
- Summarize the lesson and give the students activities to practice.

**Further Reading:**

<http://scratch.mit.edu/>



## Notes:

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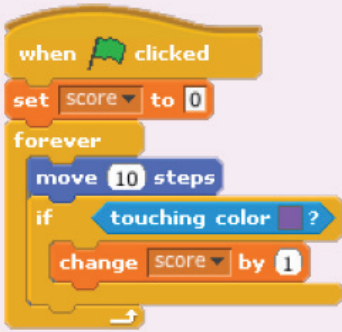


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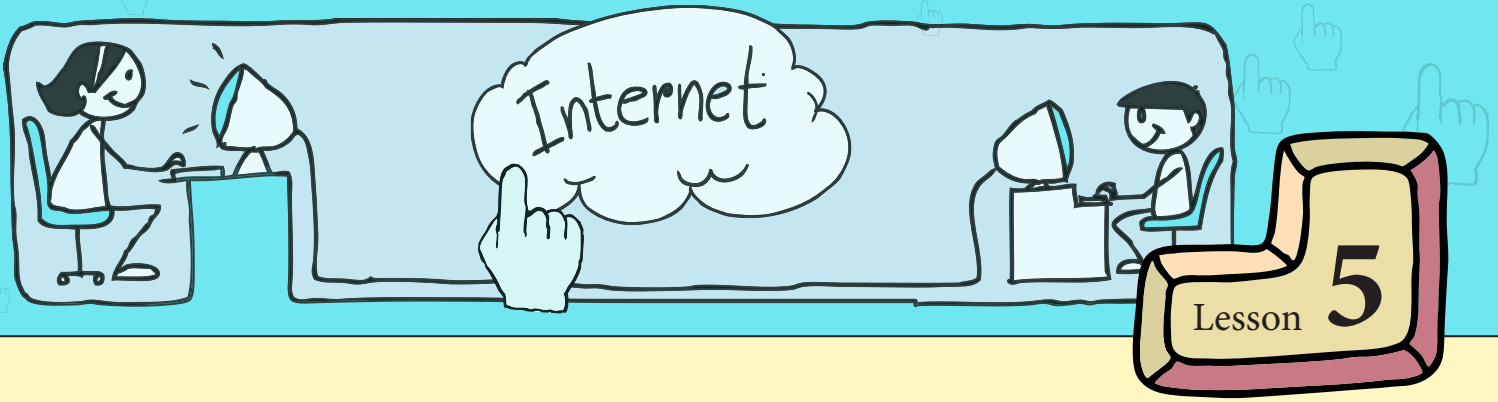
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## Summary of Concepts and Skills of Scratch programming

Concept	Explanation	Example
sequence	To create a program in Scratch, you need to think systematically about the order of steps.	
iteration (looping)	<b>forever</b> and <b>repeat</b> can be used for iteration (repeating a series of instructions)	
conditional statements	<b>if</b> and <b>if-else</b> check for a condition	
variables	The <b>variable</b> blocks allow you to create variables and use them in a program. The variables can store numbers or strings. Scratch supports both global and object-specific variables.	
lists (arrays)	The list blocks allow for storing and accessing a list of numbers and strings. This kind of data structure can be considered a “dynamic array”.	
event handling	<b>when key pressed</b> and <b>when Sprite clicked</b> are examples of event handling - responding to events triggered by the user or another part of the program.	

Concept	Explanation	Example
threads (parallel execution)	Launching two stacks at the same time creates two independent threads that execute in parallel.	
coordination and synchronization	<b>broadcast</b> and <b>when I receive</b> can coordinate the actions of multiple Sprites. Using <b>broadcast</b> and <b>wait</b> allows synchronization	<p>For example, Sprite sends the message winner when this condition is met:</p>  <p>This Script in Sprite2 is triggered when the message is received:</p> 
keyboard input	<b>ask and wait</b> prompts users to type. <b>answer</b> stores the keyboard input.	
random number	<b>pick random</b> selects random integers within a given range.	
Boolean logic	<b>and, or, not</b> are examples of Boolean logic.	
dynamic interaction	<b>mouse_x, mouse_y,</b> and <b>loudness</b> can be used as dynamic input for real-time interaction.	
user interface design	You can design interactive user interfaces in Scratch - for example, using clickable Sprite to create buttons.	

Source: <http://scratch.mit.edu>



## Introduction to Internet – Browsing



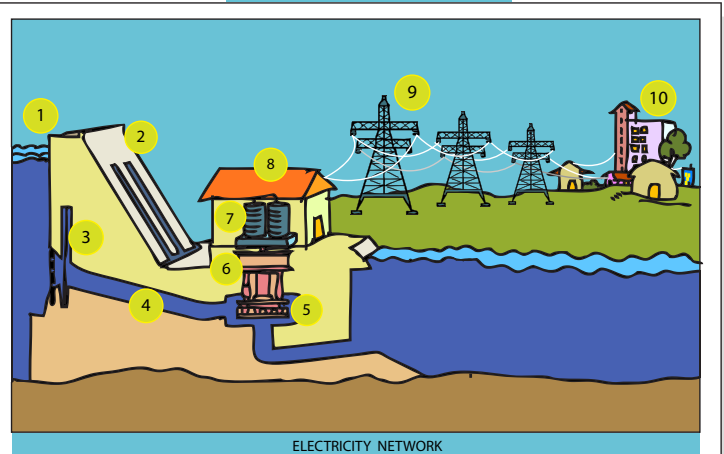
In this lesson you will learn:  
 That many computers are connected by a network called Internet.  
 That resources can be shared on a computer network.  
 How to access information on Internet.

Tejas: Yesterday our class went on a picnic to Aksha dam. We saw the power generating unit there.

Jyoti: We also saw a poster which shows how we get electricity to our homes through the electricity network.

Moz: I see that electricity flows through power lines, towers, cables and reaches our homes. Electricity network is also called a grid. Now tell me, how do you get water to your house?

### Electricity network

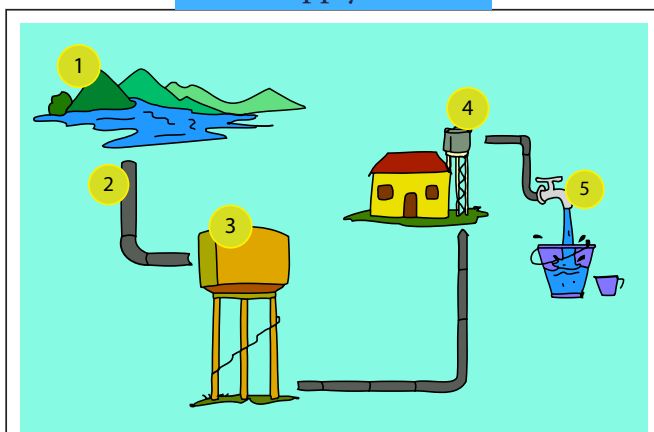


**ELECTRICITY NETWORK**

1 Reservoir	3 Control Gate	5 Turbine	7 Transformer	9 Power Lines
2 Dam	4 Penstock*	6 Generator	8 Powerhouse	10 City

\* A penstock is an enclosed pipe that delivers water to hydraulic turbines.

### Water supply network



#### Water supply

1 Source of water	3 Main water tank	5 House tap
2 Pipe delivering water to main tank	4 House tank	

Tejas: There are big pipes which get water to a tank in our area. From the tank there are again pipes to carry the water to our homes. I have drawn and labelled a picture of water supply network.

Moz: What is common in such networks?

Tejas (thinks): In a network everything should be connected. Otherwise the network will not work.

Moz: Correct. What else? Ok. Let me give you a hint. Many people get electricity from the electricity network.

Jyoti: I got it. The pipes which bring water to our house also take the water to other houses. This means that the networks are shared by many people.

Moz: Correct. There are many such examples of networks in our daily life. Networks are shared by many people, like the road and railway networks, telephone networks.

Tejas: Networks everywhere! Can computers be connected to one another?

Moz: Yes. Computers can be connected to form a computer network. Can you tell me what can be shared in a computer network?

Jyoti: We have only one printer in our computer laboratory. But we can print from any computer. That means we are sharing the printer.

Moz: Correct. Devices on the network can be shared.

Tejas: Can I share some files from my computer with Jyoti who is working on another computer?

Moz: Yes. You can share files, data and other information using a computer network. You will soon learn how to do this.

### Computer Network

- A **computer network** is a collection of computers and devices interconnected to one another.
- Devices in a computer network can be shared by users of the network.
- Files, data and information on the computers in a computer network can also be shared by users of the network.



Jyoti: I have seen my parents booking railway tickets using a computer at home. How is this possible?

Moz: First tell me, what is the information required to book tickets from Mumbai to Delhi?

Jyoti: First, we have to find the trains that go from Mumbai to Delhi.

Tejas: After choosing the train, we have to see if tickets are available for the date on which we want to travel.

Moz: Very good. Where is this information available?

Tejas: With the railway reservation system.



Moz: Now, suppose this information is on a computer at the railway reservation office.

Tejas: Then, our home computer has to be connected to the computer in the railway reservation, for us to be able to book tickets from home.

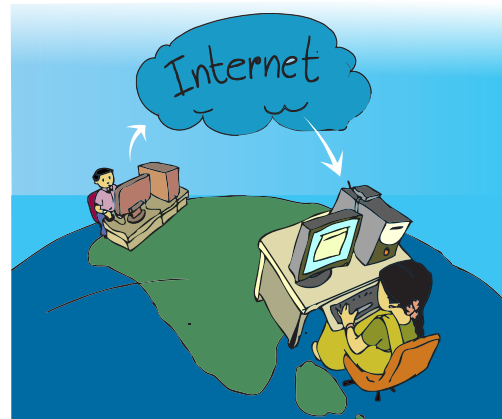
Moz: Correct. Such a connection of computers is called an **Internet connection**. Information is communicated and shared between the two computers, through such an Internet connection.

Tejas: Suppose I want to get information about stars. A Planetarium may have a computer with such information. Isn't it?

Moz: Yes. If the planetarium allows, you can connect to its computer from your home computer to get the information. There are many such computers in different organizations, giving us different types of information. These computers are all interconnected. This is called the **Internet**.

Tejas: Oh! So, for sharing or getting information from another computer on the Internet, we need a connection to the Internet. How do we get a connection?

Moz: These connections are provided by internet service providers.



### Internet



- Internet is a combined collection of many interconnected computer networks around the world.
- Using these computers people can share and exchange information.
- A connection to the Internet is needed to access the Internet.

Jyoti: Where is this information coming from? Does someone create this information?

Moz: Correct. There are millions of pages of shared information on these computers, created by many people and organizations. This information network is called the **World Wide Web**. The source of information is called the **website**.

Tejas: Do we find all the pages related to a topic on a web site?

Moz: Often you do. For example, you are looking for information about Stars. It is possible to find most of the information related to stars in one website. A website is a collection of related web pages of information.

### World Wide Web (www):



- Sharable information on the Internet is called the **World Wide Web (www)**.
- Web is a collection of millions of pages of information. The information can include text, pictures, animations, sound and video. We can usually find information about any topic on the Internet.
- The location where the information is available on the web is called a **website**. A web site is a collection of related **web pages**.

Tejas: Can we now access the web from this computer?

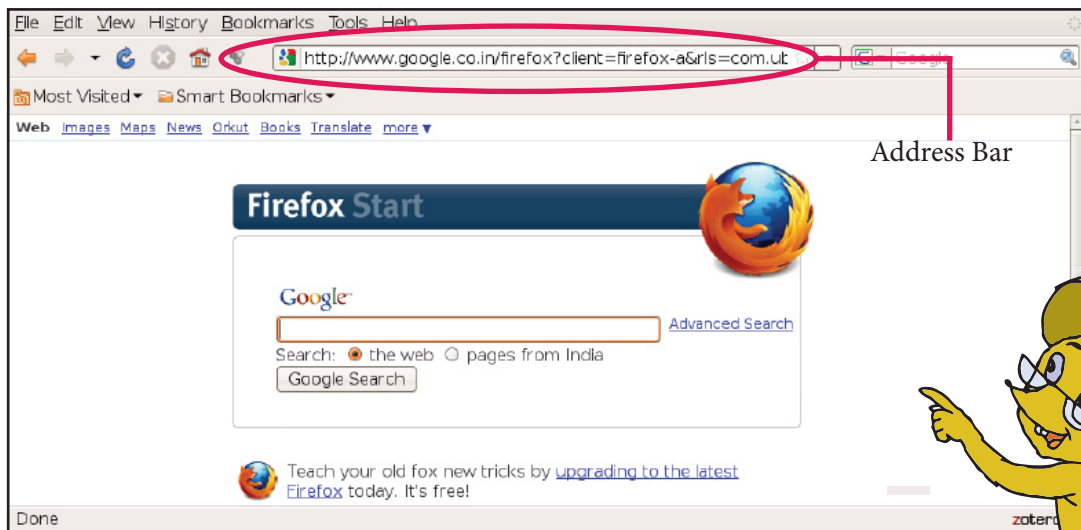
Moz: Yes. You can. This computer is connected to the internet.

Jyoti [points to the  (browser icon)]: This icon looks like a globe. Is this the application to access the information on the internet?

Moz: You are right. Go ahead and open the application.

Tejas double clicks on the icon.





Moz (points to the opened browser): This is called a **Browser**.

Jyoti (points to the address bar): What is this?

Moz: Suppose I want to come to your house. What should I know?

Jyoti: My house address.

Moz: Each place has an address, such as a shop, movie theatre, hospital, school. Similarly, a web site also has an address. This address is also called the **URL (Uniform Resource Locator)**.

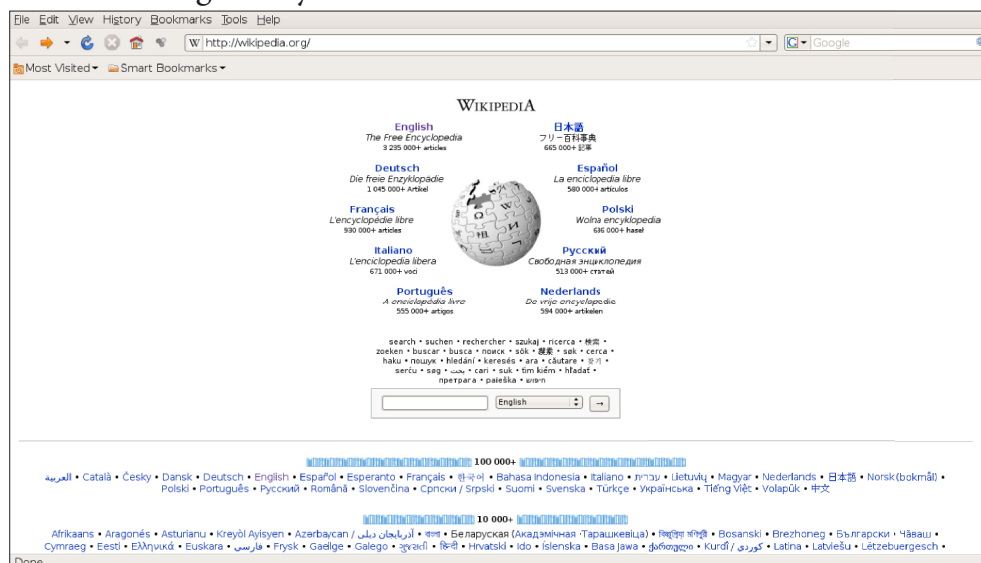
- Information on a web site is accessed by using the Internet application called the **browser**.
- A website is accessed by using the **website address** called the **URL**.

Info

Tejas: Do you know from where I can find information for my Science project?

Moz: There are many sites that you can refer for Science project. For now, enter the URL “[www.wikipedia.org](http://www.wikipedia.org)” in the address bar. This is a website where you can find information on many subjects.

Tejas enters the address given by Moz.



Jyoti: There is no information here. It is just showing us the language names.

Moz: In many places like museums and tourist places you find information in many languages, isn't it?

Tejas: Yes. That means this website has information in many languages.

Tejas moves the mouse pointer around the page.

Jyoti: The mouse pointer changes to a  (hand icon) at English and other language names. These words also appear to be underlined.


Moz: These are links to other sections of the web site. They are called **hyperlinks**.

Tejas: When I click on English, I get an encyclopedia in English.

Moz: This site has the same information in many languages.



- A hyperlink is a mechanism by which a web page is linked to another related web page.
- Text, images can be made into hyperlinks.

- A hyperlink is usually underlined.
- If you move your mouse over a hyperlink, it will usually change to the shape of a hand 
- Clicking on the hyperlink takes you to a different page.



Moz: Let us look at an example. Suppose you are at a science museum. You want to go to the dinosaur section. So what do you do?

Jyoti: The directions in the museum will point to various sections. So using the directions I can reach the section.

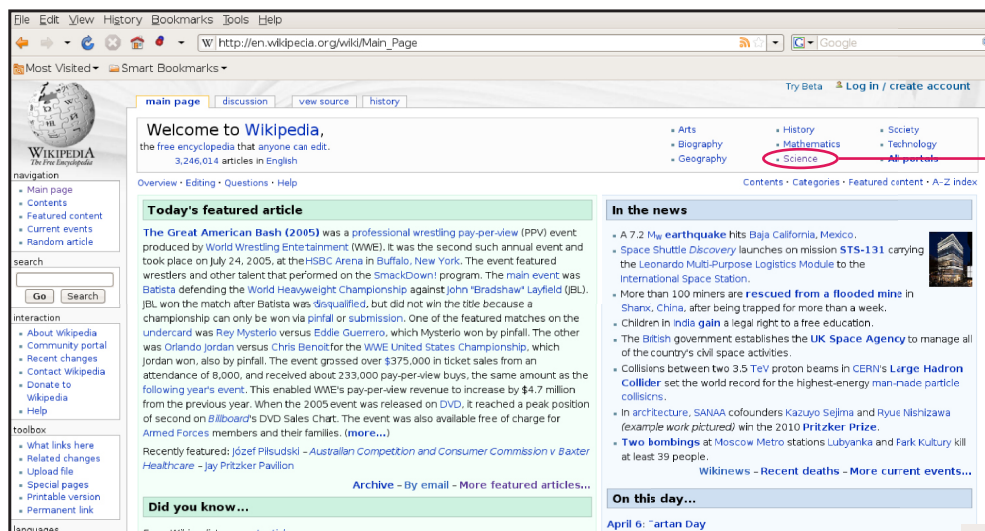
Tejas: Oh! So these hyperlinks are directions to move to various sections of this website.

Jyoti: This information must have been written by many people and stored on these computers. Can I also write and share information with others?

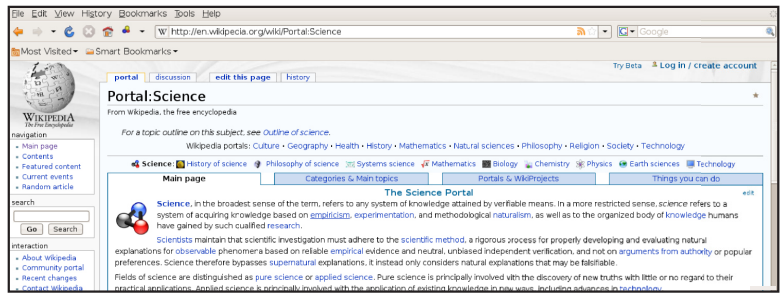
Moz: Good question. Yes, you will learn about this later.



- Information on the web is created by many people.
- Anyone can create the information and share it on the web.



Jyoti: There is so much of information. Let us click on the Science hyperlink.



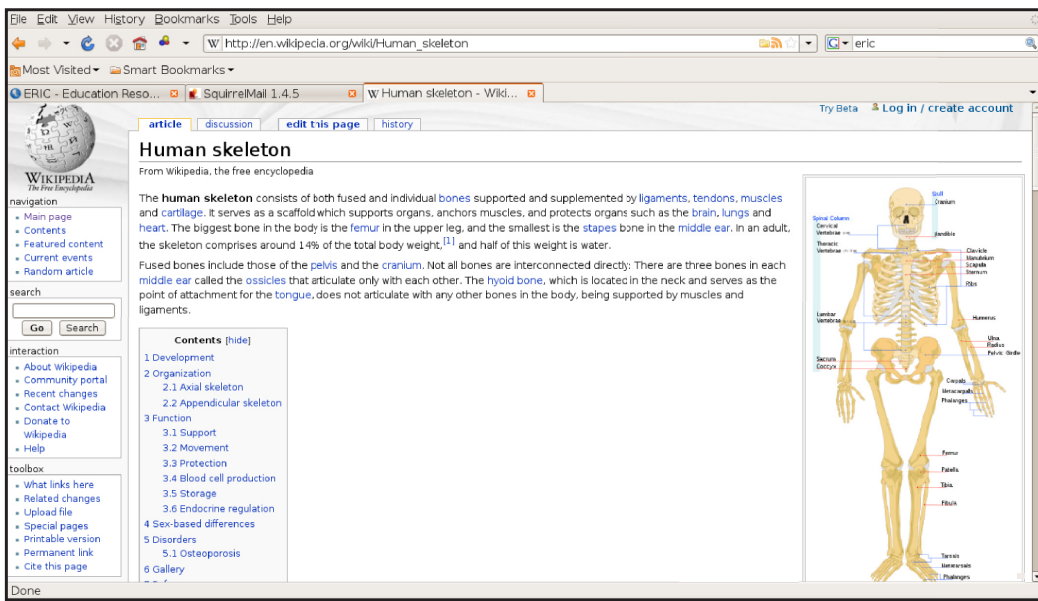
Tejas (points to the back arrow): Let us try this. I want to see what is in the Maths hyperlink. Jyoti and Tejas thus discover that they can go back and forth to revisit the links that they visited. They browse through various subjects.

The Back button takes you to the web page which you were viewing, before coming to the present page.

The Forward button has the opposite function of the Back button. It takes you forward to the next web page, within a sequences of pages that you have already accessed.

**SKILLS**

Jyoti (points to search): Can we search for a topic in Science?  
 Moz: Yes. You can. It is like searching within a telephone diary. Enter a word related to the topic that you want to search for.  
 Tejas: Let us search for “human skeleton”.



Tejas: This is good. There are further links and we can browse more web pages.  
 Jyoti: I found something interesting here. I would like to visit this web page again. Is there someway to save the link?  
 Moz: When you are reading a book and you find some interesting pages that you want to refer to later, what do you do?  
 Jyoti: Usually we have bookmarks. Or we also use a small piece of paper to mark that page.

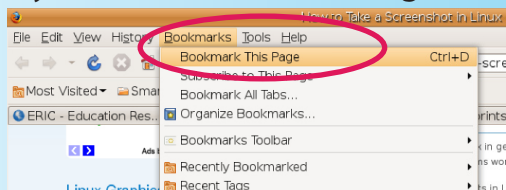
Moz (points to the bookmark in the toolbar): Similarly you can bookmark to save the URL of interesting web pages.

Jyoti saves the website address and also learns how to retrieve it.



### Saving the address of a website

The address of a website that you would like to visit again can be saved as follows:



1. Click on "Bookmarks".
2. Click on "Bookmark this page".
3. A box will then appear. You can now click on "Done" to add the page to your bookmarks.
4. You can also change the name of the bookmark to an appropriate name. Example: Jyoti enters "human skeleton" for the website address that she is saving.
5. When you have many bookmarks you can organize them in folders. Example: Jyoti creates a "Science" folder and saves "human skeleton" in this folder.

SKILLS

Tejas: Now I can browse this site from home too. But I have seen my brother use a different type of icon to access the Internet.

Moz: Yes. There are different browsers. Some of the common browsers are:



Firefox  
from Mozilla



Internet Explorer  
from Microsoft



Google Chrome  
from Google



Apple Safari  
from MAC systems



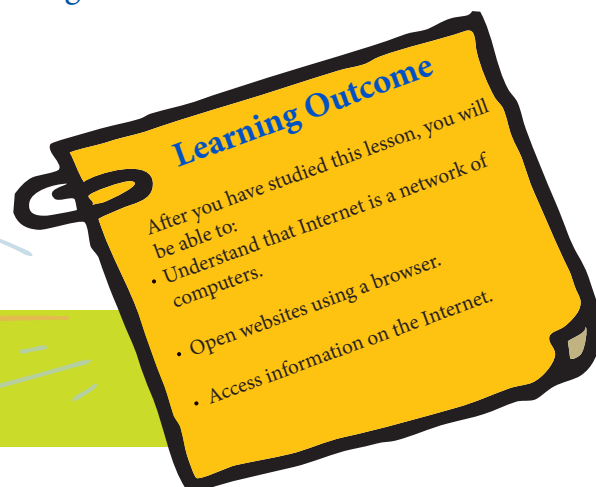
Opera mostly used  
for mobiles and  
handheld devices

Tejas: Do we need to learn how to use all of them?

Moz: Not necessary. The browsers look slightly different, but the functionalities are similar.

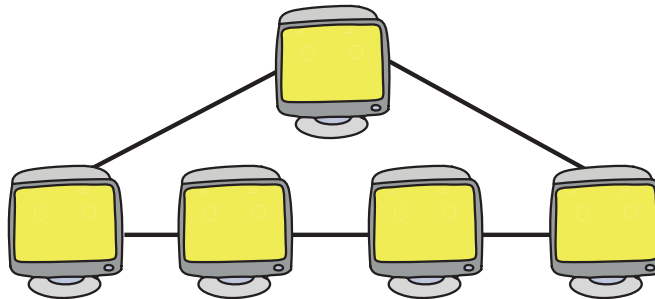
Tejas: Suppose I do not know the address of the web site that has the information I need. Then how do we find the website address?

Moz: More on this tomorrow. I saved some interesting and fun web site links in the bookmarks. Go ahead and browse these sites.

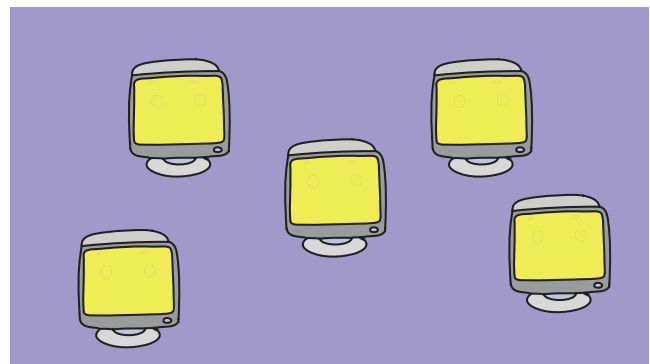
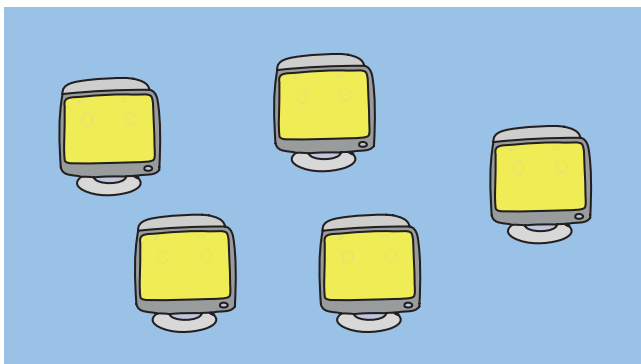




1. You are given 5 computers to be connected in a network. One example is given below:



Show 2 other ways of connecting them. There can be many correct ways. Compare your answer with your friend.



2. All the statements given below are regarding networks. Pick the incorrect one.

- c. A network is made up of units that are linked together.
- d. Road and Railways are examples of network.
- e. The resources in a network are meant to be used by only one user.
- f. A network can be very large.


3. A library has different books and each book has many pages. Using the analogy of a library with the Internet, match the following:

Library	Web pages
Books	Internet
Book pages	Websites





**4. Match the following:**

I am a collection of interconnected computers around the world.	Web Browser
I am the unique address of a web site.	Hyperlink
The information available on the web can be accessed through me.	Internet
I am the clickable link on a web page which takes you to different page. When you move the mouse over me the cursor will change to 	URL

**5. Observe the following figure.**



The above page was reached following the Hyperlinks:

Home--->English--->Reading---> Dictionaries--->quiz (as shown in the figure).

- i. Circle the address bar on this page.
- ii. Can you suggest different ways to go back to the previous page?
- iii. Write the steps to bookmark this site.

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**6. Give the names of three Internet browsers that are commonly used:**

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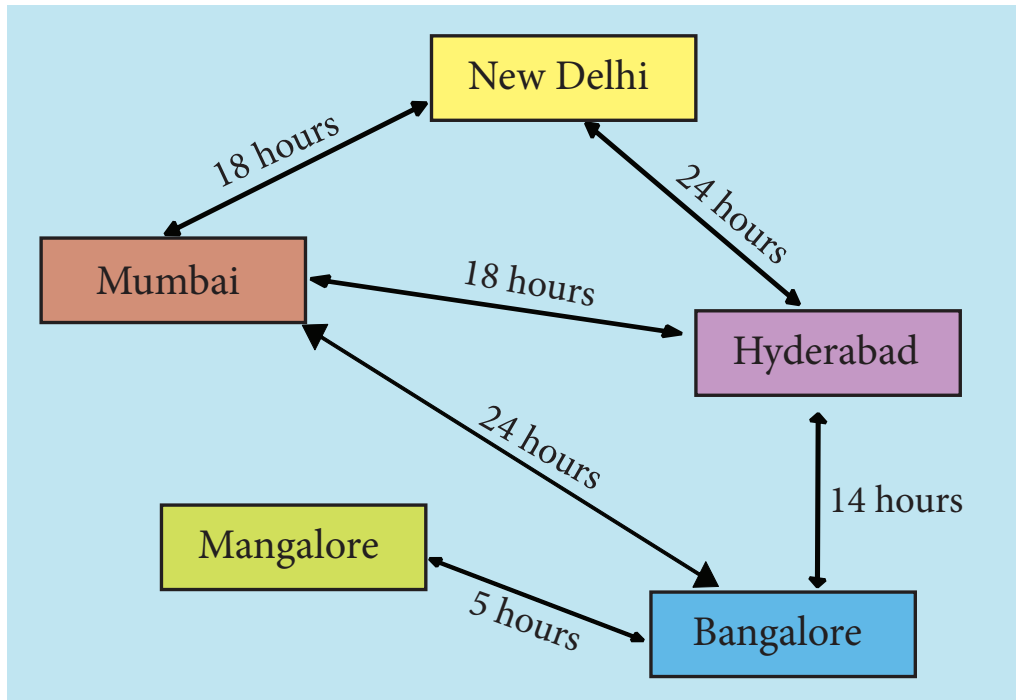


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7. A railway network is shown below along with number of hours for travel between two places:



- i. Write 3 different routes to reach Mangalore from Mumbai and the time taken to reach for each route.

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- ii. What is the route to follow in order to reach Mangalore from Hyderabad in the minimum time?

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8. Tick (✓) the correct option:

ix. Internet is a collection of :

- j. Interconnected computers around the world.
- k. Interconnected computers in India.
- l. Interconnected computers in different schools.

- ii. To save a website address for visiting it later, the following option is used in the browser:

- c. View
- d. Bookmark
- e. Edit
- f. Tools



# ACTIVITY

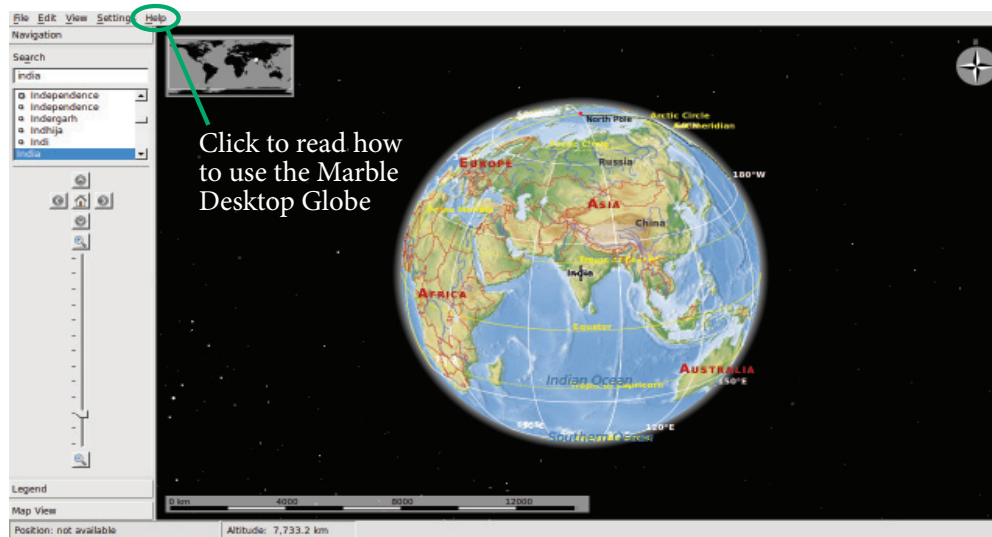
Level V | Lesson 5

## 1. Toys are fun

Visit the site <http://oscar.iitb.ac.in>. Visit the sublink “Fun with Science” which can be found under the animations sub link. Watch the videos of building the toys.

## 2. Marble Desktop Globe:

Marble is a geographical atlas and a virtual desktop globe which lets you quickly explore other places on our home planet. You can use Marble to look up places, to easily create maps, measure distances and to retrieve information about new locations.



On the right you can see a topographical map of our beautiful home planet. To know about the details on how to use Marble Desktop Globe, click on help.

Activity to do:

- Find your city on the Marble Desktop Globe.

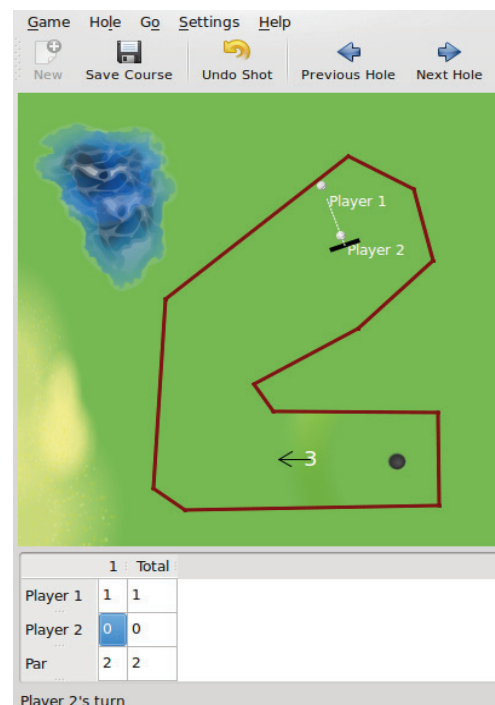
## 3. Multiplayer game: Kolf

Your goal is to put the ball into the hole with the least possible hits. To aim the ball line up the mouse behind the ball so the putter aims in the direction you want to hit.

To understand the details on how to play the game click on help.

Activity to do:

- Play Kolf with your friend.





## ACTIVITY

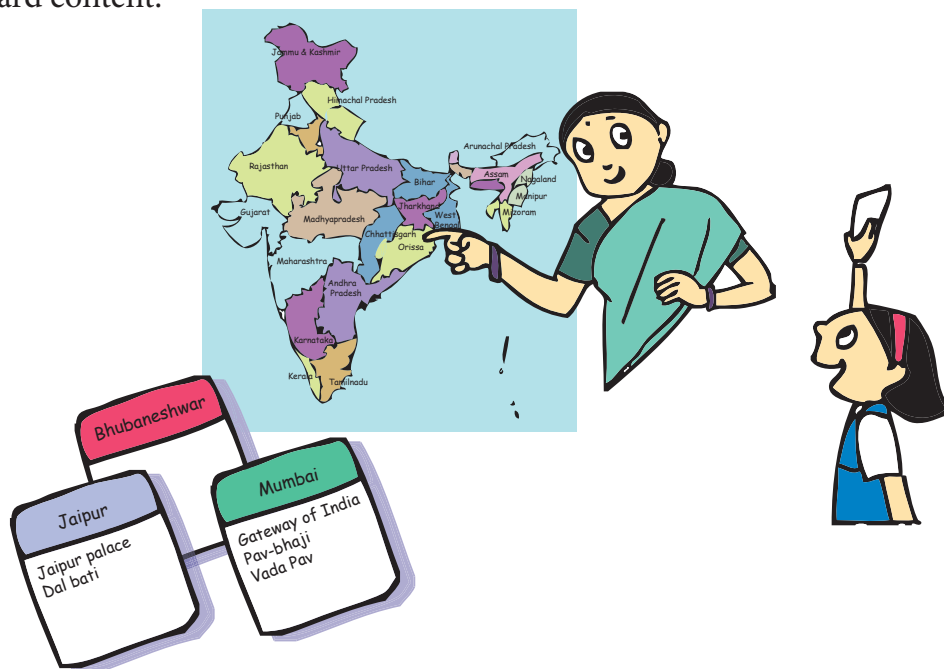
Level V | Lesson 5

### Group Activity:

#### 1. Want to know about India? – Check our placard book in the library

You will need a poster and some placards. Make a poster with map of India with an outline of the states. The name of each state is written on the map and hyperlinked. You need placards equal to the number of states. Write the capitals of the states on the top of the placards leaving space below for more information. Note, that one placard will have the name of one capital only.

The poster is clipped to a board or fixed on a stand whichever is available in the class. The placards are kept on the table. Teacher hands out one placard to each student in the class. Next, the teacher touches a state on the poster. The student holding the capital of the state stands up and shows the placard. The teacher asks the students in the class to name interesting places to visit, popular food items of the state. This is added to the placard content.



Next, the teacher touches another state. This continues till details of each state are put on the placards. At the end of the game, arrange the placards in alphabetic order of states. Make a hole on the top of each placard and string them together. Provide a blank placard on the top of the bunch of placards. Write an appropriate title on the blank placard. Keep the stringed placards in library for others to refer to the information.

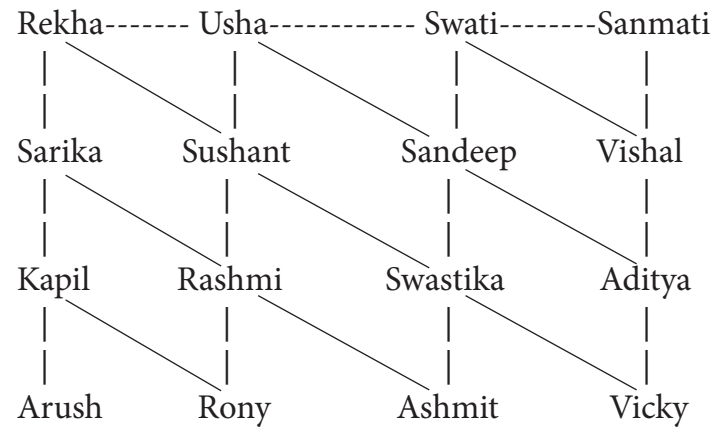


## ACTIVITY

Level V | Lesson 5

### 2. Class mates network

In this activity, a message written on a paper is passed from one of the students in the class to another student in the class. Let us call the student who sends the message as *sender* and the student who receives the message as *receiver*. Imagine each student in the class to be a computer. The students are connected as shown in the figure given.



Activities to do:

- While passing the message from sender to receiver, count the number of students through whom the message has passed. Find the shortest and longest path through which the message can be passed from sender to receiver.
- Find instances where the shortest and longest path are equal.
- Next, you can change the way the computers (students) are connected. But take note that any student should be able to receive the message.

### Project

Do project 5.1 from lesson 8.



### Explore!

1. Find out the history of Internet.
2. How can you open multiple websites without closing the browser window?
3. Explore sites which give information about Science projects.

- The purpose of this lesson is to teach about how Internet applications work. Students should develop an understanding of how the Internet works to provide vast amounts of information conveniently. In addition, students should know how to use a web browser for information search.
- To begin with, follow the style of the lesson and ask questions that Moz poses about different networks. It is important to build on the existing knowledge of the students so that the learning is more profound and clear. You can ask them to look at the pictures of water and electricity networks in the textbook to initiate the discussion. Explain the concept of a network and ask students to cite some more examples, such as network of mobile phone or suppliers to local retail shop.
- Some students may already have an exposure to Internet, may be observing their family members surf, exchange e-mails or chat. While it is important to allow them to share their knowledge, it is equally essential to encourage other students who do not have any such exposure. Hence, form groups such that students can learn from each other. Emphasize that it is important to understand how the Internet works and not just use it. Tell them that this lesson will enable them to understand how computers get enormous amount of information to their doorstep. Use this opportunity to emphasize the importance of information in the present century.
- Explain how Internet facilitates sharing of information. Summarize the discussion and tell the students about what is a web. Open an Internet application and teach them about browser, URL, website, webpage. You can open Wikipedia and teach them about hyperlinks and how to bookmark a page. As an exercise, you can ask them to explore how they can organise the bookmarks so that they are categorized and easily accessible. This will give them an opportunity for exploratory learning.
- Summarize the lesson and allow the students to do Internet based activities on the computer.

You can mention that they have to use Internet under supervision. Just as accidents might

- occur while crossing a busy road alone, 'accidents' can also occur while surfing. Tell them that they will learn about these later. For now, follow the rule that one has to be cautious while accessing and sharing information on the Internet.

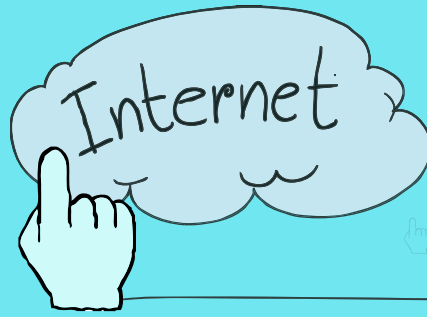


### Further Reading:

<http://en.wikipedia.org/wiki/Internet>

<http://looneytunes2.warnerbros.com/ltti/homepage.html>

<http://www.learnthenet.com/animated-internet/start/index.php>



## Searching the Internet



In this lesson you will learn:  
How to search for information on Internet.  
How to take precautions while browsing.

Jyoti and Tejas were reading a story book. They were using a dictionary to look up meanings of new words.

Moz: Good to see that you use a dictionary while reading. Let us go to the library. I want to pick up a book.



Tejas, Jyoti and Moz go to the library.

Tejas: Which book do you want?

Moz: I want a book on dinosaurs.

Tejas and Jyoti start searching for books on dinosaurs.

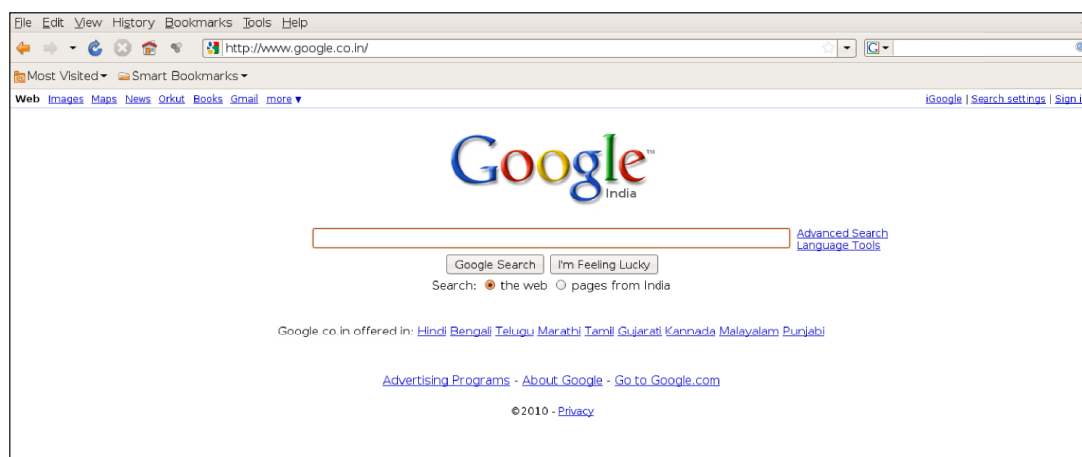
Jyoti: We can find the books in Science section.

Tejas: It can also be in General Books section.

Tejas and Jyoti go to different sections of the library and returns with books.

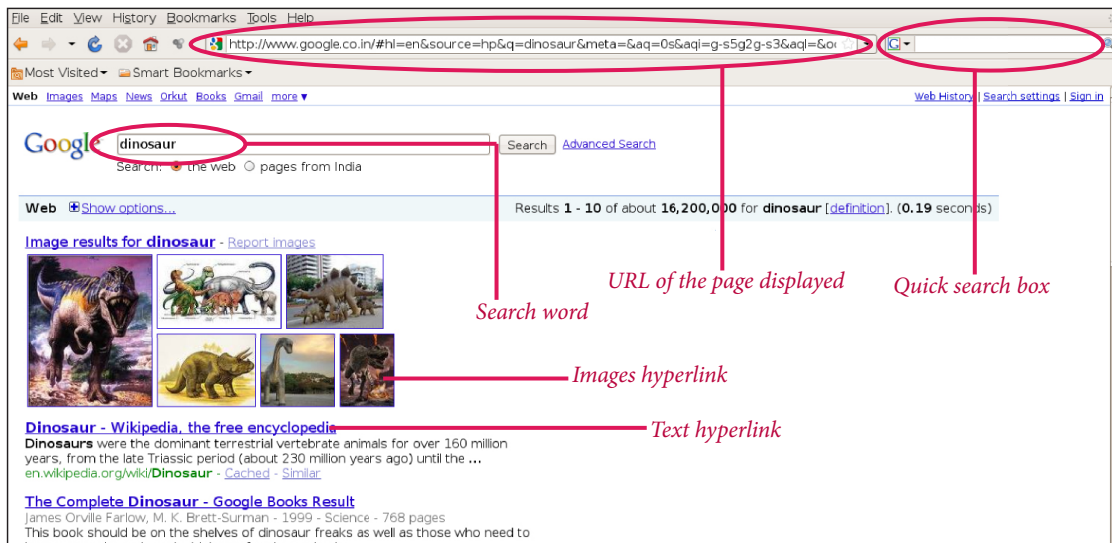
Tejas: You gave us one word “dinosaur”. We searched and found five books on this topic.

Moz: Let us now see how to get information about dinosaurs on the web. Enter the URL “[www.google.com](http://www.google.com)” in the browser.



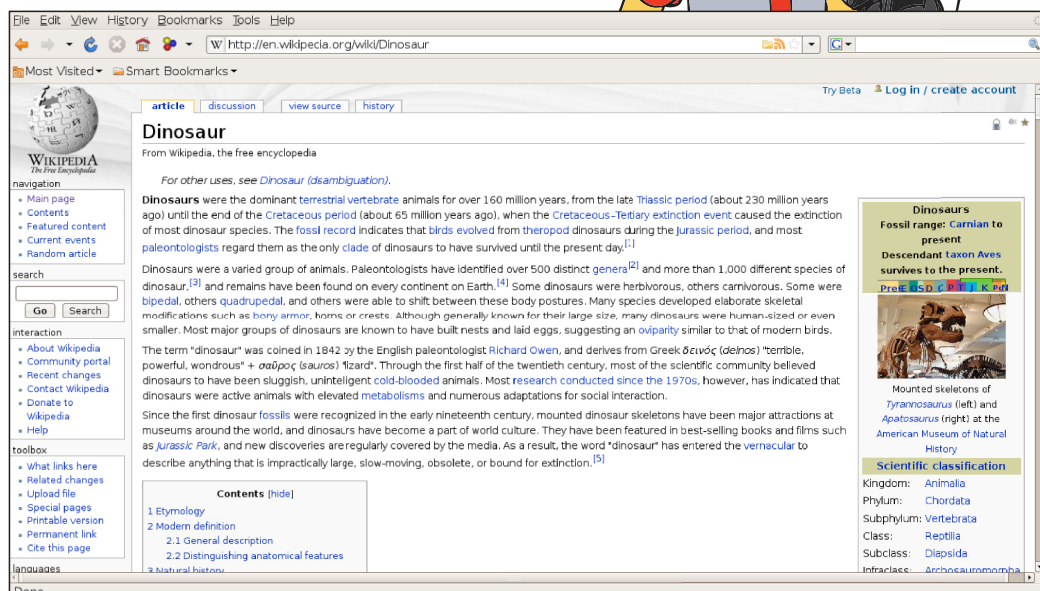
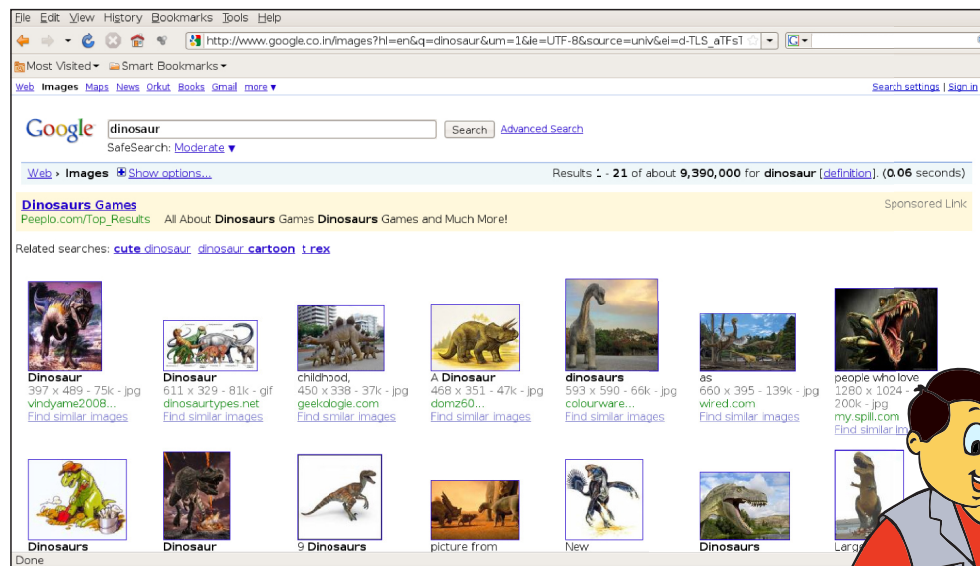


Moz: Now, enter the word 'dinosaurs' at the cursor and click on 'Google search.'



Tejas: So many hyperlinks!

Jyoti: Let us see what we find on some of these links.



Tejas: Should we enter only one word? What if we want to find out about ‘Vegetarian dinosaurs’?

Moz: You can even enter a whole sentence. The phrase or the sentence should be relevant to what you are searching for.

Jyoti: This is good. So let us bookmark this web site. Let me name it as Google searcher.

Moz: This is called a web search engine. You have used the search engine provided by Google site to search for websites.

Tejas: Are there many more search engines?

Moz: Yes. Some of the popular ones are [www.yahoo.com](http://www.yahoo.com), [www.msn.com](http://www.msn.com).

### Search engine:



- A web search engine is a website that helps you search for information on the World Wide Web.
- The search results are usually presented as a list of links.
- The links may point to text, images, audio or video files.

Jyoti and Tejas continue searching the web for their favourite topics.

Jyoti: Look at this. When I entered ‘volcanoes’ one of the links has videos of volcanoes.

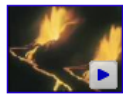
Jyoti clicks on the videos link and all three watch a volcano in action.

#### Video results for volcanoes



[Test flights through Iceland volcano ash cloud ...](#)

1 min 17 sec - 19 hours ago  
[www.youtube.com](http://www.youtube.com)



[Volcanoes](#)

2 min 41 sec - 17 Aug 2006  
[www.youtube.com](http://www.youtube.com)

### Searching

1. Open the Browser and go to the search engine website.
2. Enter the word, phrase or sentence related to the information that you want to search for.
3. Click on the hyperlinks that the search engine shows as results.
4. Usually the most relevant sites are provided in the first few pages.

SKILLS

Tejas: This is very good. What else can we get?

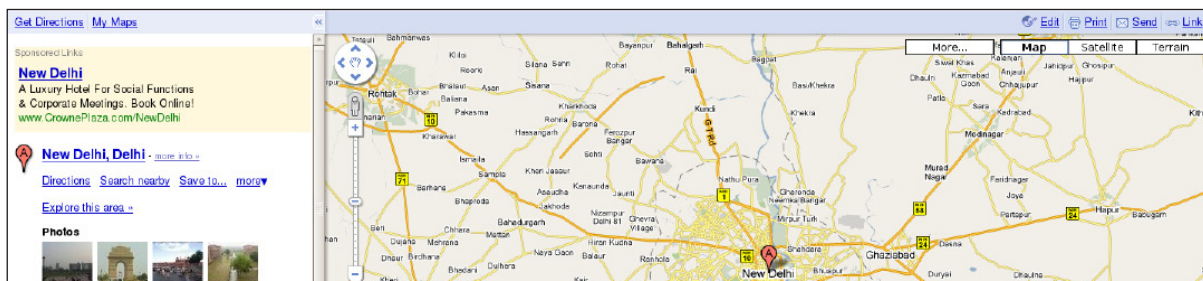
Jyoti: Let us search for some city and see what we get.

Jyoti enter search word as ‘New Delhi’.

Tejas: There is a map of the city.

Tejas clicks on the hyperlink which has maps etc.

Jyoti: We can find details of the streets, and there is also a link which gives traffic details.



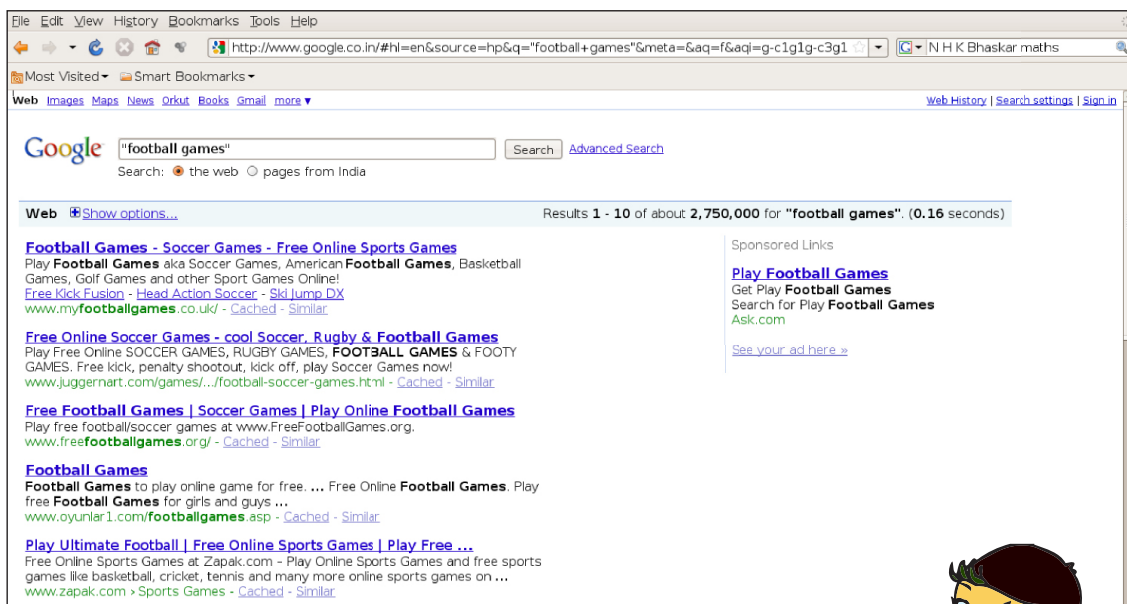
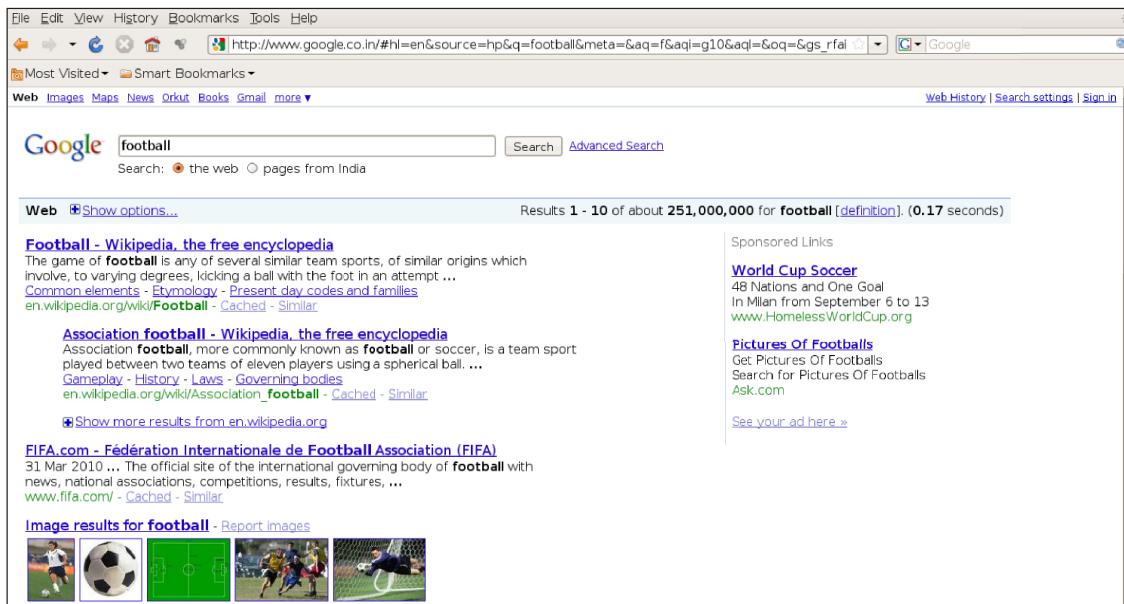
Tejas: We can also find weather forecast.

Jyoti: We can search for computer games too!

Moz: Web is a very useful place where you get various types of information.

Tejas: Searching is fun. But look, I wanted to find some football games that I can play. I entered the phrase *Football* and it has given me sites which has information about football but not about football computer games.

Moz: Ok. Now enter “Football game” with the quotes around the phrase.



Tejas: Ok. Now I found the sites that I wanted.

Moz: Here are few more tips to search the web.



### Tips to search the web:

- To include complete phrase in the search use double quotes (" ") around the phrase.  
Example: Trees and soil erosion  
"Trees and soil erosion" gives websites which contains the phrase trees and soil erosion, while without quotes gives those sites which contains information about trees and about soil erosion.
- Use specific words.  
Example: You want to know about a particular game. Try "Games" and "Football game".  
The phrase "Football game" gives specific websites about the game.
- Use many words to get relevant sites.  
Example: To find information about digestive system in humans enter following two phrases and see the results! "Digestive systems" and "Digestive systems in humans".  
"Digestive systems in humans" gives information on only human digestive systems.
- If you want a word to be included in the search then add + before the word  
Example: Try Spider man + comics and Spider man comics.
- If you want a word to be excluded from the search then add - before the word.  
Example: Try Solar system - Pluto, Indian animals - Lion

SKILLS

Jyoti: Now I can search the web from home too.

Moz: Yes. But whenever you want to access web you must take the permission of your parents or teachers.

Tejas: Ok. I will tell my parents. But why is it so important? This is just browsing and searching for information, isn't it?



Moz: Web is an unfamiliar place for you. There are all types of information, good and bad, on the web. It is always advisable to keep your parents informed of the sites you are searching and browsing and take their permission.

Moz: Have you noticed that there are some movies which children are not allowed to watch?

Tejas: Yes. At movie theatres if the movie is rated as an adult movie, then children below a certain age are not allowed.

Moz: Similarly, while searching for information on the web, there are sites where you should observe this rule.

Jyoti: I understand what you are saying. I wanted to search for Lego toys site. While typing the search key word I missed out on 'o'. Then all sorts of sites came up. So I checked my search phrase again and retyped it.





Tejas: Once when I was browsing some personal information was asked by the site.  
 Moz: Never give your personal information like name, phone number, address, name of school, while you are searching and browsing.

A screenshot of a web browser window showing a form with the following fields: DATE OF BIRTH (DD/MM/YYYY), First name, Second name, Gender (M/F) with a radio button, Telephone, School address (Street Name, Suburb/town, State, Postcode), and email address. A yellow square with a red 'X' is overlaid on the top right corner of the form.

- Never give your personal information while you are searching and browsing.
- Only in rare cases (about which you will learn later), It is ok to give personal information.



Jyoti: There are also these small windows which suddenly come up. Sometimes we get a message like "You have won million dollars". Click "Ok".

Moz: These are called pop ups. Do not believe in such messages. Do not click on "Ok". They may sometimes cause problems to your computer. Your computer may not start up next time. Just close pop ups.

Jyoti: Oh! Some pop ups can cause so much damage.

Tejas: While I searched for information on space, I browsed two sites. There was some difference in the information that I got. How do I find out which is right?

Moz: Very good question. Sometimes the websites mention the source from where they get the information. You should ask someone who knows about the topic like your teacher, family members and find out if the source of the information is reliable.



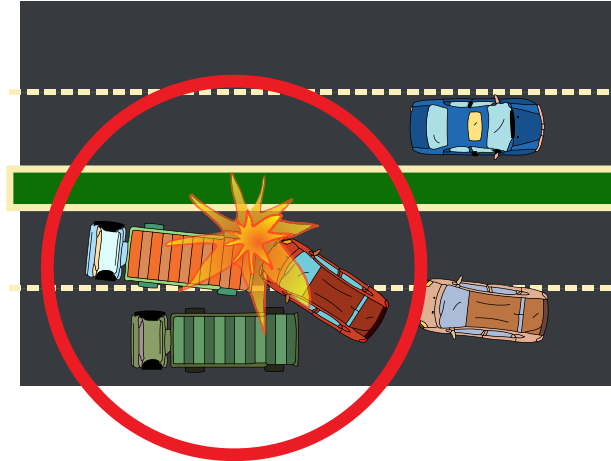
The Internet is an information highway. Just like road highways have some rules, we have to follow some rules while using the Internet.



Tejas: I have heard my parents say that Internet is an information highway.

Jyoti: The highways can also be dangerous if we do not take precautions and follow rules.

Moz: Very good comparison. Observe the safety rules of information highway and gain from the vast information that is available.



### Safety Measures for Internet Browsing and Searching

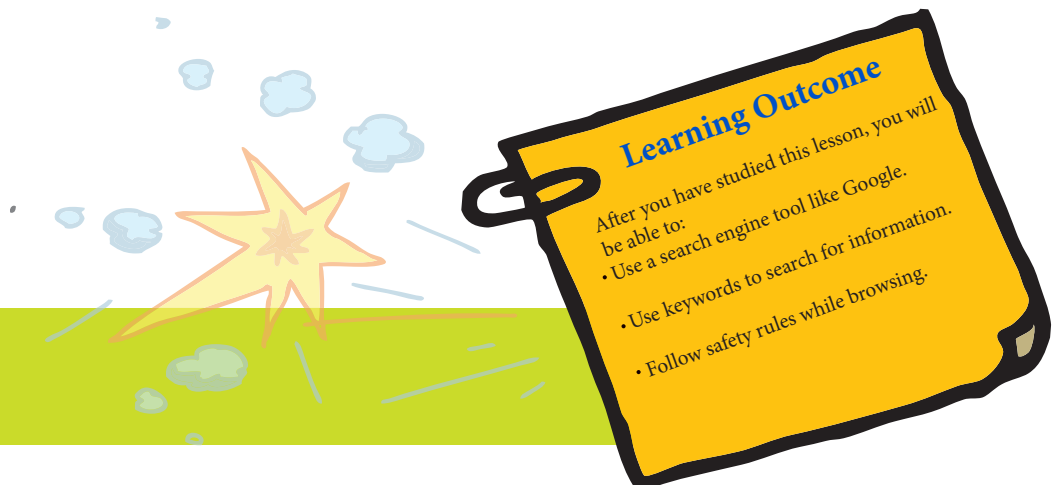
- Seek permission of your parents/teachers before using Internet.
- Do not give personal information while browsing.
- Close the pop up. Do not perform any action requested by the pop up. This may cause the applications on your computer to stop working.
- When you come across information that you do not like or is upsetting you, inform and discuss with your parents about the same.

Info

Tejas: My brother's birthday is coming up. I want to send him a greeting card. I have already created it using Tux paint. How do I mail it?

Moz: You can use an application called e-mail service provided by some websites. Tomorrow we will learn more about this.

Chin Chinaki...







1. It is football season. Football matches are being played around the world. Aditya is searching for information about the match schedules and broadcasts on TV. What search phrases should he give?

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2. Christie wants to visit India. She wants to first look at web sites of interesting places that she can visit in India. What search phrases should she give?

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3. The following links are displayed by a search engine. Write a list of 3 possible keywords which could have generated these search results.

Web Images Maps News Orkut Books Gmail more ▾ Web History | Search settings

Google  Search [Advanced Search](#)  
 Search:  the web  pages from India

Web [Show options...](#) Results 1 - 10 of about 328,000,000 for **history of internet**. (0.18 seconds)

**Internet Evolution** Sponsored Link  
[www.InternetEvolution.com](http://www.InternetEvolution.com) Up to date info on Evolution Of Internet

**History of the Internet - Wikipedia, the free encyclopedia**  
 Before the wide spread of Internetworking (802.1) that led to the **Internet**, most communication networks were limited by their nature to only allow ...  
[en.wikipedia.org/wiki/History\\_of\\_the\\_Internet](http://en.wikipedia.org/wiki/History_of_the_Internet) - [Cached](#) - [Similar](#)

**Internet - Wikipedia, the free encyclopedia**  
 Castells, M. (2001). "Lessons from the **History of Internet**", in "The Internet Galaxy", Ch. 1, pp 9-35. Oxford University Press. ...  
[en.wikipedia.org/wiki/Internet](http://en.wikipedia.org/wiki/Internet) - 6 hours ago - [Cached](#) - [Similar](#)

**A Brief History of the Internet**  
 24 Mar 2010 ... Anecdotal **Internet History** showing the increasing development of friendly utilities, menus, and search engines driven by rapid expansion and ...  
[www.walthowe.com/navnet/history.html](http://www.walthowe.com/navnet/history.html) - [Cached](#) - [Similar](#)

**Internet History**  
**Internet History** and WWW **History**: Roads and Crossroads of the **Internet History** by G. Gromov. Story consists of timeline, milestones, phylosophy and some of ...  
[www.netvalley.com/intval.html](http://www.netvalley.com/intval.html) - [Cached](#) - [Similar](#)

**Internet History. Who invented the Internet. When was the Internet ...**  
**Internet History**. How the **Internet** was invented created.

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4. You have to write a brief description of about 5 lines about the solar system. Write a list of resources you will use to gather information about the topic. Across each resource, write the information gathered from that particular resource.

Example: Internet - Images of solar system. \_\_\_\_\_

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5. Class 5 students want to go for a picnic. The teacher said they can plan for a picnic to a hill station in India which satisfies the following conditions:

- The altitude of that place should be more than 2000 metres above sea level.
- The place is situated in the north Indian state of Himachal Pradesh.
- The river next to the hill station is a 4 letter word starting with B.
- The 2nd, 3rd and 4th letters form a word which is the masculine gender of the word “her”.
- The letters HLISAM are an anagram of the place.

- i. If you don't know the name of the place, what are the keywords that can be used to search for information about this place?

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- ii. Where are they going? \_\_\_\_\_

- iii. What is the name of the river, which starts with the letter B? \_\_\_\_\_

6. In the following questions, circle all the correct options.

- vii. Jeet is browsing the Internet. He suddenly came across a website which said “You have won Rs.10,000.” He is very excited. What should he do next?

- h. Ignore the message and close the window.
- i. Give his address to receive the money.
- j. Inform his parents.

- xi. Rehana is planning a trip to Jaipur. She searched for the weather conditions in Jaipur, on the Internet. In the results page given by the search engine, she came across conflicting information. What should she do now?

- l. Refer only the first hyperlink on the results page.
- m. Check with her teacher and parents.
- n. Crosscheck in the newspaper.



## ACTIVITY

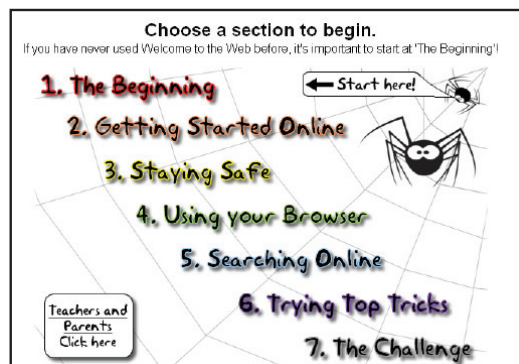
Level V | Lesson 6

### 1. Teach me browsing and searching:

Visit the site

[www.teachingideas.co.uk/welcome/start.htm](http://www.teachingideas.co.uk/welcome/start.htm).

Go through the links “Getting Started Online” and “Using your browser”. Face the challenges in these links and have fun!

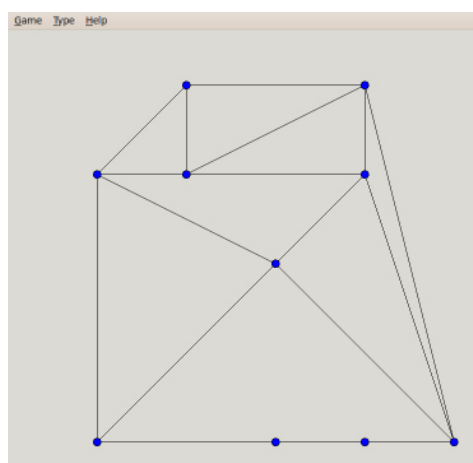
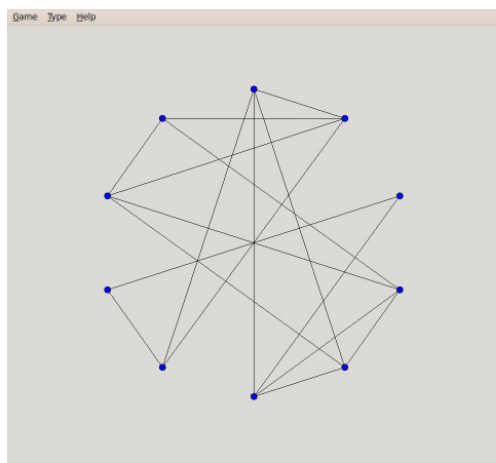


### 2. Untangle:

You are given a number of points, some of which have lines drawn between them. You can move the points about arbitrarily; your aim is to position the points so that no line crosses another. To move a point, click on it with the left mouse button and drag it into a new position.

To play this game, do the following:

Applications ---> Games ---> Untangle



### 3. Tell me how much I have got?

Hari is studying in an international school in Kerala. On his birthday, he received gifts from his friends and parents as follows:

- American friend gave him 10 Dollars.
- Italian friend gave him 30 Italian Liras.
- British friend gave him 20 British Pounds.
- His parents gave him 500 Indian Rupees.

i. Look up a currency converter website to convert the various currencies to Indian Rupees.

ii. How much money in Indian Rupees did Hari totally get on his birthday?

\_\_\_\_\_

iii. Name the websites you visited to calculate the amount of money got?

\_\_\_\_\_



## ACTIVITY

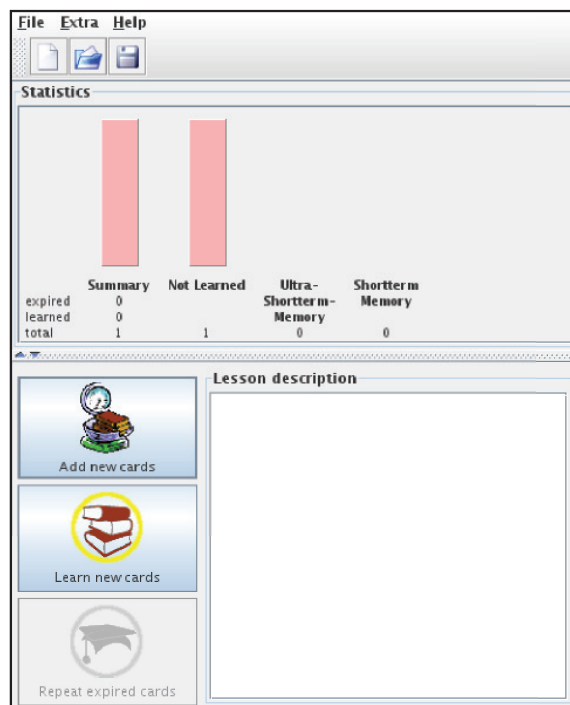
Level V | Lesson 6

### Group Activity:

#### Pauker:

Pauker is a flash card based learning application. You can make your own flash cards using this application. The question to be asked is written on one side of the card. The answer is written on the other side.

To play this game, you have to make group of four students. The team members should mention the topic on which information needs to be gathered. Two team members will make the flash cards. The other team members can now try to answer these questions. List the resources used for getting the information.



### Project

Do project 6.1 from lesson 8.



### Explore!

1. How to search for online information in your mother tongue?
2. Type the name of your school in a search engine. What are the search results?

- Students already know about the Internet and how to use a browser. The purpose of this lesson is to teach how to search for information on the Internet.
- Mention that the power of the Internet is to provide information conveniently. Just as one searches for books on a particular topic in the library, one can search for information on the Internet. Give a demonstration on the computer of using a typical search engine. You can ask students to suggest the topic for searching information and enter it as keyword. Now click on the different options such as images, video, map, to show the different search results.
- Educate the students about the different ways for entering keywords for effective search. These are included in the lesson. You can form four groups of students and ask them to search for the same information using the different ways – with and without quotes, entering multiple words, etc.
- You can use the Filamentality strategy of treasure hunt to teach ‘searching information on the web’. Prepare an HTML file of treasure hunt by providing different links on title “How to search the web?”.
- Encourage the students to find out if a website mentions the source of information. Tell them that not all the information on the Internet is authentic and they should take the assistance of an adult before trusting any information. Emphasize that young students need to be cautious while surfing Internet. Use the example mentioned in the lesson about seeking permission before going out to highlight the issue.
- Summarize the lesson and end the class by giving appropriate Internet based activities to the students.

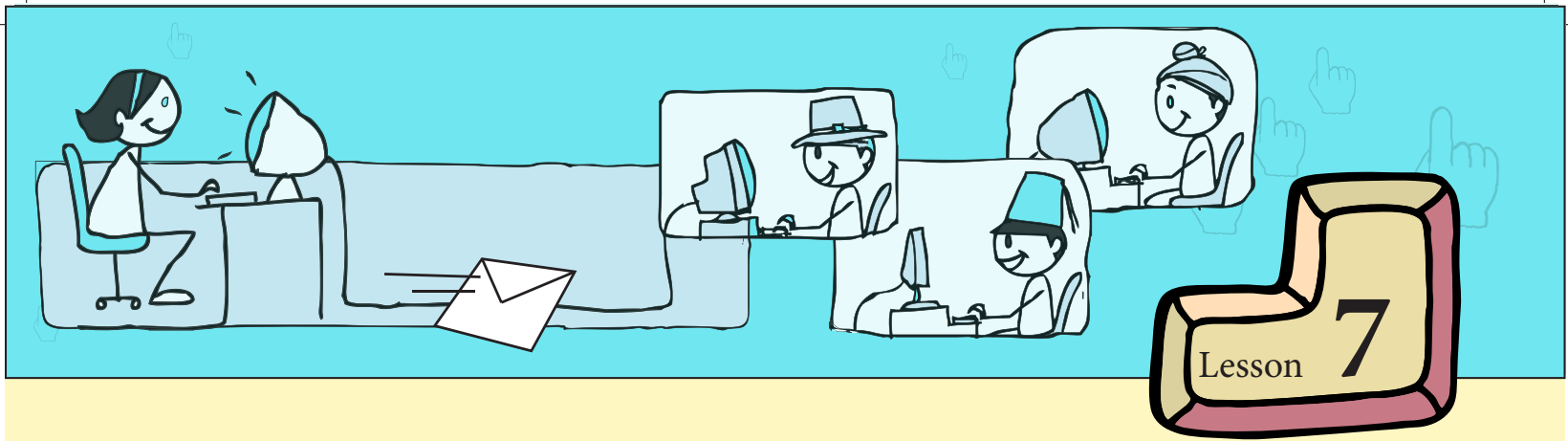


### Further Reading:

<http://www.teachingideas.co.uk/welcome/start.htm>

<http://www.microsoft.com/athome/moredone/searchenginertips.mspx>

[http://www.media-awareness.ca/english/resources/special\\_initiatives/wa\\_resources/wa\\_teachers/tipsheets/search\\_internet\\_effectively.cfm](http://www.media-awareness.ca/english/resources/special_initiatives/wa_resources/wa_teachers/tipsheets/search_internet_effectively.cfm)



## Communication using E-mail



In this lesson you will learn:  
 How to communicate by using email.  
 How to create email accounts.

Tejas: Today we made a poster on “Communication – old and new”.

Tejas and Jyoti show the poster that they have in their hands.

Moz: Oh! This is good. So you know about email.

Jyoti: We know that emails are like letters.

Tejas: We know that emails are sent using computers.

Jyoti: We receive letters, greeting cards and invitations by post. Is it possible to do the same with emails?

Moz: Yes. You can.

Jyoti: Post offices deliver letters to us. So, how is email delivered to us?



Moz: How did you search for information?

Tejas: We had to use a web search engine.

Moz: Similarly, there are some websites using which you can send and receive emails.

Tejas: So, is the website like a post office distributing mails to us?

Moz: Right. And this is called email service. The website is called email service provider.

### Email

- Email means sending and receiving mails electronically using computers.
- Email is similar to writing letters and is a quick way of keeping in touch with other people.



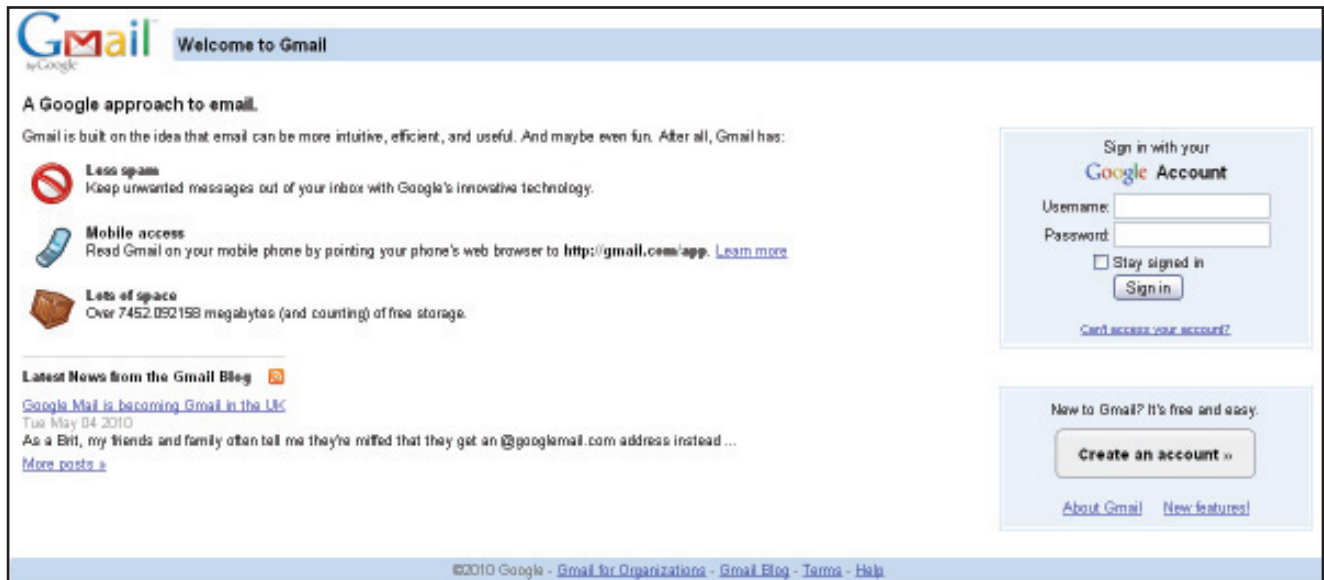
### Email Service provider

- Some websites provide email service to send and receive email.
- The website that provides the service is called the email service provider.

Info



Jyoti: Let us access one such website that provides email service.  
Moz: Enter "[www.gmail.com](http://www.gmail.com)" in the address bar of the browser.



Tejas and Jyoti look at the site and are perplexed at how an email can be sent or received.  
Tejas: Where do we write the email? When we receive or send mail, we have to write an address on the envelope. Using the address, the post office knows where to deliver the letter. How does this site know who we are?

Jyoti: The same site is used by many people. So, there must be some way to identify ourselves.  
Tejas: To access a computer we need an account on the computer. Looks like we need an account to send and receive emails.



Moz: Good analysis. You have to register with an email service provider to send or receive emails. Go ahead and create an account.

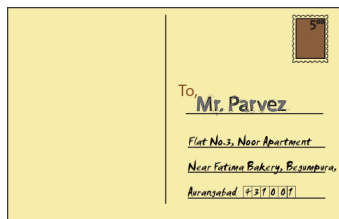
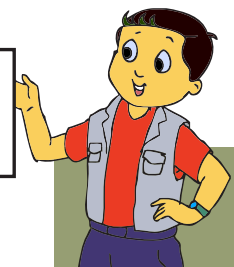


### Getting an email address:

A user has to register with an email service provider by creating an account or signing up for an account.

Jyoti clicks on “Create an account” and the following screen appears.

Tejas : We understand first name and last name. We also understand *Desired login name*, but what is this? (points to - @gmail.com)



Moz: A combination of login name and @gmail.com becomes your email address, similar to the postal address. Suppose login name is *moz*. Then *moz@gmail.com* is the email address.

Jyoti: So *moz* is the login name.

Moz: Right. ‘@’ is pronounced as ‘at’. Email service provider’s name is gmail.com. This is also called **domain name**.

Jyoti: gmail.com is part of the web site URL that we entered.

Moz: Correct. An email address is also called the **email ID**.

### Email Address or Email ID/ Login:

- During signing up a unique identification for the user is created.
- The unique identification in combination with the service provider’s name is called the email address or the email Id of the user.

Ex: surya.tejas2010@gmail.com

- A postal address is unique to a house whereas an email address is unique to an individual user.
- The components of an email address are:

surya.tejas2010@gmail.com

Identifies the user at the email service provider.

The symbol ‘@’ is pronounced as ‘at’

Email service provider address. This is also called the ‘domain’ name.



Jyoti: Can I give a name in the “desired login name” which is different from my name? Suppose someone else too chooses the same name?

Moz: You can choose any name you like. If someone else has already chosen the same name then you will be asked to choose another name. Try and see for yourself.

Jyoti tries “jyoti” in the desired login name and she is prompted to choose another name. A few options are also suggested by the email service provider.

Get started with Gmail

First name: Jyoti

Last name: Pilankar

Desired Login Name: jyotip @gmail.com

Examples: JSmith, John.Smith

check availability!

jyotip is not available, but the following usernames are:

- jyotiplnkr
- jtpilankar276
- jp0951168

Jyoti: To make my name unique, maybe I can add my initials or my birth year to it. Then I can remember the email ID easily.

Moz: Select a sensible name as your email ID.

### Creating an email account on a domain:

1. Enter your personal details like name, age, address, etc.
2. Choose a desired login name that is unique.
3. Enter the password.
4. Remember the login name and the password.
5. Enter the secret question or the security question and answer.
6. You should remember these too. In case a user forgets the password, then the email service provider uses this information to identify the user and allows the user to choose a new password.

Security Question: Choose a question ...

If you forget your password we will ask for the answer to your security question. [Learn More](#)

Answer:

7. You are usually given a set of characters in a picture. You need to type the characters in a box below. This is usually called a registration check or word verification.

Word Verification: Type the characters you see in the picture below.

hariongu

Letters are not case-sensitive

8. Next, you have to agree to the “Terms of service” and “Privacy Policy”. Ask your parents or teachers before you accept these terms and policy.

SKILLS

Jyoti: Remember Tejas, we have to keep our password secret!  
 Moz: Yes. Never reveal your password to anyone. Not even to your best friend.

After Jyoti and Tejas create their accounts, Moz quickly goes to another computer, sends an email to both Tejas and Jyoti and comes back.

Tejas: Now that we know each other's email address we can send an email to one another.  
 Jyoti: Let us use 'Sign in' and login first.

Tejas enters his login and password and gets the following message:



Tejas: I have entered the username correctly.  
 Jyoti: You must have made a mistake in typing the password. Enter the correct password.

Tejas re-enters the password correctly and is able to sign in.

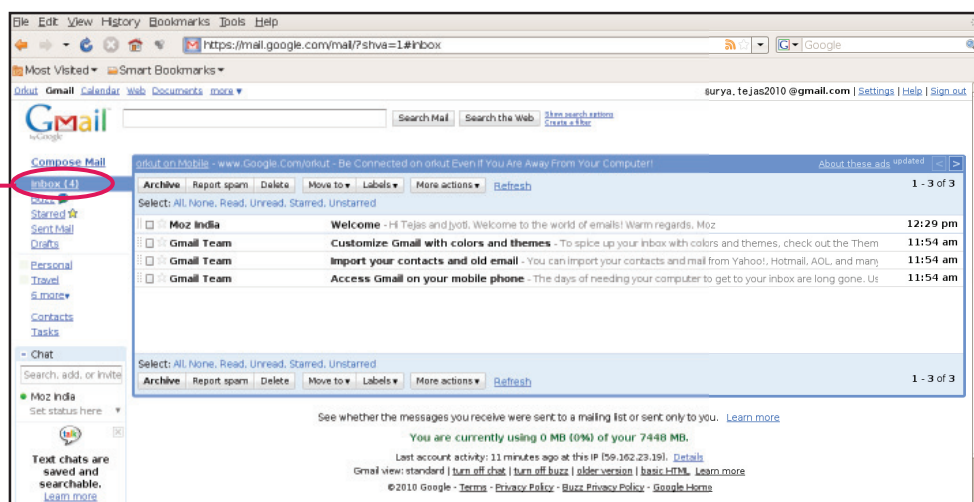
**Login to your email account:**

1. Open the email program by entering the email service provider's URL in the browser.
2. Enter your login and password.
3. The combination of login and password is matched by the email service provider with your registered login and password.
4. If the combination matches, then you are provided access to your email through an email interface.

**SKILLS**

Tejas: Look at the opening screen of email.  
 Moz: The opening screen is called an email interface.

Inbox is the main folder where all the incoming mails are stored.



Jyoti also enters her login, password and opens her email account.

Tejas (points to Moz's email): Look at this! It shows that I have received an email from Moz. But I do not see the entire content.

Moz: Click on the mail to see the entire contents.

Jyoti: But when did you send this mail? We just created our email IDs.

Moz: I sent the mails just after you created your email address, a few minutes back.

Jyoti: We received it so quickly!

Moz: Messages sent by Email usually reach in a few seconds.

Email messages reach usually in a few seconds, as they are transmitted electronically.

Info

Tejas opens the mail and reads it.

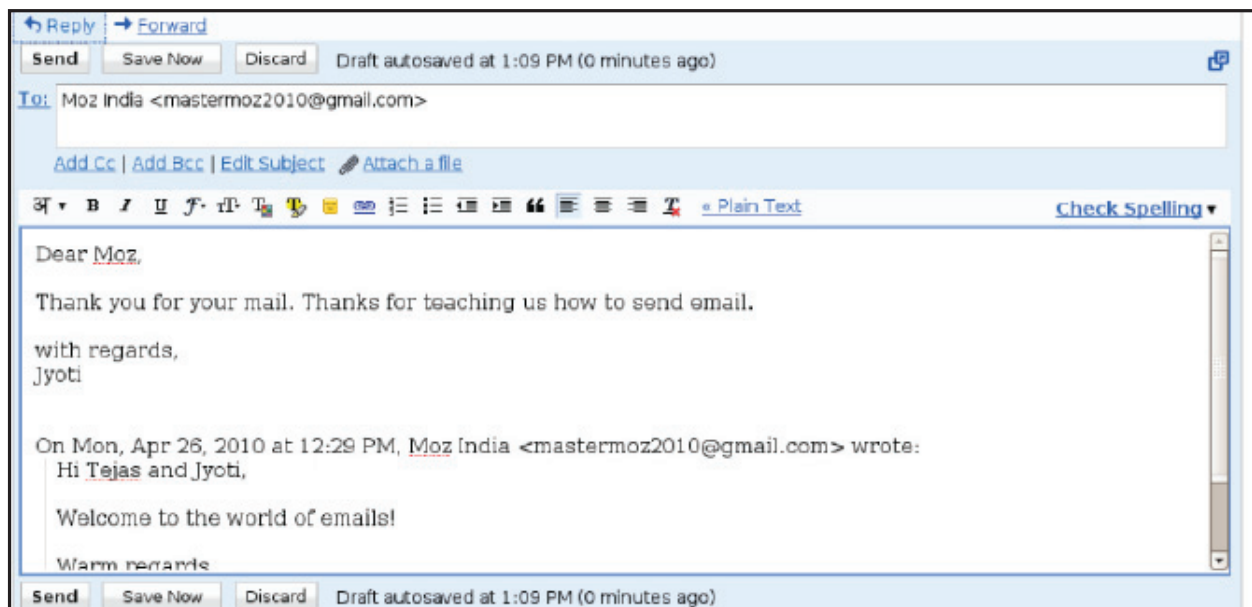
Jyoti: When we open a mail, the interface to read mails has some options.

Moz: As you can see, these are self explanatory.

Tejas: Let us send a reply.



### Interface to reply to an email:





Jyoti: We can edit the text. We can change the colour of text, change font, and underline it.

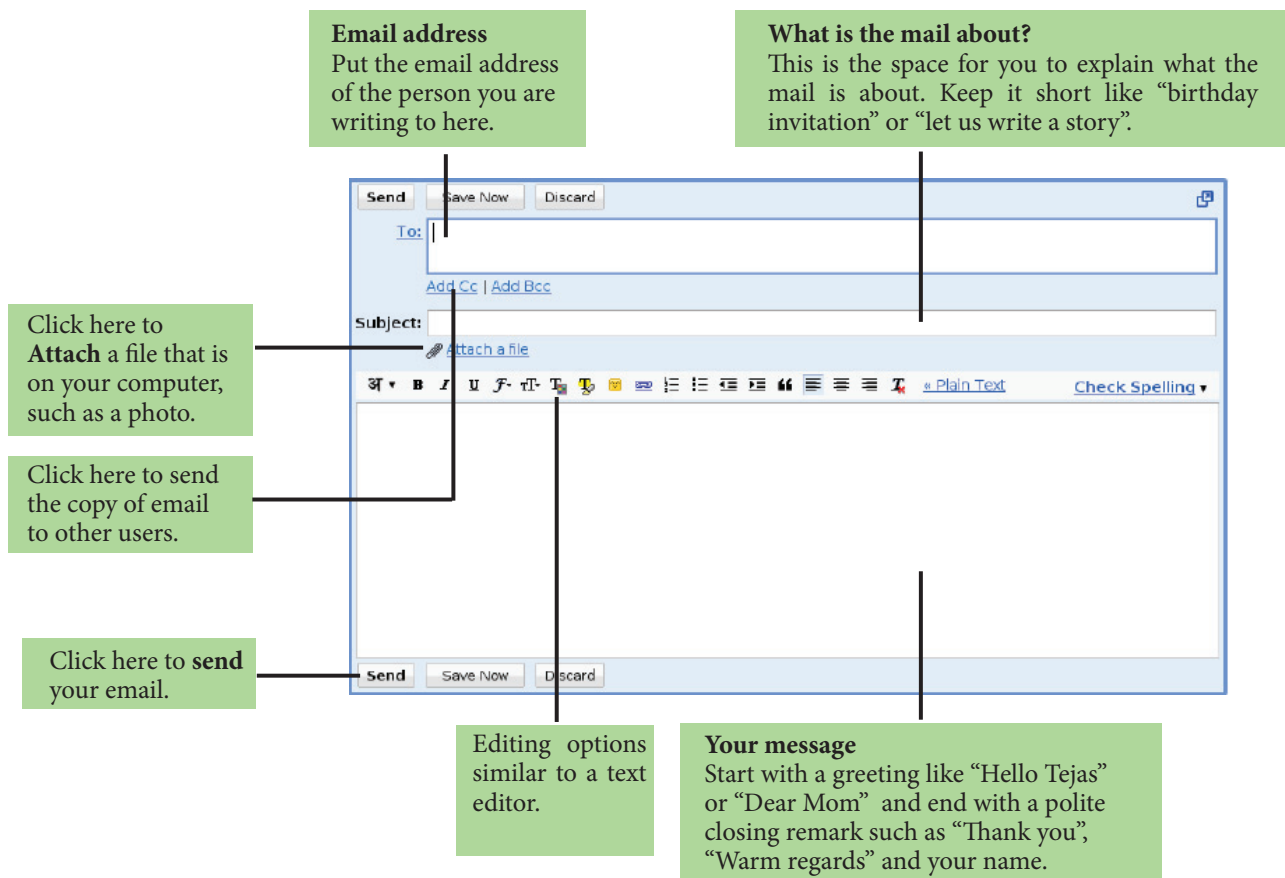
Moz: Yes. An editing interface with some options has been provided.

Tejas: Let us now click on 'Send' and see what happens. A message "Mail has been sent" is displayed on the screen.

Jyoti: Now, I want to send a mail to Tejas. How do I get an interface to send a new mail?

Moz: Use 'Compose mail' which will give an interface to write and send a new mail. Most of the options are self explanatory.

Jyoti: The interface to send a new mail and reply to a mail are similar.



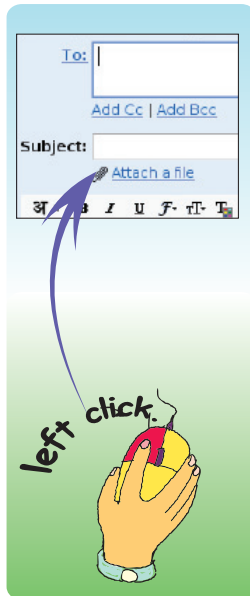
### To send a message:

1. Compose mail using options "Compose mail"/"New Message".
2. Use the following options:
  - To** - A text box to enter the email address of the user to whom you are sending mail.
  - Subject** - Provide a brief phrase to explain what the mail is about.
  - Blank text box** - To enter the text of the email.
  - Editing options** - To edit the text of mail entered in the blank box.
  - Attach a file** - To attach a file to the mail. The file can have text, images, videos, etc. It is similar to sending a parcel along with letter
  - Send** - Once the email is composed and completed this option is used to send the mail.

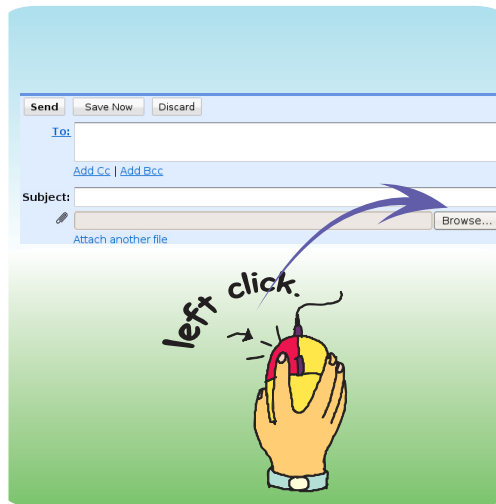
SKILLS



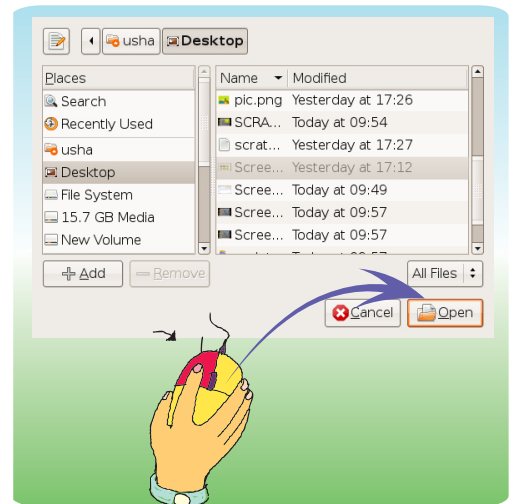
Tejas: Jyoti, attach the painting that you saved on the computer.



1 Click on Attach file.

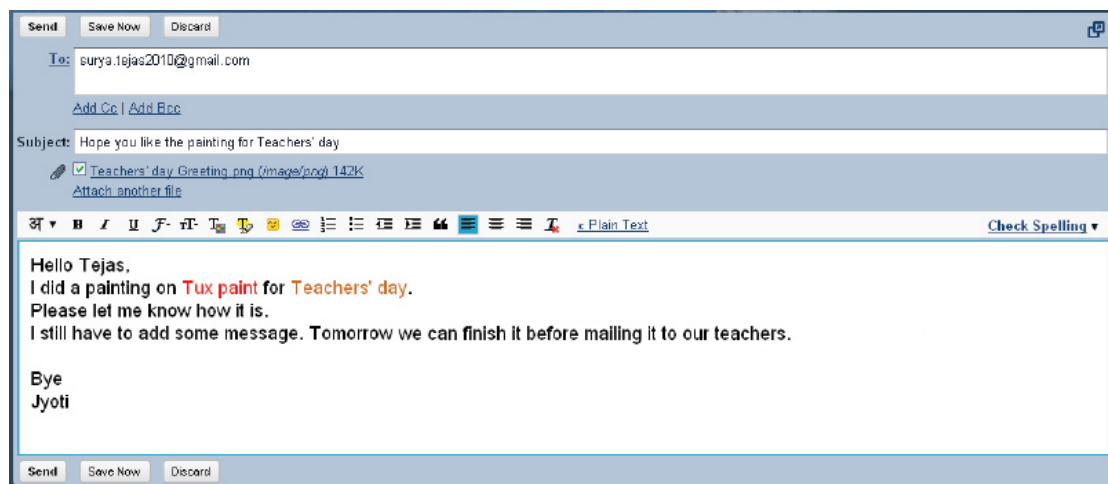


2 Left click on Browse.



3 Select the file to attach from the list.

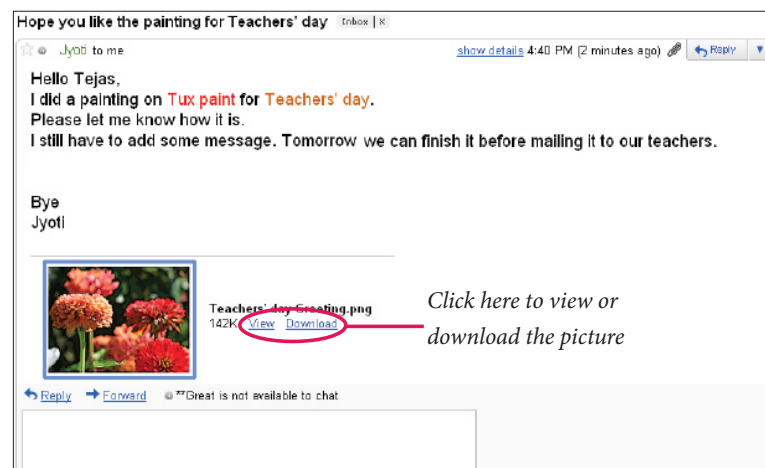
Jyoti: Ok. Let me write the subject “ Hope you like the painting for teacher’s day”  
Jyoti completes her mail and is ready to send the email.



Tejas opens his mail and checks that he received Jyoti’s mail.

Tejas: I have received Jyoti’s mail. I can see the attached picture too.

Moz: You can either view or download the picture to your computer.

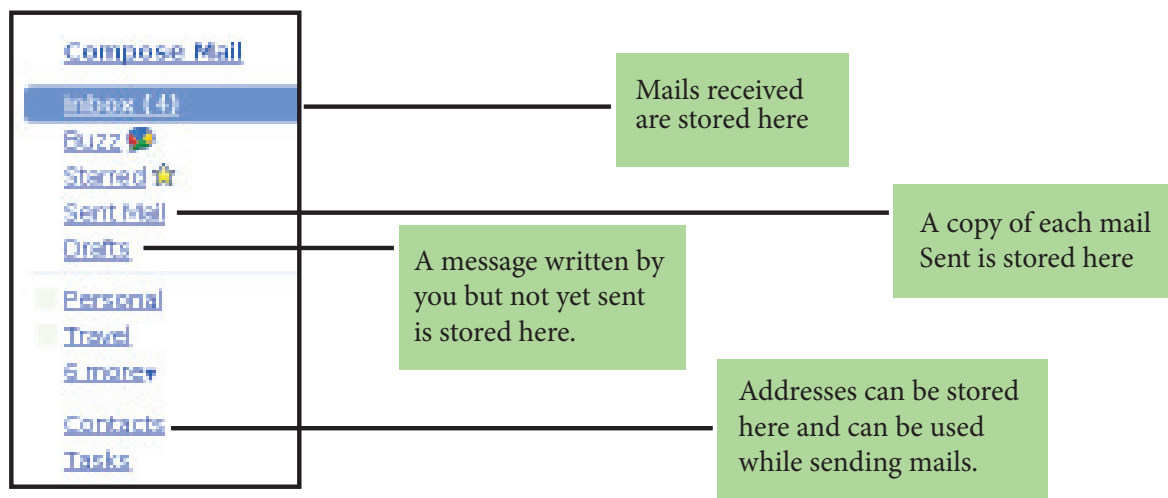


Tejas: The received mails are listed in the inbox. But where exactly are they stored? I see that Inbox is highlighted. Are these mails stored in the Inbox?

Moz: You are right. The number next to the Inbox shows the new messages that you have received. Inbox may also be called *mbx* by some email service providers.

Tejas: When I have email addresses of many friends then can I save them somewhere?

Moz: Yes, you can. Look at some of the options in the side bar.



Tejas: Now, we can send and receive mails from our friends. Should our friends too register at this site?

Moz: Email service is provided by many Internet websites.

### Email Service providers:

Some of the popular email service providers are gmail ([www.gmail.com](http://www.gmail.com)), yahoo ([www.yahoo.com](http://www.yahoo.com)), hotmail ([www.hotmail.com](http://www.hotmail.com)), rediff ([www.rediff.com](http://www.rediff.com)).

Info

Moz: Suppose you are playing and a stranger approaches you. Do you talk to him or her?

Tejas: No. We immediately report the stranger to our parents or elders whom we trust.

Moz: Similarly, if you receive emails from a stranger, you should report them to your parents. Do not open files received from a stranger.

Jyoti: What happens if we open the files?

Moz: These files can sometimes put a **virus** in your computer. You may not be even able to start the computer.

Jyoti: A virus on a computer?

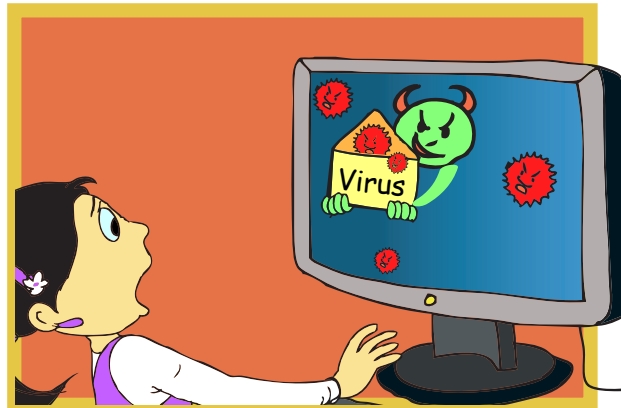
Moz: Yes. A computer virus is a program that can get attached to files and perform actions ranging from annoying (e.g., popping up messages as a joke) to dangerous (e.g., deleting files).



Tejas: Do these viruses spread from one computer to another?

Moz: Yes. Viruses can spread when the infected files are shared through a computer network, and through attachments to emails.

Tejas: Suppose, if my friend's attachment has a virus. What should we do?



Moz: One rule is to never open attachments from strangers. Secondly, whenever you get attachments from people you know, the attachments can be scanned for viruses before opening. This is done through a virus protection software about which you will learn later. Look for this software on your computer. Use it to scan attachments that you get from people whom you know.

### Computer virus:

A computer virus is a program that can get attached to files and perform actions ranging from annoying (e.g., popping up messages as a joke) to dangerous (e.g., deleting files).

Info

Moz: Sometimes, people whom you know may also forward some information or advertisements to you. Always think carefully before you trust any such information.

Tejas: I have one question. Suppose a festival is coming up. Now all the students in the class start sending greeting mails. So each one of us will be receiving hundreds of mails. Won't this be a problem?

Moz: Yes. This is called **Spamming**. You should avoid this. In one of the schools that I studied, all of us would get one greeting mail from the computer teacher which said "From: everyone in the School, To: everyone in the School". The greetings would thus be received only once by each of us. We were also warned not to send spam mails!

Jyoti: This is a good idea. We can follow this guideline.

### Spamming

Identical messages sent to numerous recipients by email when it is really not necessary, is called email spam.

Info

Tejas: Everyone in our class got mails as follows. Is this also Spam?

<input type="checkbox"/> ABCD	May 18, 2010	<a href="#">(Payment Processor Details)</a> <a href="#">(Pictures And Videos Of ...</a>
<input type="checkbox"/> ABCD	May 18, 2010	<a href="#">(Payment Processor Details)</a> <a href="#">(Pictures And Videos Of ...</a>
<input type="checkbox"/> ABCD	May 18, 2010	<a href="#">(Payment Processor Details)</a> <a href="#">(Pictures And Videos Of ...</a>
<input type="checkbox"/> ABCD	May 17, 2010	<a href="#">Pictures And Videos Of Games</a>
<input type="checkbox"/> ABCD	May 17, 2010	<a href="#">Pictures And Videos Of Games</a>
<input type="checkbox"/> ABCD	May 17, 2010	<a href="#">Redeem Your Life And Open the Door To Infinite Ble...</a>

Moz: Yes. This is also a Spam. These are usually from some companies for advertising their products. Do not open such mails. And do not use URLs given in such mails or open attachments of such mails.

### Safety Measures while Sending and Receiving emails

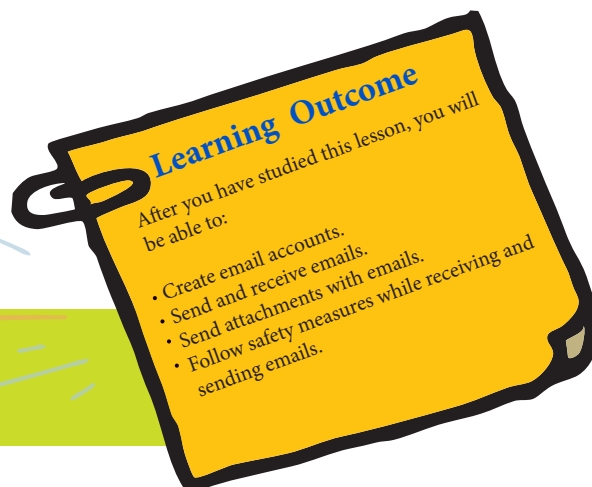
- Do not share your password with anyone, not even your best friend.
- Always check with your parents before reading email from someone you do not know.
- Beware of viruses in attachments. Scan attachments before downloading.
- Always check with elders whom you trust before believing any information mailed to you.
- Send mails to multiple users only if it is absolutely necessary. Do not Spam.

- Like e-mail, another way of communication using Internet is chatting or messaging.
- Websites providing these services allow you to make online friends and keep in touch with friends/relatives.
- Some chat/messaging service providers are skype and yahoo messenger.

Info

Jyoti: Some of these precautions are similar to the precautions that we have to observe when we go out. We have to be very careful when strangers try to make friends with us.

Moz: You are right. We will talk more about the dos and don'ts of using Internet in the next year. Chin Chinaki...





1. Some ways of communication in earlier days are shown in the pictures. Name three ways we use to communicate nowadays?

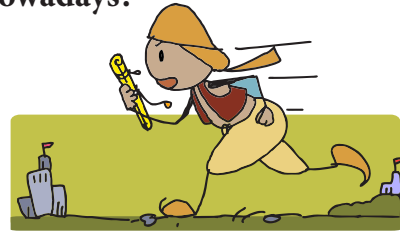
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2. Here is an email ID. Identify the domain name.

tejas.surya@yahoo.com

- c. tejas.surya
- d. @yahoo.com
- e. yahoo.com

3. Rekha wants to create an email account. Can you suggest names of two email service providers?

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4. You receive emails with following subject lines. Tick (✓) the ones you think are probable spam mails?

- e. Earn more money
- f. Class report card
- g. Free gifts, click this link
- h. You have been selected for a free trip to USA
- i. Annual day dance practice plan
- j. Share your Bank password
- k. Cheap deals for you

5. Email is somewhat similar to sending letters through post. But there are some differences. Write two differences between emails and post.

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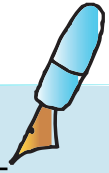
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6. Steve is writing the precautions to be taken while sending and receiving emails. He is not sure about some points. Help him by circling the correct points.
- g. Do not send mails to strangers.
  - h. You can share your password with your best friend.
  - i. Check with elders whom you trust before believing information mailed to you.
  - j. You can open mails received from a stranger.

7. Circle the keywords that do not belong to an email application interface

- |         |            |           |
|---------|------------|-----------|
| Compose | Send       | Compile   |
| Inbox   | Launch     | Sent mail |
| Forward | Delete     | Onward    |
| Erase   | Attachment | Addition  |

8. Riya has sent a message to Bittu. It is written in a secret code where each letter is replaced by a number as per the table below. Can you help Bittu understand the message.

I a m \_ \_ \_ \_ \_ .  
 10 67 18 67 45 45 10 34 10 55 76 66 67 76 67 6 59 15 45 59 23 18 23 45 45 23 98

\_ \_ \_ \_ \_ .  
 52 79 15 67 82 15 52 10 9 33 18 15 89 52 6 45 23 18 59 72 15 36 89 82

\_ \_ \_ \_ \_ .  
 59 15 45 18 10 55 67 79

Secret code:

E	O	V	N	H	X	A	U	I	R	D	M	Z
15	23	34	55	72	1	67	89	10	45	66	18	25
K	T	Y	C	G	W	B	P	J	L	S	F	Q
33	59	76	9	76	98	36	52	64	79	82	6	30





# ACTIVITY

Level V | Lesson 7

## 1. Set up an Email account:

If you don't have an email account, connect to Internet and get yourself an Email account with any one of the email providers. Exchange your email ID with your friend and send mails.

### Group activity

#### 1. Guess my message:

Divide the class into 3 equal groups. Each group is assigned one of the following modes of communication.

- Drums
- Morse code
- Sign language



- .-
- ...
- .-.

Morse code

The groups find out how to communicate using the mode of communication assigned to them. Each group should prepare an interesting skit to inform the audience about at least two of the following:

- Warn about the enemies who are nearby.
- Informing about the sighting of a bison.
- Announcing a swayamvar of a princess.
- A reward for a lost bracelet.

Give a brief description about the communication mode that you have been assigned. Before enacting the skit do not reveal what is the message. The audience should be able to understand your message. If you are doing morse code then provide the basic code on a sheet and display it to the class. Have a surprise message at the end which is not related to the above. Let the audience find out what it is.

#### 2. Follow me!

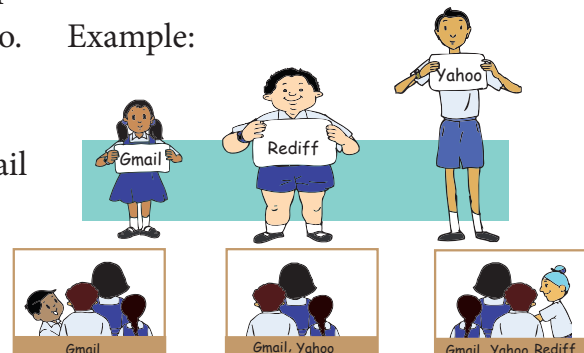
In this activity, the students enact the whole cycle of an email-from a sender to the receiver. Three students represent three service providers, google, yahoo, rediffmail. Each of these students holds a placard with the name of the service provider that he/she represents and stands in front of the class. Rest of the class is divided into three groups A, B, C. Some sheets of paper representing messages and attachments are kept on a table.

- The students in group A have an email account on gmail.

Example: ali@gmail.com

- The students in group B have an email account on gmail and yahoo. Example: subhangi@gmail.com and subhangi@yahoo.com

- The students in group C have an email account on gmail, yahoo and rediff mail. Example: gurpreet@gmail.com, gurpreet@yahoo.com and gurpreet@rediffmail.com



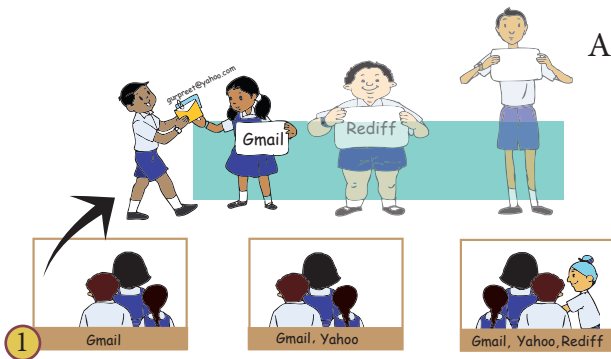


## ACTIVITY

Level V | Lesson 7

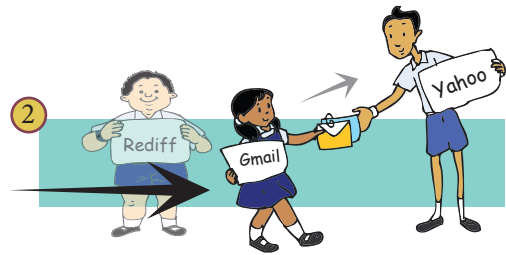
Enact messages being sent from one student to another as directed by the teacher. For example the teacher writes on the board:

1. Ali sends a message from his gmail account to Gurpreet's yahoo account.
2. Gurpreet sends a message with an attachment from his yahoo account to Subhangi's yahoo mail account.
3. Ali sends a message to both Subhangi's gmail account and Gurpreet's gmail account.

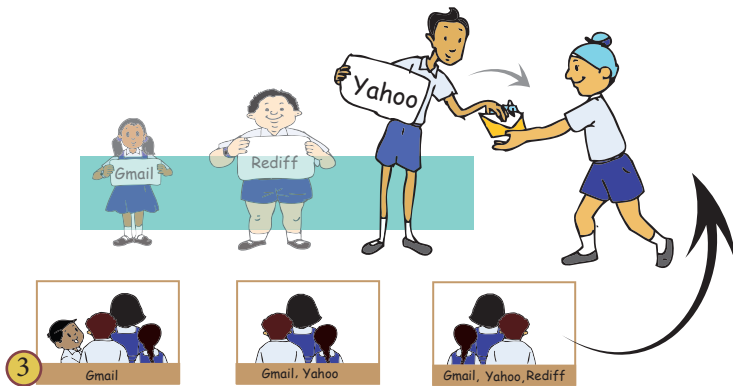


An example of enacting the first situation is given below:

- i. Ali creates a message and gives it to gmail.



- ii. gmail passes on the message to yahoo.



- iii. Gurpreet signs in to yahoo and picks up the message.

At the end of the activity, the teacher discusses the role of the service provider with the students.



### Project

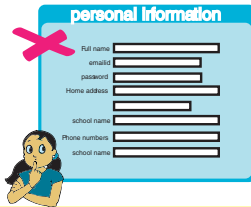
Do project 7.1 from lesson 8.

### Explore!

1. Type the email address without '@' while sending an email. Find out what happens.
2. Generally, email ID is given as: myname [AT]gmail.com. Explore why the symbol '@' is replaced with [AT].
3. Besides email services, explore what are the other tools/services provided by email service providers like Google, Yahoo.

# Internet Safety Rules

S



Keep *Safe*

Keep safe by not revealing personal information while using Internet. Personal information includes email Id, house address, photos, phone number and password.

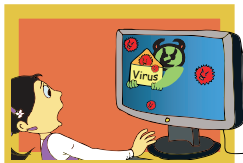
M



Do not *Meet up*

Meet online friends only in the presence of an adult family member.

A



Do not *Accept*

Accept e-mails and messages only from people whom you know. Be aware of viruses and spam messages.

R



Check for *Reliability*

All the information on the Internet may not be correct. Check the reliability of the information with other resources - books, websites or someone who knows.

T



*Tell*

Tell your teachers/adult family member if you or someone you know is uncomfortable about an online communication.

- Start the class by asking students to write a letter. For example, ask them to imagine that they are Tejas/Jyoti and write a letter to Moz to describe how they spent their Diwali holidays. You can give it as an assignment in the class prior to teaching this lesson. Select a sample letter and highlight the basic parts of a letter: address, salutation or greeting, body, closing and signature.
- Explain the purpose of email. You can mention that it is a quick, convenient and low cost way of keeping in touch with others. You can show examples of emails you have received and send an email while everyone in the class watches. Mention that using email, you can easily and quickly communicate with distant contacts and share information online.
- Begin with a free web-based email account like those provided by Google's Gmail or Yahoo! or other local service provider. Demonstrate the steps to create an email account as mentioned in the lesson. Familiarize them with the email interface and the jargon such as compose, entering email address, inbox, sent mail box and so on. Refer to the letter they had written and ask them to follow the same pattern to write an e-mail.
- Tell the students that it is important to safeguard the secrecy of password in order to avoid misuse. At the same time, mention that it is inappropriate to look at the keyboard when another person is entering password. You can narrate a story about it. To illustrate, a young girl, Sheeba forgets to logout of her e-mail account and another classmate sends mails to several people from Sheeba's account. These people imagine that Sheeba has send the mail and it results in misunderstanding. Use of analogy can be another effective way for teaching the importance of keeping the password secret. For example, just as one does not keep the cupboard containing valuables open while going out, one should logout from e-mail after using it.
- Depending upon how much they have understood, you can teach them how to save e-mail addresses, organize mails into folders and attach files along with the mail. Propose a situation where they need to attach an invitation letter or photograph along with the email and ask them to attach the file along with the mail. Next, teach them how to download the received attachments and respond to emails. Use minimalistic approach to teach about other options such as adding multiple recipients and forwarding mails, available on the email interface.
- You can ask the students to reason the similarities and differences between traditional postal mail and email. One needs to follow similar etiquette as writing a letter on paper and sending via post. Emphasize that it is important to be polite while communicating via email.



### Further Reading:

<http://www.pcsecurityalert.com/pcsecurityalert-articles/email-virus.htm>

<http://en.wikipedia.org/wiki/E-mail>

<http://www.techsuperb.com/email/secure-email-account-security-tips/1213.html>

[http://hubpages.com/hub/How\\_To\\_Create\\_An\\_Email\\_Account](http://hubpages.com/hub/How_To_Create_An_Email_Account)

## Parents' Corner

### **Be your child's partner on the information highway:**

- Sit with your children when they are online. Encourage them to share with you information about whom they communicate with and for what purposes. Ensure that they use the Internet mainly for educational purposes.
- Make an agreement with your children about how long they can use Internet per week and for what purposes. Let them sign it so that they feel committed to respect their promise.
- Assist them to create online nicknames. Caution children against sharing personal information with online friends or unknown websites.
- Instruct children not to download programs, music, or files without your permission. Evaluate the proposed download on possibility of virus attacks, space constraints of your system and copyright issues before giving the permission.
- Inform your children that all the activities done on the Internet are logged and we can get its record. This will make them more accountable for their actions.
- Encourage your children to tell you if something or someone online makes them feel uncomfortable or threatened. Stay calm and deal with the situation.

### **Be proactive:**

- Place computers in the family room and/or place the monitor such that you can get a quick glance at the activities on the monitor while passing by.
- Be alert to sudden changes in your child's behaviour. Some pointers that should alarm you are: Does your child spend more time on the computer? Has s/he become suddenly more secretive? Does s/he try to keep the screen turned away so that others cannot look what s/he is doing on the computer?
- Install anti-virus software and scan your computer regularly. Take backup of important data at least once a fortnight.
- Install Internet safety tools like kidlogger, relog, spiceworks to limit access to content.
- Regularly track history of the Internet application. To do this, click History at the top of the window to open the left-side history bar and track browsing history.
- Be a positive role model. All family members are role models for young children who are just starting to use the Internet. Your children learn more by observing what you do on the Internet rather than telling them to follow the rules.
- Play outdoor games with your children to avoid getting them hooked onto the computer. Remember that Internet can be addictive and kids need to be guarded against this.

### **Check the following URLs:**

1. <http://cdachyd.in/downloads> (read the posters, brochures and handbooks)
2. [www.youtube.com](http://www.youtube.com) (watch Internet safety videos)
3. <http://www.gcflernfree.org/computer/topic.aspx?id=97> (learn how to protect your computer against virus attacks)
4. [http://www.sbac.edu/~media/internet\\_safety\\_information.htm](http://www.sbac.edu/~media/internet_safety_information.htm) (get Internet safety information)



## Projects

### Project 1 (Lesson 1 - Revision of Level IV)

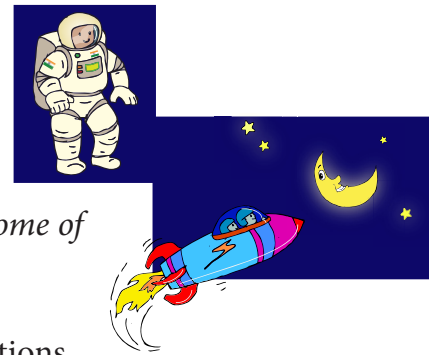
#### 1.1 My Moon walk

Build a Scratch project to show a rocket taking off from earth, landing on the moon and the astronaut walking on the moon. Following is a suggested sequence for the project:

- i. Rocket takes off.
- ii. Rocket orbiting the earth.
- iii. Rocket flying in space.
- iv. Rocket landing on the moon.
- v. Astronaut walking on the moon.

*Hint: For each of the above you will need a background. Some of the instructions that can be used in the project are:*

instructions.



### Project 2 (Lesson 2 - Step-wise Gathering of Information)

#### 2.1 Below are some activities that need to be planned:

- Plan a trip around the world with friends.
- Plan a trip to climb Mount Everest.
- Plan a trip to go on a wild life safari.
- Organize a community festival in your residential complex.
- Plan a surprise birthday party for your grandmother.

Select an activity from the above list and do the following:

Step 1: Identify the goal and State it clearly.

Step 2: Analyze the goal and identify the requirements for sub-tasks.

Step 3: Identify the information required to accomplish each sub-task.

Step 4: Identify resources that provide information about each sub-task.

Step 5: Record information in a note-book or paper.

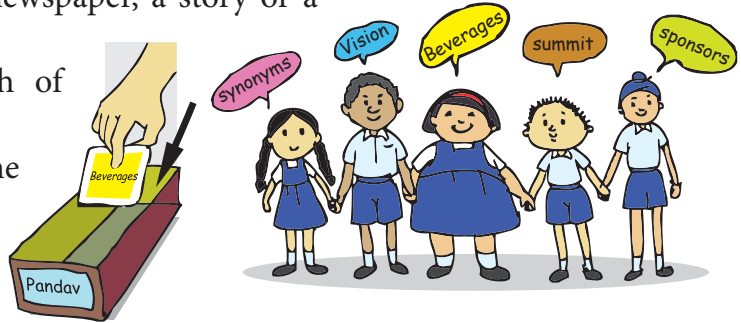
Step 6: Consolidate and organize the information gathered from various resources.



## 2.2 Spell bee - By you and For you:

This project aims to improve the vocabulary of the students.

- Form groups of five students and name the group.
- Take a shoe box and write the name of your group on the box.
- Prepare 5x5 inch cards as shown.
- Look for new words in a newspaper, a story or a lesson.
- Find the meaning of each of these new words.
- Write the word and the meaning on the card.
- Put your cards in alphabetical order in the shoe box.



Use these words in your conversation wherever appropriate. Each member of the group collects atleast 3 words in a week.

The class teacher holds a competition, **Spell Bee – By you and For you**, in the class. All the groups bring their shoe boxes (with the words they have learnt) to the class. The teacher takes the words from the shoe boxes to conduct the competition. In this competition it is not enough to spell the word, you need to also give its meaning and use it in a sentence.

## Project 3 (Lesson 3 - Organizing Information using Lists and Tables)

### 3.1 This is wonderful! I never knew I was like that!

Ask all the students in the class to do the following activity.

- Take a few blank sheets of paper.
- Cut the sheets into strips of paper on which you can write a sentence.
- On one side of each strip write name of one of your classmates.
- On the other side of the strip write one good quality of the classmate
- Fold the paper so that only the name of the classmate is visible.



- Bring a small empty carton with a slit on the top.
- Write the name of the student on the side of the box.
- Put all the strips of sheet with the student's name in their respective boxes.
- Take home the box with your name and show your parents the nice things written about you by your class mates.

## Project 4 (Lesson 4 - Advanced Scratch Programming)

### 4.1 Pick the sequence of events and build a story with interactive animation

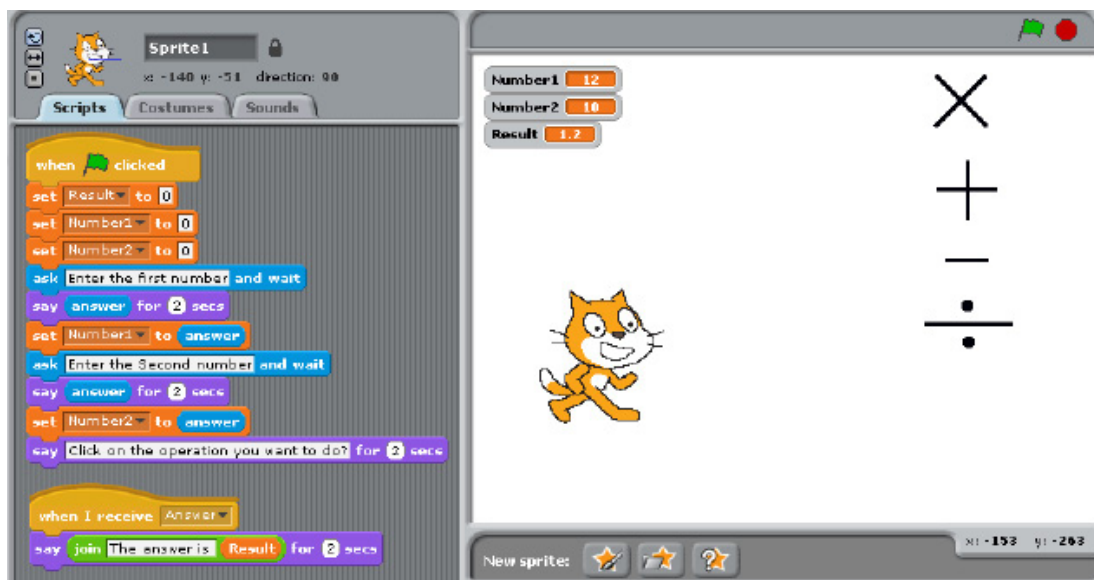
Form groups of five students. Build a Scratch project to write a story with interactive animation by choosing the sequence and the event as the user likes.

For example: Provide a ball, a bone and a eating bowl for a dog. Let the user choose which of these items the dog picks up. Based on the item that the user chooses, the next sequence will be presented to the user. You can also ask the user to write something which the character in the story says or converses about.

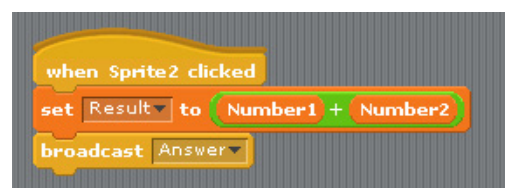
*Hint: Use ask, answer, when key pressed, variables, lists (use lists to save the sequence and then narrate the whole story), if then else.*

### 4.2 I am a maths genius

The following code can be used to add, subtract, divide, multiply two numbers. It has 4 Sprites for the four mathematical operations and one *Cat* Sprite to capture the numbers from the user and provide the answer. The program code for the *Add* Sprite is also given.



Form groups of three and do the following:  
Write program code for subtraction, multiplication and division of two numbers. use the given program code for addition of numbers to help you.



### 4.3 Can you meet my challenge?

Write a game where the *Cat* sprite gives an equation with two or more numbers (*Hint: lists, join, random*) and the user enters the answer. The *Cat* sprite compares the answer and tells the user accordingly. Design and program this game, and make it interesting and fun to play.

Examples:  $15 + 35 + 50 \times 4 = ?$

$9 \times 9 + 19 = ?$

$100 \text{ divided by } 25 + 4 \times 25 - 4 = ?$

## Project 5 (Lesson 5 - Introduction to Internet – Browsing)

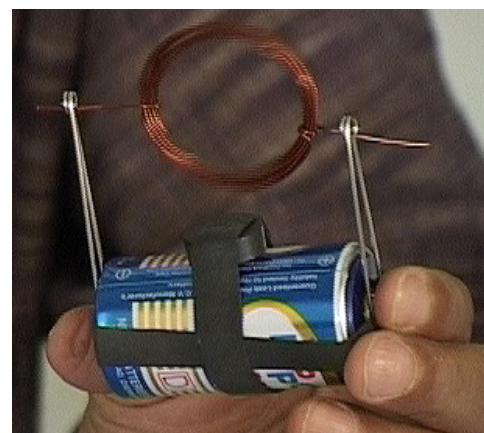
### 5.1 Fun with Science:

- i. Form teams with five students in each team.

Click on <http://www.arvindguptatoys.com/toys.html>. Visit each section and bookmark the toys that you find interesting. Now select two toys that interest the whole team. Read the process of making the toys. Collect the resources required for the toys. Make the toys. Then distribute the resources for the two toys to other teams. Demonstrate and help other teams to make the toys that you selected.



The figure below shows the materials required for making a DC motor and an assembled DC motor made with these materials.



- ii. Visit the site [www.youtube.com](http://www.youtube.com). Search and view the videos on Arvind Gupta toys.

## Project 6 (Lesson 6 - Searching the Internet)

### 6.1 Setup my factory please!

A list of products are given below. Imagine that you will be setting up a factory to manufacture one of the products from the list. You are doing research to find information about the product. Search and find from Internet:

1. The raw material required to manufacture the product.
2. The steps involved in manufacturing the product.

Record the above information in a document. Add illustrations and pictures to make the document interesting. You can even make a scratch program to make the presentation. Finally present your project in class.

- |              |              |
|--------------|--------------|
| 1. Bicycle   | 6. Car       |
| 2. Furniture | 7. Cloth     |
| 3. Aeroplane | 8. Soaps     |
| 4. Rockets   | 9. Foam beds |
| 5. Toys      |              |

Example: **Bicycle**

**Frame:** mostly made from steel, racing bikes made from aluminium for lighter weight.

**Wheels:** rim, spoke and hub made from steel for strength.

**Saddle or seat:** leather, plastic with steel springs and frame. Foam for cushioning.

**Chain:** chain wheel, sprocket wheel (back), chain is made of steel.

**Chain guard:** made of plastic.

**Headlamp:** bicycle lamp: steel +glass or plastic.

**Front and rear mudguard:** Sheet metal or plastic.

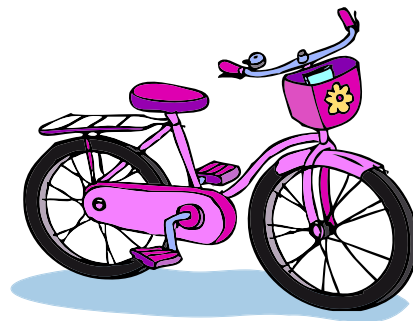
**Brake:** steel and rubber.

**Grip:** aluminium.

**Cable:** steel.

**Pads:** rubber.

**Pedal:** steel and rubber/plastic.



## Project 7 (Lesson 7 - Communication using E-mail)

### 7.1 I am one of the authors!

Write a story with a group of friends using email. The first person starts the story with a few lines and emails it to the next person in the group. The second person then adds to the story and mails to the next person. Keep going till the story is finished. Agree to some rules in advance such as how much each one can write and how many times the story will go around the group.

To start the story, you can use one of the following situations:



You can use a word processing file to write the story and email it as an attachment. You can also add your illustrations. Finally give a name to the story and print it.

The stories of all the groups can be bound together and put it in the library for others to read. The class can decide name for the story book. Students can decide the cover page, contents page and preface. The preface should be, about how the book was created and experiences of each group. Go ahead and create a story book of your own!

## Project for all Lessons

### Create a website for your school

Create 4 groups in the class. Each group will create one web site for the school. Discuss with your group members and teachers to complete this activity. At the end of the activity all sites are compared and reviewed (on paper) by the teacher.

What are the various steps involved in this activity ?

Example:

- Look at existing school websites.
- What is the content that you want to display?
- From where do you get the content?
- What is the design of the first page?
- How do we design the subsequent pages?
- What will be the hyperlinks?

Note: You can use word processor to design the page, put the content and also add hyperlinks. The document can be converted to web pages. Explore this feature in the word processor.

**Young India School**

Home | Teacher Section | Student Section | Notice Board | Library

About us  
School philosophy  
Curriculum  
Admission  
Results  
Time-table  
Facilities  
Contact us

We at the **Young India School** believe in nurturing the natural thinking abilities of children. Our goal is to enable students to acquire knowledge, develop strong values and work together to become responsible citizens.

**Login to the Portal**

Login ID

Password

Parent  
 Teacher  
 Administrator

[Forgot password?](#)



- The purpose of the project lesson is to supplement the learning of topics covered in previous lessons. It provides opportunities for independent thinking and developing the ability to work in a team. The lesson provides a variety of activities that the teacher can pick and choose from. They can be given for computer lab or class room activity or as home assignment. Some projects can be used for assessment at the end of the semester. Some of the projects are suitable for individual while others for group activity.
- For the group activity, ensure that the group is heterogeneous (mixed gender, has students of varying achievement levels, computer skills levels, access to computer beyond school). If possible, change the group for every activity so that students get exposure to work with classmates having a variety of working/thinking styles. Supervise that all the students participate actively and that they get equal opportunity to present their teams' work.
- Project 1 is suitable for assessment. Project 2.1 can be given as either individual or group activity to be done outside class hours. This can be carried out over a period of four weeks or so. The teacher can schedule to meet the group regularly to discuss the progress. Each group can be asked to make a presentation. They may be evaluated for this and allotted marks/grades.
- Project 2.2 can be an ongoing classroom activity. The teacher could have a 10 minute discussion in the beginning to explain the activity. The students perform the activity over a period of time and the presentation can be made at the end of the semester.
- Project 3 can be done as a classroom activity.
- Project 4.1, 4.2 and 4.3 can be used for assessment at the end of the semester. Teacher can give these as either individual or group activity.
- Project 5 can be given as an assignment to be done during the mid-term break (diwali vacation). The students should be asked to give a presentation when the school reopens in the second term.
- Projects 6 and 7 can be given as home assignment or computer lab activity. Teacher can ask the students to make a presentation which may be evaluated to allot marks/ grades.
- The last project is slightly advanced. Give this as a summer project at the end of the academic year.



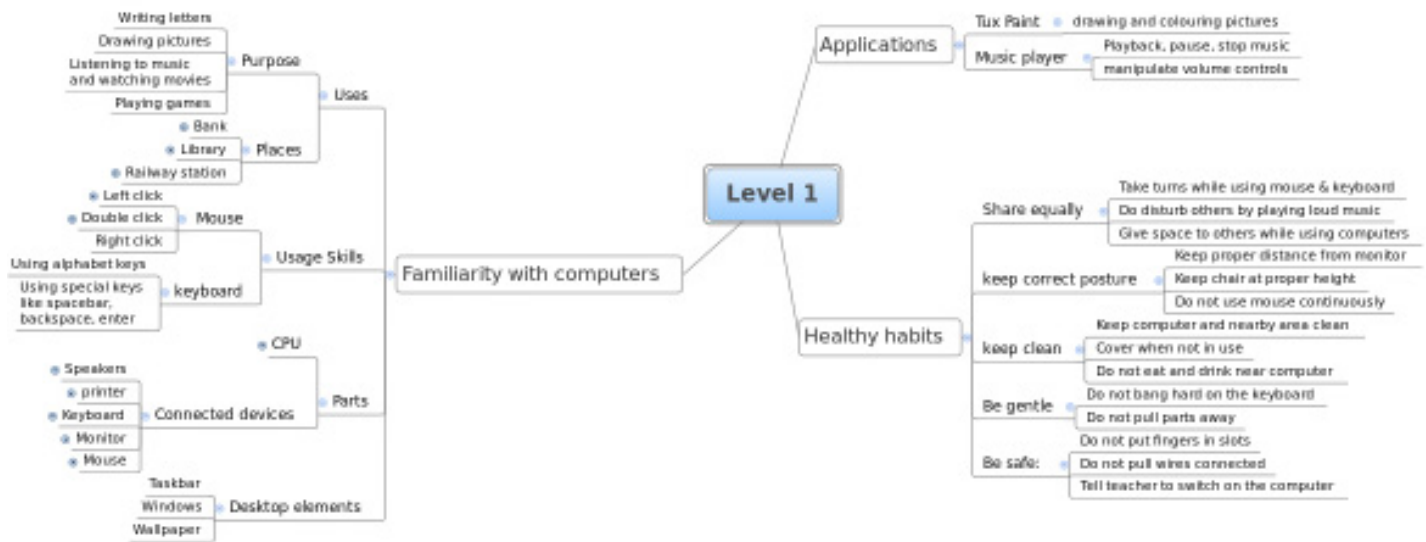
*Overview of*

**Computer**

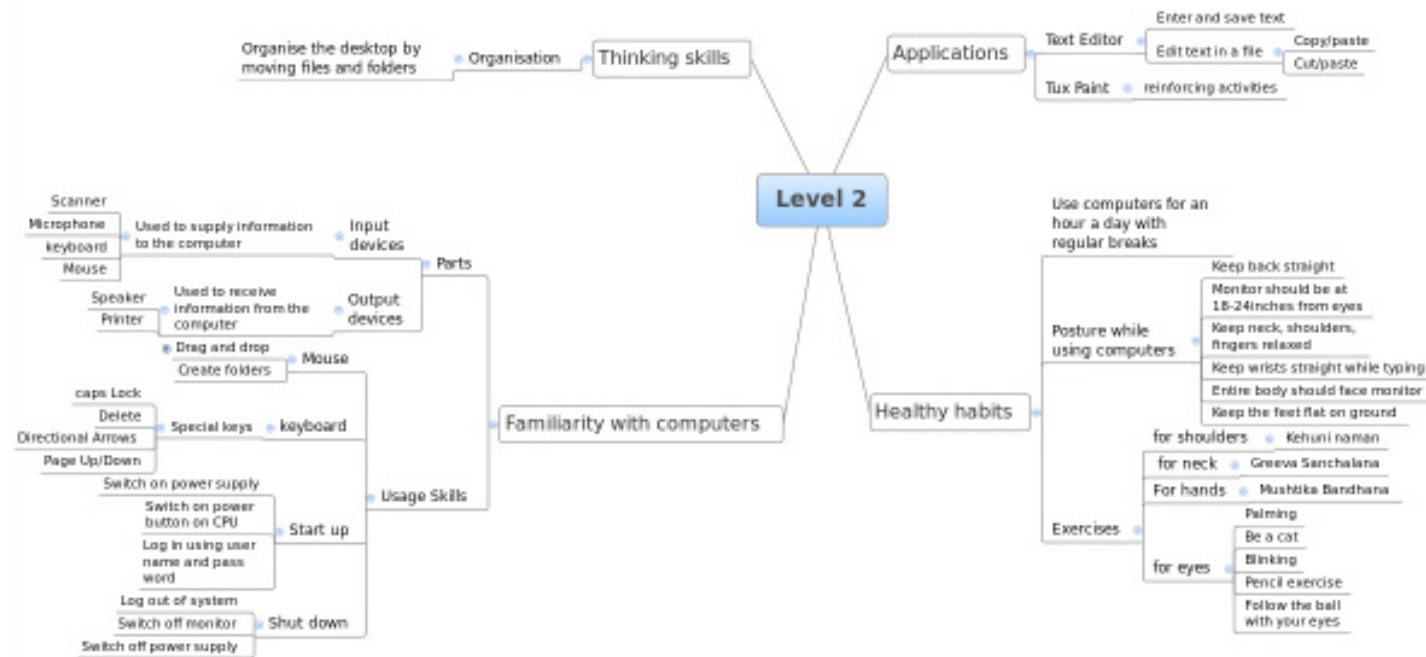
*Masti*

**Series**

## Computer Masti Level 1



## Computer Masti Level 2



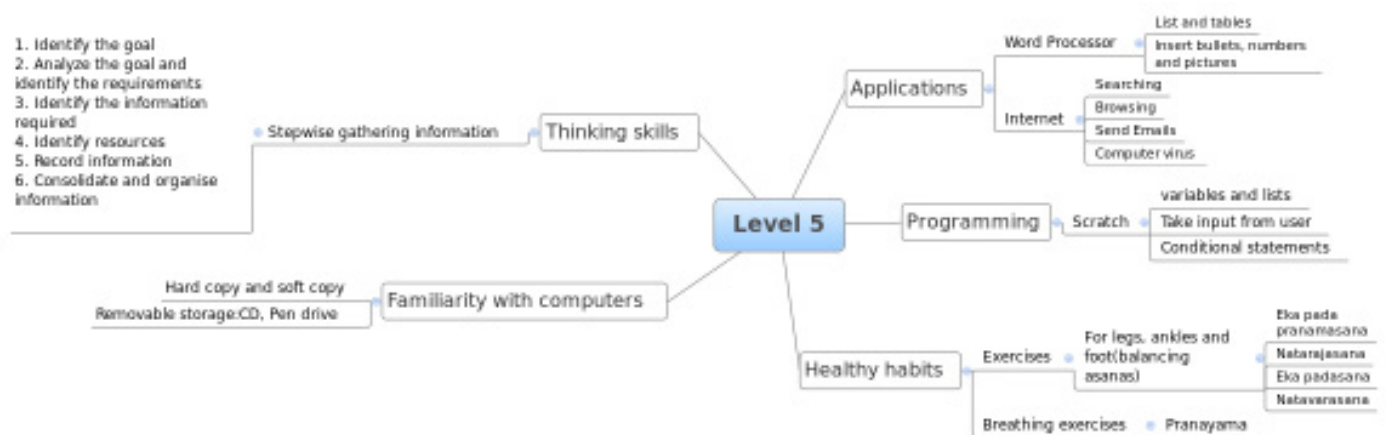
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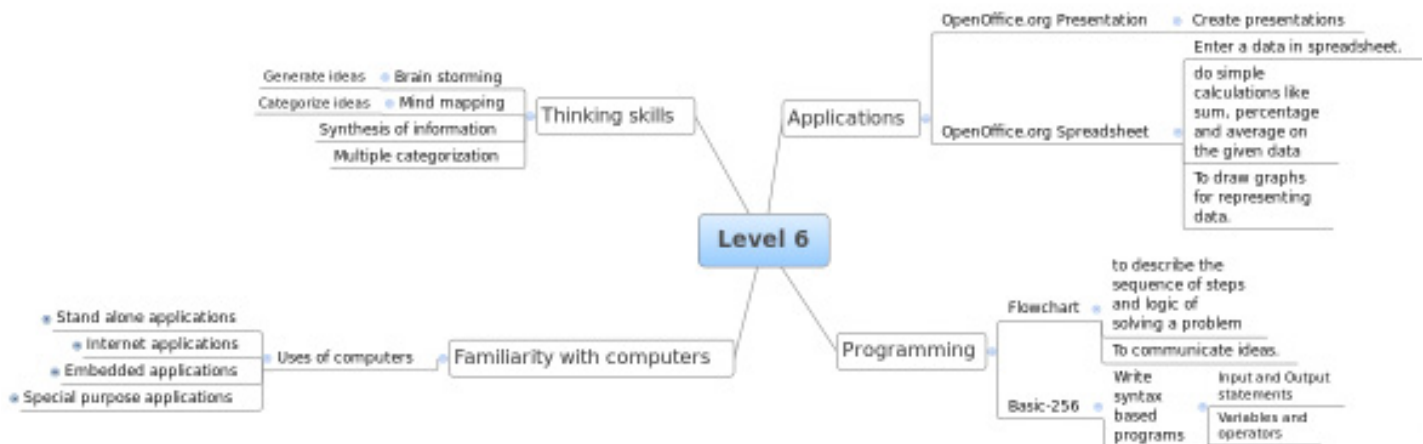
## Computer Masti Level 4



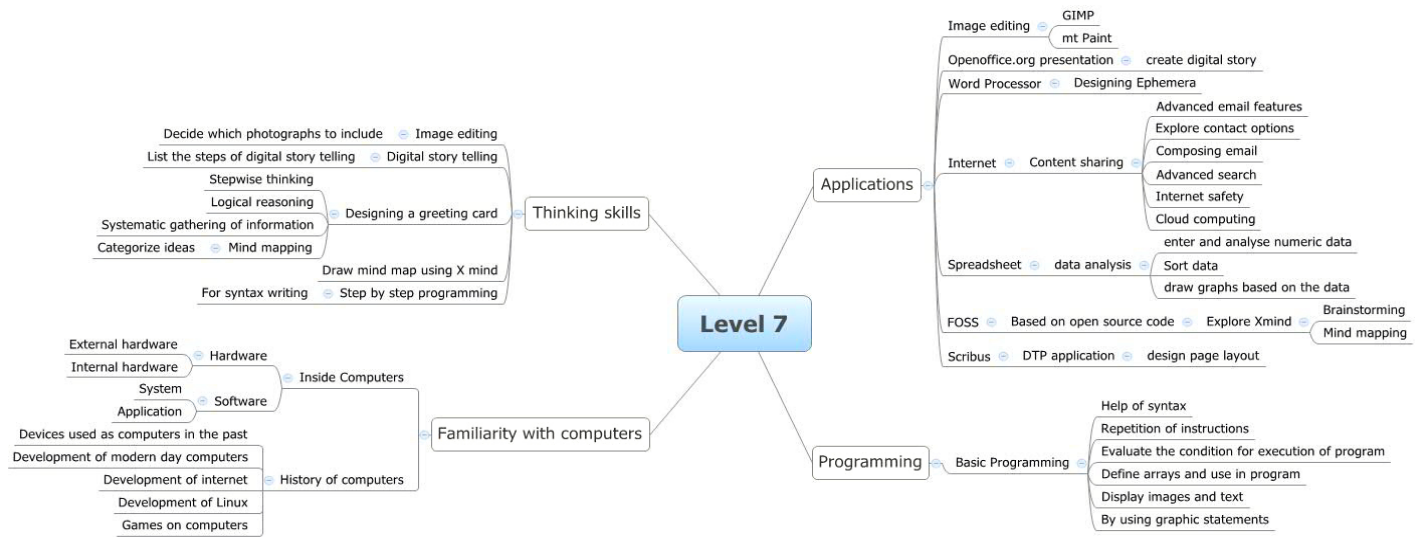
## Computer Masti Level 5



## Computer Masti Level 6



## Computer Masti Level 7









## Correct posture

### Posture to be maintained while using the computer:

1. Your entire body should face the monitor and keyboard.
2. The screen should be 18 to 24 inches from your eyes. Its position and angle should not cause any glare.
3. Keep your shoulders and neck relaxed.
4. Keep your back straight, and make sure you have lower back support.
5. Keep your wrists straight while you are typing. Do not bend.
6. Keep your fingers relaxed while typing or using a mouse.
7. Keep your thighs parallel to the floor.
8. Keep your feet flat on the floor. If your feet cannot reach the floor use a foot rest.
9. There should be enough room between the desk and the legs.
10. Use your whole arm, and not just your wrist when moving the mouse.

## Incorrect posture

Computer *Masti*





# ComputerMasti

First Edition: 2008  
Revised First Edition: 2009  
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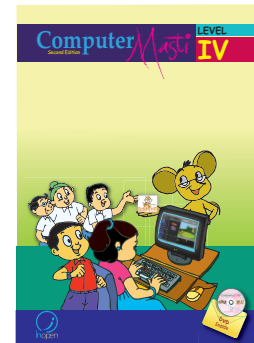
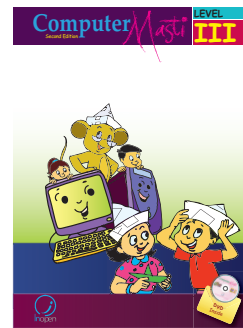
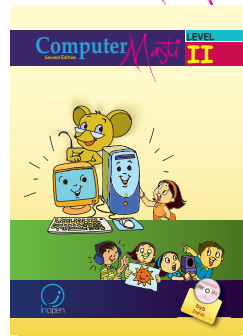
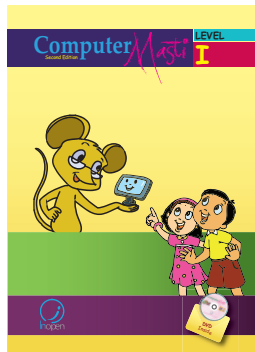
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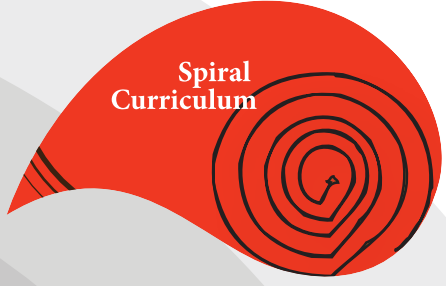
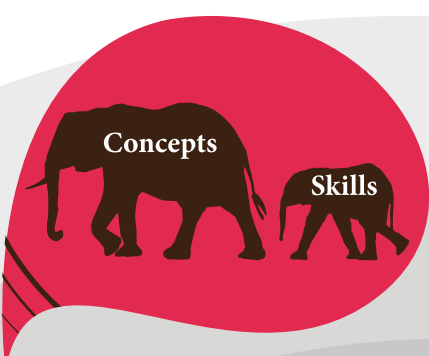
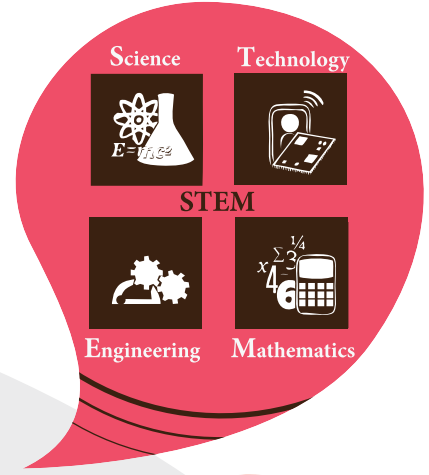
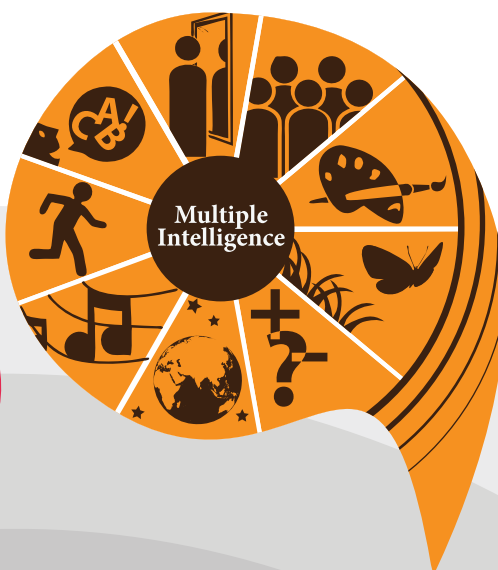
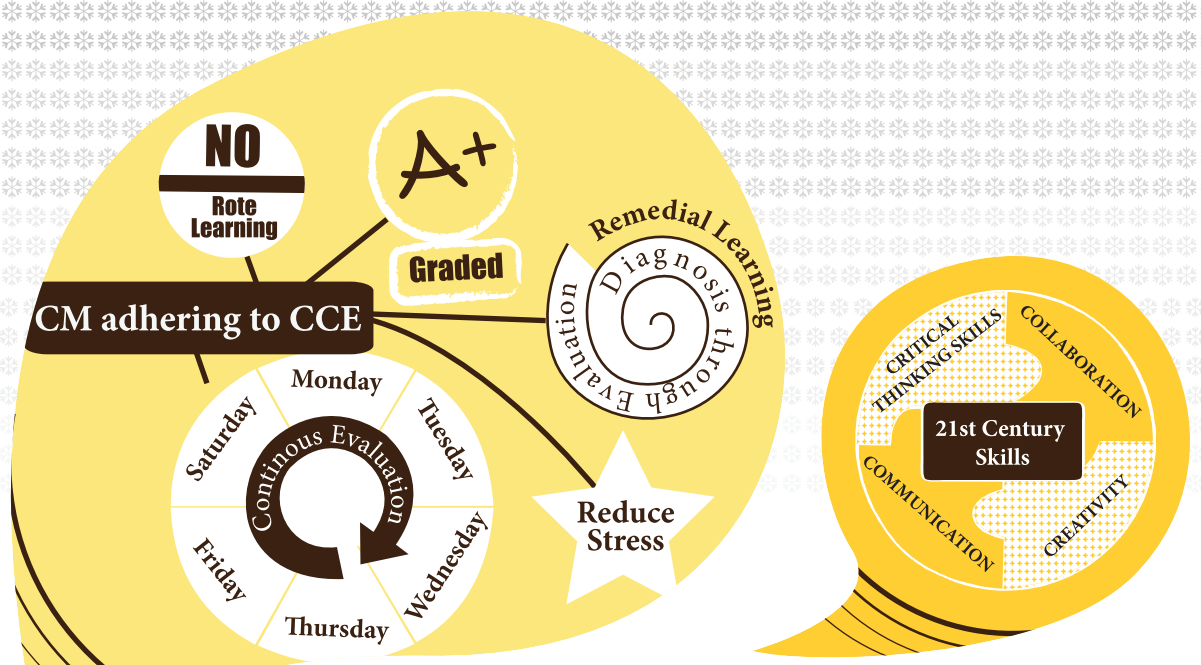
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# Other books in Computer *Masti* series



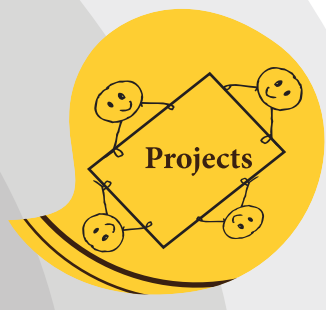
The CD contains the Computer Masti Toolkit (for Windows Operating System) for the applications used in the book. Please write to us at [info@computermasti.com](mailto:info@computermasti.com) for further information on Computer Masti.



Computer Masti is a content-service solution to teach computer science in schools. It consists of an extensively research based curriculum and instruction material for teaching computers.

- Fun is an important element of learning in Computer Masti.
- Graphic organisers (mind maps) are included as tools for ideation and representation.
- CM prepares students towards STEM literacy with focus on technology.
- Worksheets, activities and projects are in line with continuous and comprehensive evaluation (CCE) guidelines and captures higher order thinking skills (HOTS)
- CM illustrations challenge gender stereotypes thus sensitising the students and teachers.
- In addition to English, available in 8 Indian languages and 2 Foreign languages.

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# Computer Masti

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