LearningWell

My Book Of
Computer

4

Teacher's Resource Book

Table of Contents:

Lesson 1:   History of computers from 1800s-1970s

Aim of the lesson:
Studying History is the essential part of the science course. This lesson especially designed for young students, our future scientists, to know the efforts behind the revolution. They will have a rich understanding of the past (along with skills of analysis, associated issues and communication) while studying Computing gives them a firm and practical foundation in programming and software understandings, development, computer systems and networking in succeeding lessons and grades.

Learning objectives
In this lesson, students will learn about:
- Timeline and the history of computer
- Contribution of different scientists in its invention.
- Arrival of modern computer

 Teacher support:
Get detailed information on **learning objectives** from the textbook, from following links and **how-to-teach techniques** from given TRB.

Visit: http://people.bu.edu/baws/brief%20computer%20history.html
http://en.wikipedia.org/wiki/History_of_computing_hardware
https://www.msu.edu/course/lbs/126/lectures/history.html

Warm up:
In progression with history of the calculating device taught in previous grade, start your discussion with the warm up.
You may ask questions, showing different pictures of Abacus,
 Napier's Bones. Punch Cards, etc e.g.
- Which was the first device for counting only?
- Can you imagine how big the early computers were?
- Can you tell why people needed computers?
- Mobile is a type of a computer. Tell that why it is so small and does all works? etc.

Discussion:
History is the account of past events which is mostly considered hard to memorize. For the ease of students, you may ask many questions about happenings in the past. They may tell you celebration on their last birthdays, about their parents and grandparents when they were young, etc
 You can also give them the examples of past happenings like you may tell them about our sub-continent, Pakistan's Independent, founders of Pakistan, our heroes, etc.
Tell that all the events of the past is a history, which cannot be changed.
In the same way computer has its own history. The history of computer begins with the first counting device, Abacus, 500 years ago. Invention of calculating devices led to the invention of first computer by

Charles Babbage, who is considered father of Modern computers of present era. Tell them the account of Charles Babbage (mentioned in the book), Dr. Herman, and the otter scientists contributed in the modernization of today's computer. It is effective if you show pictures of computers with their scientists and year of invention in the computer lab.

Tell them the importance of transistors and the microprocessors, invented in 1970s, resulted in small computers.

In very simple words tell them that like a living cell, **the transistor** is the primary building block of all microchips. They are the key ingredient of computers. Today's microprocessors contains tens of millions of microscopic transistors.

Prior to the invention of transistors, digital circuits were composed of vacuum tubes, which had many disadvantages. It works as an **amplifier** and as **switches**. It is used in devices like hearing aids, loudspeakers, memory chip etc. Hearing aid receives sounds from the world around you and increases it for you. Memory chip. A memory contains hundreds of millions or billions of transistors. Before the transistor was invented, computers contained vacuum tubes, that is why they were very big and had many disadvantages.

Break the History into points. It will help in learning. **(See summary below and the book page 4-7)**
You can also make the flash card for every invention and scientists.

You should write difficult words, names of the scientists and the terms of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud.

Keywords	Common words
Engine	invention and discovery
Mechanical computers	format
Computer programmer	
Modern computers	fascinated
IBM	computation
microprocessor	
Intel	thumbnail
Transistor	
Altair	

Summary:

- Charles Babbage is the father of computing device.
- Mechanical computer was comprises of difference engine and analytical engine
- Ada Byron was the first computer programmer
- Dr. Herman Hollerith invented Hollerith Desk for computation.
- Dr Herman formed IBM to make mechanical data processing machines.
- Colossus was the code-breaking computer.
- ENIAC was the first all-digital computer
- Microprocessor was developed by Intel
- MITS Altair 8800 was the first PC.

Assessment:

Assessment is very important part of the session. Do assessment either by oral test or by the written test.

You may ask questions differently about a lesson showing pictures;

- Who invented first mechanical engine?
- What is the contribution of Ada Byron?
- Which scientist used Jacquard's Punch Cards?
- Which company did Dr Hollerith form?
- Which computer broke German codes?
- What is a self-contained computing device called?

Assignment:

As we have mentioned earlier in that **Skill Development** is the core objective of the teaching. In computer education, computer skills and their understanding should be enhanced.

You may ask them to

- Jot down points on operating system for class presentation using internet.
- Make a time line.

Activity:

- Maintain a personal dictionary. Give them initial words to write and ask them to write their meanings.
- Activity from the book, page no. 7

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

  As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
  Log on to net extra account at
  www.learningwell.pk

- **Other links:**

  Besides the Net Extra, here we give other sites also which are **educational kids computer games and activities** for elementary students to learn on the web.
  Visit:
  http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. The development of the Mechanical computers (Difference Engine and Analytical Engine) by Charles Babbage, Hollerith Desk by Dr Herman Hollerith and the Colossus, turned the calculators into computers.

2. The first modern computer was built for the factory. They were used for specific task. They were very huge, costly and required a cooling system when heated. Their regular maintenance was also required. These things made it difficult to be used commonly

3. MITS Altair was the first personal computer. It had similar casing, power supply, and motherboard like our computers but they unlike our computers, it did not have monitor, keyboard, and other input and out devices.

Lesson 2:   Computers, A journey of innovation

Aim of the lesson:
We should never ignore the account of our ancestors in the development of modern computers. Their efforts make our lives easier. History of computer guides our generation in the journey of scientific revolution and may broaden their vision for fifth generation of computer.

Learning objectives
In this lesson, students will learn
- The generation of the computers
- Basic features of the computer in a particular generation.
- Differences in generations, and
- Problems associated with the older generations.

Teacher support:
Get detailed information on **learning objectives** from the textbook, from following links and **how-to-teach techniques** from given TRB.

Visit: http://www.tutorialspoint.com/computer_fundamentals/computer_generations.htm
http://www.webopedia.com/DidYouKnow/Hardware_Software/FiveGenerations.asp

Warm up:
In progression with the history taught in lesson 1, start your discussion with the warm up. For the lesson stimulus you may ask:
- Have you heard your parents calling you a new generation?
- Can you tell what is the difference between old generation movies and the new generation movies?
- Why new generation is more advanced?

- Can you guess the meaning of the generation? etc

Discussion:

In previous lesson, students have learned the primitive history of the computers. You mentioned that

- **The transistor** is the primary building block of all microchips.
- They are the key ingredient of computers.
- It works as an **amplifier** and as **switches**.
- It is used in devices like [hearing aids](), loudspeakers, memory chip etc.
- A memory contains hundreds of millions or billions of transistors.
- Before the transistor was invented, computers contained vacuum tubes, that is why they were very big and had many disadvantages.

They know the features of early computers. Try to give them a general concept of generation that it is time with one state and brings advancement in technologies and thus in the lives. Tell them there is a clear difference in the technology bearing by computer of different era that is why to study them separately, the era of the computer is divided into 5 generations.

You may split every computer generation into its advantages and disadvantages e.g.

The first generation (1940-1956)

Advantages:

- Used vacuum tubes, the only electronic component, for memory.
- This technology used in digital computer.

Disadvantages:

- Very large in size because of Vacuum tubes, so, Non-portable.
- They consumed a large amount of energy.
- Needed high power that turned it very hot and thus required air conditioning.
- Needed constant maintenance
- Expensive
- Used punch cards for input.
- Could do only one task at a time.

The second generation()

Advantages:

- Invented transistors, replaced vacuum tubes.
- Transistors were made of silicon unlike glassy vacuum
- Reduced size
- Much powerful

Disadvantages:

- Could be damaged from power fluctuation
- On overheating, cooling system was required
- Used punch cards
- Did specific task and was expensive

The Third generation()

Advantages:

- Introduced integrated circuit after transistors.
- Single integrated circuits contain thousands of transistors.
- Had keyboards and mouse for input, and used monitors
- Used less energy, less heating and cooling fan was incorporated
- Used for general purpose
- Could communicate through telephone lines

Disadvantages:

- Used ICs, a very sensitive device, could easily be damaged by heat.

Fourth generation()

Advantages:

- It is the present generation
- Microprocessor introduced, contains millions of transistors
- Controls all functions of the device
- Small in size, more accurate, reliable and are used for general purpose.
- Motherboard is present in CPU to which microprocessor is attached to be connected with the other devices.

Disadvantages:

- There is the only fear of running out of space on microprocessors.
- High technology is needed to make more modified microprocessors.

Fifth generation()

Advantages:

- Will have modified microprocessor with unlimited space
- Being developed, called artificial Intelligence
- Will faster than **the 4th** generation
- Will take verbal commands
- Will built and operate robots

Disadvantages:

- There could be over dependency on computer.

You should write difficult words, names of the scientists and the terms of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud.

Keywords	Common words
Generation of computers	rich history
Vacuum tubes	fundamental
Integrated circuit	efficiency
Transistor	reliable
Microprocessors	generate
IBM, Artificial intelligence	overheating
	advanced

Summary: (see discussion above)

- A generation of computer is a certain period with the advancement in hardware and software.
- The first generation used vacuum tubes and it lasted form 1940-1956
- Transistors were introduced in second-generation computers and its period span is from 1956-1963.
- The third generation computers were built around ICs. This Generation lasted from 1964 to 1971.
- Fourth generation is the current generation of computers.
- Fifth generation of computers will be based on Artificial Intelligence.

Assessment:

Assessment is very important part of the session. Do assessment either by oral test or by the written test.

You may ask questions differently about a lesson showing pictures;

- Who invented first mechanical engine?
- What is the contribution of Ada Byron?
- Which scientist used Jacquard's Punch Cards?
- Which company did Dr Hollerith form?
- Which computer broke German codes?
- What is a self-contained computing device called?

Assignment:

As we have mentioned earlier in that **Skill Development** is the core objective of the teaching. In computer education, computer skills and their understanding should be enhanced.

You may ask them to

- Make groups of students and ask them make a computer presentation on the generation of computer using images.
- Make a time line with points.

Activity:

- Maintain a personal dictionary. Give them initial words to write and ask them to write their meanings.
- Activity from the book, page no. 13

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.

Logon to: *www.learningwell.pk*

- **Other links:**

Besides the Net Extra, here we give other sites also which are
educational kids computer games and activities for elementary
students to learn on the web.
Visit:
http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. There is great difference in the computer technologies of different time periods. That is why to study separately the timeline of a computer is divided into its generation.
2. The first generation computers consisted of vacuum tubes. This made computer very large. They needed much energy to run and turned very hot on working. They required large cooling system and regular maintenance. They were expenses and unreliable.
3. In second generation, the transistors were introduced but they were large in size and prone to damage on heating. They used punch cards. While in fourth generation the microprocessors are introduced which contains millions of transistors on a single chip. In this generation, many input and output devices are being used.
4. The major feature of the third generation computers are:
   - They have input and out devices
   - They have proper operating system
   - They use integrated circuits
   - They have high-level programs.
5. Fifth generation computers are being developed. They will build and operates robots. This high technology may cause over-dependency on internet.

Lesson 3:   Working with Windows

Aim of the lesson:
This lesson focuses on the importance of Windows. Student will know that without Windows programs of the computer cannot run. They will know the need of Windows in every computer operation. With this information they will be able to understand how windows support Programs and applications.

Learning objectives
In this lesson, students will learn
   - About Windows
   - Features of the Windows
   - Version of the Windows

- Importance of it.

Teacher support:

Get detailed information on **learning objectives** from the textbook, from following links and **how-to-teach techniques** from given TRB.

Visit: http://searchwindowsserver.techtarget.com
             http://www.webopedia.com
             http://en.wikipedia.org/wiki/Window_(computing)
             http://www.webopedia.com

Warm up:

In this lesson students will learn in detail about one of the operating system called Windows. Before you start your discussion, ask questions pertaining to the operating system. For the lesson stimulus, you may ask:

- What is operating system?
- What is the function of the operating system?
- Why operating system is important?
- State examples of the operating system?
- When we give command to a computer, which software runs first?
- Do you know what the computers Windows are? Where do you them on a computer?etc

Discussion:

Follow how-to-teach techniques from the TRB. Take students to the computer lab, give them a brief review of software and its types and specifically Operating system and its function. You can briefly say that:

- Software is the set of the instruction. It consists of operating system and the programs
- Operating system is like a driver of the computer. It controls the computer by managing all the programs and the applications.
- OS is the interface between user and the program
- Without OS, computer cannot work
- OS runs all the hardware of the computer
- Windows XP, Windows Vista, Windows 8, etc are the examples of the OS.

The above-mentioned points are already been taught to your students in previous grades in detail. Turn on computer and show them the screen, Desktop, Background, Wallpaper, Windows Explorer, Gadgets, recycle bin, etc. Explain each feature with the demonstration. Basic parts of the windows are almost same.

Once your students are able to identify the features, tell them that these are the features of the Windows. Windows is the Operating system, which is initially required to run computer and its programs. . Basic parts of the windows are almost same. Windows appears on desktop, the main working area.

In Class, you should write difficult words and the key words of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud. Explain every feature in detail as in the textbook.

Keywords	Common words
Hard drive	Computer operations
Operating system	Background
Window, Task Bar	Documents
Desktop, Gadgets	Links
Wallpaper, Icons	Harmful
Recycle Bin	Technicians
Windows Explorer	Recoverable
Gadgets	Utility

Summary:
- Windows is the example of OS; it is widely used in our lives.
- The Desktop consists of Icons, task bar and a taskbar.
- The file management system for Windows is Windows Explorer
- Utility search finds the files in the computer.
- Gadgets are the specialized programs for one task.

Assessment:

Assessment is very important part of the session. Do assessment based on your explanation, either by oral test or by the written test.

You may ask questions differently about a lesson, e.g.
- Which is the soul of the computer?
- Why Windows is important for computer?
- What is the difference between Desktop Icons and the Gadgets?
- How can you change the background?
- What is the use of recycle bin? etc.

Assignment:

As we have mentioned earlier that **Skill Development** is the core objective of the teaching. In computer education, computer skills and their understanding should be enhanced.

You may ask them to:
- You can assign them work on the Desktop background or wallpaper, in the lab.
- Ask them to draw screen of a computer in scrapbook and show all the features of the Windows and label them.

Activity:
- Maintain a personal dictionary. Give them initial words to write and ask them to write their meanings.

- Make folder of their names, and other activities, and place them on a Desktop,
- Activity from the book, page no.19

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

  As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
  Log on to net extra account at
  www.learningwell.pk

- **Other links:**

  Besides the Net Extra, here we give other sites also which are **educational kids computer games and activities** for elementary students to learn on the web.
  Visit:
  http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. Operating system is the software which communicates with the user to execute the program. Without it, computer cannot perform any task. This is why Operating system is of primary importance than a computer.
2. Desktop is the first screen you see when computer is turned on. It contains other features of the Windows. On a Desktop, we can make shortcuts of different files to gain quick access.
3. Windows Explorer is the file and the folder management program of the Windows. It allows users to see, copy, delete, and manage their files on the hard drive of the computer.
4. No. the data of the Recycle bin cannot be reused to make new file because computer recognizes it as a discarded material.
5. The Task bar., Desktop Icons and the start buttons are the most important items of the computer.
6. I will use Headlines Gadget because it keeps me updated.

Lesson 4:   Program for drawing illustration

Aim of the lesson:

In modern computers, Software was designed to support art work. Introduction of Macintosh Operating system and illustrator program for it, to create and edit directly on computer, has revolutionized the world of art. This lesson will help students understand 3D animation software Maya, included in grade

5. At this level they know about Operating system and Programs. Here students will know the basics of Graphics Software.

Learning objectives

In this lesson, students will learn

- What is graphic software
- Illustrator and its use
- Important features and tools of illustrator
- Bitmap and the Vector

Teacher support:

Get **how-to-teach techniques** from given TRB and detail of **learning objectives** from the textbook, from following links.

Visit: http://en.wikipedia.org/wiki/Graphics
          www.about.com
          http://en.wikipedia.org/wiki/Computer_graphics
          http://www.webopedia.com

Warm up:

Students are used to drawing or painting on computer. They know 2D and 3D pictures and movies. They find it interesting and want to learn more about it. For the lesson stimulus, you may ask:

- Name any 3D movie
- How can we make any 3D movie?
- Sometimes we say watching a scene from any movie that it is computerized, why?

Discussion:

Take them to the Computer lab.

You should tell them that 3D movies like Avatar, seem to be real but made by computer Graphics. You should tell that computer graphics are pictures and movies created by using computers. In movies, a character changes into an animal, or vampire, is all created by specialized graphic hardware and software. (They have the concept of hardware and software; you may remind them in few lines)

Particular Operating system is required to run different art programs. For example, Illustrator is the Program and it is run by Macintosh Operating system. Tell them that Illustrator is the leading Art Program for images. Students should know the basic ways of art on a computer. Tell them about Vector and Bitmap, explained in the book very friendly. **(See page no.21)**

Once they have the concept of the Vector and the Bitmap, they can understand the **Illustrator.**

You may explain in points that Illustrator program is for creating and editing the Vector Graphics through:

- Path: Path comprises of points and line. It is invisible.

- Stroke: It is a line of color and makes path visible

- Distort: It changes the shape of the image.

- Gradients: It gives the reality to the images

- 3D: It converts a rectangular image to cube. That is 2D into 3D.

These are the general concepts listed above. You may tell detail from the book.

In Class, you should write difficult words and the key words of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud. Explain every feature in detail as in the textbook.

Keywords	Common words
Sketchpad, Macintosh	Skills
Illustrator, Bitmap	Locate
Vector, Pixels	Minimal amount
Distort, Paths	Comprise
Roughens, Gradient	Peaks and crusts
	Dragging

Summary:

- Graphics are the pictures and the movies created by using computer.

- There are different Operating systems to run different Art Programs.

- Sketchpad was the first art Program.

- Macintosh OS was the first to run Art Program for the personal Computer.

- Illustrator is the drawing Program designed by Adobe system for Macintosh Computer.

- Images are managed by two technologies. Bitmap and the Vector.

- Bitmap represents image in Pixel while Vector represents it mathematically.

- Path is the invisible outline of the picture

- Stroke is make the paths visible with colors

- Distort changes and manages the shape of the picture

- Reality to the picture is given by the Gradient

- 3D is the cubic form of rectangular 2D pictures.

Assessment:

Assessment is very important part of the session. Do assessment based on your explanation, either by oral test or by the written test.

You may ask questions differently about a lesson, e.g.

- What does graphics deals with?

- Which Operating system support Graphics?
- What is the main function of the Illustrator?
- What are basic ways to manage an image?
- What is pixel?
- What does Path do?
- Why Stroke is important? etc.

Assignment:

As we have mentioned earlier that **Skill Development** is the core objective of the teaching. In computer education, computer skills and their understanding should be enhanced.

You may ask them to:

- You can ask them to assemble points for Illustrator Program for class presentation

Activity:

- Maintain a personal dictionary. Give them initial words to write and ask them to write their meanings.
- Activity from the book, page no.25

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

    As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.

    Log on to net extra account at

    www.learningwell.pk

- **Other links:**

    Besides the Net Extra, here we give other sites also which are **educational kids computer games and activities** for elementary students to learn on the web.

    Visit: *http://www.abcya.com/input.html*

Comprehension Assessment (Answers)

1. Bitmaps images are described in terms of Picture Elements or Pixels while Vector images are described mathematically.

2. No. The picture of the simple house will have straight outlines mostly, while the scenery will have twisted and turning lines for sea as well as for other objects like birds, water, human, etc.

3. Using Distort and Transform, the age, color of skin, etc of an image can be better illustrated.

4. 3D allows its users to change the source of light, shading and viewing angles of the object through its special options.

5. The main benefit is the Photorealism. With these tools, we can allow color and shade transitions in the images to give them the reality.

Lesson 5:   Cloud of computing: Dawn of a new era

Aim of the lesson:

In this lesson, students will learn another great achievement of computer technology, Cloud Computing. Cloud computing could bring irreversible changes in the way computers are used worldwide. It is important that children at this stage understand the use and important of Cloud.

Learning objectives

Students will learn:

- cloud computing
- purpose of cloud computing and
- Its advantages

Teacher support:

Get detailed information on **learning objectives** from the textbook, from following links and **how-to-teach techniques** from given TRB.

Visit:

http://www.pcmag.com/article2/0,2817,2372163,00.asp
http://searchcloudcomputing.techtarget.com/definition/cloud-computing

Warm up:

For the lesson stimulus, you may ask:

- Can you use your computer system at anywhere in the world?
- Is it possible that all of your hard ware and software be with you when you go out from home?

Discussion:

Cloud computing is the new technology and generally people are little aware of it. It is better you show One Drive or sky Drive to your students either on mobile or computer. Tell them the use of

one drive as it stores our data from mobiles and computers through internet and we can use our data anywhere in the world.

Now tell that Cloud computing is the storing and accessing data and programs over the Internet instead of your computer's hard drive. When you store data on or run programs from the hard drive, that's called local storage and computing. Everything you need is physically close to you, which means accessing your data is fast and easy, for that one computer, or others on the local network. Working off your hard drive is the cloud computing and it is the remote (far from your place) use of Hardware and Software. They must know the basic concept of cloud computing. They should know that Cloud is actually taking the place of CPU in near future. Here they should know what the role of CPU is. It runs Hardware and Software and when Cloud runs Hardware and Software then there will be no use of CPU. Give them the basic concept of the Keywords in the following table.

All Data is stored in Cloud or Data Centre. This Data centre is Cloud fail-safe due to backup power supply if system fails. This is called data safety through redundancy.

When we need no hardware, Software and CPU and technicians for fixing them, it will reduce the system charges. Cloud computing will be in reach of everyone using internet.

There is only need to develop CPU independent Software for Cloud and thus the speed of it.

In Class, you should write difficult words and the key words of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud. Explain every feature in detail as in the textbook

Keywords	Common words
Cloud computing Remote CPU Data Centre or Cloud Redundancy Automatic backup Migration to cloud Magnitude Google's Super computer	technology fail-safe assurance consequences stringent security revolutionary benefits incalculable confers

Summary:

- Cloud computing is the technology to use hardware and software through internet without using CPU.
- Data Centre or Cloud of Cloud computing stores Software, files and everything in it.
- Data Centers have its own server with generators for backup power supply to give Cloud fail-safe assurance.
- Automatic backup of Cloud is called Redundancy
- Migration of Data to Cloud will cut the need of CPU in future.
- Cloud computing will reduce the cost of Hardware and Software.
- Cloud computing will be accessible for everyone.

- Cloud computing faces two problems including slow communication speed and lack of Cloud ready applications
- This time Gmail and Office 365, Google search, Gmail and Office 365 are Cloud based.

Assessment:

You may ask questions differently about a lesson, e.g.

- What do you understand by cloud computing?
- What is Data center?
- What is Redundancy?
- Why generators are essential in cloud computing?
- What are the benefits of cloud computing?
- What are the hurdles in cloud computing?
- What is Migration to cloud? Etc.

Activity:

- Maintain a personal dictionary. Give them initial words to write and ask them to write their meanings.
- Activity from the book,

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

  As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
  Log on to net extra account at
  www.learningwell.pk

- **Other links:**

  Besides the Net Extra, here we give other sites also which are **educational kids computer games and activities** for elementary students to learn on the web.
  Visit:
  http://www.abcya.com/input.html
  http://pc.net/glossary/definition/bitmap
  http://www.webopedia.com

Comprehension Assessment (Answers)

1. Cloud computing technology is useful because our data on cloud computers is available anywhere in the world via internet. It is inexpensive and fail safe.

2. In cloud computing all our data, software and files are stored in Data Centers or Cloud. To get access to cloud computing we just need a working monitor with components which can connect it to internet.
3. Clouds have extensive redundancies to keep our data safe, if there is crash in hard disk.
4. Generators are used in Clouds to provide backup power to give Cloud fail-safe assurance, means they create redundancy in Cloud Computing.
5. All computing is not done through Cloud because many Software work only with CPU.

Lesson 6:   Mastering Word

Aim of the lesson:

In lesson # 7, students learnt how to use different tabs of Ms Word for text formatting. In lesson # 8, they will practice the basics carefully in order to organize their work on Word.

Learning objectives:

This lesson tells about Mastering Word by:

- coloring a word page
- Inserting a border
- Inserting picture, changing its shape, making it bright and contrast.
- Inserting columns
- Inserting heading.
- Using WordArt for heading

Teacher support:

To get the detail on learning objectives, you may follow given sites.

Visit: http://www.pcmag.com/article2/0,2817,2372163,00.asp
http://dlthede.net/informatics/chap06wordprocessing/chap6.html
http://www.erzincan.edu.tr/userfiles/files/word_2010_tutorial.pdf
http://www.baycongroup.com/word2007/01_word2007.html

Warm-up:

You may ask few questions for their brainstorming like:

- How can we make our documents more attractive?
- Which tools of Word do we mostly use for formatting?
- What are the important features of MS Word?
- Can we add shapes, pictures, columns, etc to the document in MS Word?

Discussion:

Take your students to computer lab and open MS Word and review its tools. This is good if student see every step and apply themselves.

There is a task given the textbook about JF-17Fighter of Pakistan Air force. Take one image from internet, save it on Desktop. Collect some information about this fighter plan from Wikipedia.

Open a Word document

Give document background color

- Click Page Layout tab
- Go to Page Background section
- Click Page color & select color

Insert a border

- Page Layout tab
- Page Border
- Setting column and select 3D option.
- Style option and select
- Color option and color
- Width box and select point size
- click OK

Insert the heading

- Copy & Paste heading on document
- Font size of heading from the font section of Home tab.

Color of the font

- Home tab
- Font section
- Font Color and select color
- Press Enter key

Insert picture, click:

- Insert tab
- Illustration section.
- Picture button
- Download the picture

Picture formatting

- Format tab
- Picture Style section,
- Change picture shape
- Picture Effects
- Picture Border and select color

Adjust picture brightness and contrast

- Correction button.
- Picture Correction option and select the brightness from the menu as given in book.
- Contrast option.
- Select the contrast 0%

Similary tell students how to add and increase the numbers of columns, insert WordArt, Apply texture in WordArt and change the shape of the WordArt. See Textbook, Page:35

You should write difficult words and terms of the topic on the board. Read aloud the following terms

Let students read the book with more understanding and mark difficult words as well as the key words

Read aloud the following terms:

Keywords	Common words
Word processing	reasonable command
Wikipedia, Style box	aircraft
Width box, Page border	texture
Headline, Color palette	
Download folder	
Picture effects	
Shape Fill	

Summary:

- Mastering word is to be proficient on MS Word which is an essential skill for literate person.
- Mastering Word makes the document easy to read and understand.
- Word gives extended options for formatting a document
- It may give columns in the document and also increases the number of columns
- WordArt makes the document appealing and attractive.
- We can also change control brightness and contrast of the picture on Word.

Assessment:

You may ask question related to the concept given in the textbook. Like

- What is meant by mastering Word
- Why formatted document is preferred?
- How can we insert the border in the document?
- How can we enhance the heading?

Assignment:

You may ask your students to:

- Create a NEW document in Word on Provinces of Pakistan
- Use all tools of formatting taught in the lesson.

Activity:

Do activity form textbook, **Page no 37**

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra:**

    As it has been mentioned, the Net Extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
    Log on to net extra account at
    www.learningwell.pk

- **Other links:**

    Besides the Net Extra, here we give other sites also which are **educational computer games and activities** for elementary students to learn on the web.
    Visit: http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. We use Word because its formatting tools make a document easy to read and understand and also give it a professional.
2. Word has a lot of formatting options to let user choose according to their academic and professional needs.
3. The two most important attributes of font are its Style and its Size.
4. Headline should look different and prominent from rest of the text to attract the reader attention.
5. Brightness and contrast

Lesson 7:   Understanding PowerPoint

Aim of the lesson:

Microsoft PowerPoint has become commonplace in almost company. The aim of PowerPoint is to communicate effectively with CLARITY and UNDERSTANDING, creating maximum impact in minimal time and persuade the audience to be informed and convinced. Students will learn the tools to make PowerPoint presentation.

Learning objectives:

Students will learn about:
- MS PowerPoint and its main features
- Importance of PowerPoint

Teacher support:

Get detailed information on **learning objectives** from the textbook, from following links and **how-to-teach techniques** from given TRB.

Visit: http://accessproject.colostate.edu/udl/modules/powerpoint/mod_ppt.php
            http://poza.net/fa07/powerpoint/ppt4.html
            http://homepage.cs.uri.edu/tutorials/csc101/powerpoint/power.html
            http://www.techterms.com/definition/powerpoint

Warm up:

For the lesson stimulus, you may ask:
- Why do we need MS Word?
- Wht are the tools used in formatting text in Word?
- Have you ever heard or seen MS PowerPoint?

Discussion:

Before you start lesson, you should tell them what presentation is, the aim of it along with its importance. When we talk about any topic in the audience, to let them inform is called a presentation. It is used to inform people in short time. Like you give morning presentations.

Presentation is extensively used in offices, colleges and universities worldwide. Now tell them that to make presentation effective we use PowerPoint. Here student should not be confused about Word and PowerPoint.

Take you students to computer lab, open up Word and PowerPoint. They can see the difference themselves.

Originally word was made for text processing to create letters, forms and other documents, while PowerPoint is graphics based Program to create dynamic presentations.

In lab help them to enter PowerPoint using the same way they enter Ms Word. Emphasize on Home tab, Insert, design tab and Slide show. **See textbook Page: 38**

In Class, you should write difficult words and the key words of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud. Explain every feature in detail as in the textbook

Keywords	Common words
Presentation powerPoint Slides Multimedia Design of slide	Facts and figures Extensively used Informed Convinced Resize appearance

Summary:

- PowerPoint is especially designed for presentations.
- It is widely used in offices, schools, colleges and universities
- Basically it is graphics based program
- Commonly used tabs are Home tab, Insert tab, design tab and slideshow.
- We can add a picture, audio and videos to it.

Assessment:

You may ask questions differently about a lesson, e.g.

- What is Power Point?
- Why we use it?
- How many Tabs we discussed in this chapter?
- Which tab has the more sections?
- Which section has the least sections?
- What we can do with the Home tab?

Assignment:

- Ask your students to make presentation on Hazards of Junk food.

Activity:

- Activity from the textbook, Page:41

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
Log on to net extra account at
www.learningwell.pk

- **Other links:**

Besides the Net Extra, here we give other sites also which are **educational kids computer games and activities** for elementary students to learn on the web.
Visit:
http://www.abcya.com/input.html
http://pc.net/glossary/definition/bitmap
http://www.webopedia.com

Comprehension Assessment (Answers)

1. Presentation consists of facts and figures, to inform and convince the audience in short time.
2. Insert tab adds multimedia to our presentation.
3. By using the option of theme in design tab we can change the look of whole presentation.

Lesson 8:   Working with PowerPoint

Aim of the lesson:
The aim of this lesson is to help students practice of making presentation using PowerPoint. Through this lesson they will be able to make professional presentation in secondary grades.

Learning objectives:
Students will learn about:
- MS Power Point.
- Why it is used for?
- Different tabs and their tools.

Teacher support:
Get detailed information on **learning objectives** from the textbook, from following links and **how-to-teach techniques** from given TRB.
Visit:

http://accessproject.colostate.edu/udl/modules/powerpoint/mod_ppt.php
http://poza.net/fa07/powerpoint/ppt4.html
http://homepage.cs.uri.edu/tutorials/csc101/powerpoint/power.html
http://www.techterms.com/definition/powerpoint

Warm up:

For the lesson stimulus, you may ask:

- Why presentations are so effective?
- Why do we use PowerPoint?
- What is the difference between Word and PowerPoint?

Discussion:

Help your student review previous lesson about PowerPoint and its tools. Take your students to the lab. It is time to practice what they learnt about it. From the textbook support, help students make presentation on Pakistan. Student should practice of inserting titles, slides, shapes, audio, video and picture the most. **See textbook Page: 42**

In Class, you should write difficult words and the key words of the topic on the board.

Let students read the lesson and with more understanding and mark difficult words as well as the key words. Make them read aloud. Explain every feature in detail as in the textbook

Keywords	Common words
PowerPoint	Presentation
Title slide	Facts
Design theme	Instance
Bulleted text	Visible
Opaque	Agriculture
Overlapping	Beneath
Centralize	upward

Summary:

- PowerPoint is especially designed of presentation
- The first slide of the presentation consists of title and it is called Title slide
- New slides can easily be added by clicking new slide in home tab
- Pictures, audio and video can also be added via Insert tab
- Effects and shapes can also be given to the presentation.

Assessment:

You may ask questions differently about a lesson, e.g.

- What is the title slide?
- How many slides should your presentations contain?
- Which tabs you commonly use for making presentation?
- Can we add audio and video in our presentation?
- How can you add a new slide?
- What is slide show?
- Can we start slide show from any slide?
   (Note: there is more to ask)

Assignment:

- Ask your students to make presentation on "My class"

Activity:

- Activity from the textbook, Page:49

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

  As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
  Log on to net extra account at
  www.learningwell.pk

- **Other links:**

  Besides the Net Extra, here we give other sites also which are **educational kids computer games and activities** for elementary students to learn on the web.
  Visit:
  http://www.abcya.com/input.html
  http://pc.net/glossary/definition/bitmap
  http://www.webopedia.com

Comprehension Assessment (Answers)

1. We should make at least 5-6 slides.
2. I will add picture of school along with my picture to show the theme of the presentation.
3. Theme and Background give our presentation a polished look.
4. PowerPoint offers bulleted text as default option because it is specially designed for presentations to draw the attention of the audience.
5. "Thank You" slide should be added in the end to give decent essence to our presentation.

Lesson 9: Routine problems: Viruses

Aim of the lesson:

Computer virus is most damaging small program for computers. at this level student should know how they are harmful for computer and how to save computer from them.

Learning objectives:

This lesson tells about:

- Computer viruses
- Problems caused by computer viruses.
- Anti-virus to coup with computer virus.

Teacher support:

To get the detail on learning objectives, you may follow given sites.

Visit: http://www.microsoft.com/security/pc-security/virus-whatis.aspx
            http://en.wikipedia.org/wiki/Malware
            http://dictionary.reference.com/browse/computer+virus
            http://www.us-cert.gov/publications/virus-basics

Warm-up:

Generally everyone has computers at home. Youngsters are more fascinated towards it. Children may hear the problems arriving while using computer. You may ask like;

- What computer problems do you face while using it?
- Do you know what computer virus is?
- Is computer virus like living virus?
- Can you guess why computer virus is termed as a virus?

Discussion:

The basic concept given in the lesson is to understand computer virus. How they cause damages to computer and how to protect our system from them.

Tell them that we get sick when virus attacks us. Like flu virus, dengue virus (they usually hear of it) etc. virus are dangerous because multiply in the patient's body spread from person to person. Similarly computer virus also multiplies itself in a computer and spread from computer to computer through internet.

Computer virus is actually a small program or malware Software which is especially designed by programmers with bad intentions to destroy data, hardware or stealing sensitive files from the computer. (See textbook page 50)

While teaching them the types of computer virus, explain them the basic mechanism of infecting system. e.g (see textbook, page:51)

Virus:

- They replicate or copy themselves
- Need to attach to program on computer to replicate and operate
- Infect other computer through internet

Worms:

- They also copy themselves like virus
- They do not need to attach to programs to operate

Trojans:

- They do not replicate

- They appear harmless to the computer by disguising themselves
- Users install them and become victims of it.

Anit-virus is the medicine for computer to detect and eliminate viruses.

You should write difficult words and terms of the topic on the board. Read aloud the following terms

Let students read the book with more understanding and mark difficult words as well as the key words

Keywords	Common words
Computer virus	intention
Malicious Software	misuse
Malware	Categories
Replicate	exist
Computer Worms	destructive activity
Computer Trojans	loss of control
Infected computer	frequently
Installed	unusable
Download	outwardly
Corrupting files	technical expertise
Anti-virus, Scanning	
Hardware, Hackers	

Summary:

- Like humans, computer may also be infected by virus.
- Computer virus is a small program or malware to damage others' computer intentionally
- Computer virus like human virus replicates itself in computer
- People with criminal intentions spread malware through internet.
- Hackers are the one who write malicious programs to damage computer
- There are generally three types of virus, main virus, Trojans and worms
- Viruses need to attach themselves to a program on computer
- Worms do not need to attach themselves to a program on computer
- Trojans do not replicate. They disguise themselves and seem useful.
- Viruses cause data loss, loss of control, hardware damage etc.
- Anti-virus is the Program to detect and remove the viruses from the computer
- It is most important to protect computer from viruses, to scan every downloaded file with an anti-virus.

Assessment:

You may ask question related to the concept given in the textbook. Like

- What is **(Note: there is more to ask)**

Assignment:

You may ask your students to:

- Write short note on computer virus, its type, damages caused by it and the solution.

Activity:

Do activity form textbook, Page no: 53

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra:**

> As it has been mentioned, the Net Extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
>
> Log on to net extra account at
>
> *www.learningwell.pk*

- **Other links:**

> Besides the Net Extra, here we give other sites also which are **educational computer games and activities** for elementary students to learn on the web.
>
> *Visit: http://www.abcya.com/input.html*

Comprehension Assessment (Answers)

1. Computer virus replicates and spreads from one infected computer to another, just like real virus do in humans.
2. Trojan virus appears harmless, it deceives the user and therefore is most difficult to detect.
3. It is passive scanning

Lesson 10: The living net: websites

Aim of the lesson:

One of the best utilizations of the internet is having or using website. It is increasingly standard for every firm to have its own website. It is the source of information and can be used for many purpose. Like for information, marketing or selling products. This lesson, in continuation with the internet will emphasize the importance of website.

Learning objectives

This lesson focuses on:

- Search engines
- Websites
- Web pages
- Different types of sites etc.

Teacher support:

For assistance get information on **learning objectives** and on **how-to-teach techniques** from TRB and from the following available resources:

> Visit:
> http://library.ucr.edu/?view=help/webexamp.html
> http://familystoriesblog.com/tutorials/glossary-terms/
> http://blogbasics.com/what-is-a-blog/#ixzz36ks1AD00
> http://www.emarketingdictionary.com/Internet_Marketing_dictionary_Online_Store_definition.html

Warm up:

For lesson stimulus, you may ask:

- Do you use internet?
- Do you play online games?
- If you want to read about Robot, can you search the material on internet?

Discussion:

During discussion focus on the meaning derived from the words. Like searching from search engine.

WebPages like pages of the book etc.(see textbook, page:54)

Search Engine

Search for information on the World Wide Web. E.g. Google, Yahoo and Bing.

Websites

A website is a collection of web pages that are created in HTML and contains information, images, audios and videos, etc.

Web pages

A webpage is part of a website. It is in the form of text and images

Social Media Websites

A place on the internet where people can share information, interact and communicate with each other. E.g., face book and Twitter

Blogs

It's a place to share your thoughts and give your ideas and discuss on information.
Huffington Post, TMZ etc.

Online Stores

An online storefront is a web site that enables visitors to find order and pay for products and services.

Company and institutional websites

Individual companies or institutions made their websites to introduce themselves and to give information about them.

Children websites

These are for children. Websites of games, cartoons, education, stories and other entertainments.

Gaming websites

The websites offer online games for kids.

In class, write difficult words and key words of the topic on the board

Let students read the book with more understanding and mark difficult words as well as the key words.

Keywords	Common words
Websites, Web address Search engine, News sites Social media websites Blogs, Online stores	storehouse endurance interacting websites

LearningWell

Summary:

- Websites are like a plot as it has particular location address where any type of website can be built.
- Search engines are widely used to look for websites or anything on internet
- News websites have combined news paper and TV news and cover all latest news
- Social media websites are interacting and many users can talk and interact with other at the same time
- Blogs are also interactive websites but mainly people discuss information. Information on the blog is in chronological order
- Online stores provide pictures, details and buyer comments about their products and sell online.
- Companies have their own websites to inform their visitors.
- There are lots of websites which are especially designed for children education and entertainment.
- There are lots of websites which are designed only for games for grownups and children.

Assessment:

For assessment you may ask:

- What are websites and WebPages?
- What is a search engine?
- Name some famous search engines.
- What are main features of a blog?
- How many types of websites are discussed in this chapter?
- Why online shopping is preferable?
- What is the advantage of social media?
- What does children website offer?
- Why do we have gaming websites too?

Assignment:

- You may ask your students to search any 5 gaming websites

Activity:

Do activity from textbook, page:59

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.

Log on to net extra account at:

www.learningwell.pk

- **Other links:**

Besides the Net Extra, here we mention links to sites which have **educational computer games and activities** for elementary students to learn on the web.

Visit:

http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. Both have locations and specific address. We can build any type of building on a land similarly we can create any website on web address.
2. we can fine any old book in our city, our way using a navigation system , and an old movie which is no longer available on CDs.
3. As they give news of every second with images, videos and texts.
4. This huge number means those users who are using social media website to connect with friends and family.
5. In all blogs news and articles are published in chronological order.

Lesson 11:   Social media: Life on the Internet

Aim of the lesson:

The aim of this lesson is to let students have benefits from the social media keeping themselves away from its threat too.

Learning objectives

This lesson focuses on:

- Social media
- Social media websites.

Teacher support:

For assistance get information on **learning objectives** and on **how-to-teach techniques** from TRB and from the following available resources:

Visit:
http://library.ucr.edu/?view=help/webexamp.html
http://familystoriesblog.com/tutorials/glossary-terms/

Warm up:
For lesson stimulus, you may ask:

Discussion:
The main objective of this lesson is to understand what the purpose of social media is and how it is useful for us. It is suggested if you show them in lab how we use different types of social media.

There are three main facilities which social media provide its users. These are Collaboration, Social Networking and social entertainment. Give them the example of collaboration how is done.
Social Networking brings people to talk, share ideas and interests, or make new friends. E.g Facebook.
Social Entertainment provides online games and other entertainments, like video chat, multi-player gaming, music and videos streaming,
You must tell the threats of social media also, like people use fake IDs and disguise them to cheat people**.**
In class, write difficult words and key words of the topic on the board
Let students read the book with more understanding and mark difficult words as well as the key words.

Keywords	Common words
Social media, Collaboration	Communities, projects
Social networking	job hunting, cooperate
Social entertainment	Objectives, wide audience
Course Talk	Brainstorming, restrictions
Personal Blog	

Summary:
- Social media is one of the internet products where users can form communities and networks
- On social media we interact with each other through creating, sharing and exchanging text, pictures and videos
- Social media social media facilitates users to collaborate, join social networking and enjoy entertainments.
- Along with the bright side of the Social media, it has its dark side too especially for youngsters. That is why children should use social media under adult supervision.
- SchoolTalk is a cloud-based interaction platform designed for Pakistani students. CourseTalk, iCreate and iSay are is main features.

Assessment:
For assessment you may ask:
- What is meant by social media?
- Why we need social media?
- How social media help us?
- What is social entertainment?
- When social media is dangerous for us?
- What is SchoolTalk?

Assignment:

- Ask them to prepare notes on advantages of social media.

Activity:

Do activity from textbook, page:63

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
Log on to net extra account at:
www.learningwell.pk

- **Other links:**

Besides the Net Extra, here we mention links to sites which have **educational computer games and activities** for elementary students to learn on the web.
Visit:
http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. Collaboration, social networking and social entertainment make Social media websites different from other communication tools.
2. Collaboration is the working on single task in which many users from different places participate. This makes the work easier.
3. On social media we can meet many people from all over the world at a time within seconds which is not possible in real life. There is only a threat of harm by fake IDs.

Lesson 12:   the coming revolution: Computer-driven cars

Aim of the lesson:

The basic aim of this lesson is to tell them the need of the computer driven automobiles. We have all advance technologies in vehicles but consistent issue of human error lies. In this lesson students will learn the efforts for computer driven cars and technologies used in them to improve quality of human lives.

Learning objectives

This lesson focuses on:

- Computer driven cars and their benefits.
- Technologies used in computer driven cars.
- Future of computer driven cars.

Teacher support:

For assistance get information on **learning objectives** and on **how-to-teach techniques** from TRB and from the following available resources:

Visit: http://en.wikipedia.org/wiki/Google_driverless_car
            http://recode.net/2014/05/27/googles-new-self-driving-car-ditches-the-steering-wheel/

Warm up:

For lesson stimulus, you may ask:

- Do you remember which computer we use in cars?
- What is ABS of cars?
- Have you ever seen computer driven cars on Discovery channel?
- Do you hear about automatic cars? What makes them automatic?

Discussion:

Tell them why scientists need to make these cars? It's important to tell them why manual driving sometimes become too hazardous. Generally distracted driving takes is the root cause of accidents. For instance, suing mobile phones during driving, talking, not focusing to the road, taking hands off the steering, and taking mind off the driving increases the chance of collision. Confusion while in an emergency also causes brutal outcomes. Besides these disadvantages, driving is very stressful process, at a time brain, eyes, ears, hands, arms, feet and legs are involved. The increasing accidents and stresses scientist thought to make a car which didn't need the involvement of human efforts while driving, called the computer driven cars.
 Generally, students know automatic cars in which car switches gear automatically. Students also know ABS brakes, studied in Embedded computers. Tell them that how computer technology is utilized in cars to drive efficiently. Tell them role of radar and laser system, sensors, navigations, motion planning and actuation. See textbook page no: 66

In class, write difficult words and key words of the topic on the board

Let students read the book with more understanding and mark difficult words as well as the key words.

Keywords	Common words
Computer-driven cars	driverless cars
Automobiles	equipped
Robotic van	reduction
Distance measuring system	collision
Google car autonomous	execute
Aradar and laser	obstacles
Sensor, navigations and actuation	feasible
Pollution	pedestrians
Mental and physical load	

Summary:

- Though we have lots of automobile technologies, but problem remains same with the drivers.
- Majority of drivers unable to take right decision in an emergency, which causes minor to major accidents
- To reduce number of accidents, scientists gave the concept of computer driven cars
- First Robotic Van was made by Mercedes-Benz in 1980s
- It was modifies by German engineers in 1995to drive itself and its success rate was 95%
- Navlab project completed by Carnegie Mellon University and its car success rate was 98.5 %
- Google self-driving car is the conversion of existing car into computer controlled car by installing control system and distance measure devices
- Computer driven cars would be fuel efficient and result in decrease in pollution
- The technology of computer driven cars mainly comprises of sensors, navigations, motion planning and actuation
- The ultimate aim of the scientist is to build completely human independent computer driven cars.

Assessment:

For assessment you may ask:

- What are computer driven cars?
- What are advantages of computer driven cars?
- What basic technologies are used in these cars?
- What does navigation technology do?
  (Note: there is more to ask)

Assignment:

- Make notes on technologies used in computer driven car

Activity:

Do activity from textbook, page: 68

Helping tools:

As a support material, you should tell them about the information pools.

- **The Net Extra.**

  As it has been mentioned that the Net extra is especially designed for the teachers and the students. Here you can find not only the text

material but also the related information, activities and exercises. You can guide your students to use net extra for more information.
Log on to net extra account at:
www.learningwell.pk

- **Other links:**

    Besides the Net Extra, here we mention links to sites which have **educational computer games and activities** for elementary students to learn on the web.
    Visit:
    http://www.abcya.com/input.html

Comprehension Assessment (Answers)

1. Sensors, Navigation, Motion Planning and Actuation are the most important features of computer driven cars.
2. Computer driven cars would reduce accidents, traffic jams and also manage distance. This would make them more efficient than the regular cars.
3. Driving a car needs attention, navigation, judgment and operation of mechanics in vehicle.