Contents

1 COMPUTER LANGUAGE

Learning Outcomes

At the end of this lesson, students will be able to:

- Comprehend programming language.
- Learn about types of programming languages.
- Know the history and development of programming languages.

Warm-up

We use different modes to communicate. Can you guess their names?

E		A		L

I reach the inbox as soon as you send me.

	E		T		

You have to post me to correct address.

	A		G			G	

The system of communication in speech and writing.

	O		V				A				N

A talk between two or more people.

Teacher's Note:

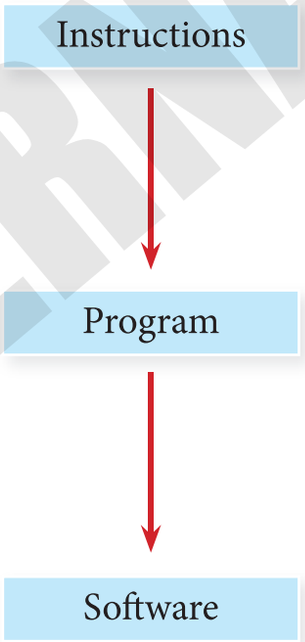
Apprise students that humans have the ability to communicate and share information. The simplest form of human-to-human interaction is possible only with the help of language that people understand. Now, introduce to them that to communicate with a computer, we need a language that the computer understands.

Hello, Friends! We use language to express our views and feelings. Let us learn the language which the computer understands.

You are in the kitchen, and your mother instructs you to make Pasta. You can easily understand the instructions because your mother is using a language that you understand.

Similarly, we need a language that a computer understands to communicate with a computer. For every action, a computer has to be given instructions carefully.

A user inputs instructions into a computer's memory using a language which the computer can comprehend. In other words, a program consists of instructions written using a specific programming language.



Similar to how people communicate with one another using different languages, we may also use different programming languages to write instructions for a computer program. Let us learn about Programming.

A program is a set of instructions that tells the computer what to do. The process of writing a set of instructions that tells the computer how to input, process and output data is called programming.

To create a program, we need to learn a programming language. Some popular programming languages are listed below.

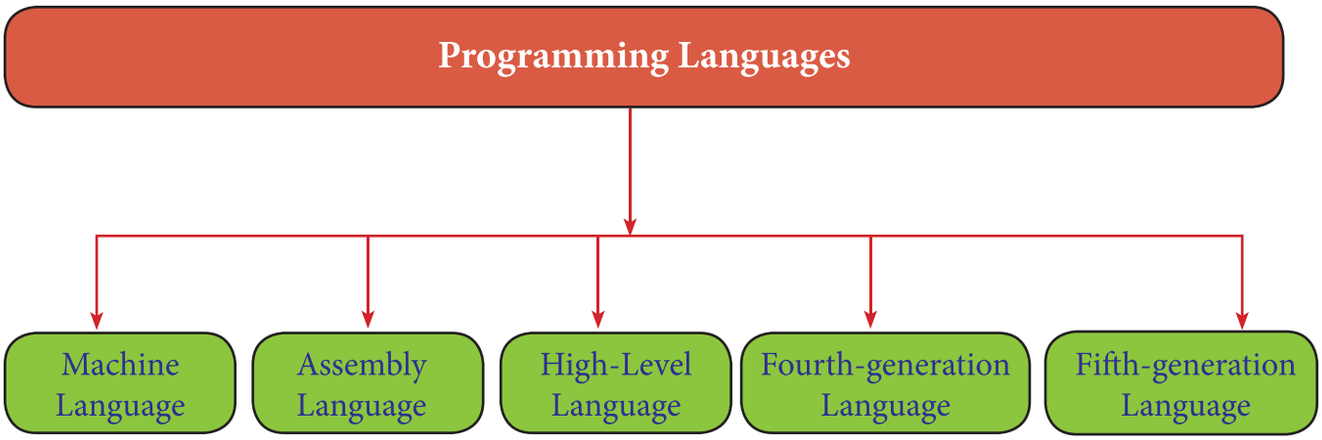
C	C++	Java	Python
Ruby	Perl	Scala	SQL
C#	Swift	R	PHP

Do You Know?

C++ was actually referred to as "The New C." This is because C++ draws inspiration from C, building upon its framework while adding new features and functions to the language.

HISTORY AND DEVELOPMENT OF PROGRAMMING LANGUAGES

The development of computer languages have been classified into the following categories.



Machine Language

(First Generation)- A computer is an electronic device that can only understand electronic signals. This language is expressed in binary form, i.e., 0 and 1, where 0 means 'off'; this is to signify a stage where the current is not flowing in the electronic computer units. The other stage is 1, the 'on' stage, which signifies the current flowing within the computer circuit.

This language has very high speed and very low memory utilisation. But understanding it is difficult and a bit time-consuming. It is highly dependent on the machine, which is why it is also regarded as a Low-Level Language.

Let me Answer

What do you mean by low-level language?

Assembly Language

(Second Generation) - Symbols or mnemonics codes are used in this language in place of 0 and 1. For example, if you want the computer to add two numbers, the mnemonics used for performing this task would be ADD. The assembly language programs have to be converted into machine language using translator programs known as Assemblers since a computer can only understand machine language.

Figure 1.1 First Generation Computer

High-Level Languages

(Third Generation) - People created a language due to limitations placed on using machine and assembly languages with the following features.

- User-friendly.
- Machine-independent.

Figure 1.2 Second Generation Computer

Almost all modern programming languages follow the standard of higher-level languages. The syntax of higher-level languages is similar to our English Language, which is easier and simpler than assembly and machine languages. All modern computers need a Translator to convert a higher language code to machine language code.

Figure 1.3 Third Generation Computer

Translator programs are of two types:

1. **Interpreter:** This translator program converts programming code written in a higher-level language into machine language. An interpreter translates line by line, carries out the instructions and then repeats the procedure for the remaining instructions. Interpreter programs are preferred for beginners and are slow in execution speed.

2. **Compiler:** A compiler is a translator program that converts programming code written in high-level languages into machine language. A compiler scans the whole code and converts the code at once.

REMEMBER IT!

A specialised language called Sql is used to update, delete, and extract information from databases.

Fourth-Generation Language (4GL) - Most fourth-generation languages are based on Structured Query Languages. This language is a combination of languages with the following features.

Figure 1.4 Fourth-Generation Computer

1. High speed of execution.
2. Highly user-friendly and designed to reduce the level of programming efforts.
3. In this language, the user has to mention only the required output, while the computer regulates the sequence of instructions that will fulfil those results.

Fifth Generation Languages (5GL) - The fifth-generation languages aim to provide an automated solution. It will look for an algorithm to solve any given problem and then automatically carry out the algorithm to solve that problem.

Figure 1.5 Fifth-Generation Computer

Generation	Popular Programming Languages
First Generation Languages	Machine Language
Second Generation Languages	FORTRAN, COBOL and ALGOL
Third Generation Languages	FORTRAN, Pascal and the C-family C++, C#, Objective-C
Fourth Generation Languages	Perl, Python, Ruby, SQL, MatLab
Fifth Generation Languages	Mercury, Prolog, OP55

Advantages of Learning Programme

1. **Reasoning Skills:** Programming demand solving complex problems. In programming, we learn how to breakdown a large problem into smaller problems and how to solve each of them. This strategy aids in the growth of our reasoning skills.
2. **Enhances Creativity:** Making something new from scratch is what programming is all about, and this requires creativity.
3. **Develop Analytical Thinking:** Analysis is the initial stage in problem-solving. Understanding complicated issues and producing simple solutions to them is the core goal of programming. This necessitates a thorough examination of the issue at hand.

Let me Answer

What do you mean by creativity?

Kids' IQ

Saurabh's great grandmother was a programmer in the third generation of computer language. What kind of language did she use at that time?

.....

Let's Recall

- The process of writing a set of instructions that tells the computer how to input, process and output data is called programming.
- Machine language is highly dependent on the machine.
- The syntax of higher-level languages is similar to our English Language.
- Fourth-generation languages are based on the Structured Query Language.
- The fifth-generation languages aim to provide an automated solution.

A. Fill in the blanks

1. A program consists of instructions written using a specific ..... language.
2. A computer is an electronic device that can only understand ..... .
3. Machine language is highly dependent on the .....
4. ..... codes are used in the Assembly languages.
5. In binary language, 0 means ..... and 1 means ..... .

B. Match the following.

1.	First Generation Languages	COBOL
2.	Second Generation Languages	Prolog
3.	Third Generation Languages	C++
4.	Fourth Generation Languages	Machine Language
5.	Fifth Generation Languages	SQL

C. Write T for True statements and F for false statements.

1. Machine language is expressed in binary form. ☐
2. Assembly languages are not converted. ☐
3. High-level languages are machine-dependent. ☐
4. Interpreter programs are preferred for beginners. ☐
5. A compiler converts the code one by one. ☐

D. Answer the following questions.

1. What do you mean by machine language?

   .....

   .....

2. State the difference between compiler and interpreter.

   .....

   .....

3. How are high-level languages different from assembly languages?

   .....

   .....

4. Write the features of the fourth-generation language.

   .....

   .....

5. What are the advantages of learning a program?

   .....

   .....

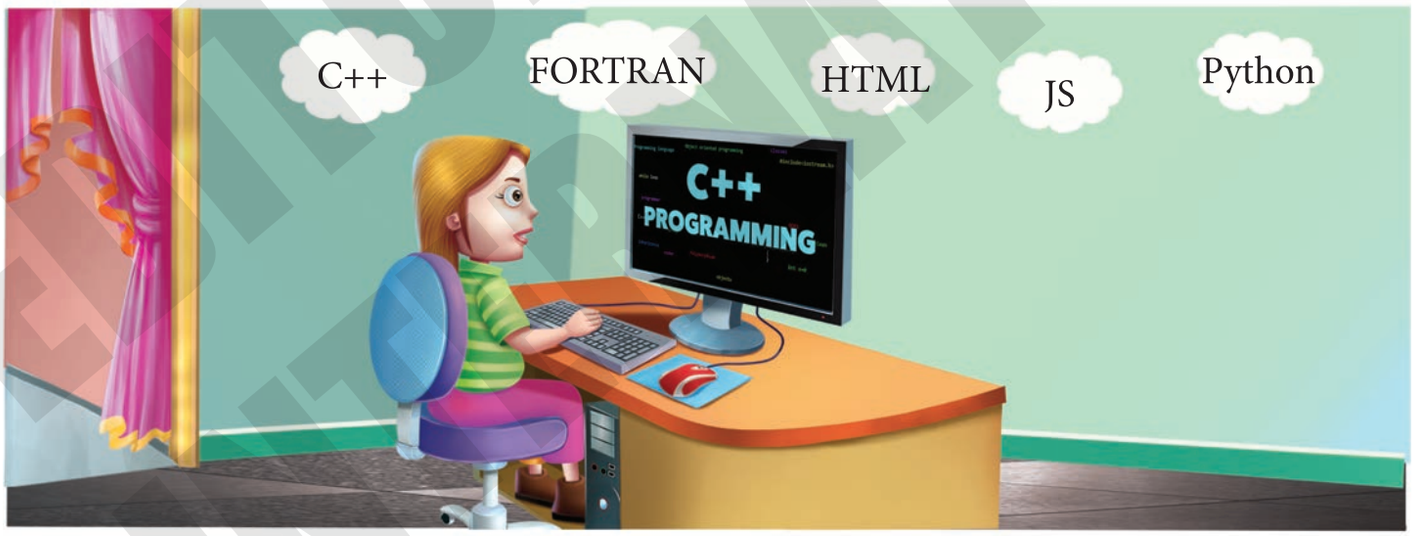
Critical Thinking

Rahul has been given a task to complete this task. Help him out to complete the table.

Generation	Popular Programming Languages
	Machine Language
	FORTRAN, COBOL
Third Generation Languages	FORTRAN, Pascal and the C- family C++,
Fourth Generation Languages	
	Mercury

Team Work

Pair up with your friend and collect information about the programming languages which you can see in the above picture. Write some lines about each of them in the space given below.



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2 ADVANCED FEATURES OF POWERPOINT 2016

Learning Outcomes

At the end of this lesson, students will be able to:

- Create photo album in a presentation.
- Understand ink equations to add mathematical equations.
- Do screen recording.
- Add audio and video clips on a slide.

Warm-up

Colour the circle green if the statement is True and colour it red if the statement is False.

Microsoft PowerPoint is a software application that allows you to create and show slides to support a presentation.	
A slide is a region surrounded by dotted borders on a slide.	
WordArt is a feature that creates text effects which are not available through font formatting.	
In MS PowerPoint, shapes can not be added to the presentation.	

Teacher's Note: *Assist students in doing the above activity and recall the features of Microsoft PowerPoint 2016 learnt in Class 5.*

Hello, Friends! *Let us learn the advanced features of PowerPoint.*

PowerPoint 2016 provides various tools and features to enhance the appearance of a presentation. A presentation is a collection of slides, arranged in a continuous manner. Each slide can contain images, videos, tables, shapes and much more that create a greater impact on the audience.

Do You Know?

PowerPoint was first released in 1987 under the name Presenter. Microsoft had to change the name later on due to copyright reasons.

Creating Photo Album

The different images used in a presentation make it more engaging. Various photographs from the internet and your own personal collection are available for use. You can choose the pictures you want from your whole collection with the help of PowerPoint's Photo Album tool. All of the photos in the photo album can be collected for quick access while creating a presentation.

Follow the given steps to create a photo album for your presentation.

Steps:

1. Click on the Insert Tab.
2. In the images group, click on the photo album drop-down menu.
3. Click on the New Photo album option. The Photo Album dialogue box appears.
4. In the insert picture section, choose the

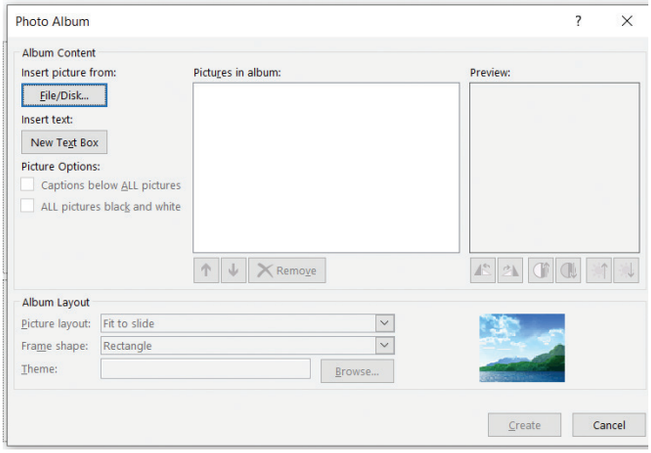

Figure 2.1 Insert Photo From

File/Disk tab to select pictures from your computer. The Insert New pictures dialogue box appears.

5. Browse and navigate to the desired location to select as many as you want, to make your photo album.

   Under the pictures in the album box, the pictures that you select will be added.

6. Now, go to the album layout section and select picture layout, frame shape and theme accordingly.

7. Click on create button. Your photo album presentation is ready.

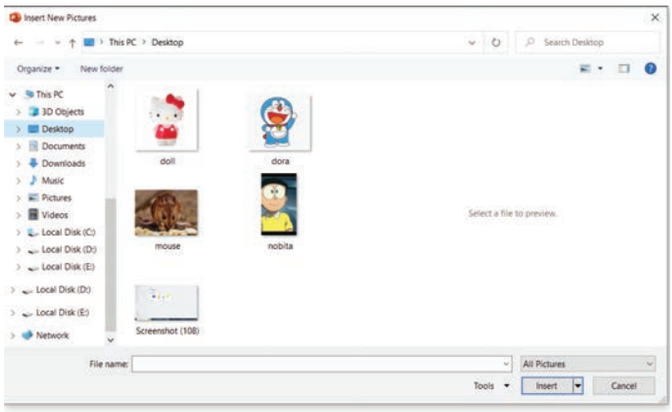

Figure 2.2 Insert New Picture

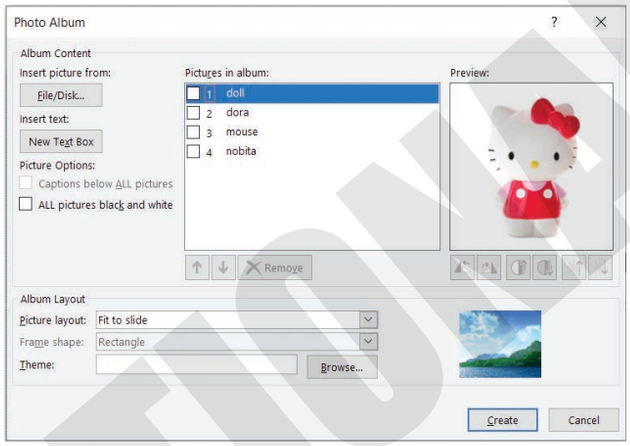

Figure 2.3 Photo Album

Ink Equations

You can quickly include mathematical equations in your presentation by using the ink equation tool.

Follow the given steps to add math equations to your presentation.

Steps:

1. Click on the Insert tab.

2. In the Symbols group, click on the drop-down arrow of the Equation button.

REMEMBER IT!

After selecting all of the images, you can arrange them in the order of your choice by using the up and down arrows next to the images in the Album box.

3. Click on the Ink Equation option from the list. The Math Input Control dialogue box appears.

4. Take the cursor to the yellow grid area and click on it. Observe a small black dot appears, from here you will start writing the equation.

5. Now using the mouse, write the equation.

6. Once done, click on the Insert button.

Screen Recording

Screen Recording is one of the features of PowerPoint which allows recording computer screen with audio. This recording then can be incorporated into your presentation.

You will require a sound card, microphone, and speakers in order to use this feature.

Let me Answer

How do you feel when you see your childhood album?

Follow the given steps for adding a screen recording in PowerPoint.

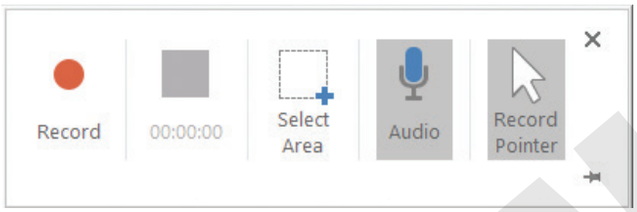

Figure 2.4 Screen Recording Option

Steps:

1. Select the slide where you want to record the screen recording.
2. Click on the Insert tab and in the Media group, click the screen recording option.
3. Click on the select area button.
4. Drag the mouse over the desired region of your screen you want to record.
5. Click on the record button if you want to add audio to the recording.
6. To end the Screen recording, place your cursor at the top of the computer screen. A pop-up window appears and you can click on Stop to save the recording.
7. The currently shown slide will automatically store the recorded video.

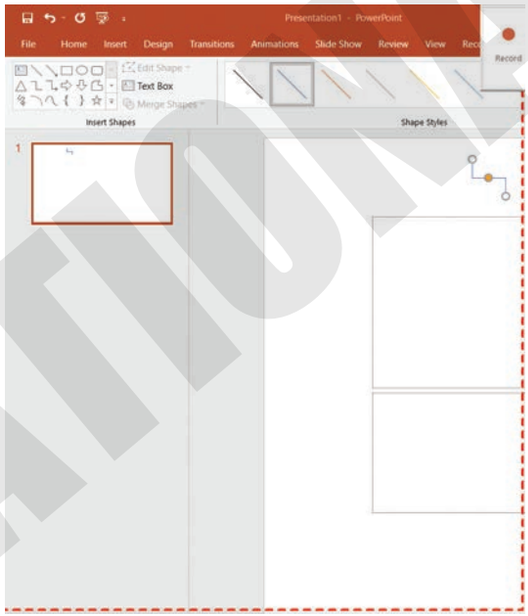

Figure 2.5 Selecting Area

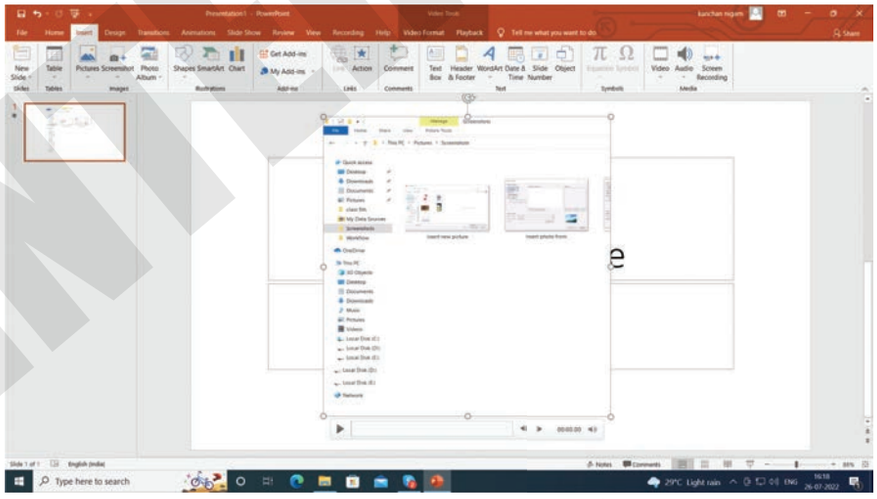

Figure 2.6 Inserting Screenshot

ADDING VIDEO CLIPS IN A SLIDE

Understanding becomes very easy when something is explained using a video. We can also insert videos into the presentation. Video clips add liveliness to the presentation. This featured enable the audience to engage efficiently.

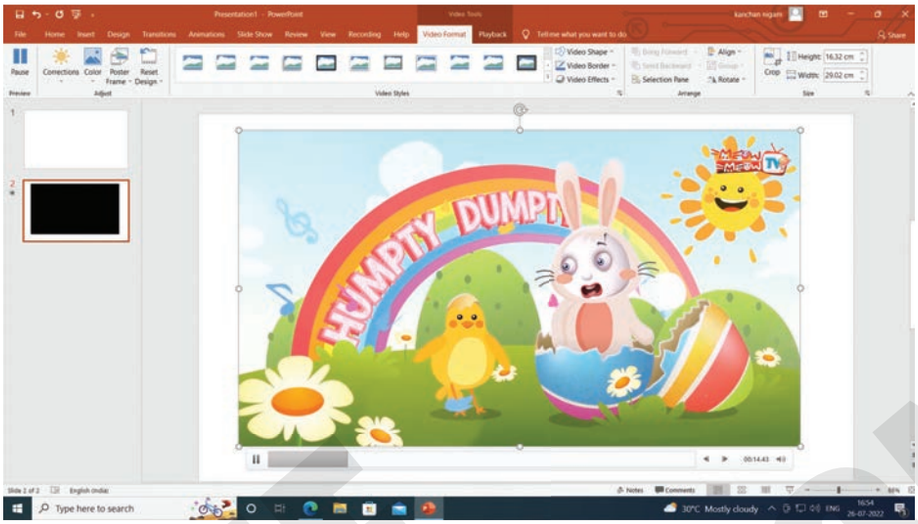

Figure 2.7 Inserting video

Follow the given steps to insert a video clip onto a slide.

Steps:

1. Click on the Insert tab.
2. In the Media group, click on the video drop-down and select This PC option.
3. The "insert video dialogue box" appears. Navigate to the location and select the desired video, then click on insert.
4. Once the video is inserted, you can change video shape, border effect, styles and much more in the Video Format option.
5. Click on the Play button below the video clip.

MOVING VIDEOS ON A SLIDE

Follow the given steps to move videos on a slide.

Steps:

1. Select the video.
2. Move the video by dragging it to the new location.

OR

Press the arrow keys to move the video by small amounts.

RESIZING THE VIDEO ON A SLIDE

Follow the given steps to resize the video on the slide.

Steps:

1. Select the video.
2. Resizing handles appear around the border of the video.
3. Drag any corner in or out as per the requirement.

OR

Click on the Format tool tab. In the size group, write the specific video height or video width and then press enter.

Farhan wants to add the following Mathematical equation in his presentation.

$$F(n)=\frac{(\varphi)^n-(-\frac{1}{\varphi})^n}{\sqrt{5}}$$

Suggest to him the easiest way to perform this task.

.....

- A presentation is a collection of slides, arranged in a continuous manner.
- Ink equation tool can quickly include mathematical equations in your presentation.
- Screen Recording allows recording computer screen with audio.
- We can also insert videos into the presentation.
- Video can be moved to the new location.

A. Fill in the blanks.

1. A ..... is a collection of slides.
2. Ink Equation tool enables to include ..... equations.
3. Using the ..... tool, you can correct any errors in the part of the equation.
4. ..... enables recording computer screen with audio.
5. Video clips add ..... to the presentation.

B. Write T for True statements and F for false statements.

1. Videos cannot be resized in a slide. ☐
2. Screen recording can be incorporated into your presentation. ☐
3. Sound card, microphone and speakers are required for screen recording. ☐
4. A photo album can be created in the presentation. ☐
5. Videos cannot be moved to a new location. ☐

C. Answer in one word.

1. The tab that is used for inserting video files in PowerPoint. ☐
2. The button used to stop the recording. ☐
3. The group in which the equation button is present. ☐
4. The group in which screen recording is present. ☐
5. The tab that is used for resizing the inserted video. ☐

D. Answer the following questions.

1. Write the steps to create a photo album.

.....

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2. How can we insert a video clip in the presentation?

.....

.....

3. Write the steps to move videos on a slide.

.....

.....

4. What is the use of ink equation in PowerPoint 2016?

.....

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5. How can we do screen recording?

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Critical Thinking

Ravneet made the presentation on Water Pollution. She also recorded a video of the Yamuna River and added it to the presentation. Now, she realised the video size is big, so she wants to reduce the size of the video and she is not able to do it. Help her to complete this task.

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Team Work

Record a video of the causes of Air pollution which you see in your daily life. Create a presentation including those recorded videos and present it in the class.

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3 MORE ON MS EXCEL 2016

Learning Outcomes

At the end of this lesson, students will be able to:

- Know about different keys.
- Edit a cell in the worksheet.
- Create a list using an auto-fill feature.
- Create and copy the formulas.

Warm-up

A balanced diet makes us grow healthier and stronger. Children of your age must stick to the right timetable to take proper meals. Complete the diet table of the week given below and learn how to be healthier by eating the healthy food.

DAY	BREAKFAST	SCHOOL LUNCH	EVENING SNACK	DINNER
Monday	Whole wheat bread, eggs and milk			
Tuesday				One chapati, green vegetable and salad.
Wednesday				
Thursday		Vegetable salad		
Friday				
Saturday				Boiled vegetable rice
Sunday				

Teacher's Note:

From the above activity, introduce to the students that there might be chances when we want to replace some meals with others. This needs modification, so it can be done easily in MS Excel worksheet.