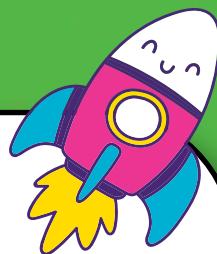




In Line with CBSE & in Tune with
Child's Aspirations
& their Technological Future



Easy Computers & Coding

CLASS **5**



Follows
TIY (Teach it Yourself) Approach

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FORMATTING & EDITING WORD DOCUMENTS 1

» Learning Outcome

In the last grade, we have learnt a lot about MS Word. We are now comfortable in creating simple documents. In this lesson, we shall learn about the tools & tricks to make them better. By the end, we will be comfortable with, finding, replacing & editing of text; Working with tables; Document formatting tools; Layout formatting tools, & printing of documents.

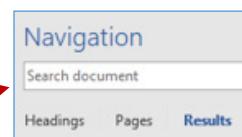
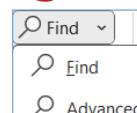
» Finding, Replacing & Editing Text

1 Finding Text

To find a particular word or phrase in a file:

- In Editing group at top right of **Home tab** click Find.

Navigation pane appears on the left.



- Type word or phrase to be found in **Search document box**. Text in which search word exists, is displayed in the Navigation pane.
- If word or text is not found, message: "We couldn't find what you were looking for", is displayed in the pane. Try

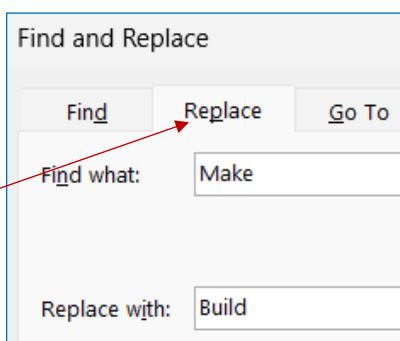


2 Find & Replace Text

At times we need to find a particular word or a phrase in a file, & replace it with new text. For this:

- Go to **Replace** button  below Find button.

Dialog box- **Find and Replace** appears.



- Type the word or phrase to be found in **Find what:** box.
Enter new text in **Replace with:** box.
Click on **Replace** button to search existing word,
- After replacements are found, a message box appears which shows the number of replacements.

Exercise appropriate option from those given below.

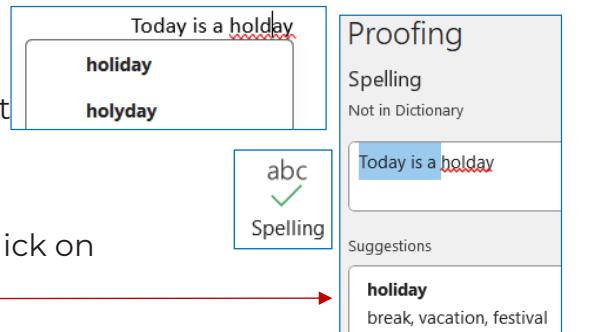


2 Check Spellings & Grammer

MS Word has a built-in dictionary and a set of grammatical rules to check the grammar and spelling of the text document.

Incorrectly spelt text is displayed with a single **red wave line** under it. **Double blue lines** under the text indicate grammatical errors. To correct the document:

- **Right click** the word with red wave.
A **box** displaying suggestions appears.
- Select **correct word** from suggested list
Incorrect word is replaced.
- Grammer follows same procedure.



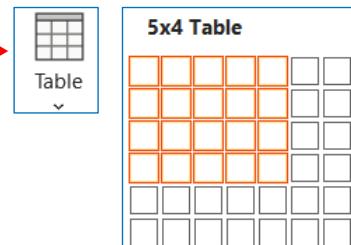
Alternately, in **Proofing** group of **Review** tab, click on Proofing window appears.
Click the desired suggestion. It gets applied.

» Working with Tables

A Table contains grid of **rows** and **columns** which represents a type of content which can be numbers, words or any other symbols. Intersection of row and column makes a **Cell** of a table where data is entered. There are three methods to insert a table:

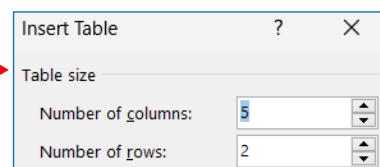
1 Grid Method

- In Tables group of insert tab, click on table. This opens a menu that contains a grid.
- Drag mouse pointer over the grid & select number of rows & columns. Click insert table.
- A table will get inserted in the page.



2 Use of Dialog Box

- In Tables group of insert tab, click on dropdown. Select **Insert Table** option.
- Enter number of column & rows, and click **OK**. The table will get inserted.



3 Quick Tables

In the above dropdown select the last option – **Quick Tables**.

It displays a number of Built-in options like Calander, Double table, Matrix, Tabular list & move. Select desired option. It will get inserted.



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MAKING PRESENTATIONS

2

Learning Outcome

In the last grade we were introduced to Power Point. In this lesson, we shall go over addition & deletion of slides. We shall also learn the procedures for text formatting & inserting objects in a presentation to improve its effect.

Adding & Deleting Slides

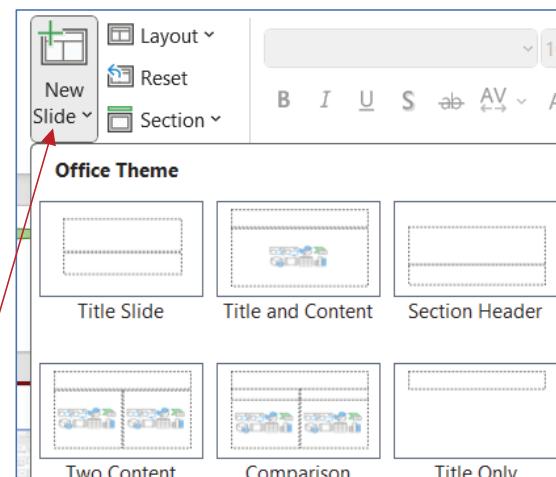
- 1 Selecting & Adding Theme Slide.
a). PowerPoint theme is set of fonts colors, visual effects, & backgrounds that you can apply to your slides.

They make the presentation (PPT) look harmonious & reduce work.

They include:

- Use built-in themes.
 - Create custom theme (**Blank**).
- b). To add a theme slide, open power point. Click New Slide. Its dropdown gives multiple option.

Select the one you desire. Most common is Title & Content.



2 Adding New Blank Slide

- a). To add a new slide, click below slide you want to add slide (say slide 2).

A red line appears below it.

- b). Right click on it.

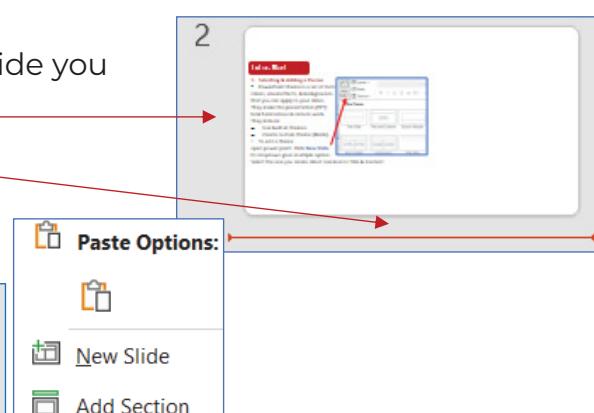
In **Paste Options** box , select

New Slide.

Blank slide

(slide 3) appears

In place of red line.



3 Deleting a Slide

To delete, select the slide to be deleted.

Now we have two options:

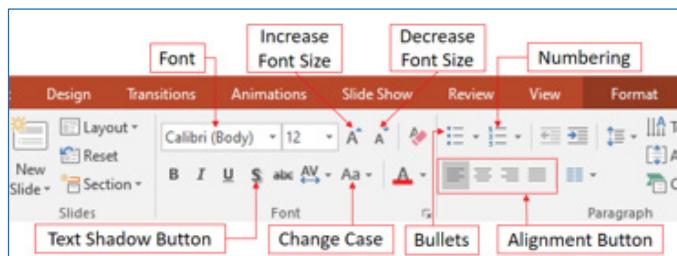
- Right click on selected slide. Click **Delete Slide** option. It gets deleted.



- Second option is to select slide and press delete on keyboard. It gets deleted

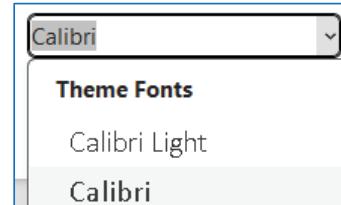
» Text Formatting

Text formatting is the process of changing the appearance of text in a PPT. It includes changing the font style or size, choosing & changing color, its alignment to the top, middle, or bottom, creating a list using numbers or bullets, changing spacing, applying bold, italics or underline, & adding headers & footers to the document. Icons to do so are shown on this figure.



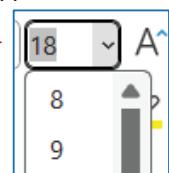
1 Change in Font Style

Select text to be formatted. Click on **Font** drop-down arrow in the **Font** group on the **Home** tab. Choose the style from the list & see the change.



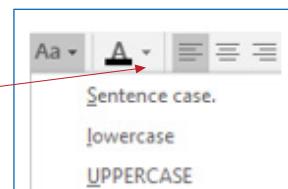
2 Change in Font Size

- Select text. Go to **Font** group in **Home** tab & click **Font Size**. In dropdown select desired font size.
- Alternately, go to **Font** group on **Home** tab & click on either **Increase Font Size** or **Decrease Font Size** button (red rectangle) according to the requirement.



3 Change in Font Case

- Select text, go to **Font** group on the **Home** tab & click on **Change Case** drop-down arrow.
- Select desired case.



4 Change Text Alignment

Texts can be adjusted either in horizontal way or vertical way. To change **horizontal placement** of text, in the **Alignment** box (red), choose **Left, Center, Right** or **Justified**. **Justified** adds spacing between words so that the lines of text touch both the left and right margins, except for the last line of the paragraph, which uses normal word spacing.



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ENHANCING PRESENTATIONS

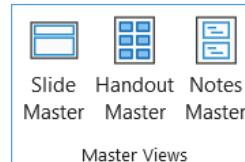
3

» Learning Outcome

So far what you have learnt is making of simple presentations. However, many of you would have seen amazing presentations. Have you ever wondered how they are made? This lesson will teach you that. This lesson is therefore very important. The more you will read & try, the more creative you will get, & the more you will stand out amongst peers.

» Using the Slide Master

Master Views group under **view** tab offers three **master functions**. **Slide master** is one of them. It's the control center for presentations. It allows you to **make global changes** to the appearance of all slides. You can **create new slides** that maintain consistency in formatting and style. **Insert placeholders** for text, images, tables, and charts. **Change** the font, colors, headings, logos, and other styles. **Change orientation** of the page from portrait to landscape, & more.



1 Creating the Master Slide

Select View > Master views > Slide Master

Click on Slide Master. PPT switches to **Slide Master View** & generates a set of slides under the first slide in the presentation. These feature a template & a simple design.



2 Adjusting the Master Slide

You can make changes as needed, and apply to all slides in the PPT. These include changes to fonts, backgrounds, layouts & colors. For instance, to change the formatting of a particular slide in your presentation, you can edit the slide master. This helps apply to all slides and maintain consistency in your slides.

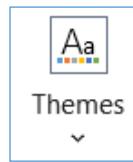
3 Adding Visual Effects

When building a slide master, you can add any visual elements you want to appear in the presentation. Example the company logo, images representing your work, & incorporate brand colors that reflect positively. By adding visuals to the slide master, you can make sure all the slides look consistent and visually appealing.



4 Adding a Theme

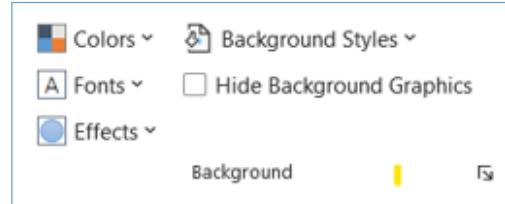
PowerPoint has built-in themes, or palettes of special effects, fonts and colors that complement each other. If you want to use any of these you can apply it to the slide master, or make adjustments to the slide master, & apply your edits to all the slides.



5 Background Changes

These are executed by the **background** group of slide master. They include changes in Font Style, Font Colour, creating Effects, changing Background Styles, & Hiding Graphics.

Applying them is simple.

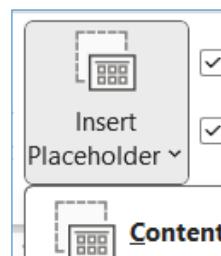


6 Support for Placeholders

Slide master has elaborate support for placeholders.

This includes support for content, text, pictures Charts, Smart Art, Media, & Online Images.

Apply by [trying](#) them all.

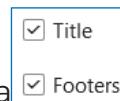


7 Headers (Title) & Footers

These exist in master layout group of side ma

Clicking on Title activates the title placeholder.

Clicking on Footers activates the footers that include date, heading & number.

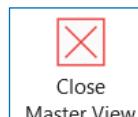


Click to edit Master title style



8 Exiting Slide Master

To exit slide master, click on



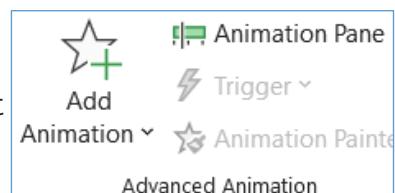
» Animating Slides

Animation in PowerPoint is a special effect that adds movement and interactivity to a slide, making it more engaging and visually appealing. It can be applied to individual objects on a slide, such as text, shapes, or images.

1 A Word about Add Animation Tab

Part of **advanced animation** group, it has four categories:

- **Entrance**- This decides manner in which selected object will enter the slide during slide show. It includes appear, fly in, float, etc.



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WORKING WITH 3D PAINT

4

» Learning Outcome

In the last grade we learnt drawing of simple lines, & drawing of 2D shapes. We were also introduced to 3D shapes. In this lesson we shall dig deeper into 3 D shapes. We shall learn about stickers, adding 3D text, adding objects, making 3 D models, & adding effects to the models.

» Stickers

1 What are Stickers

Paint 3D, has many inbuilt features. Stickers is one of them. They are a way to add realistic textures to your projects for enhancing the created artwork. Stickers adds useful icons to the drawing. These can be added to 2D or 3D drawings and are available in various forms. Stickers can also be customised using other applications and then added to the canvas of Paint 3D.

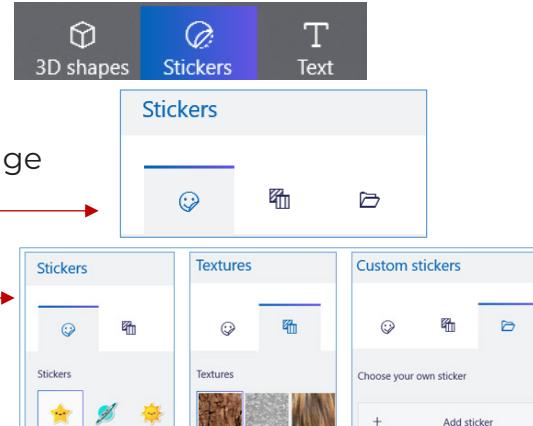
2 Layout of Sticker Pane

To view the stickers pane:

- On the top bar, click on the **Stickers** option.
- A panel appears on right-hand side of

Paint 3D window with three icons (selected image of the three icons is as below).

- Select Stickers option. Option of 32 stickers appear in the pane.



3 Adding a Sticker to Canvas

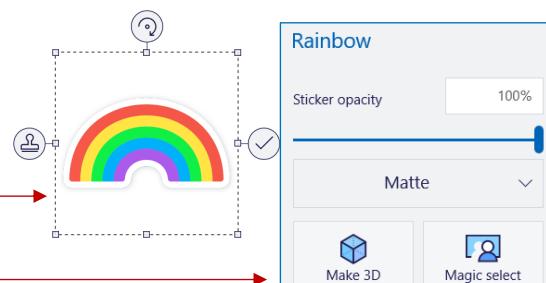
- Select sticker (rainbow) in sticker pane.
Move cursor to the canvas.

Left click. Two things happen:

- Rainbow gets dropped on the canvas.

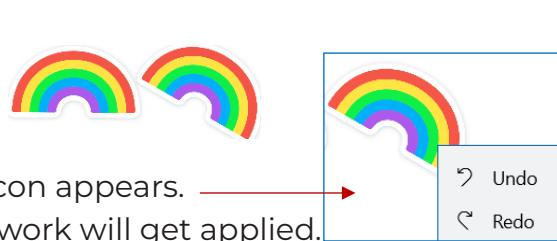
Note the dotted rectangle around it.

- Editing pane appears on right edge.



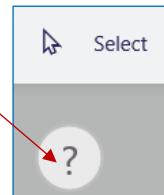
4 Resizing, Positioning & Copying the Sticker

- Using the arrow keys, move the sticker to the desired location on the canvas.
- Using the handles, do its re-sizing.
- Using the stamp, make a copy. Move the copy to its desired location. Re-size.
- Use rotate handle for rotation if required.
- To get back at any stage, right click. Undo icon appears.
- Once everything is set, click on arrow. Your work will get applied. Once applied, you will not be able to move it.
- A positioned sticker can be deleted at any time using the Undo option.



5 Resizing, Positioning & Copying the Sticker

- Do see the brief animation shown on this icon available at the top left of the screen.
- Make a canvas using a mix of 2D shapes (under insert tab) & stickers.

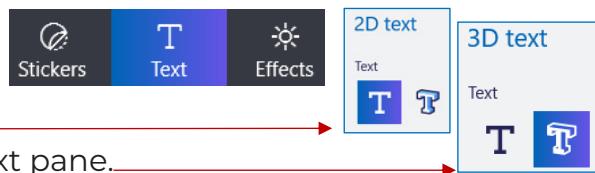


» Adding 3D Text

The artwork can be enhanced by adding 3D text to the canvas. MS Paint provides the feature to add 2D text only to your drawing but Paint 3D provides both 2D & 3D text adding facility.

1 Understanding Text Tab

- Select the Text tab in the tool bar.
- It offers 2D text pane.
- Clicking on the 3D T, opens 3D text pane.



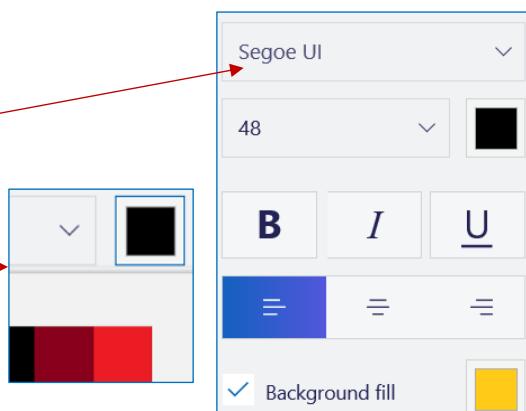
2 Understanding 2D & 3D Text Panes

2D Text pane has:

- Font type selection box at the top.
- Font size selection box below it.
- Colour selection on its side.

Clicking on it shows the colour options.

- Then are the styling icons.
- At the bottom is the background fill icon. Clicking on it shows the colours.



3D text pane is same, except that it does not have the Background Fill option.

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CONSOLIDATING PART 1 - COMPUTERS

5

» Recap of Essentials

1 Working with Word Documents



- Finding Text: **Home > Find > Find.** Fill details & see result.
- Find & Replace: **Home > Replace.**
- Spelling & Grammer check: Select & right click.
- Para spacing: **Select > Home > Para dialogue box launcher.** Do changes & Ok.
- Header: **Insert > Header > Built in > select.**

2 Working with Tables



- Insert table: **Insert > Table > Ok.**
- Moving from cell: Select cell. Use right, up or down arrow as required.
- Selecting table style: **Click top left > table design.** Click design.
- Applying shade: **Select table > Border Design > Border dialogue box launcher > Shading, Preview, Apply to > ok.**

3 Manipulating Presentations



- Selecting Slides Theme: **Open > New Slide.** Select theme.
- Manipulating Font: **Select text > Home > Font size.** Select. Same for others.
- Manipulating Text Alignment: **Select text >** In paragraph select alignment.
- Format Painter: **Home > Format Painter Brush.** Click on object.

4 Inserting Content in Presentations



- Inserting Text Box: **Insert > Text Box > Click icon >** Click on slide. Text box appears.
- Inserting Word Art: **Insert > Word Art, select art, place text in placeholder > select text > Shape Format >** click dropdown of desired option & apply.
- Inserting on-line Pictures: **Insert > On-line Pictures > Search >** Select & Insert. Similarly insert Shapes, 3D models & SmartArt Graphics.

Similarly insert Shapes, 3D models & SmartArt Graphics.



5 Enhancing Presentations



- Creating Master Slide: **View > Master views > Slide Master.**
- Manipulating Master Slide: **View > Master views > Slide Master > Backgrounds.** Select option.
- Animating Slides: **Animations > Add Animation**, select option.
- Manipulating Animations: **Animations > Animation Pane**, in dropdown select Play from option.
- Applying Transitions: **Transitions, select option > Effect options.** Select.
- Manipulating Transitions: **Transitions, select option > Timings.** Select option to be manipulated.
- Recording Audio Narrations on Slide: **Insert > Audio > Record Audio.**

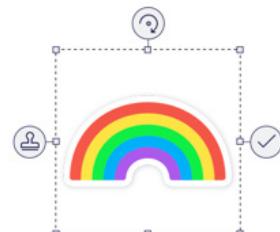
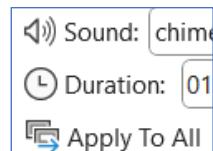
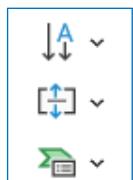
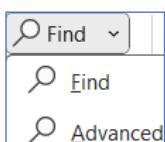
6 Working with 3 D Paint



- Making a Sticker: Open **3 D paint > Sticker > Select** & click on canvas.
- Adding 3 D Text: Open **3 D paint > Text > 3 D Text** & click on Canvas.
- Making 3 D Shapes: Open **3 D paint > 3 D Shapes**, select shape & click on canvas.
- Manipulating 3 D Shapes: Import **shape to canvas > Effects > Filter: Default**, play with handles & light wheel.
- Adding 3 D Objects: **3 D paint > 3 D library**, select object & click on canvas.

» Identify & Tell Me

1) Identify the selections & mention where do they exist.



a).

b).

c).

d).

e).

f).

» Quick Assessment

1) Select True or False.

- (a) Stickers can be added to 3 D objects on
- (b) Each click of Tab, indents text by $\frac{1}{2}$ inch
- (c) This icon is called Dialogue box Launcher.
- (d) Format Painter exists in Drawing group of home tab.
- (e) In power point, word “Entrance” is associated with Record tab.
- (f) You can annotate a presentation with your voice.



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VARIABLES

6

» Learning Outcome

By the end of this lesson, students will be comfortable with:

- Terms associated with variables.
- Using In-Built variables of mBlock 5.
- Making of variables as per project needs.

» Variables (Var)

1 Associated Terms



- **Var** is an **Empty box**. This box must have a **Name**.
Name has to be assigned by us.
Process of giving a name is **Declaring a Variable**.



Vars store a **Value**.

- Giving a value is called **Assigning a var**.



- Value is assigned by **=** symbol. Example, **Age = 25**.
- Process of giving value for **First Time** is **Initialising a Var**.
- Box with no value is called an **Empty Var**.

2 Classification of Variables

Variables have two classifications:

- **Numeric var**, loosely called **Variables**. Example **x = 8, Temp = 25**.
- **Alphabetic var**, called **Lists or Strings**. Example, **Fruits = 'Apples, Mangoes'**

3 Types of Variables

Variables have two types:

- Variable **we make** (Sample). These are orange.
- Variables that are **In-built to various blocks**

(These take colour of parent block. Example Blue for var of motion block).



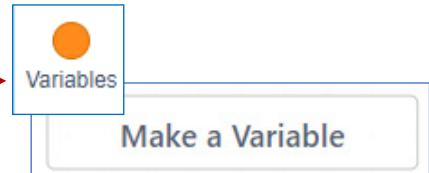
➤ Making a Variable



Scratch provides no **block statements** for vars. **They have to be made.**

To do so:

- Select sprites in SIA.
- Select var block in block area.

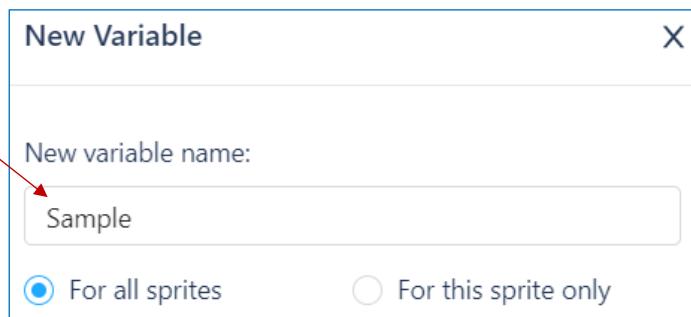


In the window that opens, select **Make a Variable**.

- New Variable window opens.

Give the var a **name** (say **Sample**).

- Select **For all sprites** (default) for making a **Global Var.**
- Select **For this sprite** only for making a **Local Var.**



Click **OK**. Var name Sample is made, & stored. Its **block statements** appear in block area.

- The first is a **boolean** block.



- Next four are **stack blocks**.

The var gets added in the dropdown.



1 Working with Variables

Saving & Selecting a Saved Variable

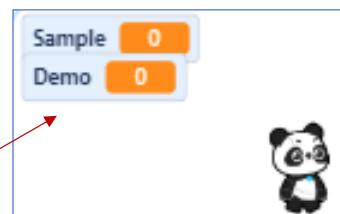
- Once made, vars are **kept** at a **Specified Location** in a computer's memory. Computer remembers its name & location ID.

- A var has a selection block next to it.

It gets added to left top of stage when we click on it.



It appears with value set at 0 (default). This can be changed

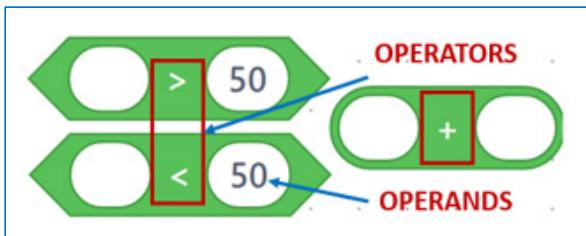


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ARITHMETIC OPERATORS

7



Learning Outcome

By the end of this lesson students will be comfortable with:

- Role of Operators in Coding
- Types of Operators.
- Making & Coding Arithmetic Operators.

Operators in Scratch



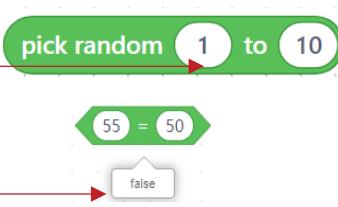
1 Operators, Operands & Outputs

Pre-primary children, understand $4 + 5$ as addition resulting in **9**.
Programmers look at $4 + 5 = 9$ as an **Addition Operator +** that works on **Operands** (4 & 5), that sit on the two sides of + to give an **Output** (9).

Difference is, in maths, the two operands can only be nums, but in **programming** **they could either be nums or a string** (sequence of alphabets 'Apple', or nums '222', or mix). We have 18 of them. They are **colour coded Light Green**.

2 Types of Operator Blocks

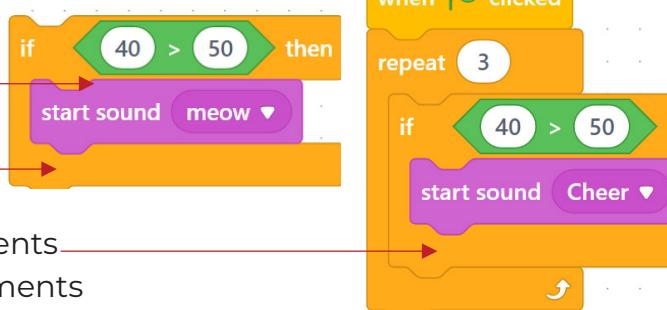
- **Reporter Blocks.** Oblong shaped, they **contain a value** that must be defined in its white part _____ at the time of use. They report a value.
- **Boolean Blocks.** Hexagon shaped, they **evaluate conditions** & report either true or false. _____



None of them can be stacked on their own.

They **Piggy Back** other blocks.

- They are placed _____ inside other blocks to create a **new block statement**. _____
- This block of statement, or statements _____ is then used like other block statements as a code line.



3 Block Categories

Blocks are divided into six functional categories.

Arithmetic	Rational	Logical	String	Mathematical
		Random		

In this lesson, we shall learn about Arithmetic operators. These are blocks that carry out simple addition, subtraction, multiplication & division. They need to be made.

» Making Arithmetic Blocks

1 Adding two Numbers

Say we want to add 6 & 8.

Procedure of doing this is:



2 Adding Three or Four Numbers

This is done as shown:



Note:

There is no **Limit to Nums** we can have in one addition. Keep adding roundels.

We can use other arithmetic operators to do arithmetical operations in a similar way.

Try out all the arithmetic operators.



Subtraction | Multiplication | Division

3 Doing Calculations under BODMAS Rule

Story: Calculate $(3 \times 3) + 8$. Coding this has three steps:

- Take this into script area.
 - Enter nums in bracket part inside it.
 - Place it in first roundel to get:
 - Enter 8 in second roundel
- Block to do calculation under BODMAS is ready.
- Add a trigger & run the code to get the answer. **Try yourself.**

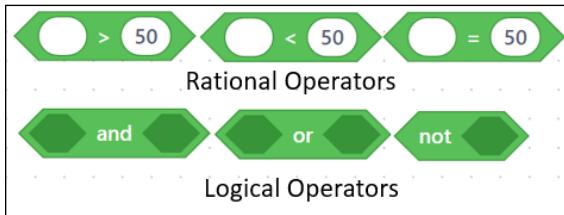
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RATIONAL & LOGICAL OPERATORS

8

» Learning Outcome



By the end of this lesson students will be comfortable with:

- What are rational & logical operators.
- Methods of making them & using in real life project Codes you make.

» Rational Operators



1 What is a rational Operator

A **Relational** operator is the one that:

- **Tests**, or
- **Defines**, or
- **Establishes**,

Operator	Example	Relationship
○ > 50	Price > 50	Greater than
○ < 50	Price < 50	Less than
○ = 50	Price = 50	Equal to

Some kind of relationship between two entities.

Ex, relationship between Price & its Value being <, >, or = to another

2 What is a rational Operator

This is done in three steps:

- **Step 1.** Say we want to enter alphabetic value Temp.

To do so, we need to first make a variable named

Temp

Thereafter the var is assigned a value (27).

→ Temp > 27

- **Step 2.** To use:

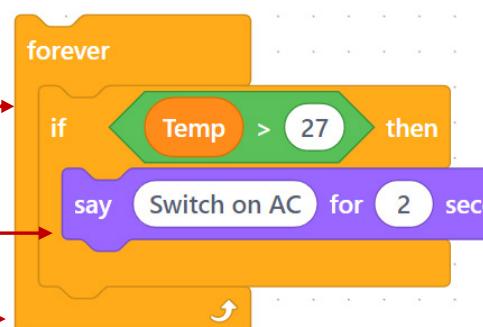
The block statement is placed in

If - Then Block as a condition.

It is also given the action to

be taken when the condition
evaluates to true.

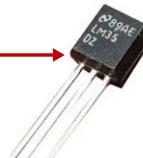
& since this evaluation is to be done
for ever it is put in a forever loop.



- **Step 3.** In this AC keeps monitoring the environment using sensors.

As long as the temp is less than 27, it returns **false**. As & when it becomes Greater, this code returns **true**.

This then executes the code line below it to sends instructions to a switch that triggers the AC to go on. **This instruction is sent as a separate broadcast message to a switch, that is coded separately to receive the broadcast message & act accordingly.** This part is not a part of this project.



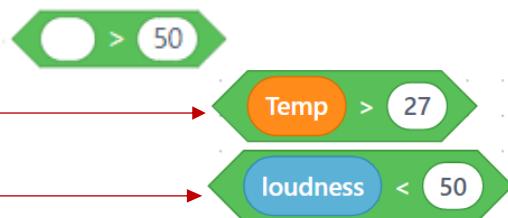
Project 1 - Automatic Temp Control in a room

Operator to make block statement for doing this is:

Values in the two roundels are entered as variables.

Remember: Orange var are user defined.

Vars (say Loudness) in other colours are in-built.



Project 2 - Making a Basic Football Match Timer

Its operator is:

In this:

- Code, keeps checking if first (timer) value is equal to the other (specified) value.

If not, it returns **False**. It takes no action & game continues.

- When, the values become equal, the block returns **True**. It then executes the line below it to display given messages or take given actions.



Project 3 - App to check Age for Eligibility

Its operator is:

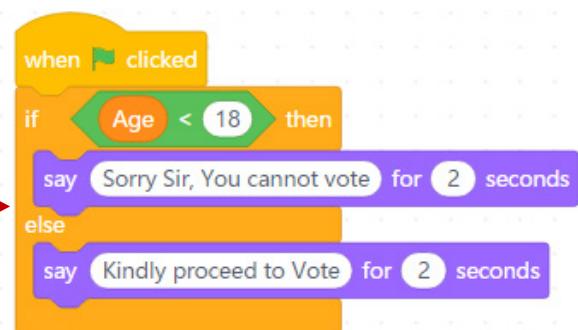
In this:

Its changeable are similar to project 1.

It has used the **If-Else** loop.

This will be capable of giving two outputs:

- If the voter is underage, it will broadcast a **Vote denial** message to the eligibility app.
- If age is ok, it will trigger a **Proceed to vote** message.



Logical Operators

1 What is a Logical Operator



Rational operators analyse **one condition** & declare the result based on outcome of that condition.

Logical operators analyse **two conditions**, & declare result, after **further refinement** of their analysis.

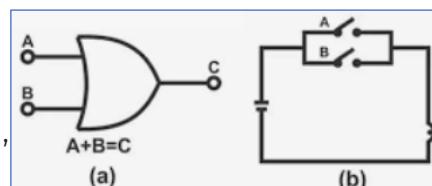
Operator	Meaning
and	Result true if both true
or	Result true if either true
not	Result true if neither true

We have 3 types of logic operators.

1 Application of Logical Operators

Logical operators define an important operation of electronics called **Gates**.

While normal gates control movement of men & material, these **gates control the flow of current** in an Electronic circuit by either allowing it to pass or stopping it.



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MAKING GAMES 9



» Learning Outcome

By the end of this lesson – Children will be aware of:

- What are computer games
- What are video games.
- What are computer puzzles
- Making a few simple games & puzzles.

» World of Computer & Video Games

1 What is a Game



A game is a **system of actions** in which players **engage** in a friendly contest or an artificial duel defined by **rules** that results in a **quantifiable outcome**.

2 What are Computer Games

Computer Games are a form of **Virtual Gaming** where players **Interact** with objects displayed on a screen, for entertainment.

Players **interact** using an **Interface** or **Input** device such as a joystick, that generates **Visual Feedback** for a player to respond to.



3 What are Video Games



Video game is essentially the same form of entertainment, but refers not only to games played on personal computers or similar device, but also to games run by a **console or arcade machine**.

4 What are Video Games

Puzzle games challenge players to use logic & problem-solving skills to progress through levels or complete tasks. They test a player's ability to recognize patterns, solve sequences, complete words, & understand processes.



5 Computer Game Architecture



Game architecture consists of:

- Input
- Game Logic
- Graphic/sound support
- Output

» Making Simple Games

Game 1 – Hungry Rabbit

Story line is: **Carrots are falling from sky. The Rabbit must catch these Carrots.**

Score will increase with each Carrot caught. Let's see how many carrots the rabbit can catch?

1 Method of Coding

- The Rabbit must catch the carrots falling from the sky.
- To gamify it, he must be controlled by us.
- For this, we need to give it some **Control Conditions**:
 - **If ← key** is pressed, the Rabbit moves left.
 - **If → key** is pressed, the Rabbit moves right.
- More conditions we give, more complex the game becomes.
When the Rabbit catches a Carrot
the Score must be increased.
- It should be also displayed on the screen.
- Carrot fall randomly on their own. Thus, they **require no conditions**.
- Trigger to start the game is **When Green Flag Clicked**.



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DOING MATHAMETICS WITH CODE

10



» Learning Outcome

By the end of this lesson students would have realized:

- Coding is a great tool for doing math's.
- Using code to make mathematical apps.
- Using code to do geometry.
- Using code for Physics.
- Using code to solve mathematical equations.

» Doing Math's Projects



In lesson on mathematical operators, we learnt about doing basic calculations of addition, subtraction, multiplication & division. In this lesson we shall dig deeper. We shall do it all through daily life projects.

Project 1 – Coding & Apps - Making an Addition App

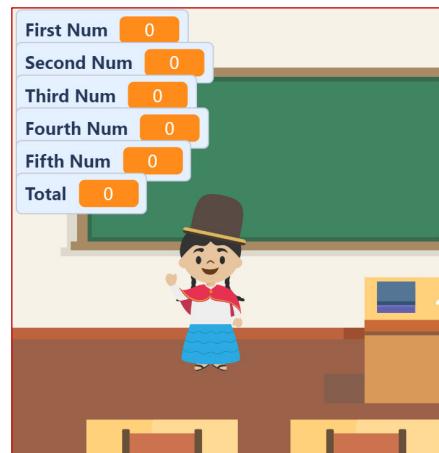
Story line: **A student asks you to give her five numbers. These could be integers or floats or a mix. She will calculate & give the answer.**

Kindly follow the steps below. If you **Get Comfortable** doing them on your own, you will be **Able to Analyse & Code** all the projects ahead.

Step 1 – Defining the Variables

- Fifth Num
- First Num
- Fourth Num
- Second Num
- Third Num
- Total

```
set [Fifth Num v] to [0]
```



Step 2 – Setting the Stage

(Note: This is in-built var under sensing block)

Step 3 – Making Block Statement for Total

```
set [Total v] to ([First Num] + [Second Num] + [Third Num] + [Fourth Num] + [Fifth Num])
```



Step 4 – Defining Preliminaries

```

say Welcome to my Addition App for 4
say It Adds up to five Num for 4 seconds
say Let us start for 2 seconds

```

Step 7 – Calculating & Declaring Result

```

say Thank you. Let me calculate for 2 seconds
set Total to First Num + Second Num + Third Num + Fourth Num + Fifth Num
think Your answer is..... for 2 seconds
say Total for 5 seconds

```

Step 9 – Optional re-set at end of code

```

set First Num to 0
set Second Num to 0
set Third Num to 0
set Fourth Num to 0
set Fifth Num to 0
set Total to 0

```

View – Code in Scratch



View – Same Code in Python



Suggested TO DO Variations

- Place app to repeat it self till Space key Pressed.
- Do same for subtraction or multiplication or division.

Project 2 – Coding & Arithmetic's - Reciting Table of any Number

Story line: **One student is master in reciting tables. He asks for any number, Integer or float, big or Small. He recites it correctly.**

This project has one in-built var. Its steps are similar to project 1. Kindly follow:

- Select in-built var **answer** in sensing blocks.
- Decide on set up of the stage. Suggested layout is:
- Decide trigger & the preliminaries.
- Make code for first num. **Hint:** use to make:
- Repeat it for the balance nine numbers.
- Place below each other. Code is ready. Run & see.



```

when green flag clicked
repeat (9)
    wait (1) seconds
    say (answer * (1)) for (2) seconds
end

```

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CONSOLIDATING PART 2 - CODING

11

» Recap of Essentials

1 Variables



- They are named containers storing data values.
- They are of two types. Variables (var) we make are orange, while built-in are blue.
- Each var has five block statements. One is a reporter & four are stackable. Var usable by sprite for which made are Local var. Those usable by all are Global Var.
- Var when made, get added to the dropdown of block statements. When they are selected, they get added to the stage.

2 Operators



- Operators take var values (operands) as input, to work on them (process), & output results.
- They are of two types. Reports return or report a value, while Booleans return if given condition using the values is true or false.
- They are green, & piggy back other blocks.
- They are divided into six functional categories.
- They have no ready block statements. These have to be made.
- Statements made could be numeric type, alphabetic type or mixed.

3 Rational & Logical Operators



- Rational operator tests, defines & establishes relation between two entities.
This is done based on a set of values making one condition.
- Logical operators do the same based on evaluation of two conditions.
- The three main rational operators are AND, OR & NOT.
- AND returns true if both conditions are true.
- OR returns true if one or both are true.
- NOT reverses the outcome of its first evaluation, to do another evaluation as an AND operator.
- They define an important operation in electronics called Gates (switches).



4 Coding & Games



- Game is a system of actions in which players engage in a friendly contest, defined by rules that results in a quantifiable outcome.
- Computer Games are a form of Virtual Gaming where players interact with objects displayed on a screen, for entertainment.
- Video games refers not only to games played on personal computers or similar device, but also to games run by a console or arcade machine.
- Puzzle games challenge players to use logic & problem-solving skills

» Identify & Tell Me

1 Block below represents.



x position



a).

b).



c).

join

banana

apple

d).

2 Which block will be used to:

- (a) Make a Variable.
- (b) Define a logical operator.
- (c) Define a string.
- (d) Make a broadcast message

3 Which block will be used to:

- (a) Make a Variable.
- (b) Define a logical operator.
- (c) Define a string.
- (d) Make a broadcast message

» Quick Assessment

1 Select True or False.

- (a) A variable cannot be kept empty.
- (b) An assignment operator is represented by:
- (c) Alphabetic variables are called Reporters.
- (d) Video Games require an input.



2 Fill in the blanks.

- (a) Consider variables as to store values.
- (b) Giving name to a variable is called a variable.
- (c) Assigning a value to a variable is called a variable.
- (d) Giving a variable value for the first time is called a variable.

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USING THE INTERNET 12

Learning Review



In Grade 3 we were explained that Internet is a global network of networks



In this Grade we will start using the internet for sending e mails.



In Grade 4 we were explained the various terms associated with Internet including web browsers & search engines..

Worlds First email

These four are the people who sent worlds first e mail. Its text is below.



```
[ ] from: Ray Tomlinson >> "Hit me back if you get this."  
[ ] to: Ray Tomlinson >> "OMG! I TOTALLY DID! WHAT IS THIS?"  
[ ] from: Ray Tomlinson >> "It is like an electronic version of mai..."  
[ ] from: intern >> "Hey U guys need 2 see this funny kitte..."  
[ ] from: Ray Tomlinson >> "HAHA! But that's really not what this is..."  
[#] from: cookepgd11 >> "Cheap Phrama Only Today! \\\/\\"!!!!!!"
```

Google & Search the Internet to find their Names, as well as from Where this was sent, & on which date.

What is email



"email," is an electronic communication system

It uses electronic devices to deliver messages across computer networks. "Email" refers to both the delivery system and individual messages that are sent and received over it.

Mails can be composed off line, & saved as drafts.

However, sending & receiving them requires an Internet connection.

The symbol for this is:



Internet connection is provided by a telecom service providers like Airtel & by ISP's. For composing an e mail, you need to open an Internet account with mail service providers like **Yahoo, Gmail, Outlook** etc.



» Creating an email Account



Creating an account is easy.

Follow the following Steps:

- Google “create a google account”.

Window asking for your name opens. Enter & click next.

First name
Last name (optional)

- It then asks for your date of birth & gender.

- Moment, you provide them & click on next, you get a few choices including create your own.

- Select/make your choice & click on next. Congrats. You have an email account.

Month

Day

Year

Gender

[Why we ask for birthday and gender](#)

rohandayal810@gmail.com
 dayalrohan294@gmail.com
 Create your own Gmail address

Window mentioning your account has been created opens.

- Now you need to set up the password.

For this click continue.

Window to set up password appears.

- Set password & click next.

The password is set.

Your Google Account is ready.
Now set up your business.

demonstratorcomputer@gmail.com

Get discovered by customers locally and online by adding your business and products to Google Search, Maps, and more

Enter your password

.....

Show password

Continue

- G mail now sends a verification code to your phone. Enter the code in this screen & click verify.
- Window showing You are signed in appears.
- You are now set to code

You're signed in
 Complete a few suggestions to get Google account
 demonstratorcomputer@gmail.com

Verify your identity

Enter verification code

Verify

» Layout of Opening Screen

Opening Screen of Different Mail Browsers

Google

Sign in
to continue to Gmail

Email or phone
 myaccount@gmail.com

[Forgot email?](#)

Not your computer? Use a Private Window to sign in.
[Learn more](#)

[Create account](#) [Next](#)

YAHOO!

Yahoo ID

Password

Keep me signed in

[Sign In](#)

I can't access my account
[Help](#)

OR

[Create New Account](#)

[Sign in with Facebook or Google](#)

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INTRODUCTION TO AI & ML 13



» Learning Review

This lesson goes beyond the syllabus. It aims to tell children about critical technology trends in very simple ways.

By the end of this lesson – children would know about technologies that will shape their future.

They will know about:

- Relationship between Coding & AI.
- Co-relation of AI with ML.
- Importance of ML to their future.

The five sub-fields of ML.

» Artificial Intelligence (AI)

Machines

Machines are Human creations that can work for Humans.
Example **Computers**.

**Coding
&
Programming**

Coding is Humans writing instructions for a machine.
Example, telling MS word that, when a user inputs
CTRL + P, it must send a print command to a printer.

Artificial
Intelligence

(AI)

Till recently, doing tasks like generating written content,
steering a car, or analyzing data, had been the domain of
humans only. **Today all this is changing**.

We are making codes intelligent. Today codes are imparted
with capabilities, such as reasoning, making decisions,
solving problems, making recommendations etc.

This has resulted in the evolution of “AI”. **AI Powers** services
& goods we use – from apps that recommend tv shows, to
chatbots that provide real time customer support.



Like AI is an advancement of coding, **Machine Learning** is an advancement to AI.

Machine Learning (ML)

It is a futuristic sub-set of AI where humans teach machines to code themselves to work for humans. GPT is its example.



According to Bill Gates: A breakthrough in ML has yet to come & when it comes, it will be worth **Ten Microsoft's.**



Today humans are **hyper about AI**. They consider it the '**Be All & End All**' of things.



Imagine **what will happen** when a breakthrough in **ML will actually come.**



For this, we need to do some **Crystal Gazing**

» Crystal Gazing

1 By 2030



70 % of products & 75 % of jobs that exist today will not exist. So, what jobs do we study for?



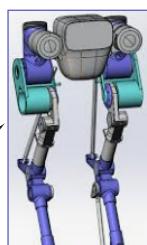
One Billion Bipedal Robots like me will be roaming the world working on things & doing jobs none of which exist today.

2 By 2050



So what should children like us do?

Focus on fundamentals behind these technologies. **Your grasp on fundamentals will be your Job USP tomorrow.**



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MY HOME TINKERING LAB 14

» Tinkering to form a DIY Habit

Do it Yourself (DIY) is a very useful concept for children to learn. What could be a better age to start than grade 5.

Project 1. Clay Art with Home Made Clay



Ingredients:

- 2 cup baking soda.
- 1 cup cornstarch.
- 1¼ cup water.
- Cooking colors.
- Your Tinkering Trunk



Method. Pour ingredients 1 to 3 in a pot with a handle & mix with a spoon. Cook over medium flame until the mixture looks like mashed potatoes. Keep stirring. Allow to cool. Divide into parts depending on colors you want. Start making things.

Project 2. Home made Soap



- Cut soap base into small cubes & put in the bowl, till they reach the amount twice of that required for one mold. Microwave for 30 sec or till molten. Use steel pot on low flame if microwave not available.
- Add color & essence oil. For 4 fl oz bar sized translucent 'gem' soap, add 10 drops of color & 4-5 drops of essence oil. Pour into mold & allow to cool for about 2 hours.
- Demold. Use gloves.

A great DIY site is: <https://www.instructables.com>. Items are available on Amazon.

The more you will Make, the more you will Learn.



» Tinkering to Learn MS Word

Project 3 – Document with Columnar Layout

Kindly read this text.

Using Insert you can insert many things.

Write news covering a small event in the school.

To make a newspaper type layout go to layout. Select columns. We have selected three.

Now as we type it is getting typed in one column only. It will shift to the next only on reaching the end.

To try, copy paste a long text & see it get into three columns.

To break here & move to next column, click on Breaks in layout.

in dropdown Select column. It has moved

You can now break it again. Follow same procedure.

We are in the third column.

You can add an image here & type below it.



Now tinker with more options.

Switch from portrait to landscape & see the result.

The more you will Tinker, the more you will Learn.

Project 4 – Making a Simple Collage

Using a word document of four columns, make a three-row collage (12 pictures), with pictures having a small write up below each. Pictures should be of one theme only (say flowers, fruits etc.)

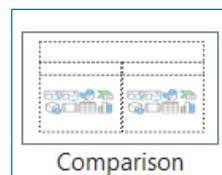
Project 5 – Making a Brochure

Using a columned word document, make a brochure of your school covering a brief introduction, photo of the school (picture), USP of the school (SmartArt), Music room (3D image), Year wise increase in admission of boys & girls (Chart), & a few emoji.

» Tinkering to Learn Power Point

Using the attached theme:

Make a simple presentation of four slides containing text only. Thereafter do:



Project 6 – Changing Heading Style

Select the heading of slide 1. Using WordArt tool, change the styling of the heading. Thereafter, do the same with headings of other slides, giving a different styling to all.

Project 7 – Inserting Picture from own Device

Take a selfie using the camera of the PC. Save it on the PC. Now insert it as a suitable place in the last slide as the picture of the author of the PPT. Give it a caption.

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OTT (Over The Top)



1 What is an OTT Platform

- OTT stands for "over-the-top" Platform.
- They deliver **Content** over the **Internet**.
- Content can be seen to smart TV's, mobile devices, tablets, & gaming consoles.

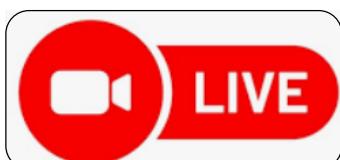
2 How Does OTT Work

- OTT platforms store content on **Servers** in data centers around the world.
- When a user requests content, it is **Streamed** to him from the closest server.



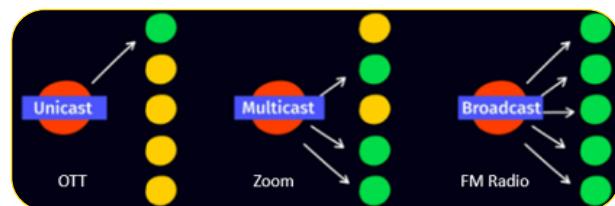
3 What is Streaming

- It is **Transfer** of digital data, such as audio or video in a continuous stream.
- Streaming is done for immediate processing.
- In OTT, it is used to watch a video or the **service provided** by the platform.

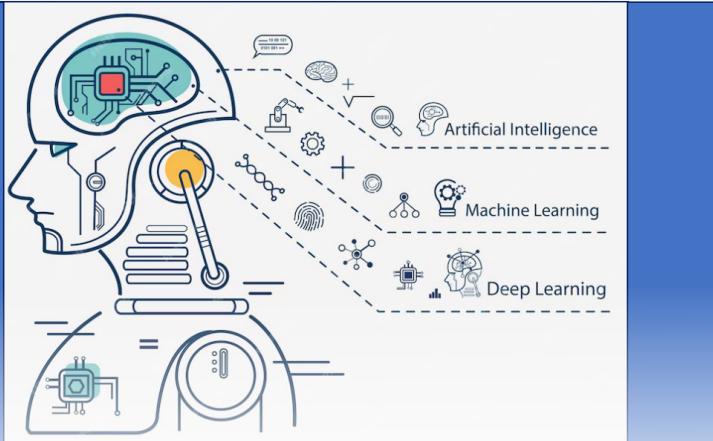


4 What is the Technology Behind It

- It is a technique of **Compressing** & **Transmitting** data as a continuous stream.
- Based on what you request, the device gets its own stream from the server making it "**Unicast**"



MACHINE LEARNING



» Based on what you read in the lesson on AI What Do You See in the Above Image ?

In very simple words, we see that Artificial Intelligence (AI) is the intelligent sub field of Coding, or Coding with Intelligence built into it.

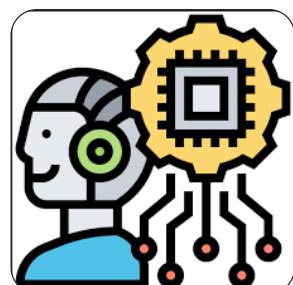
Besides this, it shows that Machine learning (ML) is an advance sub field of AI, & Deep Learning (DL) is a variation of Machine learning.

The **three go hand in glove**.

» What is Machine Learning

If we provide machines access to a large pool of data, they could pick up patterns in that. Example, they could pick up patterns in customer choices. They could then prompt the customer on what to buy.

In other words, machines could start learning on their own.



This is because the processing power of processors used by such machines (note not all machines), is far greater than that of humans.



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We just saw that machines require lot of data to learn on their own. From where will it come? The answer is **Big Data**.

» What is Big Data ?

It is a term used to describe:
large, complex, and fast-growing sets of data
that are difficult to manage and analyze
using traditional data processing tools.



» How big is Big Data ?

For us one Megabyte of data is huge.
 Big data is measured in petabyte.
 This is equivalent to 1,073,741,824 megabytes (MB)
 Some estimates hold that a Petabyte is the equivalent of 20 million tall filing cabinets or 500 billion pages of standard printed text.

» Imagine

Machines can go over this volume of data to fetch information for us in seconds.
 No wonder they can do what humans cannot.
 At speeds humans cannot. & without rest.



TO VIEW MORE, PLEASE CONTACT:

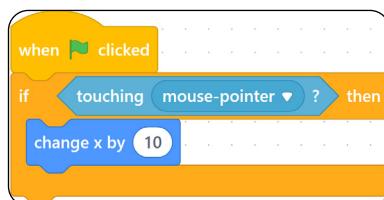
-  Diwaker :- +91 93122 64502
- Pankaj Kabir :- +91 88514 60895
Panthi
-  www.bdseducation.in

Debugging



① Find the Error in the following Codes

- Code number 1.

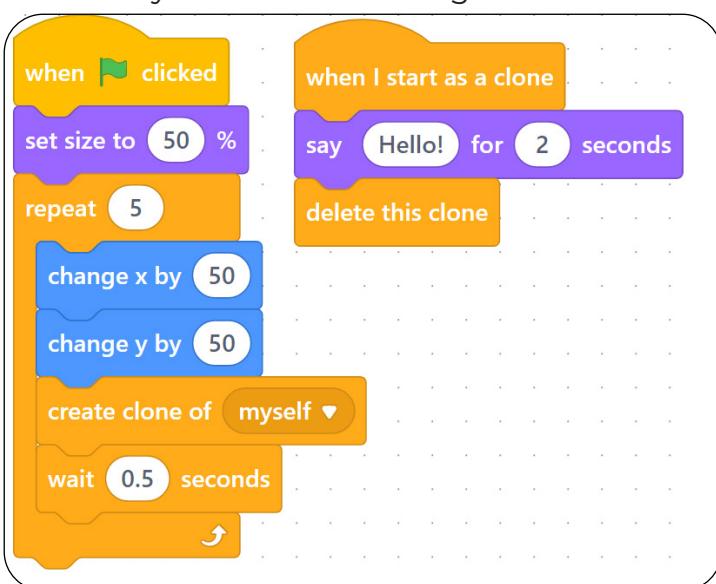


- Code number 2.



② Below in the correct code Add an error in this code

Then ask your friend to debug it.

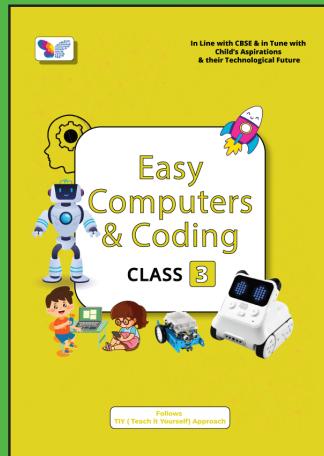
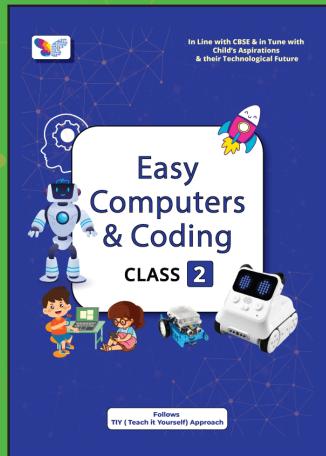


Answer 1- The condition should be put in a loop

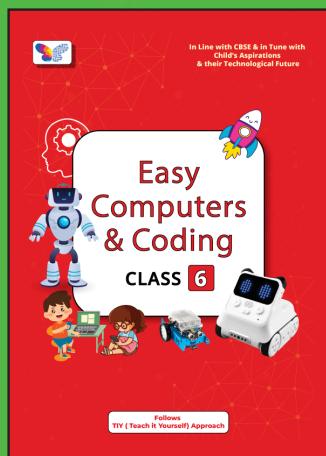
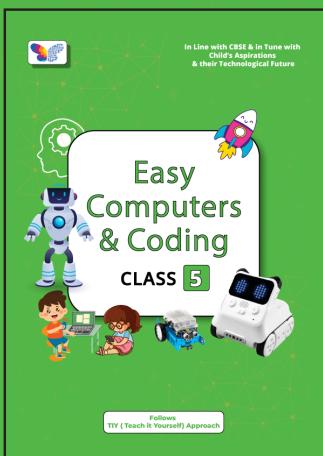
Answer - Broadcast message should be put in the third line in the first code

OUR BOOK TITLES

Level-1



Level-2



Level-3

