

CLASS 6
ROBOTICS

Month	Topic / Subtopic	Learning Outcomes	Pedagogy/ Methodology	Instructional Aids /Teaching Tools & Resources	Activities / Projects	Assessment
April & May	Artificial Intelligence - AI Introduction - AI Real world examples - AI Advantages & disadvantages - AI applications Introduction to Data - What is Data - Types of Data	- Understand basic concept of AI and data, identify examples of AI in daily life - Understand meaning of data. Identify types of data	- Explanation using real-life examples, videos, and discussion - Activity-based learning, examples		- Identify AI examples around us - Collect data from class (age, height)	

	Introduction to Google Sheets • Interface • Rows & Columns Data Entry & Formatting • Adding data • Formatting cells Introduction to Charts • Bar Chart • Pie Chart	• Understand spreadsheet basics. Enter and organize data • Enter and format data properly Improve data readability • Understand visual representation Create basic charts	• Demonstration and hands-on practice • Guided practice and demonstration • Hands-on activity		• Create simple table &Format student data table • Creating chart from data	
--	--	---	---	--	--	--

July	Introduction of Robotics - History & Laws of Robotics - Future Scope of learning - Industrial applications - Domestic applications - Commercial applications Introduction of Tinkercad Microprocessor & Microcontroller Arduino Programming - Basic Structure and Commands - Functions And Variables - Conditional and Controlled Instructions - Arithmetic and logical instructions - Programming	- Understand robotics concepts, applications, and future scope. - Understand structure, functions, and basic programming logic.	- Demonstration , videos, and discussion on real-world applications - Coding demonstration , and hands-on circuit building	Hardware : Led's Breadboard Jumper wires Arduino Uno Microcontroller board 9v battery Battery connector Programming cable Software: Arduino IDE	“LED Patterns”	
August & September	3 D Designing - Interface Tour of Tinker cad's user interface and essential tools. Basics of CAD - Understanding the principles of Computer-Aided Design. - Importance of CAD in	3D Modeling is an excellent opportunity to learn the basics of design and creation in a fun and engaging way. This is specifically designed for	- Objective Definition - Requirement Analysis 3-D Design - Visualization - Testing - Optimization			

October & November	design. • Introduction to Principles commonly used in design Designing Basic Components & shapes • Importance of CAD in design. • Square, circle, conical, etc AI - Data Analysis Basics • Comparison • Observations AI – AI Concept in Data • Pattern Recognition • Simple Clustering Project Work • Data Analysis Project IR Sensor Interfacing • IR Sensor Introduction • Applications of IR • Pin Configuration • Hardware Connections • Working Principal • Programming Concept	children who are interested in exploring the world of design and creation. Students will learn the fundamentals of 3D modeling, which is the process of creating three-dimensional • Analyze and compare data. Draw simple conclusions • Understand grouping of data Identify patterns • Present data • Revise concepts • Students Grasp IR and LDR sensors, including their applications, pin configurations, and working principles,		• Software - Tinker cad • 3-D pens • 3 –D Printer Demo • Compare student performance • Software - Arduino IDE • Hardware – Led IR Sensor Buzzer	• Emoji’s design • Car design • Kitchen design Choose any project: • Class Survey Analysis • Screen Time Analysis • Best Game Survey • Toddler Alarm	
			• Discussion and activity-based learning • Demonstration using examples • Project-based learning • Project Analysis • Component Selection • Circuit Design • Sensor			

February	Python • Introduction of Python • Type of IDE • Why Python is Important? • Installation of Python • Application of Python • Types of Python Libraries Programming Concepts: • Keywords • Functions • Logical and Conditional Operators • Arithmetic Operations • Problem Statements • Different Types of error • List, Tuples, sets etc . • Dictionaries • Loops Concepts • Objects and Classes Libraries • Introduction of Libraries • Installation process • Working Principal • Types	• Grasp Python basics, IDE types, and significance, installation, and library types. • Master programming concepts including keywords, functions, operators, data structures, loops, objects, and classes • Apply knowledge through practical projects covering arithmetic operations, variable manipulation, calculator, leap year, and calendar calculations.	• Objective Definition • Requirement Analysis • Algorithm Design • Programming • Testing • Optimization	• Software - Python IDE Version – 3.7.3 or above Jupyter Notebook	• Arithmetic Operation • Finding Natural Number • Swapping variables • Calculator • Finding Leap year • Finding any month calendar	
----------	---	---	--	--	---	--