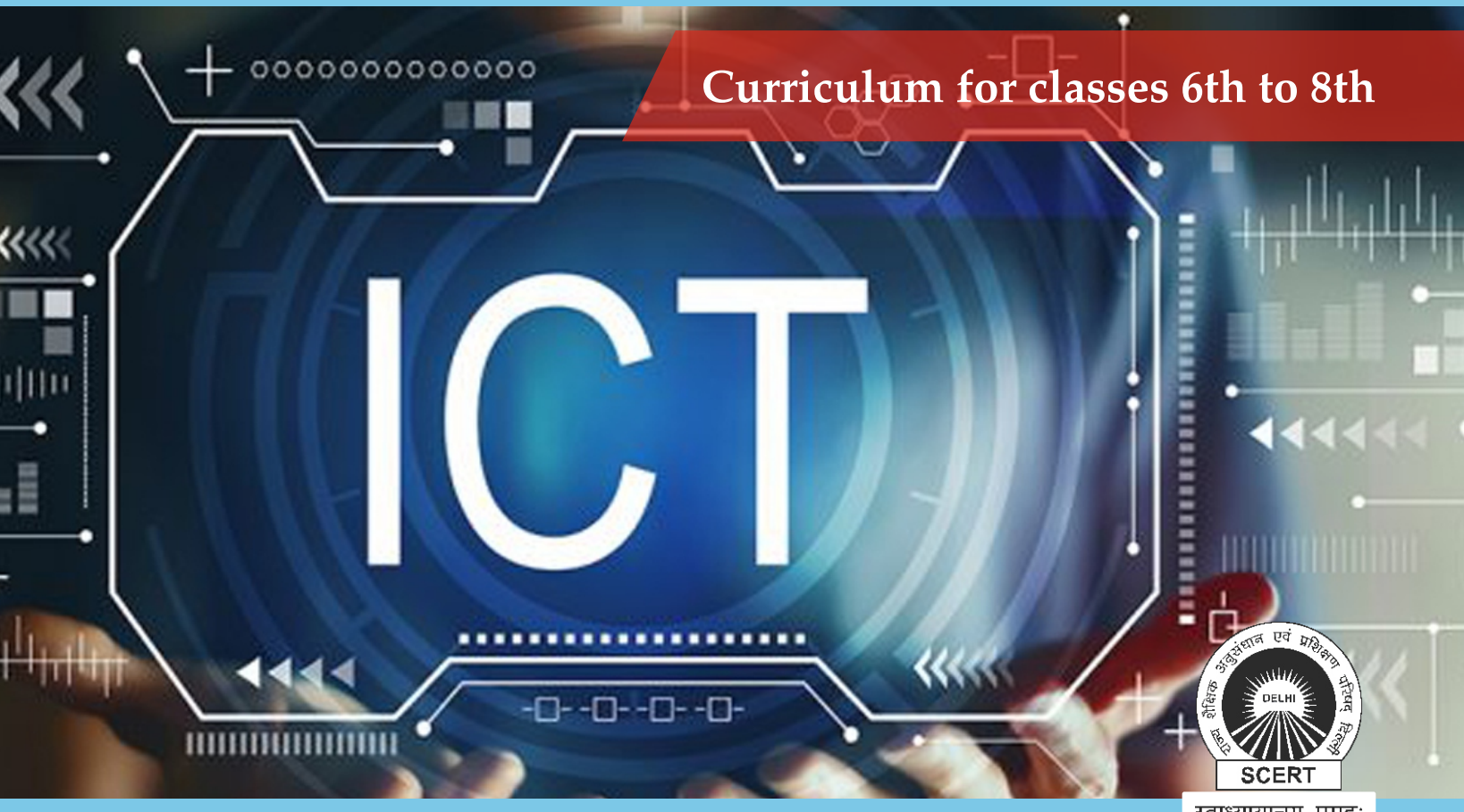
INFORMATION & COMMUNICATION TECHNOLOGY

IN EDUCATION

Curriculum for classes 6th to 8th



SCERT

स्वाध्यायान्मा प्रमदः

STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING
Varun Marg, Defence Colony, New Delhi-110024

INFORMATION AND COMMUNICATION TECHNOLOGY IN EDUCATION

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MESSAGE

Almost all the facets of our life have recently undergone significant transformation as a result of Information and Communication Technology (ICT). Simple things like how we work, connect with one another, treat ailments, travel, shop, and enjoy our free time have been revolutionised by it. ICT skills have become as fundamental to living a full life as being able to read, write and compute.

Our younger generation must be accordingly trained, so that, they can address these challenges effectively, timely and meaningfully. Students, who are consistently exposed to educational technology at primary and upper primary levels, rapidly learn to harness self-esteem and self-confidence. The use of ICT helps make education available even to individuals living in rural sections of the nation.

The New Education Policy (NEP) 2020 has also emphasized on Integration and use of Technology in Education to provide students with a route to making India a digitally empowered society and knowledge economy throughout the world. Technology may help students participate in collaborative learning and is a big motivator in their learning. SCERT, Delhi, has redesigned the ICT Curriculum for classes 6-8 to enable students to interact creatively with a broad array of hardware, software applications, devices, and tools, augmented and virtual reality, cultivating their inquisitiveness and inventiveness, and enabling them to compete with new 21st century abilities.

The coming of the new NEP 2020 has brought us into an era of the new technology world to meet so many challenges in the field of education. Adopting this curriculum in teaching-learning process can help teachers to provide creative and individualised ways to students to express their understanding and prepare them for ongoing technological changes in the world.

I would like to appreciate and thank the entire team who made helpful contribution towards shaping this curriculum. Their efforts are invaluable towards having this curriculum implemented in the schools and for improved quality of education in Delhi.

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MESSAGE

Information and communication technologies (ICT) have an impact on nearly every aspect of our lives – from working to socializing, learning to playing. The digital age has transformed the way young people communicate, network, seek help, access information and learn. As a matter of fact, we are living in a constantly evolving digital world.

We must recognize that young people are now an online population, with access through a variety of means such as computers, TV, and mobile phones. It is under this premise that ICT must be taught in or out of the classroom since educational technology is used by learners and educators in homes, schools, businesses, and other settings.

The New Education Policy (NEP) 2020 also addresses technologically based education, which will develop students' inventive thinking, higher-order thinking, sound reasoning, effective communication, and high productivity.

This year, SCERT Delhi has revised the curriculum of the course **"ICT in Education"** for classes 6–8, keeping in mind the current scenario of the use of ICT in education and the need for relevant technical knowledge for students. It will act like a students' guide to the digital world. In this, the information and matter have been brought up to date in accordance with the latest developments in the field.

I would like to thank our esteemed and learned team of experts from various departments and institutes of education for their kind and generous contribution to the revision of this curriculum.

Table of Content

ABOUT THE CURRICULUM

In today's times, many educational reforms are taking place. ICT is one of them. ICT stands for Information and Communication Technology. It is defined as the application of technology in the processing of information and communication, which includes the use of computers and software to not only convert and store data but also process, transmit, and retrieve it.

Since the world is moving technologically, ICT supports the teaching and learning process across all subjects by providing a wide range of resources while preparing learners for the modern workplace. It also prepares learners for programmes like Computer Science, Cyber Security, Computer Programming, and other IT-related careers.

ICT not only contributes to the development of critical thinking, creativity, invention and innovation of the learners, but also to practical performance and functional application of knowledge and skills. ICT helps the learner to apply knowledge and skills to provide individual and community needs and solve problems in everyday life.

ICT is one of the economic development pillars to gain national competitive advantage. It can improve the quality of human life because it can be used as a great learning and education media. It provides wider knowledge and can help in gaining and accessing information.

The significant role ICT can play in a student's learning process has also been highlighted in the National Curriculum Framework 2005 (NCF) as well as in New Education Policy 2020.

I believe it's crucial to continually update a curriculum with the goal of providing students with the necessary skills and knowledge to succeed in the modern world. This may include an emphasis on digital literacy, information technology, and communication skills, as well as critical thinking and problem-solving abilities.

With the rapid pace of technological advancements, it is essential that the ICT curriculum also stays up-to-date and relevant to prepare students for the digital world they will inhabit. A well-designed ICT curriculum should not only teach students the technical skills required to use technology, but also help them understand its impact on society and how it can be used to solve real-world problems.

Against this backdrop, we have revised the existing ICT Curriculum to ensure that students are equipped with the skills and knowledge they need to thrive in the 21st century. This updated curriculum will also assist the teachers of ICT in shaping the learning experiences and performances to accommodate everyone's needs and interests. This curriculum will tremendously help them achieve their goals. This curriculum also encourages students to use ICT ethically so that they can learn to use ICT responsibly and be aware of potential dangers and issues that can arise in the contemporary world. This curriculum takes care of the requirements of a 21st century learner with the following special features:

- Development of Life Skills like creative thinking, critical thinking, problem solving, interpersonal relationships, communication skills, collaboration

- Integration with real life scenarios
- Integration with other academic subjects (interdisciplinary approach)
- Inculcation of Values & Ethics
- Inclusivity: Gender Sensitization & Inclusion of the differently able

The key change in the curriculum is a move from a knowledge-based curriculum to a competence and skills based curriculum. This curriculum will serve as the foundation for the technology based vocational courses that may be delivered for class 9 to 12 or for further learning into core computer science.

I hope this curriculum will help the learners stay up-to-date with the latest trends and advancements in technology. This will also provide you with valuable insights and practical tips that you can apply in your daily life.

I would like to sincerely thank all the authors, editors and reviewers for putting in their best efforts towards shaping this curriculum. Their efforts are invaluable towards having this curriculum implemented in the schools and for improved quality of education in Delhi.

DR. SAPNA YADAV

SR. LECTURER, ICT, SCERT

CURRICULUM OBJECTIVES

The following are the objectives for the curriculum of **ICT in Education**:

- Understand the basics of ICT and integrate it with other subjects (multidisciplinary approach).
- Demonstrate proficiency in manageing a range of hardware and software and troubleshoot common problems.
- Learn to represent and process data using open office tools.
- Develop an understanding of cyber safety, ethics, digital footprint, and digital well-being.
- Acquire skills to develop websites and mobile apps.
- Understand the concept of immersive technologies (AR & VR) and explore their applications in daily life.
- Gain knowledge about Artificial Intelligence and investigate its impact on Sustainable Development Goals.

DURATION OF THE COURSE

2 periods per week (one period = 40 minutes), at least 25 weeks of engagement per year.

Methodology

The strategy will be as follows

Step 1: Demo by the Teachers:

At this step, Teacher will demonstrate the activities to the students using teacher's manual. Teachers may use their tablets, ICT lab and other digital devices to show various activities including Augmented and Virtual Reality.

Step 2: Hands on Activities:

Based on the demonstration given by Teacher, the students will do the Hands on activities. Teachers will facilitate the session. If any students like to explore further then teachers support them through extended activities.

Step 3: Assessments:

1. **E-portfolio**: At the end of the Hands on Activities, students will submit the outputs in the E-portfolio which will be assessed by the teachers and grade them.

   Note: Teachers may use Google drive space to upload the projects and share links whenever asked by the department.

   Showcase: At the end of the year students will showcase the outputs in the e-portfolio which will be assessed by the Teachers.

2. **Pen and Paper based Assessment:** Teachers will conduct a pen and paper based assessment at the end of the academic year.

REQUIREMENT OF INFRASTRUCTURE & RESOURCES

- Two Computer labs with a minimum of 25 Computers in each Lab, with Printer, Overhead Projector, and Projector Screen.
- Required Furniture (Computer Tables and Chairs)
- Air Conditioner in Lab
- One Lab Assistant for ICT Lab.
- Dedicated Internet Connectivity (Optical Fiber Cable with WiFi) and bandwidth of at least 500 Mbps.
- Antivirus, Operating System.
- Virtual Reality (VR) Headest with the computer system.

Note: All the resources and infrastructure may increase depending upon the strength of the students in the school.

GENERAL INSTRUCTIONS

1. Use QR codes to download/refer to the resources by scanning them with a QR code reader app or phone camera.

2. Teachers may consider using alternative software to teach the content depending on the availability of software in school. Ensure that the software meets the necessary requirements.

3. When teaching students with special needs, utilize the specified tools to provide them special attention and support.

4. For all online activities, Students, depending on their age, may use their Parent's email account or create their own email account under the guidance of their Parents.

5. Teachers should use Google Drive space to upload the projects created by students and share the links whenever asked by the department.

ICT COURSE COVERAGE

COURSE COVERAGE: Class 6

Sr No	THEME	COMPETENCY	OBJECTIVE	TITLE	TOOLS	Periods		
						Demonstration	Hands on & Assessment	Total
1	Introduction to ICT Environment	Students will be able to develop Collaborative learning, critical thinking & creativity through group activities	▪ To learn about the ICT environment, Computer systems, and computer etiquette.	▪ Basics of Computer Organisation • Functional Components of a Computer • Input & Output Unit • Memory and memory units (bit, byte, KB, MB, GB, TB) • Software & Hardware ▪ Introduction to ICT Environment • Introduction to File & Folders ▪ Do's and Don'ts while working on Computer	▪ Working Computer System (Preferably Desktop) ▪ Class activities like Skit presentation, poster making, Quizzes, etc.	3	3	6
2	Data Representation and Processing-01 (Spreadsheet)	Student will be able to develop critical thinking and learn about data security & data analysis.	▪ To know concepts of Data, Data Types, Data Security and Spreadsheets	▪ Introduction to Data and its Type (images, numbers, text, audio, and video). ▪ Need for Data Storage and Data Security ▪ Introduction to Spreadsheet ▪ Creation of a spreadsheet & Entering data ▪ Insertion & Deletion of rows & Columns ▪ Use of min, max, sum, count, and average function	Open Office software suite	3	6	9
3	Data Representation and Processing-02 (Word Processing)	Students will be able to develop creativity and Imagination (by activities like digital poster making)	▪ To learn the formatting in a word processing document to represent data in a well-formatted manner (letter, notice, poster) and printing it	▪ Typing and saving text in a word processing tool. ▪ Formatting a word document • tabs and alignment • highlight • font and font size • Bold, Italics, Underline • Changing Font Type, Size, and Colour ▪ Inserting Hyperlinks & Images ▪ Find and Replace ▪ print a document.	Open Office software suite	3	6	9

4	Basics of Internet	Students will be able to know about the Ethical & Security issues for safe Internet Usage	▪ To Learn the basics of the Internet, Browsers, and safely accessing the internet	▪ Introduction to network and Internet ▪ World Wide Web (WWW) ▪ Concept of web page and website ▪ Internet Browsers ▪ Search Engine ▪ URL and Browsing the Net ▪ Safe Search, Browser Settings (add-ons, plug-ins, cookies, private browsing, etc), Digital etiquette	Firefox	3	3	6
5	Learn to Code-01	Students will be able to develop basic computational thinking by Reasoning & Problem-solving.	▪ To understand the basics of algorithm design and create scratch-based programs	▪ Introduction to Problem Solving ▪ Identify different steps involved in a problem ▪ Introduction to Algorithms and Flow Chart ▪ Designing flowcharts ▪ Introduction to Program, Programming & Programming Language ▪ Introduction to Scratch and its interface ▪ Concept of variables. ▪ Concept of sequence control ▪ Drawing a line, Triangle, Rectangle, and Square using Scratch	Programming: Scratch Tool Flow Chart: Google Drawing	4	8	12
6	Being Future Ready-01	Students will be able to develop communication, collaboration, and research skills by using immersive experience technologies.	▪ To understand the concept of immersive experience and use it in education	▪ Introduction to Virtual Reality & Augmented Reality	**Virtual Reality:** Google Art and culture **Augmented Reality:** NCERT ePathshala AR	2	2	4
7	Exhibition & Evaluation of Portfolio	-	-	-	-	0	4	4

Suggested Tools/Resources

Theme	Suggested Resources
Introduction to ICT Environment	Activities using GCompris **Link : (Android) : https://play.google.com/store/apps/details?id=net.gcompris.full&hl=en** **Link : (Windows) : https://gcompris.net/index-en.html** **Additional Resources** 1. ICT in Education Class 6th (SCERT Delhi) **Link :https://www.youtube.com/watch?v=n9sIGl6gBEo&feature=youtu.be** 2. NPTEL : ICT Basics **Link : https://www.youtube.com/watch?v=KpyUBIBojIY** CWSN resources: NVDA (Non visual desktop access) **Link: https://www.nvaccess.org/download/**
Data Representation and Processing-01 (Spreadsheet)	MS Excel Android App (in-app purchases) **Link :https://play.google.com/store/apps/details?id=com.microsoft.office.excel&hl=en** Google sheet (Web Version) **Link :https://docs.google.com/spreadsheets/u/0/** Open Office software suite **Link :https://www.openoffice.org/** Excel video training **Link :https://support.microsoft.com/en-us/office/excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb** **CWSN (Others): use of inbuilt Accessibility tools like text to speech, alt text etc.** **Google sheets :** Tools menu (spell check, personal dictionary, auto complete), Accessibility (screen reader support-for Braille support, Screen Magnifier) - FREE
Data Representation and Processing-02 (Word Processing)	MS Word (in-app purchases) **Link :https://play.google.com/store/apps/details?id=com.microsoft.office.word**

	Google Docs(Web Version) **Link : https://docs.google.com/document/u/0/** Open Office software suite **Link :https://www.openoffice.org/** Word for Windows training **Link :https://support.microsoft.com/en-us/office/word-for-windows-training-7bcd85e6-2c3d-4c3c-a2a5-5ed8847eae73** **CWSN :use of inbuilt Accessibility tools like text to speech, alt text etc** **Google docs :** Tools (spelling and grammar, dictionary, voice typing), Accessibility (screen reader support-for Braille support, Screen Magnifier) - FREE
Basics of Internet	DuckDuckGO **Link: Privacy Search Engine : https://duckduckgo.com/** Google Chrome (Android) **Link :https://play.google.com/store/apps/details?id=com.android.chrome** Google Chrome (window) **Link :https://www.google.com/chrome/** Kiddle : Safe visual search engine for kids **Link: https://www.kiddle.co/** CBSE Cyber Safety Manual **Link :https://cbseacademic.nic.in/web_material/Manuals/Cyber_Safety_Manual.pdf** **CWSN :**Web Access Tools for the Visually Impaired :- Screen Readers: A screen reader is a web accessibility software tool which reads text on the screen with a speech synthesizer or (less frequently) translates it into Braille., Screen Magnifier, Google chrome extensions :- OpenDyslexic for Chrome **Link: https://chrome.google.com/webstore/detail/opendyslexic-for-chrome/cdnapg-fjopgaggbmfgbiinmmbdcglnam?hl=en** Text to Speech and Read aloud **Link: https://chrome.google.com/webstore/detail/read-aloud-a-text-to-spee/hdhina-didafjejdhmfkjgnolgimiaplp?hl=en**

Learn to Code-01	ScratchJr (or any other Similar App) **Link :https://play.google.com/store/apps/details?id=org.scratchjr.android** Scratch Tool **Link :https://scratch.mit.edu/download** Google Drawing **Link :https://docs.google.com/drawings/** AutoDraw **Link :https://www.autodraw.com/** Scratch Tutorials **Link : https://www.youtube.com/watch?v=-3oCdNIeU_8** **CWSN(other):** Code Jumper (A Coding Language for the Blind and Visually Impaired | Science Times) **Link : https://www.sciencetimes.com/articles/20771/20190425/a-coding-language-for-the-blind-and-visually-impaired.htm**
Being Future Ready-01	Merge Explorer **Link :https://play.google.com/store/apps/details?id=com.MergeCube.EDUExplorer** Sky View **Link :https://play.google.com/store/apps/details?id=com.t11.skyviewfree** Google Art and culture (or any other Similar Tool) **Link :https://artsandculture.google.com/** CBSE Student Handbook - Level-1 **Link :https://cbseacademic.nic.in/web_material/Curriculum23/publication/ARVR_Student_Handbook_Level1.pdf** CBSE Student Handbook - Level-2 **Link :https://cbseacademic.nic.in/web_material/Curriculum23/publication/ARVR_Student_Handbook_Level2.pdf** **CWSN resources**: **Google Earth VR - https://arvr.google.com/earth/ - FREE WEBSITE FOR EXPERIENCE**

Suggested Projects:

1. Digital Poster Making :

This project aims to make students gather information about any issue like Climate Change, Diseases, or any other social issues using the internet and represent the cause and effects of the issue on a Digital Poster (using word processing document by embedding images and text)

For example, students can gather information about Global Warming and represent the causes and demerits on a Digital Poster using suitable Images and Text.

2. Creating an immersive experience

This project aims to make students explore the effectiveness of learning through the creation of an AR experience. Students can use an app like ArLoopa or 3D Bear or Devar or any other suitable app and create an immersive learning experience. For example, they can place a virtual solar system in the real world and record a video while explaining it in detail (students can record themselves while standing alongside the experience and explaining)

OR

Create a simple story in scratch. Students can choose any number of Sprite characters and create a simple story. For example they can choose any two characters, a suitable background and create a story where the two characters are communicating.

ICT COURSE COVERAGE

COURSE COVERAGE: Class 7

Sr No	Theme	Competency	Objectives	Title	Tools	Demonstration (Periods)	Hands-On & Assessment (Periods)	Total
1.	Data representation and processing- 03 (Presentation Tool)	Student will be able to develop creativity, critical thinking and design thinking skills.	▪ To create presentations. ▪ edit and format presentation ▪ animate slides using transitions	Creating Presentations ▪ Introduction to presentation software ▪ Use of Presentations ▪ Adding slides ▪ Designing Slides ▪ Adding Animations ▪ Exploring File saving options	Open Office software suite	3	6	9
2.	Learn to Code-02	Students will be able to develop Problem solving, critical thinking and Decision Making skills	To create interactive programs and animations using block coding.	Programming Fundamentals ▪ Decision making and Looping. ▪ Flow of Control using Algorithm and Flowchart ▪ use of conditional constructs ▪ use of loops	Scratch Tool	5	8	13
3.	Being Future Ready-02	Students will be able to develop communication, collaboration, creativity, critical thinking , and research skills.	To create and represent information using a website	Website Designing ▪ need of websites ▪ Introduction to website development, web pages ▪ Adding elements to a website like images, text, videos and links ▪ Publishing a website	Drag and drop tools: Example Weebly	**2**	**9**	**11**
4.	Digital Footprints	Students will be able to develop the ability to protect personal information, avoid infringing on others online privacy rights, and to maintain a positive online presence media . They shall also be able to develop media literacy.	To understand the implication of sharing personal information online.	Digital Footprints ▪ Define a Digital Footprint. ▪ How can seemingly innocent actions online can leave a footprint ?	Awareness through experiential learning eg skits, slogan making, umbrella rallies, poster making etc. Using any suitable digital tool	**4**	**1**	**5**

5	Software Application	Students will be able to learn to integrate learning with with real life scenarios and with other academic subjects (Interdisciplinary approach) They will also be able to develop collaboration and Technology Literacy skills.	To work with Interdisciplinary approach using subject specific software	Students will create one artefact using an ICT tool in a subject of their choice: Maths/Science/Sst/ Language	For example: Geogebra for math Stellarium for SST Blog writing for English using Wordpress	**3**	**5**	**8**
6.	Exhibition & Evaluation of Portfolio	-	-	-	-	0	4	4

Suggested Tools/Resources

Theme	Suggested Resources
Data representation and processing-03 (Presentation Tool)	Microsoft Open Office: **Link: https://www.openoffice.org/** Mobile Apps: Google Slides, WPS, O365 **CWSN: We can use windows inbuilt Accessibility tools like text to speech, alt text etc.** **Google Slides :** Tools (spelling, dictionary, voice type teacher notes, Accessibility (screen reader support-for Braille support, Screen Magnifier) - FREE
Learn to Code-02	Tools: ScratchJr (or any other Similar App) **Link : https://play.google.com/store/apps/details?id=org.scratchjr.android** Scratch Tool **Link :https://scratch.mit.edu/download** Google Drawing **Link : https://docs.google.com/drawings/** MakeCode Arcade **Link: https://arcade.makecode.com/** **Mobile Apps:** Scratch Junior App available **CWSN:** Code Jumper (A Coding Language for the Blind and Visually Impaired | Science Times) **Link : https://www.sciencetimes.com/articles/20771/20190425/a-coding-language-for-the-blind-and-visually-impaired.htm**

Being Future Ready-02	Other tools: **Wordpress: Link: https://wordpress.com/** Google Sites: **Link: https://support.google.com/sites/answer/6372878?hl=en** Wixsite: **Link: https://www.wix.com/** Adobe Express: **Link: https://www.adobe.com/express/** **CWSN(other):** Adobe Express has inbuilt accessibility. **Link: https://chrome.google.com/webstore/detail/screen-reader/kgejglhpjiefppelpmljglcjbhoiplfn?hl=en**
Digital Footprints	**Resources :** Training on Online Safety Portocal and Cyber Security. **Link: https://diksha.gov.in/explore-course/course/do_3135345190604800011308** Skill Education Book **Link: https://cbseacademic.nic.in/skill-education-books.html**
Software Applications	Tools: Self Directed Learning Resources – GeoGebra **Link : https://www.geogebra.org/?lang=en** Desmos **Link: https://www.desmos.com/** Stellarium: **Link: https://stellarium.org/** Barefoot world Atlas **https://www.educationalappstore.com/app/barefoot-world-atlas** **CWSN : Voice4u AAC -** This Augmentative and Alternative Communication (AAC) app provides a picture-based communication system for people with speech challenges **Link: https://voice4uaac.com/products/aac/ - PAID ANDROID APP** **Proloquo2Go** -This AAC app was created to be a daily communication tool for people with speech challenges. Users communicate by tapping symbols from the apps. **Link: https://www.assistiveware.com/products/proloquo2go - PAID ANDROID APP**

Suggested Projects:

1. **Creating a Game:** Create a game in Scratch or any other tool that addresses a real world problem. Examples:
   (a) Student can create a game where a swimmer is deaving the polluted river.
   (b) Student can create a game to enhance lauguage skills, mathematical skills or analytical skills.
2. **Creating a Website:** Create a website using a tool of your choice on any of the topic from their subjects. The website will give full information on the chosen topic, links of resources for the topic which can be used to make projects.

ICT COURSE COVERAGE

COURSE COVERAGE: Class 8

Sr. no	Theme	Competency	Objectives	Title	Tools	Periods		
						Demons--tration	Hands on & Assessment	Total Periods
1	Data Representation & Processing-04 (Spreadsheet)	Students will be able to develop the skills for creating effective and accurate visualizations of data sets.	▪ To create spread--sheets and represent data using graphs, interpret graphs and identify data patterns ▪ To sort and filter data	▪ Representing data using graphs. • Line chart, • bar chart, • pie chart ▪ Sorting data ▪ Filtering data	Open Office Soft-ware Suite	3	6	9
2	Learn-to-Code-03	Students will be able to develop creative thinking, critical think-ing, problem solving and integration of application with real life scenarios	▪ To create email ids and pass-word ▪ To create and represent infor-mation using an app	▪ Creating Authorised email login credentials and manag-ing pass-words ▪ Selecting an app layout. ▪ Creating user Interface ▪ Adding elements like buttons, la-bels, images etc. ▪ Overview of Block coding of app ▪ Testing app on phone ▪ Creating apk	MIT App inventor https:// builder. andromo. com/	4	8	12
3	Digital Well-being	Students will be able to de-velop healthy online work-ing method-ology and learn how to maintain bal-ance between the real and virtual world.	▪ To learn about Cyber ethics ▪ To learn about balancing on-line and offline activities	▪ How to behave with people in vir-tual world. ▪ Health implication of excess screen-time ▪ Concept of a habit tracker. ▪ Methods for digital detox-ification	Class ac-tivities like Skit pre-sentation, RolePlays, poster mak-ing, Slogan writing etc.	2	4	6

4 .	Being Future Ready- 02	Students will be able to develop creative thinking, critical thinking and problem solving skills. Student will also be able to enhance curiosity and imagination·	▪ To learn basics and uses of Artificial Intelligence(AI) in real life. ▪ To know the various Domains of Artificial Learning ▪ To understand AI Ethics and bias ▪ To understand the impact of AI on Sustainable Development Goals to develop responsible citizenship	▪ Introduction to Artificial Intelligence ▪ Applications of AI in real life ▪ Artificial Intelligence. Domains ▪ Artificial Intelligence Ethics and bias ▪ Introduction to sustainable development goals .	▪ AI for oceans an free online Platform achieving SDG 14: Life Below Water https://code.org/oceans AI Domain activities: Data : Rock, Paper and Scissors https://rockpaper-scissors-ai.vercel.app **CV:** https://quickdraw.withgoogle.com/ **NLP :** Google assistant	5	14	19
5	Exhibition & Evaluation of Portfolio			Showcasing/ e-portfolio		0	4	4

Suggested Tools/Resources

Theme	Suggested Resources
Data Representation & Processing -04	Other tools : spreadsheets open and libreoffice **Link: https://www.office.org/en/openoffice/** Mobile Apps : WPS Office, Excel, sheets, office365 **CWSN:** We can use window inbuilt Accessibility tools like text to speech, alt text etc. **Google sheets :** Tools menu (spell check, personal dictionary, auto complete), Accessibility (screen reader support-for Braille support, Screen Magnifier) - FREE

Learn- to- Code- 03	Mobile Apps : MIT AI2 COMPANION **Link: https://play.google.com/store/apps/details?id=edu.mit.appinventor.aicompanion3** **CWSN :** Code Jumper (A Coding Language for the Blind and Visually Impaired | Science Times) **Link:** https://codejumper.com/
Digital Wellbeing	**Resources :** Training on Online Safety Portocal and Cyber Security. **Link: https://diksha.gov.in/explore-course/course/do_31353451906048000113** Skill Education Book **Link: https://cbseacademic.nic.in/skill-education-books.html**
Being Future Ready -02	Other tools Students to join AI Community initiated by CBSE **Link: https://aistudent.community** Students to join AI for ALL Community initiated by CBSE and Intel **Link: https://ai-for-all.in/#/home?ref=CBSE** **CWSN :** Supersense - AI for Blind, Supersense is the smartest assistive app that helps blind and visually impaired users to read, find objects, and explore places independently. It provides a set of digital eyes to make the physical world more accessible for the blind and low vision community. **Link: https://play.google.com/store/apps/details?id=com.mediate.supersense** Bear 71 by Jam3 and National Film Board of Canada - Bear 71 is the Planet Earth of the future. It's a nature documentary blended with a VR experience that looks great in a headset or a browser. **Link: https://bear71vr.nfb.ca/** **Links :** **https://aidemos.microsoft.com/luis** **https://experiments.withgoogle.com/collection/ai** **https://code.org/** **https://teachablemachine.withgoogle.com/train** Free Self directed online courses which are available on the links provided **Note:** Teachers to give demo of AI activities like Face or object recognition, sound recognition and embed that code on free web portals, free self directed online courses which are available on the links provided.

Suggested Projects:

1. **Creating a mobile app:**
   Create a mobile app using tools of your choice with the theme Sustainable Development Goals. The students can choose from the following SDGs:
   Zero Hunger : SDG - Goal 2
   Zero Poverty : SDG - Goal 1
   These apps can be tested on any smartphone or on computer and links should be submitted.

2. **Use of AI:**
   Students will create Website using tools learnt in class 7 on various applications of Artificial Intelligence they have learnt in class 8.

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