Tech Tinkerer Curriculum for ICT, AI, Coding and Robotics

ICSE (Class 1 to 8)

Curriculum for the Tech Tinkerer Program in School for Computer, Coding, Robotics & AI Education for Class 1 to 8

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Tech Tinkerer (Class 1 to 8)

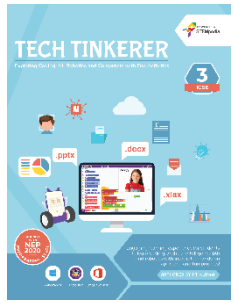
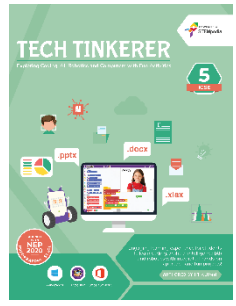
Mastering Coding, Artificial Intelligence, Robotics, and ICT with Fun Activities for ICSE Schools

Tech Tinkerers is an innovative curriculum designed for ICSE schools, targeting students from Class 1 to 8. This program is meticulously crafted to immerse students in the world of technology, covering Coding, Artificial Intelligence (AI), Robotics, and Information and Communication Technology (ICT). Through engaging activities and hands-on lab sessions, students will explore the fascinating realms of technology while developing critical thinking and problem-solving skills.

Item	Detail
Board	ICSE
Classes	Class 1 to 8
Concepts Covered	Coding, Artificial Intelligence, Physical Computing, Robotics, Computer Basics, Windows 10 Basics and Microsoft Office
Number of Lab Activities	For Class 1 to 2 – 20 Lab Activities For Class 3 to 8 – 25 Lab Activities
Lesson Plan	For Class 1 to 2 – 36 Sessions (18 for Classroom Learning & 18 for Lab Activities) For Class 3 to 8 – 50 Sessions (25 for Classroom Learning & 25 for Lab Activities) Each of the Classroom Learning and Lab Activity session is of 40 minutes
Teacher Resources	Lesson Plan – Yearlong session wise lesson plan for teachers instructing how to execute the program. Lecture Slides – Provided for every Classroom Learning and Lab Activity session
Capstone Project	All students are provided opportunity work on open projects and submit their work in Codeavour International Competition.
PictoBlox Credits	Every student enrolled in the program will get 3000 PictoBlox credits.

Tech Tinkerers curriculum offers a holistic and futuristic approach to learning technology, ensuring students are well-equipped with the necessary skills and knowledge to thrive in a rapidly evolving digital world. Through a blend of theoretical knowledge and practical application, students will develop a robust understanding of various tech domains, setting a solid foundation for their future careers in technology.

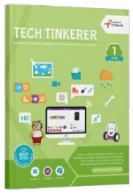
Tech Tinkerers Class 1 to 5 Comparative Study

Feature	Class 1	Class 2	Class 3	Class 4	Class 5
					
# of Pages	68	66	110	122	126
# of Chapters	6	6	9	9	7
# of Activities	18	18	25	25	25
Software and Hardware Used	MS Paint, Notepad, PictoBlox Jr, Quarky	Tux Paint, WordPad, PictoBlox Jr, Quarky	Windows 10, Notepad, WordPad, MS Paint, MS Word, MS Excel, PictoBlox, Quarky	Windows 10, MS Paint, Tux Paint, MS Word, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky	Windows 10, Calculator, MS Paint, WordPad, MS Word, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky
Competition	Access to Codeavour				
Technologies	Computers, Coding, Artificial Intelligence and Robotics				
Sessions Required	Total 36 – (18 Lab Activities, 18 Classroom)	Total 36 – (18 Lab Activities, 18 Classroom)	Total 50 – (25 Lab Activities, 25 Classroom)	Total 50 – (25 Lab Activities, 25 Classroom)	Total 50 – (25 Lab Activities, 25 Classroom)
Resources for Teachers	Lesson Plan, Lecture Slides (Textual, Images, Video)				
Certification	Yes (5 lab activities)	Yes (5 lab activities)	Yes (10 lab activities)	Yes (10 lab activities)	Yes (10 lab activities)
TOC Chapters	- Know Your Computer - Fun with Paint - Algorithmic Thinking - Into the World of Coding - Into the Robotics - Into the AI	- Know Your Computer - Fun with Paint - Critical Thinking and Analysis - Into the World of Coding - Into the Robotics - Into the AI	- Know Your Computer - Fun with Paint - Introduction to Algorithm and Coding - Introduction to MS Word - Introduction to MS Excel - The Internet - Fun with Robotics - Game Development - Learn About AI	- Know Your Computer - Fun with Paint - Basics of Coding and Algorithm - Introduction to MS Word - Introduction to MS PowerPoint - The Internet - Fun with Robotics - Fun with AI - Stepping into the World of Game Design	- Know Your Computer - Coding & Algorithmic Thinking - Explore More in MS Word - Introduction to PowerPoint - Fun with Robotics - The World of AI - Internet Connectivity

Tech Tinkerers Class 6 to 8 Comparative Study

Feature	Class 6	Class 7	Class 8
			
# of Pages	154	164	160
$ of Chapters	10	11	8
$ of Activities	25	25	25
Software and Hardware Used	Windows 10, Windows Media Player, MS Word, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky, HTML	Windows 10, PicsArt App, MS Excel, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky, HTML	Windows 10, Canva App, MS Excel, PictoBlox Block Coding, PictoBlox Python Coding, PictoBlox Machine Learning, PictoBlox AI, Quarky
Competition	Access to Codeavour	Access to Codeavour	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence, Web Design, and Robotics	Computers, Coding, Artificial Intelligence, Web Design and Robotics	Computers, Coding, Artificial Intelligence, Machine Learning, Robotics, App Development, and Network
Sessions Required	Total 50 – (25 Lab Activities, 25 Classroom Learnings)	Total 50 – (25 Lab Activities, 25 Classroom Learnings)	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources for Teachers	Lesson Plan, Lecture Slides (Textual, Images, Video)		
Certification	Yes (15 lab activities)	Yes (15 lab activities)	Yes (15 lab activities)
TOC Chapters	- Basics of ICT - Introduction to Coding - Variable using Block Coding - Control with Conditions - Basics of MS Word - Basics of Microsoft PowerPoint - Introduction to Robotics - Fun with AI - Online Surfing - Introduction to HTML	- Basics of ICT - Coding & Variables in Real Life - Sequencing with Block Coding - Fun with Functions - Collections and Arrays - Introduction to MS Excel - Fun with AI - Mastering Robotics - Advance HTML - Computer Virus - Ethics and Safety Measures in Computing	- Basics of Operating System - Algorithms and Flowchart - Basics of Python Programming - Mastering MS Excel - Artificial Intelligence and Machine Learning - Introduction to Robotics and Emerging Technologies - Basics of App Development - Computer Networking

Software and Hardware Used

	Windows 10	MS Paint	Notepad	PictoBlox Junior Blocks	Quarky Robot				
	Windows 10	Tux Paint	WordPad	PictoBlox Junior Blocks	Quarky Robot				
	Windows 10	MS Paint	Tux Paint	Notepad	WordPad	MS Word 16/19	MS Excel 16/19	PictoBlox Block Coding	Quarky Robot
	Windows 10	MS Paint	Tux Paint	MS Word 16/19	MS PowerPoint 16/19	PictoBlox Block Coding	Quarky Robot		
	Windows 10	MS Paint	WordPad	Calculator	MS Word 16/19	MS PowerPoint 16/19	PictoBlox Block Coding	Quarky Robot	Google Chrome
	Windows 10	Windows Media Player	MS Word 16/19	MS PowerPoint 16/19	PictoBlox Block Coding	PictoBlox AI	Quarky Robot	Notepad	HTML
	Windows 10	PicsArt	MS Excel 16/19	MS PowerPoint 16/19	PictoBlox Block Coding	PictoBlox AI	Quarky Robot	Notepad	HTML
	Windows 10	Canva App	MS Excel 16/19	PictoBlox Py Editor	PictoBlox AI	PictoBlox Machine Learning	Quarky Robot		

FAQs on Tech Tinkerer Program

1. What is the Tech Tinkerer Program?

The “Tech Tinkerer” program represents a significant advancement in the educational approach to technology and computing in schools. Previously, the ICSE schools operated computer labs that primarily focused on basic Information and Communication Technology (ICT). These labs provided fundamental knowledge and skills in using computers and understanding basic digital tools and software.

With the introduction of the “Tech Tinkerer” program, there has been a substantial upgrade in the scope and capability of computer labs. They have been transformed into AI and Robotics Labs, indicating a shift towards more advanced and contemporary areas of technology. This upgrade includes not only a complete coverage of traditional ICT subjects but also incorporates extensive training and education in Coding, Artificial Intelligence (AI), and Robotics.

This means that students are now exposed to a wider range of technological skills and knowledge. They learn programming languages and coding techniques, which are essential for creating software, apps, and websites. The AI component of the program introduces them to the principles of artificial intelligence, machine learning, and data analysis, providing them with insights into how intelligent systems are designed and function. Robotics education brings a hands-on approach to learning, where students can apply their coding and AI knowledge to build and program robots, understanding the mechanics, electronics, and software integration necessary for robotics.

Overall, the “Tech Tinkerer” program represents a modern and forward-thinking approach to technology education in schools, preparing students for a future where digital literacy, programming skills, and an understanding of AI and robotics will be increasingly important.

2. What classes does the Tech Tinkerer Program cater to?

This program is meticulously structured for students across a wide age range, specifically targeting those in Class 1 through Class 8. It is crafted to suit the learning capabilities and educational needs of each age group, gradually building complexity and depth as students progress through their school years.

3. Which concepts are covered in the Tech Tinkerer Program?

The program covers a diverse range of technological and computer science concepts. These include the basics of coding and programming languages, the fundamentals and applications of artificial intelligence, the principles of physical computing, the operation and understanding of robotics, general computer literacy, and an introduction to Windows 10 and various Microsoft Office tools. This wide range of topics ensures a well-rounded exposure to essential technology concepts.

4. What is the structure of lab activities in the program?

The program emphasizes practical learning, with a significant number of lab activities. For students in Class 1 and 2, there are 18 lab activities. This number increases to 25 for students from Class 3 to 8. These activities are designed to reinforce theoretical knowledge with hands-on experience, encouraging students to apply what they have learned in a practical, engaging environment.

6. How many sessions are included in the program for each class?

The program is comprehensive, with a total of 36 sessions for Class 1 and 2 students and 50 sessions for those in Class 3 to 8. Each session is carefully planned, splitting equally between classroom learning and lab activities to ensure a balanced educational experience.

7. What resources are provided for teachers in the Tech Tinkerer Program?

Teachers are equipped with extensive resources, including a detailed yearlong session-wise lesson plan, which guides them on how to effectively execute the program. Additionally, lecture slides are provided for every classroom learning and lab activity session, ensuring that teachers have the necessary tools and information to deliver the curriculum effectively.

8. Is there a capstone project in the Tech Tinkerer Program?

Yes, the program includes a capstone project, offering students an opportunity to work on open-ended projects. These projects are submitted in the Codeavour International Competition, providing a platform for students to showcase their creativity, problem-solving skills, and technological expertise.

9. What are PictoBlox Credits, and how many are provided to each student?

PictoBlox Credits are a unique feature of the program, acting as a currency within the PictoBlox software used for AI modules. Each student enrolled in the program receives 3000 PictoBlox credits, which can be used to access various features and tools within the software, enhancing their learning experience.

10. What certifications are available through the Tech Tinkerer Program?

Upon completing specific lab activities, students can earn digital certificates accredited by esteemed organisations like STEMpedia, STEM.org, and ARTPARK. These certifications recognise the students' achievements and mastery of the skills learned throughout the program.

11. How does the program integrate practical learning?

Tech Tinkerer is heavily focused on practical, experiential learning. It achieves this through an extensive array of lab activities that encourage students to apply theoretical concepts in real-world scenarios. This practical approach is crucial for deepening understanding and fostering a hands-on experience in technology and computer science.

12. Are there any competitions associated with the Tech Tinkerer Program?

Yes, the program offers access to the Codeavour competition, a significant platform for students to apply and test their learning in a competitive and stimulating environment. This exposure not only enhances their learning experience but also fosters a spirit of innovation and competitiveness.

13. What support is available for students and teachers in the program?

The Tech Tinkerer Program provides robust support for both students and teachers. Teachers receive detailed lesson plans and educational resources, while students are provided with engaging and interactive learning materials, access to technology tools, and opportunities to participate in competitions.

14. What is the role of PictoBlox and Quarky in Enhancing Practical Learning?

PictoBlox plays a pivotal role in demystifying Artificial Intelligence (AI) for students, serving as an accessible and engaging platform. It stands out for its user-friendly interface, making Python programming and AI concepts approachable for learners of various ages. Here's how PictoBlox enhances practical learning:

1. **Intuitive Learning Approach:** PictoBlox simplifies the complexities of AI. It introduces students to Python, a language at the forefront of AI development, in an easy-to-understand manner. This approach helps bridge the gap between abstract AI concepts and their real-world applications.
2. **Interactive AI Activities:** The platform offers a range of interactive activities, from image classification and object detection to natural language processing. These activities not only engage students but also provide a hands-on experience with the practical aspects of AI, enhancing their understanding and retention.
3. **Accessible AI Concepts:** By breaking down AI into manageable components, PictoBlox makes learning AI accessible to a younger audience. It allows students to grasp fundamental AI principles and apply them in creative ways, fostering an early interest in this advanced field.
4. **Enjoyable Learning Experience:** PictoBlox turns learning into a fun and interactive experience. Its engaging activities captivate students' attention, making the learning process enjoyable and less daunting, especially for complex topics like AI.

Quarky is a robotic tool that provides an invaluable hands-on experience in the world of robotics. It's an excellent educational resource, offering practical insights into robotics. The key aspects of Quarky in enhancing practical learning include:

1. **Exploration of Robotic Movements:** Quarky allows students to delve into the mechanics of robotic movements. By programming and observing Quarky in action, students get a firsthand understanding of how robots move and operate, translating theoretical knowledge into practical skills.
2. **Sensor Usage and Applications:** Quarky is equipped with various sensors, giving students the opportunity to learn about sensor technology and its applications in robotics. This hands-on experience is crucial in understanding how robots interact with their environment.
3. **Control Systems Learning:** Through Quarky, students explore the different control systems used in robotics. They learn how to program and control a robot, gaining insights into the critical aspects of robotic navigation and manipulation.
4. **Practical Understanding of Robotics:** By working with Quarky, students move beyond the theoretical aspects of robotics. They engage in practical activities, from building and programming to testing their robotic creations, which solidifies their understanding and sparks their interest in the field.

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TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

1 ICSE

ALIGNED WITH NEP 2020 FOUNDATIONAL STAGE

Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

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Windows 10 PictoBlox MS Paint

Tech Tinkerers - Class 1

Feature	Description
Number of Pages	66
Number of Chapters	6
Number of Activities	18
Sessions Required to Complete Course	Total 36 – (18 Lab Activities, 18 Classroom Learnings)
Software and Hardware Used	MS Paint, PictoBlox Jr, Quarky
Competition	Access to Codeavour
	Computers, Coding, Artificial Intelligence and Robotics
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 5 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Table of Contents – Tech Tinkerers (Class 1)

POWERED BY STEMpedia

TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

2 ICSE

ALIGNED WITH NEP 2020 FOUNDATIONAL STAGE

Windows 10 PictoBlox Tux Paint

Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

AUTHORED BY IIT ALUMNI

Tech Tinkerers - Class 2

Feature	Description
Number of Pages	68
Number of Chapters	6
Number of Activities	18
Software and Hardware Used	Tux Paint, PictoBlox Jr, Quarky
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 36 – (18 Lab Activities, 18 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 5 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Table of Contents – Tech Tinkerers (Class 2)

POWERED BY STEMpedia

TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

3 ICSE

ALIGNED WITH NEP 2020 PREPARATORY STAGE

Engaging learning experience for students to learn coding, artificial intelligence (AI) and robotics with integrated hands-on approach and fun projects!

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Windows 10 PictoBlox Office 16/19/365

Tech Tinkerers – Class 3

Feature	Description
Number of Pages	112
Number of Chapters	9
Number of Activities	25
Software and Hardware Used	Windows 10, Notepad, WordPad, MS Paint, Tux Paint, MS Word, MS Excel, PictoBlox, Quarky
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 10 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Chapter wise Learning Outcome

1. **Chapter 1: Know Your Computer** - Gain foundational knowledge about computers, including their hardware and software components, different types, basic Windows operations, and simple text editing skills.
2. **Chapter 2: Fun with Paint -** Explore the user interface and artistic tools of MS Paint to create digital art, focusing on brush techniques and image manipulation.
3. **Chapter 3: Introduction to Algorithm and Coding -** Understand the basics of algorithmic thinking, stepwise problem-solving, and introductory programming concepts using PictoBlox.
4. **Chapter 4: Introduction to MS Word -** Learn to navigate and utilize MS Word for text formatting, document creation, and efficient keyboard shortcuts.
5. **Chapter 5: Introduction to MS Excel -** Discover the essentials of MS Excel, including its interface, cell management, and auto drag feature for data organization.
6. **Chapter 6: The Internet -** Gain an understanding of the internet, its benefits and drawbacks, basic web navigation, and the importance of online safety.
7. **Chapter 7: Fun with Robotics -** Explore the world of robotics with an introduction to the Quarky Robot, learning about its features and basic controls.
8. **Chapter 8: Game Development -** Delve into the basics of game development using PictoBlox, focusing on the creation of simple games and understanding game variables.
9. **Chapter 9: Learn About AI -** Get an introduction to Artificial Intelligence, its applications, and practical experiences with AI techniques like face detection.

Capstone Project: Apply the accumulated skills in a comprehensive project, showcasing proficiency in computer science, coding, AI, and robotics.

Table of Contents – Tech Tinkerers (Class 3)

POWERED BY STEMpedia

TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

4 ICSE

ALIGNED WITH NEP 2020 PREPARATORY STAGE

Engaging learning experience for students to learn coding, artificial intelligence (AI) and robotics with integrated hands-on approach and fun projects!

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Windows 10 PictoBlox Office 16/19/365

Tech Tinkerers – Class 4

Feature	Description
Number of Pages	122
Number of Chapters	9
Number of Activities	25
Software and Hardware Used	Windows 10, MS Paint, Tux Paint, MS Word, MS Excel, PictoBlox Block Coding, PictoBlox AI, Quarky
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 10 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Chapter wise Learning Outcome

1. **Chapter 1: Know Your Computer -** Understand data and information, learn about different types of memory and data storage units, and get acquainted with Windows 10 and file management basics.
2. **Chapter 2: Fun with Paint -** Gain skills in using MS Paint and Tux Paint, including working with designer tools, editing shapes, importing images, and creating digital art.
3. **Chapter 3: Basics of Coding and Algorithm -** Learn the fundamentals of algorithms, programming basics with PictoBlox, decision-making, loops, variables, operators, and debugging.
4. **Chapter 4: Introduction to MS Word -** Explore the interface of MS Word, learn text formatting, thesaurus usage, and create artistic text with WordArt.
5. **Chapter 5: Introduction to PowerPoint -** Understand the PowerPoint interface, learn how to choose themes, add slides, insert pictures, and present slides effectively.
6. **Chapter 6: The Internet -** Learn about internet connectivity, network roles, essential internet terms, web browsers, and the importance of internet safety.
7. **Chapter 7: Fun with Robotics -** Discover the world of robotics, learn about Quarky, explore tactile switches, RGB LED displays, and principles of colour and light mixing.
8. **Chapter 8: Fun with AI -** Understand the basics of Artificial Intelligence, explore AI robots, and engage in practical AI applications like human body detection.
9. **Chapter 9: Stepping into Game Design -** Delve into game design principles, understand the importance of rules in game design, and learn about variables in gaming contexts.

Capstone Project: Apply the accumulated skills in a comprehensive project, showcasing proficiency in computer science, coding, AI, and robotics.

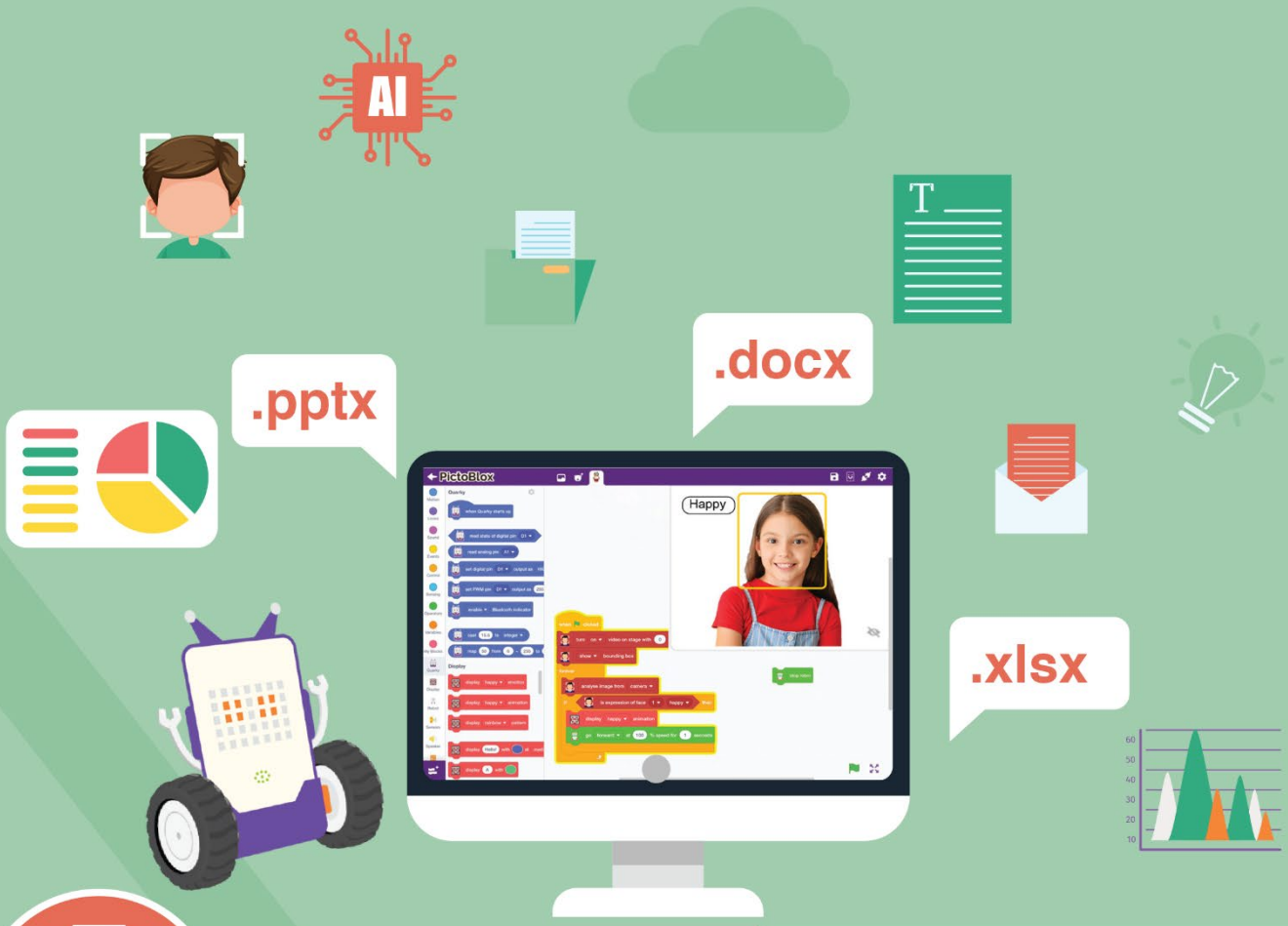
Table of Contents – Tech Tinkerers (Class 4)

POWERED BY STEMpedia

TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

5 ICSE



ALIGNED WITH NEP 2020 PREPARATORY STAGE

Engaging learning experience for students to learn coding, artificial intelligence (AI) and robotics with integrated hands-on approach and fun projects!

AUTHORED BY IIT ALUMNI

Windows 10 PictoBlox Office 16/19/365

Tech Tinkerers – Class 5

Feature	Description
Number of Pages	126
Number of Chapters	7
Number of Activities	25
Software and Hardware Used	Windows 10, Calculator, MS Paint, WordPad, MS Word, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 10 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Chapter wise Learning Outcome

1. **Chapter 1: Know Your Computer -** Understand the evolution and generations of computers, learn about their characteristics, operating systems, common Windows 10 programs, and distinguish between system and application software.
2. **Chapter 2: Coding & Algorithmic Thinking -** Grasp the concept of algorithms, flowcharts, algorithmic thinking, and engage in various coding activities using PictoBlox, including QR code reading and game development.
3. **Chapter 3: Explore More in MS Word -** Learn advanced MS Word features like tables, spell check, find and replace, headers and footers, text effects, and working with shapes.
4. **Chapter 4: Introduction to PowerPoint -** Discover how to use PowerPoint, including its interface, themes, slide editing, and presentation techniques.
5. **Chapter 5: Fun with Robotics -** Explore the fundamentals of robotics with Quarky, learning about robot movement, servo motors, IR sensors, and creating interactive robot projects.
6. **Chapter 6: The World of AI -** Delve into Artificial Intelligence, covering speech recognition, text-to-speech, AI in road safety, and practical AI projects like weather monitoring systems.
7. **Chapter 7: Internet Connectivity -** Understand internet connectivity, various connection methods, online etiquette, and effective participation in online discussions.

Capstone Project: Apply the accumulated knowledge and skills in a comprehensive project, showcasing proficiency in all the areas covered in the chapters.

Table of Contents – Tech Tinkerers (Class 5)

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TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

6
ICSE

ALIGNED WITH NEP 2020 MIDDLE STAGE

Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

AUTHORED BY IIT ALUMNI

Windows 10 PictoBlox Office 16/19/365

Tech Tinkerers – Class 6

Feature	Description
Number of Pages	154
Number of Chapters	10
Number of Activities	25
Software and Hardware Used	Windows 10, Windows Media Player, MS Word, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky, HTML
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 10 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Chapter wise Learning Outcome

1. **Chapter 1: Basics of ICT -** Understand the computer system, different computer categories, programming languages, file management in Windows, and file formats.
2. **Chapter 2: Introduction to Coding -** Learn the basics of coding, its applications, and explore PictoBlox for creating animations.
3. **Chapter 3: Variable using Block Coding -** Understand variables in coding, their naming rules, data types, and operations using block coding in PictoBlox.
4. **Chapter 4: Control with Conditions -** Master conditional programming, relational and logical operators, and nested conditional statements in coding.
5. **Chapter 5: Basics of MS Word -** Explore MS Word's interface, text formatting tools, table creation, and mail merge function.
6. **Chapter 6: Basics of Microsoft PowerPoint -** Learn about PowerPoint's interface, slide design, adding text and images, and presenting slideshows.
7. **Chapter 7: Introduction to Robotics** - Discover different types of robots, their advantages, and basic programming using Quarky.
8. **Chapter 8: Fun with AI -** Explore the basics of Artificial Intelligence, human vs. AI intelligence, and face detection techniques.
9. **Chapter 9: Online Surfing -** Understand internet basics, web browsing, search engines, email, online storage, e-commerce, and digital content creation.
10. **Chapter 10: Introduction to HTML -** Learn HTML basics, including tags, document structure, styles, images, and creating HTML documents.

Capstone Project: Apply the accumulated knowledge and skills in a comprehensive project, showcasing proficiency in all the areas covered in the chapters.

Table of Contents – Tech Tinkerers (Class 6)

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TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

7 ICSE

ALIGNED WITH NEP 2020 MIDDLE STAGE

Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

AUTHORED BY IIT ALUMNI

Windows 10 PictoBlox Office 16/19/365

Tech Tinkerers – Class 7

Feature	Description
Number of Pages	164
Number of Chapters	11
Number of Activities	25
Software and Hardware Used	Windows 10, PicsArt App, MS Excel, PictoBlox Block Coding, PictoBlox AI, Quarky, HTML
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 10 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Chapter wise Learning Outcome

1. **Chapter 1: Basics of ICT -** Learn about computer hardware, software, Windows OS, file management, number systems, and digital creativity with PicsArt.
2. **Chapter 2: Coding & Variables in Real Life -** Recap coding basics, explore PictoBlox, understand variables, arithmetic operators, and expressions in programming.
3. **Chapter 3: Sequencing with Block Coding -** Review loops, learn sequencing, selection, iteration in programming, and understand bugs and conditional statements.
4. **Chapter 4: Fun with Functions -** Understand functions in programming, their parameters, return values, and event handling in PictoBlox.
5. **Chapter 5: Collections and Arrays -** Learn about collections, arrays in Python and block coding, iterating over collections, and sorting lists using arrays.
6. **Chapter 6: Introduction to MS Excel -** Get acquainted with MS Excel's interface, data sorting, filtering, chart creation, and worksheet printing.
7. **Chapter 7: Fun with AI -** Recap AI fundamentals, explore AI techniques like face detection, computer vision, speech recognition, and NLP with PictoBlox.
8. **Chapter 8: Mastering Robotics -** Understand robotics, applications of robots, line following robots, self-driving cars, and AI in robotics.
9. **Chapter 9: Advance HTML -** Recap HTML basics, learn about inserting images, links, creating tables, and forms in web pages.
10. **Chapter 10: Computer Virus -** Understand what a computer virus is, its types, antivirus software, and preventative measures against virus attacks.
11. **Chapter 11: Ethics and Safety Measures in Computing -** Learn the pros and cons of internet usage, computing ethics, preventing unethical practices, and managing digital footprints.

Capstone Project: Apply the accumulated knowledge and skills in a comprehensive project, showcasing proficiency in all the areas covered in the chapters.

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POWERED BY STEMpedia

TECH TINKERER

Exploring Coding, AI, Robotics and Computers with Fun Activities

8 ICSE

ALIGNED WITH NEP 2020 MIDDLE STAGE

Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

AUTHORED BY IIT ALUMNI

Windows 10 PictoBlox Office 16/19/365

Tech Tinkerers – Class 8

Feature	Description
Number of Pages	160
Number of Chapters	8
Number of Activities	25
Software and Hardware Used	Windows 10, Canva App, MS Excel, PictoBlox Block Coding, PictoBlox Python Coding, PictoBlox Machine Learning, PictoBlox AI, Quarky
Competition	Access to Codeavour
Technologies Covered	Computers, Coding, Artificial Intelligence and Robotics
Sessions Required to Complete Course	Total 50 – (25 Lab Activities, 25 Classroom Learnings)
Resources Available for Teachers	Lesson Plan, and Lecture Slides (Containing Textual, Images, and Video based Content)
Certification	Yes. Need to submit 10 lab activities online to get digital certificate accredited by STEMpedia, STEM.org and ARTPARK.

Chapter wise Learning Outcome

1. **Chapter 1: Basics of Operating System -** Learn about operating systems, their necessity, functions, features, types, user interfaces, and design using Canva.
2. **Chapter 2: Algorithms and Flowchart -** Understand algorithms, flowcharts, their benefits, and pseudocode.
3. **Chapter 3: Basics of Python Programming -** Grasp Python programming fundamentals, including syntax, variables, operators, lists, and control flow.
4. **Chapter 4: Introduction to MS Excel -** Explore MS Excel's interface, data sorting, filtering, chart creation, and printing worksheets.
5. **Chapter 5: Artificial Intelligence and Machine Learning -** Recap AI, understand machine learning types, model types in machine learning, neural networks, and NLP.
6. **Chapter 6: Introduction to Robotics and Emerging Technologies -** Learn about the advantages of robots, augmented reality, virtual reality, mixed reality, and blockchain technology.
7. **Chapter 7: Basics of App Development -** Understand the importance of apps, their basic architecture, and the development of simple apps.
8. **Chapter 8: Computer Networking -** Learn about network types, internet-related terms, networking protocols, and cloud computing.

Capstone Project: Crown the learning journey by applying the accumulated knowledge and skills in a comprehensive project, showcasing proficiency in all the areas covered in the chapters.

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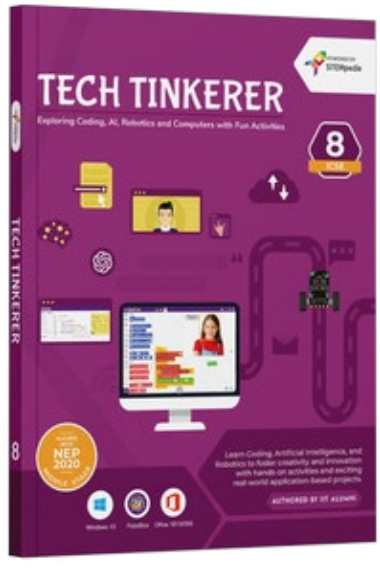
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