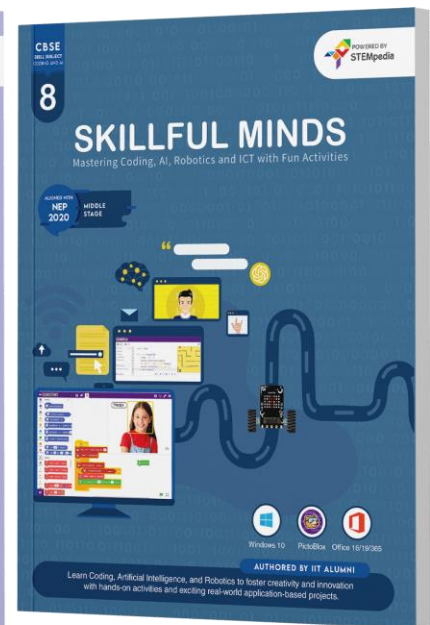
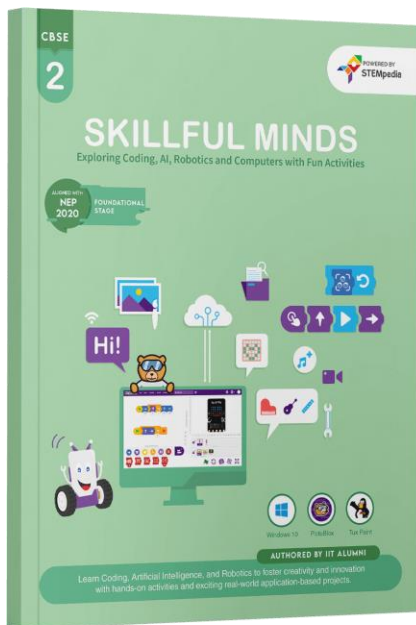




Skillful Minds Curriculum for ICT, AI, Coding and Robotics CBSE (Class 1 to 8)

Transform your school computer labs from simple ICT learning to comprehensive AI and Robotics lab, with carefully structured curriculum and practical-based learning for 21st Century Skills.



Authored By

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Skillful Minds (Class 1 to 8)

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

Skillful Minds is a comprehensive and dynamic curriculum tailored for CBSE schools, encompassing Classes 1 to 8. This program focuses on delivering a robust understanding of Coding, Artificial Intelligence, Robotics, and ICT. Designed to inspire curiosity and foster innovative thinking, it integrates practical lab activities with classroom learning, providing students with a hands-on approach to mastering modern technology.

Program Detail

Item	Detail
Board	CBSE
Classes	Class 1 to 8
Concepts Covered	Coding, Artificial Intelligence, Physical Computing, Robotics, Computer Basics, Windows 10 Basics and Microsoft Office
Detail of CBSE Skill Subjects	CBSE Coding Skill Subject covered for Class 6 to 8 CBSE Artificial Intelligence Skill Subject covered for Class 8
Number of Lab Activities	For Class 1 to 2 – 18 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.

Skillful Minds offers an engaging and forward-thinking curriculum for students in CBSE schools. By blending theoretical knowledge with practical application, it aims to cultivate a deep understanding and passion for technology among students. This curriculum not only prepares students for technological advancements but also encourages them to become creative problem solvers and innovative thinkers for the future.

Key Features



21st Century Skills

Chapters and activities designed to impart skills pertinent to the evolving technological landscape of the 21st century.

CBSE Coding and AI Skill Subject

Aligned with CBSE Coding and Artificial Intelligence subjects for classes 6 - 8, assisting students in excelling in their exams.



Activity-Based Learning

Incorporating hands-on activities and theme-based learning that make learning both fun and intellectually stimulating.

Master Computer Technologies

Implement practical solutions and projects related to computer technologies, such as Microsoft Office, Windows 10, and other tools.



PictoBlox AI Software






Learn the art of coding through block coding in PictoBlox, a premier tool for young learners. Students also receive 3000 AI credits for PictoBlox.

Codeavour Competition



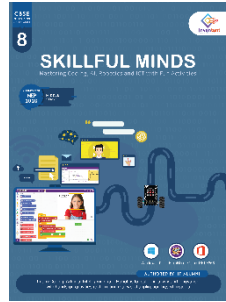
Exclusive access to Codeavour - the AI and Robotics Competition, with the opportunity to represent India on the global stage at Dubai.



Skillful Minds Class 1 to 5 Comparative Study

Feature	Class 1	Class 2	Class 3	Class 4	Class 5
					
# of Pages	66	68	112	127	128
# of Chapters	6	6	9	9	7
# of Activities	18	18	25	25	25
Software and Hardware Used	MS Paint, PictoBlox Jr, Quarky	Tux Paint, PictoBlox Jr, Quarky	Windows 10, Notepad, WordPad, MS Paint, Tux 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	<ul style="list-style-type: none"> - Know Your Computer - Fun with Paint - Algorithmic Thinking - Into the World of Coding - Into the Robotics - Into the AI 	<ul style="list-style-type: none"> - Know Your Computer - Fun with Paint - Critical Thinking and Analysis - Into the World of Coding - Into the Robotics - Into the AI 	<ul style="list-style-type: none"> - Know Your Computer - Fun with Paint - Introduction to Algorithm and Coding - Introduction to MS Word - Introduction to MS Excel - Sketch with PictoBlox - Fun with Robotics - Game Development - Learn About AI 	<ul style="list-style-type: none"> - Know Your Computer - Fun with Paint - Basics of Coding and Algorithm - Introduction to MS Word - Introduction to MS Excel - Sketch with PictoBlox - Fun with Robotics - Fun with AI - Stepping into the World of Game Design 	<ul style="list-style-type: none"> - Know Your Computer - Coding & Algorithmic Thinking - Explore More in MS Word - Introduction to PowerPoint - Fun with Robotics - The World of AI - Exploring the Internet

Skillful Minds Class 6 to 8 Comparative Study

Feature	Class 6	Class 7	Class 8
			
# of Pages	161	163	164
\$ of Chapters	12	10	10
\$ of Activities	25	25	25
CBSE Skill Subject Covered	Class 6 Coding Skill Subject (Chapter 2 - 7)	Class 7 Coding Skill Subject (Chapter 2 - 5)	Class 8 Coding Skill Subject (Chapter 2 - 6) Class 8 Artificial Intelligence Skill Subject (Chapter 9)
Software and Hardware Used	Windows 10, Windows Media Player, MS Word, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky	Windows 10, PicsArt App, MS Excel, MS PowerPoint, PictoBlox Block Coding, PictoBlox AI, Quarky	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 and Robotics	Computers, Coding, Artificial Intelligence, Web Design and Robotics	Computers, Coding, Artificial Intelligence, Data Science, Machine Learning, and Robotics
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	<ul style="list-style-type: none"> - Basics of ICT - Introduction to Coding - Algorithms with Block Coding - Variable using Block Coding - Control with Conditions - Loops using Block Coding - Game Dev with Block Coding - Basics of MS Word - Basics of Microsoft PowerPoint - Introduction to Robotics - Fun with AI - Internet and Computer Networking 	<ul style="list-style-type: none"> - Basics of ICT - Coding & Variables in Real Life - Sequencing with Block Coding - Fun with Functions - Collections and Arrays - Introduction to MS Excel - Explore More in PowerPoint - Fun with AI - Mastering Robotics - Introduction to HTML 	<ul style="list-style-type: none"> - Basics of ICT - Basics of Python Programming - Conditions in Details - Get Creative with Loops - Functions in Depth - Understanding Arrays - Mastering MS Excel - Basics of Data Science in MS Excel - Artificial Intelligence and Machine Learning - Introduction to Robotics and Emerging Technologies

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 Excel 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



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 Block Coding



PictoBlox AI



PictoBlox Machine Learning



Quarky Robot

FAQs on Skillful Minds Program

1. What is the Skillful Minds Program?

The “Skillful Minds” program represents a significant advancement in the educational approach to technology and computing in schools. Previously, 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 “Skillful Minds” 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 “Skillful Minds” 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 Skillful Minds 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 Skillful Minds 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. How is the Skillful Minds Program aligned with CBSE's skill subjects?

In alignment with the CBSE curriculum, Skillful Minds includes the CBSE Coding Skill Subject for students in Classes 6 to 8 and the CBSE Artificial Intelligence Skill Subject specifically for Class 8. This alignment ensures that students not only engage with the program as an extracurricular learning experience but also fulfil their curriculum requirements.

5. 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 Skillful Minds 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 Skillful Minds 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 Skillful Minds 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?

Skillful Minds 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 Skillful Minds 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 Skillful Minds 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.

SKILLFUL MINDS

Exploring Coding, AI, Robotics and Computers with Fun Activities

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Windows 10



PictoBlox



MS Paint

AUTHORED BY IIT ALUMNI

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

Skillful Minds - 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
Technologies Covered	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 – Skillful Minds (Class 1)

<p>Chapter 1: Know Your Computer</p> <ul style="list-style-type: none"> ★ What is a Machine? ★ Parts of a Computer ★ Use of a Computer ★ Typing with Keyboard ★ Rules to Follow in Computer Lab ★ Start the Computer ★ Shut Down the Computer <p>Lab Activity 1 – Parts of the Computer Lab Activity 2 – Typing with Keyboard Lab Activity 3 – Playing with Mouse</p>	1	<p>★ Decision Making</p>	
<p>Chapter 2: Fun with Paint</p> <ul style="list-style-type: none"> ★ What is MS Paint? ★ Parts of MS Paint ★ Designer Tools of MS Paint ★ Basic Shape Tools <p>Lab Activity 4 – Draw a Truck Lab Activity 5 – Draw a Christmas Tree Lab Activity 6 – Draw the Indian Flag Lab Activity 7 – Draw a Traffic Signal</p>	18	<p>Chapter 4: Into the World of Coding</p> <ul style="list-style-type: none"> ★ Introduction to PictoBlox Jr ★ Key Terms of Coding ★ Exploring Important Blocks <p>Lab Activity 8 – Look at My Aquarium Lab Activity 9 – My First Code Lab Activity 10 – Moving Sprite Around Lab Activity 11 – About Me Lab Activity 12 – Twinkling Star Lab Activity 13 – Ballerina Dance</p>	35
<p>Chapter 3: Algorithmic Thinking</p> <ul style="list-style-type: none"> ★ Instructions ★ Sequence ★ Algorithm ★ Pattern and Loop 	26	<p>Chapter 5: Into the Robotics</p> <ul style="list-style-type: none"> ★ What is a Robot? ★ Use of Robots in 21st Century ★ Introduction to Quarky ★ Exploring Quarky Features <p>Lab Activity 14 – Quarky Emotions Lab Activity 15 – Quarky Name Badge Lab Activity 16 – Touch Movement with Quarky Lab Activity 17 – Controlling Sprite using Quarky Button</p>	51
		<p>Chapter 6: Into the AI</p> <ul style="list-style-type: none"> ★ What is Intelligence ★ Explore Face Detection <p>Lab Activity 18 – Clown Maker</p>	60

SKILLFUL MINDS

Exploring Coding, AI, Robotics and Computers with Fun Activities

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Windows 10



PictoBlox



Tux Paint

AUTHORED BY IIT ALUMNI

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

Skillful Minds - 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 – Skillful Minds (Class 2)

<p>Chapter 1: Know Your Computer</p> <ul style="list-style-type: none"> ★ What is a Computer ★ Parts of a Computer ★ Human vs Computer ★ Type of Computers ★ Input – Process - Output ★ Use of a Computer ★ Start and Shut Down Computer ★ Keyboard and Mouse <p>Lab Activity 1 – Parts of the Computer Lab Activity 2 – Typing with Keyboard Lab Activity 3 – Playing with Mouse</p>	<p>1</p>
<p>Chapter 2: Fun with Paint</p> <ul style="list-style-type: none"> ★ What is TUX Paint? ★ Parts of TUX Paint ★ Designer Tools of TUX Paint <p>Lab Activity 4 – Colouring Aeroplane Lab Activity 5 – Colouring Tractor Lab Activity 6 – Draw a Scenery Lab Activity 7 – Draw a House</p>	<p>20</p>
<p>Chapter 3: Critical Thinking and Analysis</p> <ul style="list-style-type: none"> ★ Decision Making ★ Patterns and Loops ★ Decoding ★ Sequence 	<p>27</p>
<p>Chapter 4: Into the World of Coding</p> <ul style="list-style-type: none"> ★ Stepwise Thinking and Algorithms ★ Introduction to PictoBlox Jr ★ Key Terms of Coding ★ Exploring Important Blocks <p>Lab Activity 8 – My First Code Lab Activity 9 – Creating a Story Lab Activity 10 – Moving Sprite Around Lab Activity 11 – Dancing Fishes Lab Activity 12 – Controlling Tobi’s Height Lab Activity 13 – Ballerina Dance</p>	<p>34</p>
<p>Chapter 5: Into the Robotics</p> <ul style="list-style-type: none"> ★ What is a Robot? ★ Use of Robots in 21st Century ★ Introduction to Quarky ★ Exploring Quarky Features <p>Lab Activity 14 – Quarky Traffic Light Lab Activity 15 & 16 – Quarky Robot Moves</p>	<p>52</p>
<p>Chapter 6: Into the AI</p> <ul style="list-style-type: none"> ★ What is Intelligence ★ Explore Face Detection ★ Explore Hand Detection <p>Lab Activity 17 – Face Filter Lab Activity 18 – Balloon Popping with Hand</p>	<p>60</p>

CBSE

3



SKILLFUL MINDS

Mastering Coding, AI, Robotics and ICT with Fun Activities

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Windows 10



PictoBlox



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

Skillful Minds – 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. Know Your Computer:** Acquire foundational knowledge of computer components, Windows GUI, and basic applications like Notepad and WordPad.
 - 2. Fun with Paint:** Master the interfaces and tools of MS Paint and Tux Paint, focusing on design and basic graphic manipulation.
 - 3. Introduction to Algorithm and Coding:** Develop a foundational understanding of algorithmic thinking, programming basics, and hands-on coding using PictoBlox.
 - 4. Introduction to MS Word:** Familiarise with the MS Word 2016 interface, font manipulation, and essential document management techniques.
 - 5. Introduction to MS Excel:** Understand the basics of MS Excel 2016, including cell management and auto drag features.
 - 6. Sketch with PictoBlox:** Dive into digital sketching using PictoBlox Pen Extension and create basic shapes and patterns.
 - 7. Fun with Robotics:** Explore the functionalities and applications of the Quarky Robot in the modern technological landscape.
 - 8. Game Development:** Understand the fundamentals of game development using PictoBlox and the role of variables in games.
 - 9. Learn About AI:** Grasp the basics of Artificial Intelligence, its applications, and delve into face detection techniques.
- Capstone Project:** Apply the accumulated skills in a comprehensive project, showcasing proficiency in computer science, coding, AI, and robotics.

Table of Contents – Skillful Minds (Class 3)

Chapter 1: Know Your Computer ★ IPO Cycle ★ Types of Computers ★ Hardware and Software ★ Function of Keyboard and Mouse ★ Introduction to Windows GUI ★ File Management in Windows ★ Notepad and WordPad App Lab Activity 1 - Playing with Windows GUI Lab Activity 2 - Type about Myself in Notepad Lab Activity 3 - About My School in WordPad	1	★ Save and Print in MS Word ★ Shortcuts in MS Word Lab Activity 12 - My Favourite Cartoon Character - MS Word Lab Activity 13 - Exploring MS Word	
Chapter 2: Fun with Paint ★ User Interface of MS Paint ★ Designer Tools of MS Paint ★ Brush Size and Style ★ Copy and Paste in MS Paint ★ Getting Started with Tux Paint ★ Parts of the Tux Paint Application ★ Tools in Tux Paint Lab Activity 4 - My Snowman - MS Paint Lab Activity 5 - My Nature Scenery - MS Paint Lab Activity 6 - Colour My Hen - Tux Paint	23	Chapter 5: Introduction to MS Excel ★ Interface of MS Excel 2016 ★ Cell, Rows, and Columns ★ Auto Drag in MS Excel Lab Activity 14 - My Class List in MS Excel	66
Chapter 3: Introduction to Algorithm and Coding ★ Stepwise Thinking ★ Sequence and Decomposition ★ Algorithmic Thinking ★ Introduction to Programming ★ Decision-Making and Loops in Coding ★ Introduction to PictoBlox ★ Sprite and Stage in PictoBlox ★ Block Palette in PictoBlox ★ How can Sprite Communicate? Lab Activity 7 - Tobi Walking Lab Activity 8 - Look at My Jungle Lab Activity 9 - Creating Animation - Flying Cat Lab Activity 10 - Barking Dog Lab Activity 11 - Story Making - Once Upon a Time	32	Chapter 6: Sketch with PictoBlox ★ Introduction to Pen Extension ★ Pen Extension Blocks ★ How to Sketch in PictoBlox? Lab Activity 15 - Creating Basic Shapes Lab Activity 16 - Making Patterns	73
Chapter 4: Introduction to MS Word ★ Interface of MS Word 2016 ★ Font Manipulation in MS Word ★ Bullets and Numbering	55	Chapter 7: Fun with Robotics ★ Robots and their use in the 21 st Century ★ Introduction to Quarky Robot ★ Quarky RGB LED Display ★ Quarky Touch Sensor & Quarky Buttons ★ Quarky Robot Control Lab Activity 17 – Quarky Emotions Lab Activity 18 – Beating Heart Animation on Quarky Lab Activity 19 – Touch Piano with Quarky Lab Activity 20 – Controlling Sprite with Quarky Switches Lab Activity 21 – Wirelessly Controlled Quarky Robot	79
		Chapter 8: Game Development ★ What is Game Development? ★ PictoBlox as Game Development Software ★ Variables in Games Lab Activity 22 – Fruit Game Lab Activity 23 – Fruit Catching Game	91
		Chapter 9: Learn About AI ★ What is Artificial Intelligence? ★ Application and Advantages of AI ★ Face Detection Technique in AI Lab Activity 24 - Face Expression Detector Lab Activity 25 - Face Filter	100
		Capstone Project Sample Projects Built by Community Answer Key	108 109 110

CBSE

4



SKILLFUL MINDS

Mastering Coding, AI, Robotics and ICT with Fun Activities

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Windows 10



PictoBlox



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

Skillful Minds – Class 4

Feature	Description
Number of Pages	127
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. Know Your Computer:** Understand the evolution, classifications, memory aspects, and basic operations of computers using Windows 10.
- 2. Fun with Paint:** Master graphic tools and techniques in MS Paint and Tux Paint, focusing on image editing and design.
- 3. Basics of Coding and Algorithm:** Grasp foundational concepts of algorithms, programming in PictoBlox, decision-making, loops, variables, and debugging.
- 4. Introduction to MS Word:** Familiarise with the MS Word interface, text formatting, and creative tools like Thesaurus and WordArt.
- 5. Introduction to MS Excel:** Dive into MS Excel's interface, formula application, chart creation, and data sorting techniques.
- 6. Sketch with PictoBlox:** Explore digital sketching using PictoBlox Pen Extension and create interactive drawings.
- 7. Fun with Robotics:** Understand the concept, presence, advantages, and functionalities of robots, with a focus on the Quarky robot.
- 8. Fun with AI:** Delve into the realm of Artificial Intelligence, exploring AI robots and human body detection techniques.
- 9. Stepping into the World of Game Design:** Understand the fundamentals of game design, rules, level-ups, and the role of variables in game development.

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

Table of Contents – Skillful Minds (Class 4)

<p>Chapter 1: Know Your Computer</p> <ul style="list-style-type: none"> ★ History of Computers ★ Classification of Computers by Size ★ Classification of Computers by Working ★ Computer Memory ★ Working with Windows 10 <p>Lab Activity 1 - Playing with Windows GUI</p> <p>Lab Activity 2 - Manage My Folder</p> <p>Chapter 2: Fun with Paint</p> <ul style="list-style-type: none"> ★ Working with MS Paint ★ Designer Tools of MS Paint ★ Editing Shapes in MS Paint ★ Importing Image in MS Paint ★ Getting Started with Tux Paint ★ Important Tools in Tux Paint <p>Lab Activity 3 - Painting A Story in MS Paint</p> <p>Lab Activity 4 - Animal Collage in Paint</p> <p>Lab Activity 5 - My School Bus – TUX Paint</p> <p>Chapter 3: Basics of Coding and Algorithm</p> <ul style="list-style-type: none"> ★ What is an Algorithm? ★ Introduction to Programming and PictoBlox ★ Palette Explanation in PictoBlox – Events, Motion, Sensing, and Looks ★ Decision Making ★ Loops ★ Introduction to Variables ★ Operators in Programming ★ Introduction to Debugging <p>Lab Activity 6 - Bringing Tobi to Life with Animation</p> <p>Lab Activity 7 - Working with Conditions</p> <p>Lab Activity 8 - Reciting Tables with Loops</p> <p>Lab Activity 9 - Addition Bot</p> <p>Chapter 4: Introduction to MS Word</p> <ul style="list-style-type: none"> ★ Interface of MS Word ★ Text Formatting Options in MS Word ★ Thesaurus in MS Word ★ WordArt in MS Word <p>Lab Activity 10 - Practicing Word with Monkeys</p> <p>Chapter 5: Introduction to MS Excel</p> <ul style="list-style-type: none"> ★ Interface of MS Excel ★ Formulas in Excel 	<p>1</p> <p>20</p> <p>36</p> <p>54</p> <p>64</p>	<ul style="list-style-type: none"> ★ Charts in Excel ★ Sorting in Excel <p>Lab Activity 11 - Clothes Shopping & Budgeting with Excel</p> <p>Lab Activity 12 - My Class Marksheet with Excel</p> <p>Chapter 6: Sketch with PictoBlox</p> <ul style="list-style-type: none"> ★ Introduction to Pen Extension ★ Pen Extension Blocks ★ How to Sketch in PictoBlox? <p>Lab Activity 13 - Drawing a Star in PictoBlox</p> <p>Lab Activity 14 & 15 - Creating a Paint App in PictoBlox</p> <p>Chapter 7: Fun with Robotics</p> <ul style="list-style-type: none"> ★ What is a Robot? ★ Robots Around Us ★ Advantages of Robots ★ Introduction to Quarky ★ Tactile Switch in Quarky ★ Quarky RGB LED Display and RGB Mixing <p>Lab Activity 16 - Traffic Light with Quarky</p> <p>Lab Activity 17 - Digital Dice with Quarky</p> <p>Lab Activity 18 - Fun with Music – Dance Party</p> <p>Lab Activity 19 - Principles of Colour and Light Mixing</p> <p>Lab Activity 20 - LED Looping Pattern with Quarky</p> <p>Chapter 8: Fun with AI</p> <ul style="list-style-type: none"> ★ What is Artificial Intelligence? ★ AI Robots Around Us ★ Human Body Detection – Pose and Hand Detection <p>Lab Activity 21 - Finger Tracing with AI</p> <p>Lab Activity 22 - Clown Maker with Human Detection</p> <p>Chapter 9: Stepping into the World of Game Design</p> <p>111</p> <ul style="list-style-type: none"> ★ Introduction to Game Design ★ Rules While Designing a Game ★ Introduction to Level Up Games ★ Variables and Their Types <p>Lab Activity 23 - Beetle in the Maze</p> <p>Lab Activity 24 & 25 - Coin Collector Game</p> <p>Capstone Project</p> <p>Sample Projects Built by Community</p> <p>Answer Key</p>	<p>75</p> <p>85</p> <p>101</p> <p>124</p> <p>125</p> <p>126</p>
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CBSE

5



SKILLFUL MINDS

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

Skillful Minds – Class 5

Feature	Description
Number of Pages	128
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. Know Your Computer:** Delve into the intricacies of the CPU, its evolution, and the foundational aspects of the Windows 10 operating system, including its tools and common programs.
 - 2. Coding & Algorithmic Thinking:** Understand the essence of algorithms, flowcharts, and the basics of coding using PictoBlox, exploring its various features and functionalities.
 - 3. Explore More in MS Word:** Master advanced features of MS Word, including table creation, text management, and document formatting tools.
 - 4. Introduction to PowerPoint:** Grasp the fundamentals of creating presentations using PowerPoint, from theme selection to slide editing and presentation.
 - 5. Fun with Robotics:** Dive into the world of robotics, understanding the movement, functionalities, and various components of the Quarky robot.
 - 6. The World of AI:** Explore the realm of Artificial Intelligence, its techniques, and its applications in various sectors, including road safety and weather monitoring.
 - 7. Exploring the Internet:** Understand the basics of the internet, web terminologies, communication tools, and the concept of email.
- 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 – Skillful Minds (Class 5)

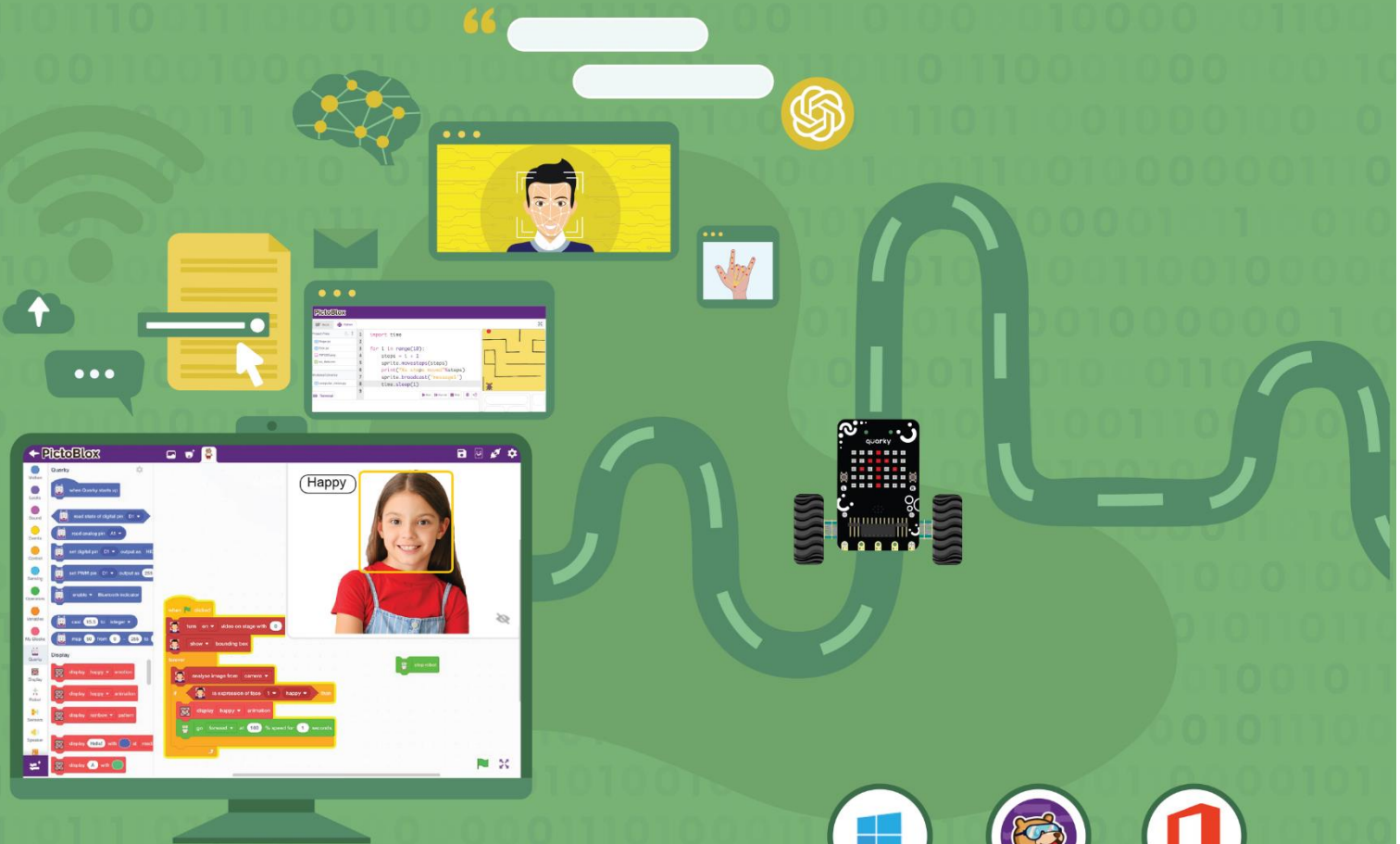
<p>Chapter 1: Know Your Computer</p> <ul style="list-style-type: none"> ★ All About CPU ★ CPU Clock Rate Formula ★ Evolution of Computers ★ Introduction to Operating System ★ Desktop View of Windows 10 ★ Pinning Program to Taskbar ★ Common Programs in Windows 10 ★ Basics of Snipping Tool and Character Map <p>Lab Activity 1 - Working with Calculator in Windows</p> <p>Lab Activity 2 - Working with MS Paint and WordPad</p> <p>Chapter 2: Coding & Algorithmic Thinking</p> <ul style="list-style-type: none"> ★ What is an Algorithm? ★ Understanding Flowchart and Symbols ★ Exploring Algorithmic Thinking ★ Understanding Decomposition ★ Introduction to Coding ★ Costume Editor in PictoBlox ★ Block Palettes in PictoBlox ★ Coordinate System of Stage ★ Cloning in PictoBlox ★ Reading QR Code with PictoBlox ★ Effects in Looks Palette <p>Lab Activity 3 - Animating Tobi's Walk in PictoBlox</p> <p>Lab Activity 4 - Taco Chase: Evading the Beetle</p> <p>Lab Activity 5 - Colourful Tobi Tracing with PictoBlox</p> <p>Lab Activity 6 - Star Scribbler</p> <p>Lab Activity 7 - Space Battle Game – Part 1</p> <p>Lab Activity 8 - Space Battle Game – Part 2</p> <p>Lab Activity 9 - QR Code-Based Shopping Cart</p> <p>Lab Activity 10 - QR Code Book Scanner</p> <p>Chapter 3: Explore More in MS Word</p> <ul style="list-style-type: none"> ★ Tables and Tools Used in MS Word ★ Correcting Spelling and Grammar ★ Find and Replace Text ★ Header and Footer ★ Watermark in MS Word ★ Drop Cap in MS Word <p>Lab Activity 11 - Creating and Managing Tables in MS Word</p> <p>Lab Activity 12 - Formatting Documents in MS Word</p>	<p>1</p> <p>21</p> <p>51</p>	<p>Chapter 4: Introduction to PowerPoint</p> <ul style="list-style-type: none"> ★ What is PowerPoint and its Interface ★ Choosing a Theme ★ Adding and Editing Slides ★ Inserting Pictures and Text ★ Saving and Presenting the Slides <p>Lab Activity 13 & 14 - MS PowerPoint Presentation</p> <p>Chapter 5: Fun with Robotics</p> <ul style="list-style-type: none"> ★ Introduction to Robotics and Quarky ★ How a Robot Moves? ★ Quarky Gripper Robot ★ Servo Motor Control with Quarky ★ Making a Robot Pet ★ Understanding IR Sensors <p>Lab Activity 15 - Wirelessly Controlled Quarky Robot</p> <p>Lab Activity 16 - Gripper Robot Controls</p> <p>Lab Activity 17 - Coding the Robot Pet</p> <p>Lab Activity 18 & 19 - LED Chase Game with Quarky</p> <p>Lab Activity 20 - Bright Lamp with Quarky</p> <p>Chapter 6: The World of AI</p> <ul style="list-style-type: none"> ★ What is Artificial Intelligence? ★ Speech Recognition AI Technique ★ Text to Speech with PictoBlox ★ AI for Road Safety ★ Types of Road Signs in India ★ Recognition Card for PictoBlox ★ Self-Driving Car ★ Weather Monitoring System <p>Lab Activity 21 - Smart Lamp with Speech Recognition</p> <p>Lab Activity 22 - Detecting Signs & Landmarks with PictoBlox</p> <p>Lab Activity 23 - Self-Driving Car</p> <p>Lab Activity 24 - Weather Monitoring System</p> <p>Chapter 7: Exploring the Internet</p> <ul style="list-style-type: none"> ★ Understanding the Internet ★ Understanding Web Terminologies ★ Communication Tools ★ Introduction to Email <p>Lab Activity 25 - Writing an Email to a Friend</p> <p>Capstone Project</p> <p>Sample Projects Built by Community</p> <p>Answer Key</p>	<p>65</p> <p>75</p> <p>97</p> <p>116</p> <p>125</p> <p>126</p> <p>127</p>
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Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

Skillful Minds – Class 6

Feature	Description
Number of Pages	161
Number of Chapters	12
Number of Activities	25
CBSE Skill Subject Covered	Class 6 Coding Skill Subject (Chapter 2 - 7)
Software and Hardware Used	Windows 10, Windows Media Player, 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. **Basics of ICT:** Understand the evolution, structure, and functionalities of computer systems, including data representation and file management in Windows.
2. **Introduction to Coding:** Grasp the concept of coding, its applications, and familiarise with the PictoBlox interface and block palettes.
3. **Algorithms with Block Coding:** Learn the essence of algorithms, flowcharts, and the significance of pseudocode.
4. **Variable using Block Coding:** Dive into the world of variables, understanding their naming conventions, types, and operations in PictoBlox.
5. **Control with Conditions:** Explore conditional programming, understanding relational and logical operators, and nested conditional statements.
6. **Loops using Block Coding:** Delve into the concept of loops, their types, criteria, and special statements like break and continue.
7. **Game Dev with Block Coding:** Understand the basics of game development, its rules, and essential design elements.
8. **Basics of MS Word:** Master the interface and foundational tools of MS Word, including text formatting and mail merge.
9. **Basics of Microsoft PowerPoint:** Grasp the fundamentals of creating presentations using PowerPoint, from slide design to presentation.
10. **Introduction to Robotics:** Dive into the world of robotics, understanding types, applications, and functionalities of robots, sensors, and actuators.
11. **Fun with AI:** Explore the realm of Artificial Intelligence, its comparison with human intelligence, current trends, and applications like face detection.
12. **Internet and Computer Networking:** Understand the basics of the internet, computer networks, their types, and the concept of the Internet of Things.

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 – Skillful Minds (Class 6)

<p>Chapter 1: Basics of ICT</p> <ul style="list-style-type: none"> ★ The Computer System ★ Generation of Computers ★ Computer Programming Languages ★ Translators and their Types ★ Some Interesting Discoveries ★ Working With Windows ★ File Management to Organize Data ★ Media Player in Windows ★ Data Representation and Number System ★ Conversion from Decimal to Binary Number ★ Conversion from Binary to Decimal Number <p>Lab Activity 1 - Practice Search & File Management in Windows 10</p> <p>Lab Activity 2 - Practice Data Transfer in Windows</p> <p>Lab Activity 3 - Practice Media Player in Windows</p>		<p>1</p> <p>Lab Activity 7 - Playing with Quarky</p> <p>Lab Activity 8 - Traffic Light with Quarky</p>	
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<p>Chapter 4: Variable using Block Coding</p> <ul style="list-style-type: none"> ★ What are Variables? ★ Naming Rules for Variables ★ Data Types in Variables ★ Variables in PictoBlox ★ Performing Operations on Variables ★ Arithmetic Operators ★ Assignment Operators ★ Increment Decrement Operators <p>Lab Activity 5 - Tracking Sprite using Variables</p> <p>Lab Activity 6 - Addition Bot</p>	<p>38</p>	<p>Chapter 7: Game Dev with Block Coding</p> <ul style="list-style-type: none"> ★ Introduction to Game Development ★ Basic Game Development Rules ★ Important Elements of Game Design <p>Lab Activity 12 - Space Battle Game – Part 1</p> <p>Lab Activity 13 - Space Battle Game – Part 2</p>	<p>76</p>
<p>Chapter 8: Basics of MS Word</p> <ul style="list-style-type: none"> ★ Interface of MS Word ★ Formatting Text Tools ★ The table in Microsoft Word ★ Mail Merge in Word <p>Lab Activity 14 - Practice MS Word - Working with Tables</p> <p>Lab Activity 15 - Practice Mail Merge with MS Word</p>	<p>85</p>	<p>Chapter 9: Basics of Microsoft PowerPoint</p> <ul style="list-style-type: none"> ★ Interface of MS PowerPoint ★ Slide Design and Layouts ★ Adding Text, Images, and Shapes to Slides 	<p>99</p>

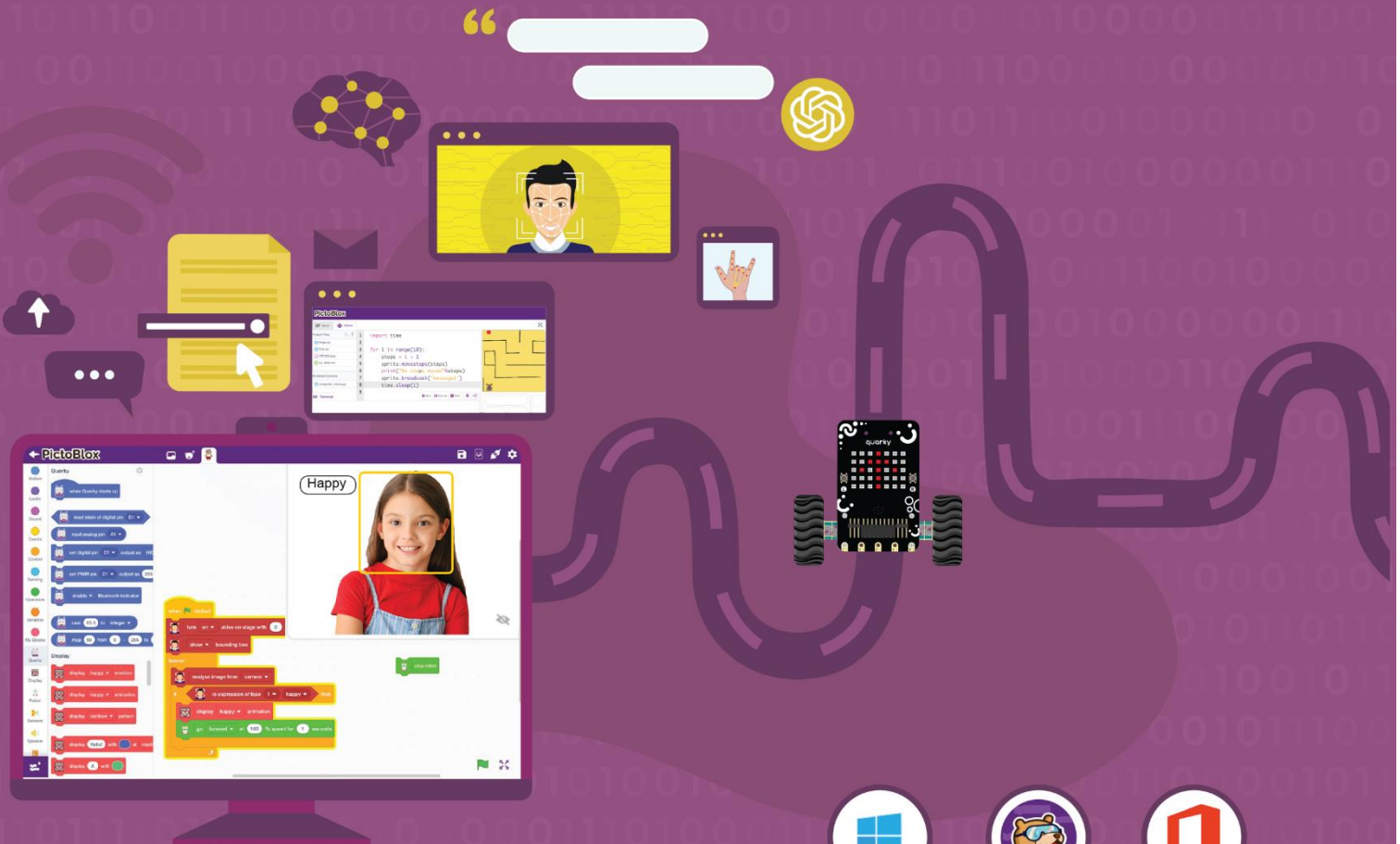
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Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

Skillful Minds – Class 7

Feature	Description
Number of Pages	164
Number of Chapters	10
Number of Activities	25
CBSE Skill Subject Covered	Class 7 Coding Skill Subject (Chapter 2 - 5)
Software and Hardware Used	Windows 10, PicsArt App, MS Excel, 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. **Basics of ICT:** Delve into the foundational concepts of ICT, exploring computer types, generations, data representation, number systems, and basic Windows functionalities.
2. **Coding & Variables in Real Life:** Revisit coding basics, understand the role of variables in programming, and explore arithmetic operations and user input validation.
3. **Sequencing with Block Coding:** Dive deeper into programming elements, understand the importance of sequencing, loops, and conditional statements, and learn about debugging.
4. **Fun with Functions:** Explore the concept of functions in programming, understand their significance in reducing redundancy, and learn about events and event handlers.
5. **Collections and Arrays:** Understand data collections, delve into the world of arrays, and explore algorithms, iteration, and sorting techniques.
6. **Introduction to MS Excel:** Master the foundational tools and functionalities of MS Excel, from data sorting and filtering to chart creation and printing.
7. **Explore More in PowerPoint:** Revisit MS PowerPoint, understand slide designs, themes, content insertion, and presentation techniques for effective communication.
8. **Fun with AI:** Dive deeper into the realm of Artificial Intelligence, exploring various AI techniques like face detection, computer vision, speech recognition, and natural language processing.
9. **Mastering Robotics:** Understand the world of robotics, its advantages, applications, and delve into specific robotic functionalities like line following and self-driving capabilities.
10. **Introduction to HTML:** Explore the foundational concepts of HTML, understand tags, attributes, document structures, and learn to create basic web pages.

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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<p>Chapter 3: Sequencing with Block Coding</p> <ul style="list-style-type: none"> ★ Recap of Loops ★ Elements of Programming – Sequencing, Selection, and Iteration ★ What is a Bug? ★ Types of Loops - While Loop, For Loop, and Nested Loop ★ Introduction to Conditional Statements ★ Distributing Birthday Sweets <p>Lab Activity 7 - Reciting Table</p> <p>Lab Activity 8 - Reflex Game with Quarky</p>	46	<p>Chapter 6: Introduction to MS Excel</p> <ul style="list-style-type: none"> ★ Interface of MS Excel ★ Sorting Data in Excel ★ Filter Data in Excel & Advanced Filtering ★ Introduction of Chart ★ Creating a Chart ★ Printing a Worksheet <p>Lab Activity 14 - Excel Practical Exercise: Sales Data Analysis</p> <p>Lab Activity 15 - Mastering Excel Charts</p>	102
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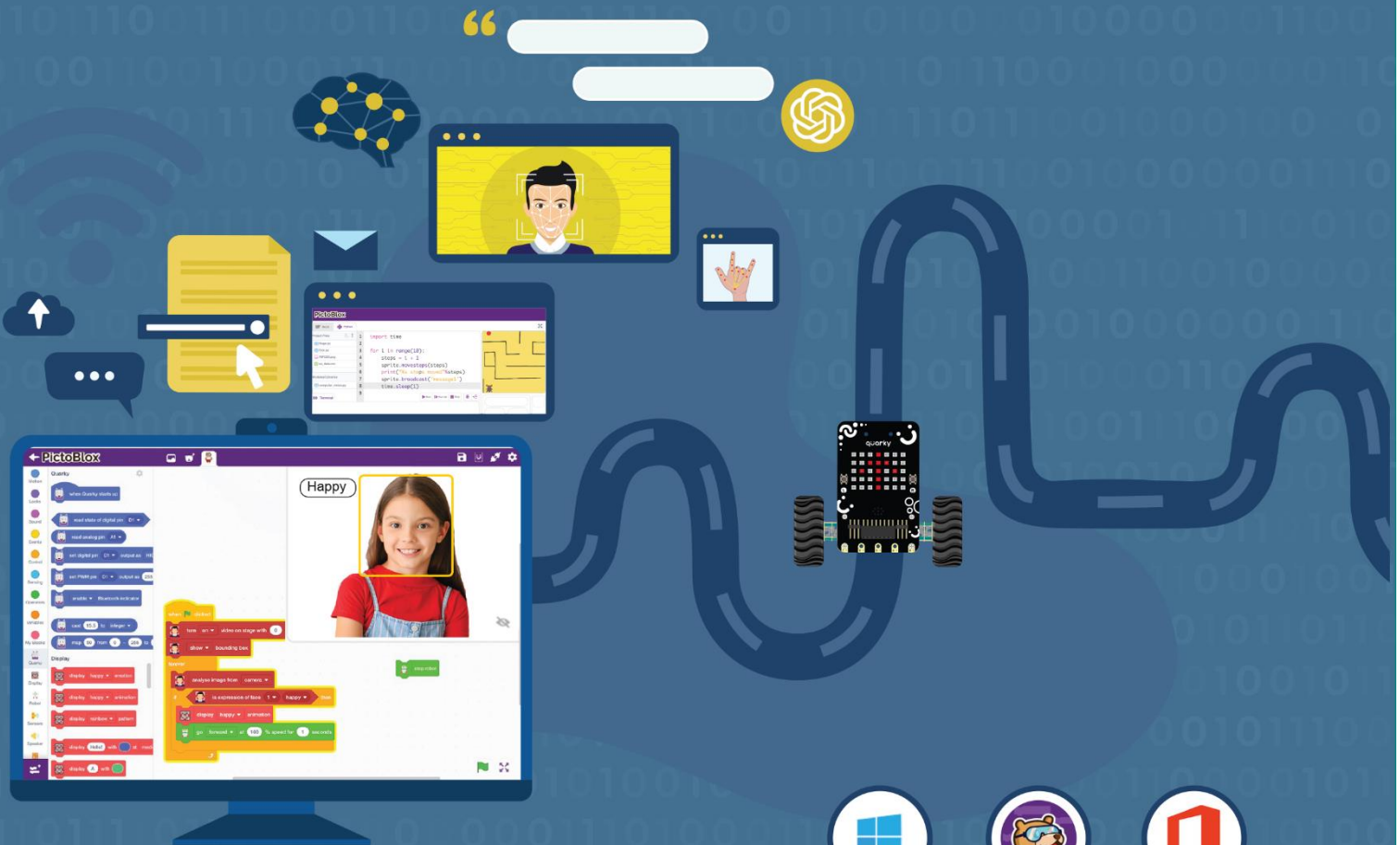
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Learn Coding, Artificial Intelligence, and Robotics to foster creativity and innovation with hands-on activities and exciting real-world application-based projects.

Skillful Minds – Class 8

Feature	Description
Number of Pages	164
Number of Chapters	10
Number of Activities	25
CBSE Skill Subject Covered	Class 8 Coding Skill Subject (Chapter 2 - 6) Class 8 Artificial Intelligence Skill Subject (Chapter 9)
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. **Basics of ICT:** Embark on the journey of ICT, tracing the evolution from early computing devices to modern computer networks, and explore the creative potential of the Canva application.
2. **Basics of Python Programming:** Dive into the world of Python programming, understand its syntax, basic operations, and interact with the PictoBlox Python interface.
3. **Conditions in Details:** Master the art of control statements, delve into conditional statements, and understand the intricacies of logical and relational operators.
4. **Get Creative with Loops:** Explore the repetitive world of loops, understand their types, and learn how to sequence them with conditions for efficient programming.
5. **Functions in Depth:** Delve deeper into the realm of functions, understand their parameters, and explore their implementation in both block coding and Python.
6. **Understanding Arrays:** Navigate the structured world of arrays, understand their implementation in Python, and learn sorting techniques like bubble sort.
7. **Mastering MS Excel:** Become proficient with MS Excel, mastering its interface, formatting tools, formula application, and error handling techniques.
8. **Basics of Data Science in MS Excel:** Step into the world of data science, understand the significance of data, its types, and explore data visualization techniques in Excel.
9. **Artificial Intelligence and Machine Learning:** Revisit the transformative world of AI, understand its contributions, explore the AI project cycle, delve into machine learning, and master various ML models in PictoBlox.
10. **Introduction to Robotics and Emerging Technologies:** Explore the futuristic realm of robotics, understand the advantages of robots, and delve into emerging technologies like augmented reality, virtual reality, mixed reality, and blockchain.

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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