THE JOY OF LEARNING

Computer Science

EKYA SCHOOLS

ekyaschools.com

JP NAGAR ITPL BTM LAYOUT BYRATHI NICE ROAD

We at Ekya believe in a world beyond boundaries where education should continuously evolve and adapt as the world changes.

Ekya is a community of children, educators and parents where everyone learns together. At Ekya, our students find their purpose, passion and community to make a difference in the world.

FIND New Ways to Learn

Our innovative learning model goes beyond conventional norms. We apply interdisciplinary skills to think differently and solve real-world problems. We equip students with skills such as problem-solving, collaboration, critical thinking, reflection and global awareness. Students engage in authentic tasks and challenges to investigate each learning area deeply and transfer their learning to new situations.

Computer Science

The computer science curriculum at Ekya Schools equips students to develop computational thinking and problem-solving skills while being responsible digital citizens.

The purpose of the computer science program is to enable students to.

- Collaborate, design, create and implement solutions to real-world problems using technology.
- Communicate ideas about technology and using technology.
- Use critical thinking and computational thinking processes to solve problems.

The Computer Science program

Key Strands

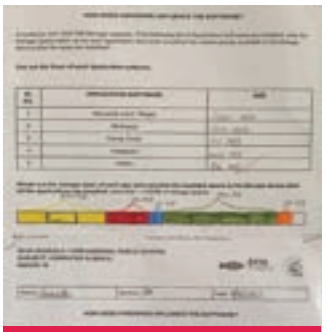
- Impacts of Computing
- Algorithms and Programming
- Data and Analysis
- Networks and the Internet
- Computing Systems

Practices

- Fostering an inclusive Computing Culture
- Collaborating around Computing
- Recognising and Defining Computational Problems
- Developing and using Abstractions
- Creating Computational Artifacts
- Testing and Refining Artifacts
- Communicating about Computing

Computing Systems

Students are introduced to a mix of hardware, software, and data that work together to perform tasks, from calculators to global computer networks. The strand also introduces students to hardware or the physical components, software which is programs and instructions. Students also learn how data is processed and stored as information. Overall, students develop an understanding of how these components work together is crucial for effective computing.



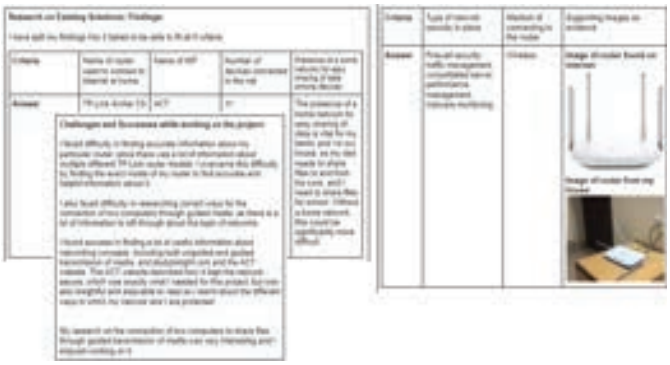
In Grade 3, students explore how Hardware influences Software

In Grade 1, they learn about the Parts of a Computer

Networks and the Internet

This strand focuses on how data is transmitted over networks and the internet. Students learn about the different types of networks, network protocols, and internet architectures. They also learn how to design and implement networks and develop an understanding of network security and privacy.

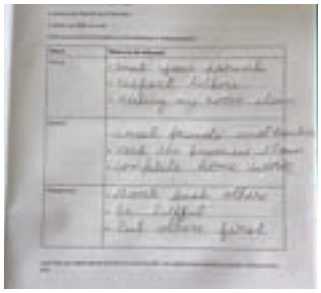
For example, Connecting to the Internet

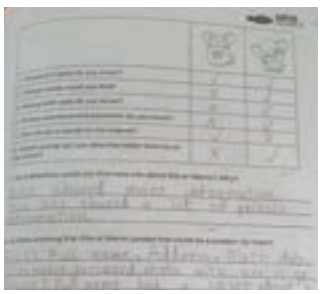


Impacts of Computing

This strand in the computer science curriculum focuses on the social and ethical implications of computing technologies. Students learn about the positive and negative effects of technology on society and explore topics such as privacy, security, and accessibility. They also examine the impact of computing on global issues and work towards being digitally literate and informed citizens.

For example, Ethics, Digital trails, Avoiding Clickbaits

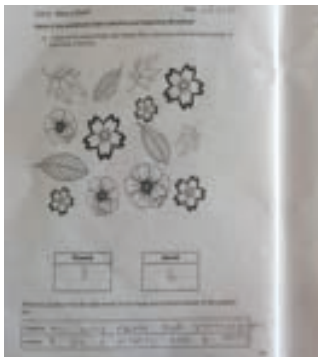


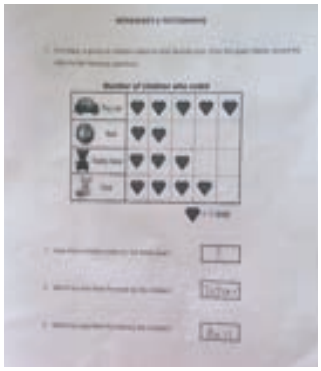


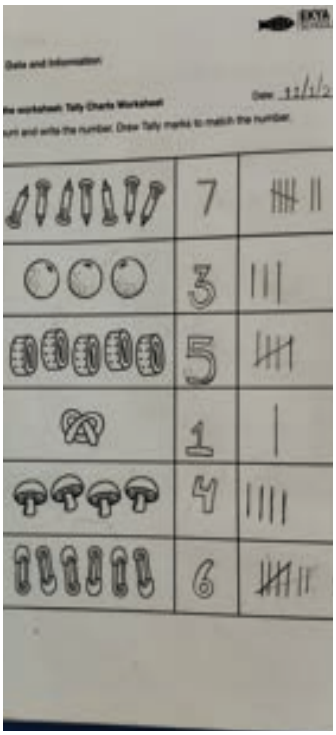
Data and Analysis

In this strand, students learn how to collect, store, and analyze data using a variety of tools and techniques. The learning extends to interpreting data and translating raw data into valid information. They also explore using data to solve real-world problems and make data-driven decisions.

Example: Data organisation, Data interpretation, Data representation in different formats





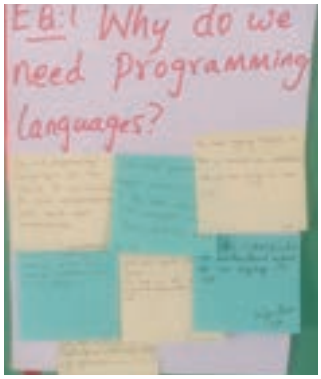


Algorithms and Programming

This strand focuses on developing students' computational thinking and programming skills. Students learn how to write algorithms and computer programs using various programming languages. Additionally, they create an understanding of software engineering principles and learn how to collaborate on coding projects.

Students are introduced to writing algorithms and debugging techniques from Grade 1. Students are introduced to coding through block-based programming at the primary school level. Students also develop pattern recognition skills, sequencing and grouping similar data and writing basic algorithms for a given task.

Students are introduced to programming languages scratch and python at the middle school level. They learn animation, image editing using Paint.net, electronics and physical computing using Arduino, Graphical User Interface (GUI) development using Visual Basic, we development, Database management, etc.

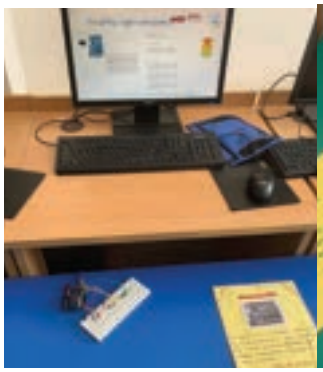


At the senior school level, students learn programming in Arduino, Java and Python. They write programs using Object Oriented programming techniques and build software solutions using a human-centric approach. They also learn the basic concepts of artificial intelligence and managing a database.

Practices in the Computer Science Curriculum

The Computer Science Skills Strand is composed of seven core practices. These describe the behaviours and ways of thinking students develop through the curriculum.

1. Practices that focus on computational thinking
- Recognising and defining computational problems
- Developing and using Abstractions
- Testing and Refining Computational Artifacts
- Creating Computational Artifacts



A unique aspect of the computer science curriculum is integrating design thinking principles which helps students develop a deep understanding of user needs and expectations and create solutions that meet those needs meaningfully.

2. Practices that focus on culture and communication
- Fostering an inclusive culture
- Collaborating about Computing
- Communicating about Computing