

Locus Learning Grade 7 Official Syllabus

Our syllabus, fully updated to reflect the latest NEP 2020 guidelines.

The Mathematics and Science sections are strictly mapped to the newest NCERT textbooks ("Ganit Prakash" and "Curiosity/Jigyasa", respectively). The AI and Coding section is aligned with the official CBSE Skill Education framework (Subject Codes 901B and 910B) for Class 6.

Mathematics (NCERT: *Ganita Prakash*)

Part I

1. **Large Numbers Around Us:** Explores the real-world scale and significance of large numbers like lakhs, crores, millions, and billions through engaging contexts.
2. **Arithmetic Expressions:** Focuses on forming and simplifying mathematical expressions using the correct order of operations and brackets.
3. **A Peek Beyond the Point:** Introduces the decimal point, its place value system, and fundamental additions and subtractions involving decimal numbers.
4. **Expressions using Letter-Numbers:** Guides students into the first steps of algebra by using letters to represent unknown values and form symbolic expressions.
5. **Parallel and Intersecting Lines:** Introduces foundational geometry, focusing on identifying line types and understanding the angles formed by intersecting lines and transversals.
6. **Number Play:** Enhances computational thinking and problem-solving through number puzzles, parity concepts, cryptarithms, and the Virahāṅka-Fibonacci sequence.
7. **A Tale of Three Intersecting Lines:** Investigates the striking properties of triangles, including their sides, interior/exterior angles, altitudes, and medians.
8. **Working with Fractions:** Deepens the understanding of fractions, specifically focusing on their multiplication and division using historical Indian mathematical methods.

Part II

1. **Geometric Twins:** Explores the concept of congruence in plane figures, establishing the exact criteria for triangle congruence (SSS, SAS, ASA, RHS).
2. **Operations with Integers:** Covers advanced operations involving the multiplication and division of positive and negative integers in practical contexts.
3. **Finding Common Ground:** Explores prime factorization, Highest Common Factor (HCF), and Lowest Common Multiple (LCM) through visual and practical scenarios.
4. **Another Peek Beyond the Point:** Continues the study of decimals, focusing on advanced multiplication, division, and scaling.
5. **Connecting the Dots:** Introduces statistical thinking, data interpretation, and calculating representative values like the Arithmetic Mean.
6. **Constructions and Tilings:** Teaches practical geometric constructions using a compass and straightedge, along with exploring visual geometric patterns.
7. **Finding the Unknown:** Advances algebraic understanding by teaching students how to formulate and solve simple linear equations to find the value of unknown variables.

Science (NCERT: *Curiosity*)

1. **The Ever-Evolving World of Science:** An introductory chapter highlighting science as a continuous process of observation, questioning, and hands-on discovery.
2. **Exploring Substances: Acidic, Basic, and Neutral:** Uses natural indicators like litmus to test and categorize everyday substances based on their chemical nature.
3. **Electricity: Circuits and their Components:** Covers the mechanics of closed and open circuits, conductors, insulators, and the correct alignment of LEDs and batteries.
4. **The World of Metals and Non-metals:** Categorizes materials based on their physical and chemical properties, exploring their everyday applications.
5. **Changes Around Us: Physical and Chemical:** Helps students clearly differentiate between reversible physical changes and irreversible chemical reactions.
6. **Adolescence: A Stage of Growth and Change:** Explains the biological, physical, and emotional transformations that occur during adolescence, alongside health and hygiene.
7. **Heat Transfer in Nature:** Explores how thermal energy moves through environments via conduction, convection, and radiation.
8. **Measurement of Time and Motion:** Covers the calculation of speed, uniform vs. non-uniform motion, and how time is measured using periodic motion.
9. **Life Processes in Animals:** Details the human digestive system, nutritional needs, and the essential biological functions required for animal survival.
10. **Life Processes in Plants:** Focuses on how plants synthesize their own food through photosynthesis, transport water, and reproduce.
11. **Light: Shadows and Reflections:** Investigates the straight-line properties of light, the formation of shadows, and how mirrors function.
12. **Earth, Moon, and the Sun:** Explores celestial mechanics, including the Earth's rotation, the day-night cycle, and the interplay between these three bodies.

AI & Coding (CBSE Skill Education)

Coding & Computational Thinking

Note: The CBSE Class 7 coding curriculum heavily utilizes block-based platforms (like Microsoft MakeCode) while introducing the foundational syntax of Python.

1. **Introduction to Coding & Algorithms:** Establishes the basics of computational thinking, flowcharting, and how humans communicate with computers using logical, step-by-step instructions.
2. **Variables and Data Types:** Teaches students how to create, name, and store different types of information (like integers, floats, and strings) within a computer program.
3. **Control with Conditionals:** Introduces logical operators (AND, OR, NOT) and nested IF/ELSE statements, allowing students to build programs that make dynamic decisions based on user input.
4. **Loops and Iterations:** Explains how to write efficient, optimized code by using increment loops and exit criteria to repeat actions without writing redundant instructions.
5. **Understanding Arrays and Collections:** Teaches students how to group, store, and modify multiple pieces of related data within a single, organized list.

6. **Hello World with Text-Based Code:** Guides the transition from block-based visual programming to foundational text-based syntax, introducing the very basics of Python programming.

Artificial Intelligence Foundation

1. **Excite: Introduction to AI:** Explores the fundamentals of Artificial Intelligence, differentiating it from traditional machines, and introduces the three core domains: Data, Computer Vision (CV), and Natural Language Processing (NLP).
2. **Relate: AI in Daily Life:** Connects AI concepts to real-world applications, helping students identify how smart home devices, virtual assistants, and recommendation engines actually function.
3. **Purpose: AI and Sustainable Development Goals (SDGs):** Examines how Artificial Intelligence can be leveraged as a tool to solve global challenges like climate change, healthcare access, and resource management.
4. **Possibilities: The Future of AI:** Investigates future technology trends, the evolution of smart cities, and the new career opportunities emerging in an AI-driven job market.
5. **AI Ethics:** Discusses the moral implications of technology, focusing on critical issues like data privacy, machine bias, and responsible digital citizenship.