Locus Learning Grade 8 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 901C and 910C) for Class 8.

Mathematics (NCERT: *Ganita Prakash*)

Part I

1. **A Square and A Cube:** Introduces the properties of square and cube numbers, finding roots, estimating values, and recognizing patterns in perfect squares and cubes.
2. **Power Play:** Explores exponents, including negative exponents and the laws of exponents, to express and calculate numbers using scientific notation.
3. **A Story of Numbers:** Deepens the understanding of the number system, specifically focusing on the properties and operations of rational numbers.
4. **Quadrilaterals:** Classifies different types of quadrilaterals, exploring their angle sum properties and distinguishing characteristics.
5. **Number Play:** Develops logical thinking through divisibility rules, prime/composite number distinctions, and solving mathematical puzzles.
6. **We Distribute, Yet Things Multiply:** Introduces algebraic identities, the multiplication of algebraic expressions, and the practical application of the distributive property.
7. **Proportional Reasoning-1:** Teaches the foundational concepts of ratio and proportion, focusing on direct variation and solving real-world proportional problems.

Part II

1. **Fractions in Disguise:** Explores percentages as a specific type of fraction, applying this concept to real-world scenarios like profit, loss, and discounts.
2. **The Baudhāyana-Pythagoras Theorem:** Investigates the geometric and algebraic relationship between the side lengths of a right-angled triangle.
3. **Proportional Reasoning-2:** Builds on Part I by introducing inverse proportions and applying proportional logic to interpret and create pie charts.
4. **Exploring Some Geometrical Themes:** Transitions into 3D geometry, spatial understanding, and an introduction to the concept of fractals.
5. **Tales by Dots and Lines:** Focuses on visualizing and interpreting data through line graphs, offering a new perspective on calculating the arithmetic mean.
6. **Algebra Play:** Explores how algebraic equations can be formulated to model, understand, and solve complex real-world scenarios.
7. **Area:** Delves deeper into mensuration, focusing on calculating the surface area of complex 2D shapes and basic 3D solids.

Science (NCERT: *Curiosity*)

1. **Exploring the Investigative World of Science:** Sets the stage for scientific inquiry, emphasizing how scientists observe, question, and explore the world.
2. **The Invisible Living World: Beyond Our Naked Eye:** Explores the microscopic world, covering cell structure, levels of biological organization, and our connection to microorganisms.
3. **Health: The Ultimate Treasure:** Discusses the holistic definition of health, the causes and types of diseases, and the preventive measures needed to stay healthy.
4. **Electricity: Magnetic and Heating Effects:** Investigates how electric currents can generate heat and magnetic fields, including how batteries work.
5. **Exploring Forces:** Defines force, explores its effects on objects (including weight and floating/sinking), and categorizes contact and non-contact forces.
6. **Pressure, Winds, Storms, and Cyclones:** Explains the concept of air pressure, how high-speed winds lower pressure, and the formation of severe weather phenomena.
7. **Particulate Nature of Matter:** Dives into chemistry by explaining what matter is composed of, interparticle spacing, and how particles move in solids, liquids, and gases.
8. **Nature of Matter: Elements, Compounds, and Mixtures:** Categorizes pure substances and mixtures, explaining how we use elements, compounds, and minerals in daily life.
9. **The Amazing World of Solutes, Solvents, and Solutions:** Explores solubility, the factors that affect how much solute can dissolve, density, and why objects float or sink.
10. **Light: Mirrors and Lenses:** Covers the laws of reflection, the characteristics of spherical mirrors, and the basic functioning of lenses.
11. **Keeping Time with the Skies:** Connects astronomy to timekeeping by exploring the phases of the moon, the creation of calendars, and the purpose of artificial satellites.
12. **How Nature Works in Harmony:** An ecological chapter exploring how organisms interact with their surroundings, food chains, and waste management in nature.
13. **Our Home: Earth, a Unique Life Sustaining Planet:** Examines what makes Earth suitable for life compared to other planets, the threats to our ecosystem, and how to sustain it.

AI & Coding (CBSE Skill Education)

Artificial Intelligence (Focus: The AI Project Cycle)

1. **Introduction to the AI Project Cycle:** Establishes the roadmap for developing AI solutions, moving beyond basic concepts into structured problem-solving.
2. **Problem Scoping:** Teaches students how to identify a real-world problem, frame it correctly, and define the goal of an AI project.
3. **Data Acquisition & Exploration:** Focuses on how to gather relevant, unbiased data from reliable sources and explore it to understand patterns.
4. **Modeling & Evaluation:** Introduces the concept of training an AI model with data and evaluating its effectiveness and accuracy in solving the scoped problem.

5. **Advanced AI Ethics:** Deepens the conversation on machine bias, discussing the ethical implications of data collection and the societal impact of AI.

Coding & Computational Thinking (Focus: Python Transition)

1. **Decomposition & Pattern Recognition:** Breaking down large computational problems into manageable sub-tasks and identifying reusable patterns.
2. **Text-Based Syntax:** Transitioning fully into text-based programming using Python, focusing on variables, basic math operators, and string manipulation.
3. **Control Flow:** Writing `if/elif/else` statements to build decision-making logic into text-based programs.
4. **Iterative Loops:** Mastering `for` and `while` loops in Python to automate repetitive tasks efficiently.