Course Cards

Here are the short-form course cards based on the curriculum. Please review and provide specific values for Grade Range, Duration, Activities, Lessons, and Learning Outcomes if you have them.

Foundational Coding Concepts: Unlock the Basics of Programming

Grade: 5-7 **Lessons:** 20 Lessons **Activities:** 15+ Activities **Duration:** 1-2 months

Dive into the world of programming by understanding core concepts like algorithms, loops, and conditional logic. Learn to think like a coder and solve problems using visual block-based tools, making learning intuitive and fun.

Learning outcomes: * Understand fundamental programming logic (algorithms, sequences, loops). * Learn to use variables and different data types. * Develop basic debugging and problem-solving skills. * Get comfortable with block-based programming environments.

Python Programming: Your First Step into Text-Based Coding

Grade: 6-8 **Lessons:** 40 Lessons **Activities:** 25+ Activities & Mini-Projects **Duration:** 3-4 months

Learn Python, a powerful and beginner-friendly programming language. Master its syntax, create interactive programs, and even build your first simple games. Python is the gateway to many exciting fields like AI and web development.

Learning outcomes: * Master Python basics: syntax, variables, and data types. * Implement control structures (loops, conditionals) in Python. * Create simple games and applications using Python. * Understand functions and basic data structures.

Web Design and Development: Build Your Own Websites

Grade: 7-8 **Lessons:** 50 Lessons **Activities:** 30+ Activities & 1 Capstone Project **Duration:** 4-5 months

Learn the fundamentals of the web and enhance your skills in building interactive web pages using HTML, CSS, and JavaScript. Create responsive websites that look great on any device and build your own personal portfolio.

Learning outcomes: * Build responsive websites using HTML and CSS. * Develop interactive web pages with JavaScript. * Understand core concepts of web development. * Implement best practices in web design.

Introduction to 3D Design: Bring Your Ideas to Life

Grade: 6-8 **Lessons:** 30 Lessons **Activities:** 20+ Design Challenges **Duration:** 2-3 months

Explore the exciting world of 3D modeling! Learn to use beginner-friendly software like TinkerCAD to design and create your own 3D objects, from simple keychains to imaginative characters and basic architectural models.

Learning outcomes: * Understand 3D space and basic modeling principles. * Use TinkerCAD (or similar) to create 3D models. * Design simple and creative 3D objects. * Grasp the conceptual basics of 3D printing.

SQL Fundamentals & Database Concepts: The Power of Data

Grade: 7-8 **Lessons:** 25 Lessons **Activities:** 15+ Data Challenges **Duration:** 2-3 months

Discover how data is organized and managed. Learn the basics of SQL to query databases, retrieve information, and understand how data drives applications. This course provides a foundation for data analysis and backend development.

Learning outcomes: * Understand what databases are and why they are important. * Learn basic SQL commands (SELECT, FROM, WHERE, ORDER BY). * Retrieve and sort data from simple databases. * Perform simple data analysis using SQL queries.

Introduction to Artificial Intelligence (AI) and Machine Learning (ML)

Grade: 7-8 **Lessons:** 35 Lessons **Activities:** 20+ AI Explorations & Projects **Duration:** 3-4 months

Step into the future with AI and Machine Learning. Understand the core concepts, see how AI is used in everyday life, and explore beginner-friendly tools and Python libraries to experiment with image recognition and simple predictive models.

Learning outcomes: * Grasp basic concepts of AI and Machine Learning. * Understand real-world applications of AI. * Explore AI concepts with Python at a beginner level. * Engage in creative AI projects.

Introduction to Native Mobile App Development (Conceptual)

Grade: 7-8 **Lessons:** 30 Lessons **Activities:** 15+ Design Sprints & 1 App Concept Project **Duration:** 2-3 months

Learn the concepts behind creating mobile apps for e-commerce and fitness. Explore UI/UX design, how apps handle data with JSON and databases, and the basics of user interaction, all while designing your own app concept.

Learning outcomes: * Understand the difference between websites and mobile apps. * Learn basic UI/UX design principles for mobile. * Grasp conceptual ideas of app components, data handling (JSON, databases), and user login. * Design a concept for an e-commerce or fitness app.

Further Exploration & Creative Coding: Expand Your Skills

Grade: 6-8 (varies by topic) **Lessons:** Varies (modular) **Activities:** Varies (project-based) **Duration:** Ongoing / Modular

Continue your coding journey by diving deeper into specialized areas. Build complex games with Scratch, explore basic app development with tools like MIT App Inventor, or learn about cybersecurity. Choose your path and keep creating!

**Learning outcomes (examples, depends on chosen module): * Develop advanced games and animations. * Create basic mobile applications using block-based tools. * Understand fundamental cybersecurity principles. * Explore robotics and physical computing (if available).

Game Development with Scratch: Create Your Own Games

Grade: 5-7 **Lessons:** 30 Lessons **Activities:** 20+ Games & Animations **Duration:** 2-3 months

Unleash your creativity and learn to code by building your own interactive games and animations with Scratch! Master drag-and-drop block coding to bring characters to life, design levels, and tell stories.

Learning outcomes: * Master Scratch block-based programming. * Design and build multiple interactive games and animations. * Understand game mechanics and storytelling through code. * Develop computational thinking and problem-solving skills.

Cybersecurity Basics: Stay Safe in the Digital World

Grade: 6-8 **Lessons:** 15 Lessons **Activities:** 10+ Scenarios & Quizzes **Duration:** 1-2 months

Learn the essentials of online safety, privacy, and how to protect yourself in the digital age. Understand common cyber threats and develop good habits to navigate the internet securely and responsibly.

Learning outcomes: * Understand fundamental cybersecurity concepts and online safety. * Identify common online threats and risks. * Learn how to create strong passwords and protect personal information. * Develop responsible online behavior and digital citizenship.

JavaScript Programming: Powering the Interactive Web

Grade: 7-8 **Lessons:** 35 Lessons **Activities:** 20+ Interactive Exercises & Projects **Duration:** 3-4 months

Dive into JavaScript, the language that brings websites to life! Learn its core concepts to add interactivity, manipulate web page content, and understand the foundations of modern front-end development.

Learning outcomes: * Understand JavaScript fundamentals: variables, data types, functions, and control flow. * Learn to manipulate HTML and CSS using the DOM (Document Object Model). * Handle user events to create dynamic web experiences. * Build interactive web components and simple applications.
