BRAINIACS
OLYMPIAD

CODING SYLLABUS

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ORGANIZED BY MINDCSAPE INTERNATIONAL LLC

BRAINIACS OLYMPIAD 2026
SCRATCH CODING SYLLABUS (GRADES 3-4)

Group 1: Grades 3–4 (Beginner level)
Goal: Develop basic programming skills, logical thinking, and creativity.

LESSON	TOPIC	LEARNING OBJECTIVES	PRACTICE/ MINI-CHALLENGE
1	Introduction to Scratch	Understand the interface, sprites, stage	Create a sprite that says “Hello”
2	Motion & Events	Move sprite using arrow keys and events	Move sprite around stage
3	Looks & Sounds	Change costumes, backgrounds, and add sounds	Animate sprite with costume changes
4	Variables & Score	Create a variable and use it	Make a counter that increases when sprite is clicked
5	Loops & Repetition	Use repeat and forever blocks	Animate sprite moving back and forth
6	Conditionals	Use if/else to control actions	Make sprite react differently to colors
7	Simple Game Mechanics	Combine motion, score, and events	“Catch the apple” game
8	Storytelling & Animation	Sequence events for a story	Make two sprites interact in a short story
9	Pen Blocks & Drawing	Use pen down, pen up, change color & size, combine with motion and loops	Draw lines, squares, triangles, stars, and colorful patterns

BRAINIACS OLYMPIAD 2026
SCRATCH CODING SYLLABUS (GRADES 5-7)

Group 2: Grades 5–7 (Intermediate Level)

Goal: Strengthen problem-solving, logical reasoning, and game design skills.

LESSON	TOPIC	LEARNING OBJECTIVES	PRACTICE/ MINI-CHALLENGE
1	Advanced Motion & Events	Use glide, broadcast, and complex event triggers	Make a sprite follow another sprite
2	Complex Conditionals	Nested if/else, multiple checks	Create a game where sprite reacts differently to colors
3	Variables & Advanced Scoring	Multiple variables, tracking score, lives, and time	Create a "catch falling objects" game with lives and score
4	Loops & Repetition	Nested loops, repeat until, forever loops	Animate multiple sprites moving in patterns
5	Game Mechanics	Collisions, win/lose conditions	Make a maze game where player avoids obstacles
6	Interactive Story / Animation	Branching paths and sprite interactions	Create a short story with 2–3 endings
7	Pen Blocks & Advanced Drawing	Pen up/down, color/size, loops, nested patterns	Draw complex shapes, spirals, stars, flowers, and interactive patterns combined with logic and motion

BRAINIACS OLYMPIAD 2026
CODING SYLLABUS (GRADES 8-9)

Group 1: Grades 8–9 (Beginner level)
Goal: Learn core programming logic & solve basic algorithmic tasks.

LESSON	TOPIC	LEARNING OBJECTIVES	PRACTICE TASK (EXAMPLES)
1	Introduction to Programming	Understand what programming is, run first program	Print “Hello Olympiad”, print your name and age
2	Input & Output	Read user input and display results	Read two numbers and print their sum; ask for name and greet user
3	Variables & Basic Math	Store values, perform arithmetic	Convert minutes to hours, calculate area of rectangle
4	if / else Conditions	Make decisions in programs	Compare two numbers, check if a number is even or odd
5	Loops (for / while)	Repeat operations multiple times	Print numbers 1–50, sum numbers 1–N
6	Loops + Conditions	Solve tasks combining logic	Count numbers from 1–100 divisible by 3; print numbers divisible by 4
7	Strings & Characters	Work with text, manipulate characters	Count letters in a word, reverse a string, check for vowels
8	Lists / Arrays	Store multiple values and process them	Find max in a list, sum all elements, count even numbers

BRAINIACS OLYMPIAD 2026
CODING SYLLABUS (GRADES 8-9)

Group 1: Grades 8–9 (Beginner level)
Goal: Learn core programming logic & solve basic algorithmic tasks.

LESSON	TOPIC	LEARNING OBJECTIVES	PRACTICE TASK (EXAMPLES)
9	Nested Loops	Understand repetition inside repetition	Draw star triangle of height N, multiplication table
10	Functions	Organize code into reusable blocks	Create sum(a,b), is_even(n), greet_user(name)

BRAINIACS OLYMPIAD 2026
CODING SYLLABUS (GRADES 10-12)

Group 2: Grades 10-12 (Intermediate Level)
Goal: Strengthen fundamentals, introduce algorithms, 2D arrays, recursion.

LESSON	TOPIC	LEARNING OBJECTIVES	PRACTICE TASK (EXAMPLES)
1	Fast Review of Basics	Confidently use input/output, variables, arithmetic	Simple arithmetic, print formatted output
2	Conditions & Logic	Use multi-branch decisions	Determine grade from score ranges, classify number as positive/negative/zero
3	Loops (Patterns & Counting)	Write loop-based patterns & calculations	Print number patterns, count occurrences of a number in a list
4	Lists / Arrays	Store and process multiple values	Find max/min, sum elements, count even/odd numbers
5	Functions with Parameters & Return	Reusable code blocks with input/output	sum(a,b), factorial(n), is_prime(n)
6	Nested Loops	Understand loop inside loop complexity	Draw star triangle, nested number patterns
7	Recursion	Solve problems recursively	Factorial, Fibonacci numbers, sum of array elements recursively

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Goal: Strengthen fundamentals, introduce algorithms, 2D arrays, recursion.

LESSON	TOPIC	LEARNING OBJECTIVES	PRACTICE TASK (EXAMPLES)
8	Algorithms	Apply structured problem-solving	Linear search, binary search, bubble sort
9	Math Operations & Libraries	Use built-in math functions	sqrt, pow, absolute value, rounding, modulo-based problems