



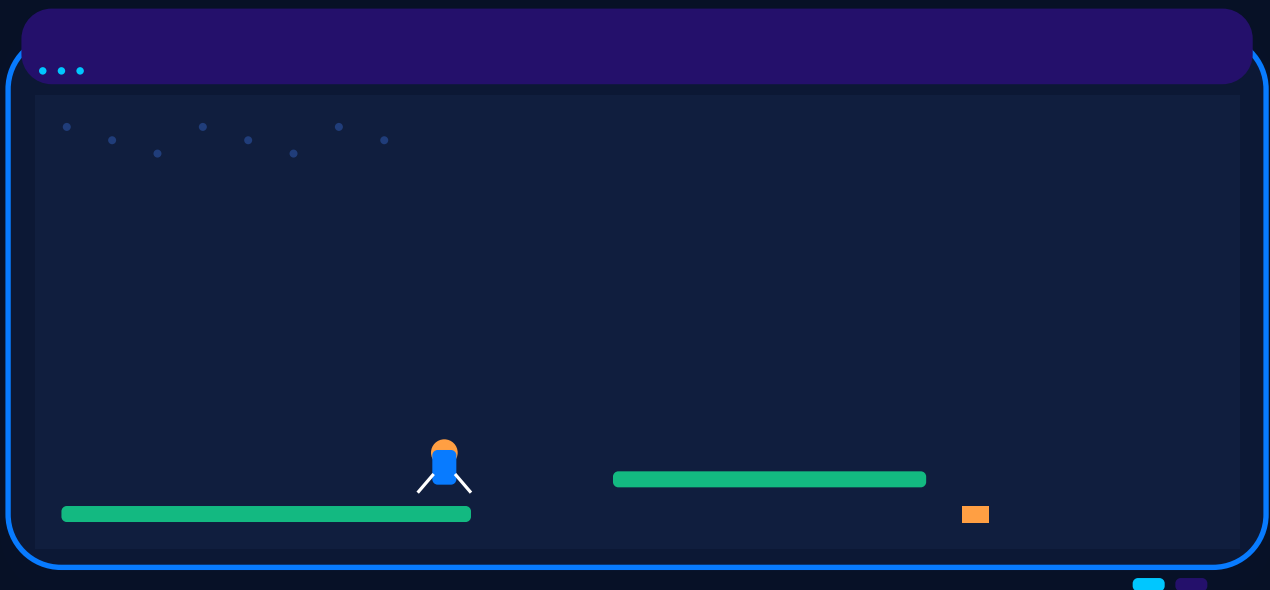
Robotanium



GAME DEVELOPMENT

Case Study & Program Showcase

Learn Game Development. Build Games. Create Your Own Worlds.



Audience
Students • Grades 5-12

Approach
Hands-on • Project-based

Focus
Design • Code • Create

From screen time to skill time

Robotanium’s Game Development program turns students from passive players into active creators. The learning journey combines game design, programming, digital creativity, mechanics, physics, characters, levels and interactive projects so learners can understand how games are planned, built and made playable.

THE CHALLENGE Students often experience games only as finished products. The opportunity is to reveal the design and technology behind the experience.	THE RESPONSE A project-based pathway where learners design, code, test and improve their own interactive experiences.	THE RESULT A practical foundation in computational thinking, creative problem-solving, digital design and game technology.
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Program promise

Imagine it. Code it. Play it. Repeat.

The page positions game development as both a creative medium and a technology learning pathway. Students progressively move from game concepts to programming, 2D/3D creation, AI-driven behaviour and real-world projects.

Six pillars of game development

The curriculum is structured around the core building blocks students need to understand how a game works from idea to interaction.

01

Game Design Fundamentals

Characters, objectives, rules, challenges, levels and gameplay mechanics.

02

Game Programming

Variables, conditions, loops, functions, events and logic for interactive gameplay.

03

2D & 3D Development

Environments, objects, animations and interactive elements across 2D and 3D worlds.

04

Game Physics

Movement, gravity, collisions, jumping and acceleration that shape believable gameplay.

05

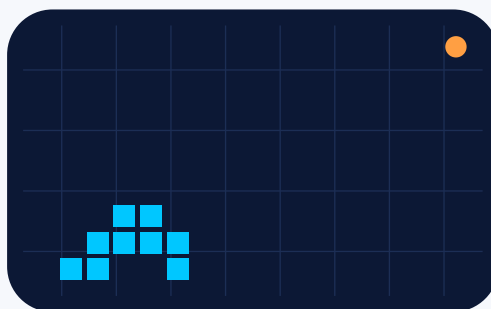
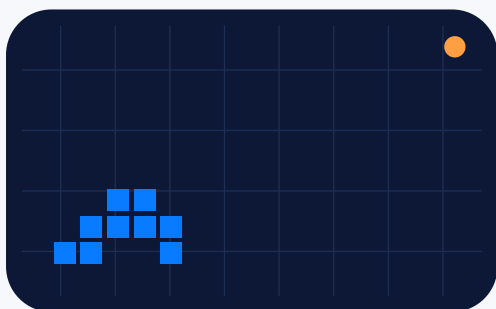
Characters & Level Design

Characters, environments, obstacles, missions and levels designed for challenge and fun.

06

Interactive Game Projects

Racing, platform, puzzle, space, arcade and other playable challenges.



03 | LEARNING PATHWAY

Three levels. One creative progression.

Students can progress from foundational game concepts to advanced programming, 3D development and AI-driven behaviour.

LEVEL 1**GRADES 5-7****BEGINNER**

Game Design Basics • 2D Game Creation • Characters & Game Objects • Simple Game Projects

LEVEL 2**GRADES 8-10****INTERMEDIATE**

Game Programming • Game Mechanics & Physics • 2D & 3D Game Development • Interactive Game Projects

LEVEL 3**GRADES 11-12****ADVANCED**

Advanced Game Programming • 3D Game Development • AI & Game Behaviour • Real-World Game Projects

Progression principle

Start with imagination → introduce logic → build systems → create richer worlds → solve more complex interactive problems.

Why learn game development today?

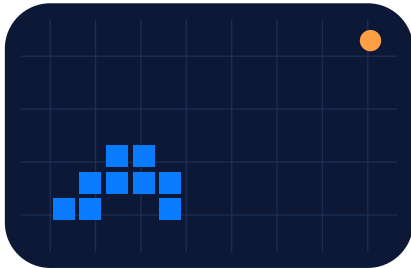
Game development creates a compelling context for practicing technical thinking while keeping creativity at the centre.

BUILD YOUR OWN GAMES	Develop creativity, logical thinking and problem-solving by turning ideas into playable experiences.	
MASTER CODING & GAME LOGIC	Learn programming, game mechanics and computational thinking through engaging challenges.	
CREATE INTERACTIVE WORLDS	Transform ideas into characters, levels and experiences while building practical confidence.	
CREATIVITY Imagine characters, worlds and stories.	COMPUTATIONAL THINKING Break problems into rules, systems and logic.	DIGITAL CONFIDENCE Build, test, debug and improve interactive projects.

05 | HANDS-ON PROJECTS

Imagine it. Code it. Play it.

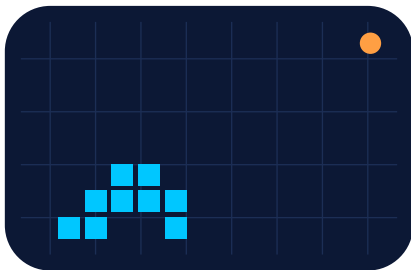
Students learn by building playable experiences—designing characters, creating worlds, adding challenges and refining gameplay.



BUILD YOUR FIRST GAME

Imagine. Create. Play.

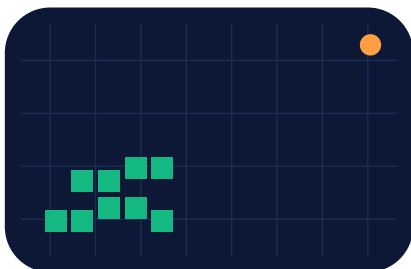
Characters • environments • goals • simple mechanics



INTERACTIVE GAME CHALLENGE

Code. Control. Conquer.

Player controls • scoring • obstacles • animation • sound



GAME WORLD DESIGN MISSION

Design. Build. Explore.

Levels • characters • missions • environments • challenges

Project mindset

A finished game is not the only outcome. The deeper value is the cycle: design → build → test → debug → improve → share.

06 | FUTURE PATHWAYS

Skills that connect to interactive technology

The program introduces students to a broad ecosystem of creative and technical roles.



Game Developer

Build and program engaging games.



Game Designer

Shape rules, challenges and player experience.



3D Game Artist

Create characters, environments and visual assets.



Game Animator

Bring characters and effects to life.



Gameplay Programmer

Build controls, physics, AI and mechanics.



Game Experience Designer

Design immersive environments and experiences.



Game AI Developer

Create intelligent behaviour for characters and worlds.



XR Developer

Build VR, AR and immersive digital experiences.



Game Technology Engineer

Develop engines, applications and advanced gaming technology.

Career lens

Game development can act as an engaging entry point into programming, digital design, animation, interactive technology and software development.

07 | LEARNING EXPERIENCE

A build-first learning model

The program is designed around active creation rather than passive consumption.

- 01** **Imagine**
 Choose an idea, genre, character or challenge.
- 02** **Design**
 Define the world, rules, goals, mechanics and levels.
- 03** **Code**
 Translate ideas into controls, events and interactive logic.
- 04** **Test**
 Play, observe, debug and identify what needs improvement.
- 05** **Refine**
 Adjust mechanics, visuals, difficulty and user experience.
- 06** **Share**
 Present the playable result and explain the design choices.

What students practice

Creative thinking	Logical reasoning	Problem-solving	Digital creation
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Common questions, clear answers

What will students learn?

Game concepts, mechanics, programming foundations, character design, level creation, animation, problem-solving and interactive storytelling.

Is it suitable for beginners?

Yes. Activities can be structured by age and experience, beginning with simple concepts and progressing toward more advanced projects.

Will students build their own games?

Yes. The learning model focuses on building playable games and progressively more complex projects.

Is Game Development useful for the future?

Yes. It provides an engaging introduction to programming, digital design, interactive technology and creative problem-solving.

How can I enroll?

Contact Robotanium for current program options, age groups, workshops and enrollment details.

TURN IDEAS INTO GAMES

Students discover how games come to life by creating characters, designing levels, coding gameplay and solving challenges.

From a first simple game to interactive worlds, the goal is to help learners think like both a game designer and a developer.

Robotanium

Game Development Program

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