

ST. MARY'S CODE ACADEMY

The Code Academy Blueprint: Construct Your Own Gaming Universes

A 24-lesson journey constructing four complete gaming universes, one Scratch block at a time.

COURSE SYLLABUS

At a Glance

Ages	10–15
Duration	24 lessons
Session length	90 minutes, once a week
Format	Small group, hands-on, one laptop per student
Prerequisites	None — complete beginners welcome

Course Overview

This course takes students from their very first Scratch block to four complete video games spanning four different genres. Rather than following passive tutorials, students learn the real building blocks of programming — logic, loops, variables, and problem-solving — by constructing games they actually want to play, one working feature at a time.

Every single lesson ends with something new and playable. There is no "someday we'll build something real" — from lesson one, students are already making their game move, respond, and react.

Why This Course

◆ Real computational thinking

Every game mechanic is really a math or logic concept in disguise — coordinate planes, collision detection, randomness, state machines — taught through something kids are genuinely motivated to understand.

◆ A genuine portfolio

By the end of the course, each student has four complete, working games they built themselves across four different genres — not worksheets, not tutorials followed along, real projects.

◆ Confidence through building

Every session includes a hands-on build and a guided bug-hunt process, so students learn that a bug isn't a failure — it's a normal, solvable part of building something real.

◆ Four distinct genres, one growing skill set

From an arcade star-catcher to a brick-breaker, a tower defense game, and a full platformer — each module introduces new mechanics while reinforcing everything learned before.

The 24-Lesson Journey

Students build four complete games across the course, each one introducing new skills while reinforcing everything learned before.

LESSONS 1–6

Star Catcher

The foundations: coordinate movement, falling hazards, scoring, and a full game-over sequence — the core toolkit every later module builds on.

LESSONS 7–12

Neon Brick Breaker

Paddle physics, ball deflection, brick collision, and a player health economy — classic arcade mechanics built from scratch.

LESSONS 13–18

Castle Defender

Aiming mechanics, cloned projectiles, enemy hordes, and tower-defense logic — defending a central base against waves of monsters.

LESSONS 19–24

Platformer Adventure

Gravity, jump mechanics, ground collision, and level hazards — building a complete platformer from first principles.

What a Typical Session Looks Like

◆ The Architect Phase (15 min)

A screen-free introduction to the lesson's core idea — group discussion, a logic puzzle, or a whiteboard walkthrough — before any code is written.

◆ The Builder Phase (30 min)

Step-by-step, hands-on coding time with direct instructor support, building that week's core mechanic exactly as specified.

◆ The Level Up! Challenges (35 min)

Two structured challenges that extend the core build — for students who finish early and want to push their game further.

◆ The Showcase & Bug Hunt (10 min)

Students pair up to review each other's projects against a quality checklist — finishing every session by testing real, working code.

Frequently Asked Questions

Does my child need any coding experience?

No — this course is designed for complete beginners, while the Level Up Challenges each lesson give students who pick things up quickly somewhere further to go.

What does my child need to bring?

Just themselves — laptops and all required software are provided during the session unless otherwise noted.

What if my child misses a session?

Each lesson builds on the last, so please contact us as soon as possible if a session will be missed — we'll help your child catch up.

Will my child be able to keep their games?

Yes — all projects are saved to the student's own Scratch account, so games can be played, shared, and shown off long after the course ends.

Questions? We'd love to hear from you — contact St. Mary's Code Academy to enroll or learn more.