Capture the Flag

By Group 6   11/11/2025

Project Purpose

Capture the Flag is an educational game designed to help students develop digital-safety and problem-solving skills through interactive challenges. The experience is competitive, fast-paced, and fully sandboxed so that all activities remain secure and appropriate for a classroom environment.

Core Gameplay Concept

Two teams compete to earn the highest score by collecting "flags" short puzzles across a series of rounds. Players must think quickly, coordinate with teammates, and choose their routes through the challenges strategically.

The updated design introduces mini-games and AI-generated questions, adding variety, unpredictability, and opportunities for teams to gain advantages or sabotage the opposition.

Match Setup

- Supports any number of players, from small groups to full-class sessions
- Players are assigned to Team Red, Team Blue, or additional teams depending on class size
- Teachers can run controlled game rooms or allow open lobbies
- Optional player roles add minor advantages (Analyst, Cryptographer, Engineer, Wildcard) without restricting gameplay

This flexibility allows the game to scale for lessons, workshops, clubs, or large events.

Challenge Structure (Still Under Development)

The game will include a variety of challenges, but the exact organisation of these challenges is not finalised. Elements still under development include:

- How challenges will be grouped or categorised
- Whether there will be difficulty tiers
- How scoring or rewards will scale with challenge complexity
- How challenges will appear within each round

These details will be confirmed later once the design team completes testing and refinement.

Mini-Games (New Feature)

Short, optional mini-games can appear during rounds and allow players to:

- earn extra points,
- gain temporary team buffs, or
- apply penalties to the opposing team.

AI-Generated Challenge Events (New Feature)

At random or teacher-triggered intervals, the game generates custom challenges using an AI engine. These can:

- reward the answering team with bonuses, or
- send a difficult scenario to opponents, slowing them down

These events add unpredictability and keep matches exciting even with large groups.

How It Differs From Other Classroom Games

Unlike quiz-based tools, Capture the Flag offers:

- interactive puzzles instead of simple question/answer formats
- AI-driven dynamic events
- strategic team play
- scalability for unlimited class sizes

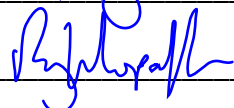This makes lessons more immersive and encourages collaboration.

Purpose of This Document

This overview is intended to secure client approval on the overall vision and educational intent of the Capture the Flag game before moving into full design and development. It confirms what aspects are established and what areas are still flexible.

Client/Stakeholder Approval

I confirm that I have reviewed the *Capture the Flag* overview and approve the project to continue into the next stage of design and development. I understand that detailed mechanics, systems, and gameplay elements may change as the team refines the concept.

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Signature: _Rhopcraft_

Organisation/Role: _University of Plymouth - Lecturer/PhD_

Date: _12/12/ 2025_