Esports as Accelerator for Social Inclusive Education

LESSON

JAVASCRIPT PUZZLE QUEST

AUTHOR

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CODEARTS SOLUTIONS

JAVASCRIPT PUZZLE QUEST

JavaScript Puzzle Quest combines a code-completion challenge with a game-based programming extension. Students first repair an incomplete memory game using DOM manipulation, events, functions and conditionals, then apply the same logical reasoning to short CodeCombat-style puzzles such as Dungeons of Kithgard.

Subject and level

VET web-development learners with introductory JavaScript knowledge who need practical reinforcement of DOM interaction, event handling, conditionals, loops, functions and debugging.

Connection to curriculum

The activity reinforces core JavaScript syntax, browser interaction, problem-solving, testing and code explanation. It moves learners from editing an incomplete real project to solving smaller game-based logic tasks, helping them recognise transferable programming patterns.

Didactic and pedagogic considerations

Project-based scaffolding provides a clear starting point without removing the need to reason. The second game-based phase offers immediate feedback and differentiated progression. Pair discussion, debugging and peer review encourage students to articulate why code works rather than relying on trial and error alone.

Time estimate

2.5 hours

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Group size

15-24 students

Overall introduction to exercise

The first half of the exercise centres on an incomplete JavaScript memory game with missing logic for shuffling, card selection, matching and reset behaviour. Students diagnose and complete the code under a deadline, then review another solution.

The second half uses short programming puzzles to reinforce the same concepts in a different context. By moving between a browser project and a game environment, learners practise recognising loops, conditionals and functions as general problem-solving tools rather than syntax tied to one application.

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Exercise as presented to the students

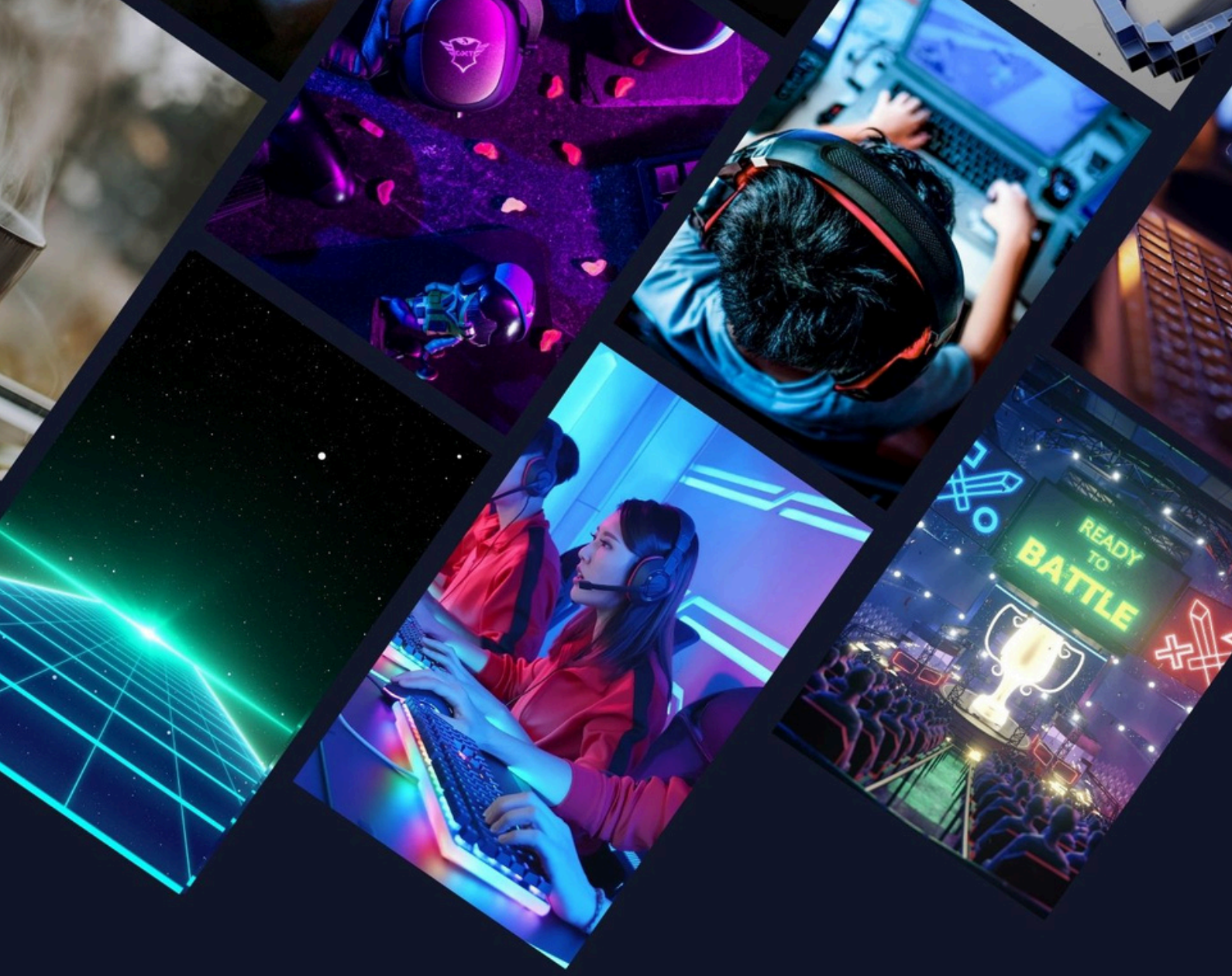
Students receive starter files for a memory game containing working HTML and CSS but incomplete JavaScript. The teacher explains the required behaviour and demonstrates how to inspect DOM elements and browser-console errors without revealing the missing solution. Learners work in pairs and begin by identifying which parts of the game already function.

The first challenge is to complete card selection and matching. Students add event listeners, update class states and use conditional logic to determine whether two selected cards match. They test after each small change and keep a short debugging log that records the symptom, the suspected cause and the fix they tried.

A second challenge introduces shuffling and reset behaviour. Faster pairs receive an optional score or move counter, while students who need more support use hint cards containing relevant JavaScript concepts rather than finished code. This creates differentiation without changing the shared objective of producing a functional game.

After the memory game checkpoint, students move to a short set of CodeCombat-style JavaScript puzzles, including a Dungeons of Kithgard level. They use variables, commands, conditionals and simple loops to guide a character through obstacles. The immediate game feedback provides a different way to practise the same logical habits used during debugging.

The lesson ends with peer review. Pairs compare one memory-game solution and one puzzle solution, discussing code clarity and alternative approaches. Students then write a brief reflection identifying the JavaScript concept they used most often and one debugging strategy that helped them progress. Assessment combines functional code, reasoning, collaboration and the ability to explain solutions.



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