

LESSON 6

The Logic of Games

40 minutes

Pattern Play Without Devices

WHAT THIS LESSON DOES

In this lesson, you'll explore how games teach rules by discussing familiar examples and the importance of clear instructions. Then, follow step-by-step activities to play a demo game, customise your own board, write rules, and test your creation with peers.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the purpose and importance of clear rules in games for fair and enjoyable play.
- Identify key components of game structure, including setup, turns, conditional rules, and winning conditions.
- Apply game design principles by creating a custom board and rule set for a colour-based game.
- Develop problem-solving skills through testing and refining game rules for clarity and balance.
- Collaborate effectively in small groups to design and evaluate a unique game concept.

BEFORE THE LESSON

- Open the Conditional Race interactive, check Fullscreen on the class display, and click through a roll so the colour rules behave as expected.
- Print or prepare the downloadable board template for each pair or group of three.
- Have one die and counters ready for each group, plus board space to write the four rule headings.

The Logic of Games

HOW THE LESSON RUNS

Introduction

How games teach rules

The importance of Rule Books

Our New Game: The Conditional Race

Play the Conditional Race

Your Turn to Program: Design Your Own Game!

Test Your Game and Share It!

Wrap Up

TEACHING MOVES

1. Introduction. Name two familiar rules pupils know (snake slide, roll a six go again). Say a rule is an if-this-then-that instruction, and computers follow the same kind of clear rules.
2. How games teach rules. Collect quick examples of how they learned a game. Steer talk to fairness and fewer arguments, then ask for a time a fuzzy rule spoiled play.
3. The importance of Rule Books. Write Setup, Turns, If → Then rules, and How to win on the board. Under each, capture one plain Snakes and Ladders rule so the structure is visible.
4. Our New Game: The Conditional Race. Frame it as Teacher vs Class. Read every rule aloud with the class before any roll so colour squares and turn order are shared knowledge.
5. Play the Conditional Race. Use Fullscreen. Before each roll ask what that colour would do. After the counter lands, have the class name the If → Then rule the game just applied.
6. Your Turn to Program: Design Your Own Game! Split into pairs or threes. Each group customises the template with two colours, then writes a mini rule set under the same four headings.
7. Test Your Game and Share It! Groups play their own game first and fix unclear lines on the spot. Then swap with a neighbour group for a short peer try-out.
8. Wrap Up. Congratulate them as programmers: board plus rules is an algorithm, If → Then is conditional logic, and fixing a confusing rule is debugging.

WHAT TO WATCH FOR

- Pupils write vague rules and assume others will know what they meant. Ask a neighbouring pupil to follow the written rule only. If they pause or guess, the group must rewrite it under the four headings until it is specific.
- Pupils mix always-do turn actions with true If → Then colour rules. Point back to the board headings. Moves and turn order sit under Turns; only colour landings belong under If → Then.
- A winning condition makes the game impossible or endless (no path to FINISH, or a loop with no exit). During their own test, ask: can someone actually finish in a fair number of turns? Adjust colours or the win line until play can end.

DIFFERENTIATION

- Emerging: Seat them with a partner and start with one colour and one clear If → Then before adding a second colour. Stay with the group while they fill Setup and How to win using the class Snakes and Ladders example as a model.
- Developing: Have them tick each of the four headings before they play, so no section is left blank. During the self-test, prompt them to mark any line a player had to ask about and rewrite that line only.
- Proficient: Once two colours work, invite a third colour rule or a rule that depends on a roll result as well as a colour. After the peer swap, ask them to balance the game so neither colour feels unfairly strong.