LESSON 11

Ready, Set, Go! The Great Frog vs. Pig Race

30 minutes | Adventures in Digital Creation

WHAT THIS LESSON DOES

In this lesson, you will guide your students through programming a race between a frog and a pig using Scratch Jr. You'll start with a discussion about animal movements, then move on to setting the scene and introducing the characters. The students will learn about parallel coding and variable speeds, making the race more dynamic and realistic. For those who finish early, there's an extra challenge of adding a third character to the race.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand and discuss the different ways animals move and how this can be represented in a digital race.
- Select and apply appropriate backgrounds in Scratch Jr. to enhance the realism of the race scenario.
- Identify and utilise the unique movement characteristics of different animals in the programming of a digital race.
- Develop and apply parallel coding skills to enable simultaneous actions in digital characters.
- Use variable speed blocks in Scratch Jr. to control the speed of digital characters, reflecting their natural movement speeds.

BEFORE THE LESSON

- Have ScratchJr open and working on each pupil device, one per pupil or shared per pair, and check devices are charged.
- Know where the Frog and Pig sprites, the background icon and the speed block (running-person icon) sit, so you can point pupils to them quickly.
- Build the race once yourself first: it is the fastest way to spot where pupils will get stuck.

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HOW THE LESSON RUNS

Introduction
How Do Animals Move?
Setting the Stage for the Race
Setting the Race Track Background
Character Selection: Frog vs. Pig
Hopping Mad!
Code the Slower Racer: Introducing the Speed Block
Start the Race!
Wrap Up

TEACHING MOVES

- 2. How Do Animals Move? Keep this short and spoken. Draw out fast versus slow and hopping versus crawling, then pin it to the coding: different real speeds mean different code.
- 3. Setting the Stage for the Race. Make the link explicit: because the Frog and Pig move differently in life, their code must differ too. This is the reason for the speed block coming later.
- 4. Setting the Race Track Background. Show the background icon once, then let pupils choose. Keep it brief so it does not eat the coding time; any sensible track will do.
- 5. Character Selection: Frog vs. Pig. Have every pupil add both sprites via the plus icon before anyone codes. Name the contrast aloud: quick jumpy Frog, slow deliberate Pig.
- 6. Hopping Mad! This is the hard part. Show that two separate green-flag sequences on the Frog run at once: one to move forward, one to jump. Circulate here most.
- 7. Code the Slower Racer: Introducing the Speed Block. Point out the speed block looks like a running person. Set the Pig to slow so pupils can see it clearly lag behind the Frog.
- 8. Start the Race! Count them in to press the green flag together. Then ask who won and why, tying the result back to their speed and parallel-code choices.
- 9. Wrap Up. Name the three skills they used out loud: sequence, parallel coding, speed. Keep it to a minute.

WHAT TO WATCH FOR

- Pupils put the move and the jump into one single sequence, so the Frog does one then the other instead of both at once. Show that parallel means two separate stacks, each with its own green flag start. Have them point to both stacks before running.
- Pupils expect the speed block to change speed permanently or think the Pig is broken when it lags, rather than seeing this is the point. Run the Pig alone at slow speed, then at normal, so the change is visible. Remind them slower is the goal for this race.
- Pupils assume both characters move at the same pace unless told otherwise, and are surprised the race is close. Have them compare their two code stacks side by side and check the Frog has no speed block slowing it down.

DIFFERENTIATION

- Emerging: Get them to the point of two sprites on a background and one working move block before adding anything else. One moving animal is a win. Sit beside them for the parallel step and build the second stack together, block by block.
- Developing: Ask them to explain why the Pig has a speed block and the Frog does not before they run it. Prompt them to test after each block rather than building the whole race and hoping.
- Proficient: Challenge them to add a third slower animal or make the race a close finish by tuning the speed block. Have them explain their two Frog stacks back to a partner and predict the winner before pressing the flag.