

LESSON 4

Code a Game That Uses Your Model

40 minutes

Build With a Model You Trained

WHAT THIS LESSON DOES

Students load their trained Teachable Machine image model into Scratch and build a rock-paper-scissors game against the computer, then tune the confidence threshold and test what happens when it is set too low or too high.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Load a trained image model into Scratch and use it to drive player choice; set and test a confidence threshold; explain why a model needs one; debug recognition and win/lose logic.

BEFORE THE BELL

- Students logged in at devices with cameras working; browsers ready for Stretch3 (stretch3.github.io) and camera permission allowed when prompted.
- Each student (or pair) has the Teachable Machine image model URL from the earlier part of this project, or the class fallback model URL ready to paste.
- Open Stretch3 on the board, show where Extensions and TM2Scratch live, and have a sample model URL ready to demonstrate.

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HOW THE LESSON RUNS

4 min	introduction	Start: What We're Building
2 min	content	Introduction
3 min	content	Setup Scratch and Tm2scratch
2 min	content	Add a Sprite
2 min	content	Create Variables
2 min	content	Randomize Computer Choice
3 min	content	Load Teachable Machine Model
2 min	content	Display Image Label
3 min	content	Set the Confidence Threshold
2 min	content	Get Player Choice
2 min	content	Determine If It's a Draw
3 min	content	Determine If You Win
2 min	content	Else You Lose
2 min	content	Challenge
3 min	content	Make Sense: What Worked, What Broke
2 min	content	Reflect
1 min	summary	What You Covered

TEACHING MOVES

- Model the first blocks on the board (extension, video on, model URL) before pairs continue; paste the model URL carefully and check the stage camera preview.
- Keep label names exact matches to the model classes (Rock, Paper, Scissors); mismatched spelling is a common silent fail.
- For the threshold beat, have the class try 0.3, 0.6 and 0.9 and say what changes: false triggers when low, missed gestures when high.
- Remind students the green flag re-rolls the computer choice each round; that is expected, not a bug.

WHAT TO WATCH FOR

- Camera blocked or video left off: stage stays blank and labels never fire. Allow camera and check turn video on .
- Wrong or incomplete model URL: labels stay empty. Repaste the full Teachable Machine link and click the green flag again.
- Win/lose conditions nested or compared the wrong way: draws never show or every round is a win. Walk the three win cases on the board against the number mapping (1 rock, 2 paper, 3 scissors).

DIFFERENTIATION

- Support: Provide the fallback model URL and a printed number map (1 rock, 2 paper, 3 scissors); let pairs complete draw logic first, then add one win case.
- Extension: Start a new round on space bar, add sound effects, or retrain the model with more example images and compare recognition.
- Extension: Try two threshold values back to back and note which gestures break at each setting.