Monkey Republic: Will the Champion Win in Another World?

Plan 35-45 minutes: predict on paper, then check on one projected computer. The local-model lesson needs a computer to run its download. Split advanced calculations across two sessions.

Learning goal

Fix conditions and seeds in advance, compare repeated runs and use data to distinguish a single winner from consistent performance.

Before starting

Complete the memory lesson; calculate means and read percentages. The teacher operates parameters; individual devices are unnecessary.

Materials

Two worksheet pages and one projected computer. Defaults: one student and eight character bots, nine citizens, 100 rounds, seeds one to five.

Class sequence (5 / 10 / 10 / 10 min, plus 5-10 min discussion)

1. Predict (5 min): write a question and metric. Fix Win-Win payoffs, nine citizens, 100 rounds and five seeds. Compare per-action flip probabilities zero and 0.15.

2. Run (10 min): predict, then run both conditions. Record every seed. Mean bananas is total accumulated bananas divided by citizens; share rate counts actions across all rounds.

3. Observe (10 min): compare seed one with the five-seed mean. Separate student score, society mean and sharing; improving one metric need not improve another.

4. Challenge (10 min): change one student dial or test another world. Presets may change both rewards and mistakes; hold one fixed to attribute differences to the other.

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Worked example

Under these conditions, seed one gives 148 versus 184 cumulative bananas per citizen; the five-seed means are about 185.91 versus 148.04. This describes this code experiment, not an inevitable or statistically significant effect.

Check understanding: ask before showing an answer

May we discard seed one because its direction differs from the five-seed mean? Does the same seed guarantee identical pairings after changing a parameter?

Expected answers and worksheet check

Do not discard it; select seeds before running. A seed repeats one configuration, but changed branches can consume random draws differently, so pairings need not match across configurations. Worksheet: A=30,10,20 has mean 20; B=24,24,24 has mean 24. A has the highest single result, B the higher mean. Actual five-seed means are 185.9111 and 148.0444; seed one reverses direction. Fifteen percent applies to each action; at least one flip in a pair has probability $1–0.85^2=27.75\%$. Share rate alone does not determine bananas without pairing outcomes and payoffs.

Keep the claim within its limits

This uses a pinned Society engine but remains a model with designed assumptions. Six dials are neither a neural network nor a personality test. Shared Well has no water inventory or regeneration. Results do not directly establish real-society claims or grade children’s character.

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Teacher run sheet

Keep Win-Win, 100 rounds and seeds one to five for the first comparison. Exported CSV includes configuration, seed, population, rounds, student score, society mean and full-run share rate.

For local batches, unzip the Node experiment download and run node run-monkey.cjs --rounds 100 --seeds 1,2,3,4,5. No package installation is needed.

Discussion and evidence

Ask what changed, what stayed fixed and what better means before looking at winners. Reusing seeds during tuning gives development results; reserve fresh seeds for final evaluation.

Support and extension

Support: hand-calculate the three practice scores first. Extend: give each group six experiments, register a dial hypothesis and report every result plus a counterexample.

At home

Show a parent seed one before the full five-seed table. Discuss why experiments and metrics should be chosen in advance.

Continue learning

After Full Marks: Did the Model Really Learn? / Monkey Republic: Give Your Monkey a Memory / Golden Banana: Can We Trust a Map Made Only by Returners?

Teacher reference (links also on the lesson page)

Lucas Academy: Monkey Republic: https://lucasacademy.org/monkey