Be the AI game (5–8 players)

Type: Standalone (40–60 mins)

Overview

In this fun game, creators act as the neurons of a machine learning model. They'll learn how to classify objects, even if they get it hilariously wrong at first!

This activity demonstrates how a simple classifier works: taking in data (input), applying decision rules (neurons), and producing an answer (output). At first, the creators might make mistakes through their model, like calling a bat a bird, or identifying a frisbee as a ball, but their model will get better through training (feedback and adjusting), just like a real AI model!

Setup

Materials

- ✅ Input cards (animals, shapes, sports equipment, foods, etc.)
- ✅ Neuron rule cards
- ✅ Lanyards or signs for each role: Input, Neurons, Output
- ✅ Writing materials

Team roles

- **Input (1 creator)**: Holds a picture card representing one item.
- **Output (1 creator)**: Makes the final decision based on behaviour of the Neurons. Holds up a tick (✔) if they agree with the question asked at the beginning, or a cross (✘) if they do not.
- **Neurons (3–6 creators)**: Each follows a simple rule card. They observe the Input's picture card and hold up their rule card if it applies to the picture.

- **Trainer (mentor)**: States whether decisions are correct, highlights unexpected outcomes, and encourages group reflection on rules and inputs (see the Trainer feedback prompts).

Activity steps

1. Introduce the question

- Example: “Is it a bird?”
- Give the Input creator a selection of picture cards, each Neuron creator a rule card, and the Output creator a tick card (✔) and cross card (✘).

2. Run the first round

- The Input creator holds up their first picture card to the Neuron creators, keeping it hidden from the Output creator.
- Each Neuron creator responds by holding up their rule card to the Output creator if they think their rule applies to the picture.
- The Output creator watches the Neuron creators and holds up a tick (✔) if they agree with the original question (e.g. yes, it is a bird) or a cross (✘) if they disagree (e.g. no, it is not a bird).
- Trainer feedback: Was the output correct? Was it wrong? Was it surprising? Embrace mistakes, e.g. creators predicted a bat as a bird or an aeroplane as an animal.

3. Training time

- After a few errors, tell creators: "Your model made mistakes. Let's improve it!"
- Neuron creators should re-read their rules. The group then decides whether to:
  - Keep the rules as they are
  - Share what went wrong (e.g. the Output creator may have thought that the thing being described was an aeroplane, because aeroplanes have wings) and add conditions to the rule cards to remove inaccuracy (“Has wings **and feathers**”)
- Repeat the round with the same or new inputs until an accurate output is obtained.

4. Add complexity

Once creators get the hang of it, throw in challenges, for example:

- Ambiguous inputs (e.g. a duck-billed platypus)
- Biased Neuron rules (e.g. "Is silver")

Talk about how data quality and rule clarity affect the model's decision. This will help creators see how **AI tools struggle with edge cases**.

5. New question e.g. 🎯 "Is it a ball?" 🎯 "Is it alive?"
Keep the same Neuron creators, but let them change their rules again.
This shows how **retraining is necessary** when the task changes.

6. Smarter or still silly?

Pick a surprise object or tricky classification.

- Is the output correct?
- Is it better than it was?
- Are mistakes still being made — and why?

Learning and reflection: Connecting to machine learning concepts

After the game, use these discussion prompts (💬) to lead to the insights (💡)

1️⃣ How did you make decisions?

💬 What did you base your choices on? Did you copy others? Did you keep your rule?
💡 This is how machine learning models apply learned weights (**numbers** inside the AI that tell it **how strongly to pay attention to different bits of information**.)

2️⃣ Why did the model make mistakes?

💬 Was your rule too simple? Did you misunderstand the image?
💡 Early training data is often limited or biased.

3️⃣ What changed after training?

💬 Did your group get better? How?
💡 AI models improve by tuning the rules based on feedback.

4️⃣ What happens if the rules are wrong?

💬 Could your rules cause harm? Misclassify things?
💡 Real AI models can produce biased or unfair outputs if rules are flawed.

5️⃣ Did adding bias create unfair outcomes?

💬 How might this happen with real AI models?
💡 Adding biased rules could lead to an AI model favouring red objects, for example, regardless of other important characteristics. This can have significant consequences, such as biased hiring practices or flawed loan approvals.

Wrap-up: Key takeaways

✅ Input → neurons → output = a simple neural network
✅ Rules are like learned weights
✅ Feedback and adjustment = training or learning
✅ Real-world AI tools are affected by bias, missing data, and unclear inputs
✅ Changing the task requires retraining
✅ AI models don't think — they follow patterns

Trainer feedback prompts

After each round

Accuracy: Clearly state whether the final decision was correct or incorrect.
Unexpected outcomes: Highlight and encourage reflection on the rules and inputs.

Guided discussion

Rule analysis
Ask the Neuron creators to explain their rules and why they responded the way they did.
Discuss whether the rules were too broad, narrow, or misaligned with the question.
Input clarity
Discuss whether the Input creator's card was unambiguous.
Explore whether ambiguity in the Input creator's card contributed to the decision made by the Output creator.
Output justification
Have the Output creator explain their reasoning based on the Neuron creators' actions.
Identify any disconnects between the Neuron creators' signals and the Output creator's interpretation.

Training and iteration

Rule adjustment: Brainstorm how an AI model could reach a different (and possibly more accurate) conclusion if we were to improve the rules or identify potential biases. Suggest adding conditions, removing unnecessary elements, or completely rethinking rules.
Data variation: Introduce new input cards to test the adjusted rules and see if the model performance improves.
Goal-oriented focus: Continuously connect the discussion back to the original question (e.g. "Is it a bird?"). Ensure the group understands how each rule and decision contributes to answering the question correctly.

Connecting to AI concepts

After each round, explain how the game's mechanics relate to real-world AI concepts, e.g. "You adjusted your rule in a way similar to how machine learning models update their weights based on feedback."
Pose thought-provoking questions to encourage deeper reflection:
"What if we had a thousand Neuron creators instead of just a few? How might that change the Output creator's decision-making?"
"How could bias in one of the Neuron creator's rules impact the overall outcome?"

Printable question cards (cut out and hand to the creator in the Output role)

🎯 Is it a bird?	🎯 Is it a ball?
🎯 Is it alive?	🎯 Is it a shape?
🎯 Would it float?	🎯 Is it used for sport?

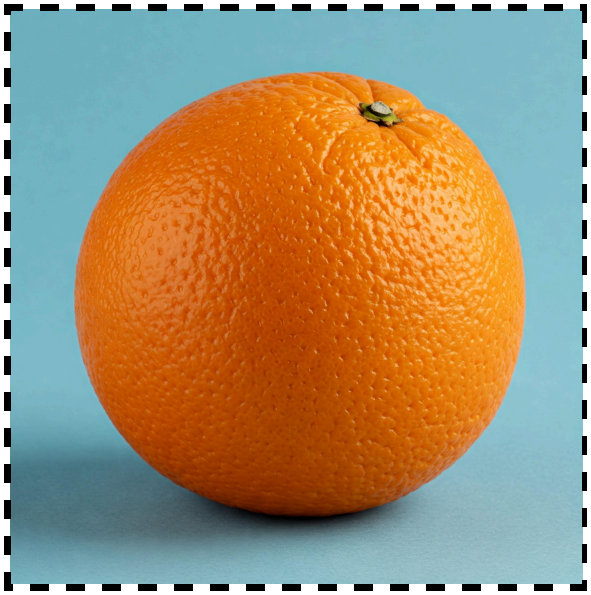
Tick and Cross Cards to hold up

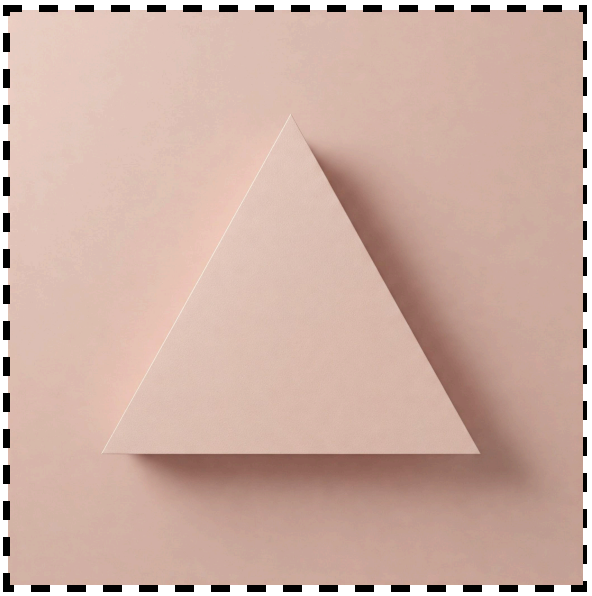
Printable input cards

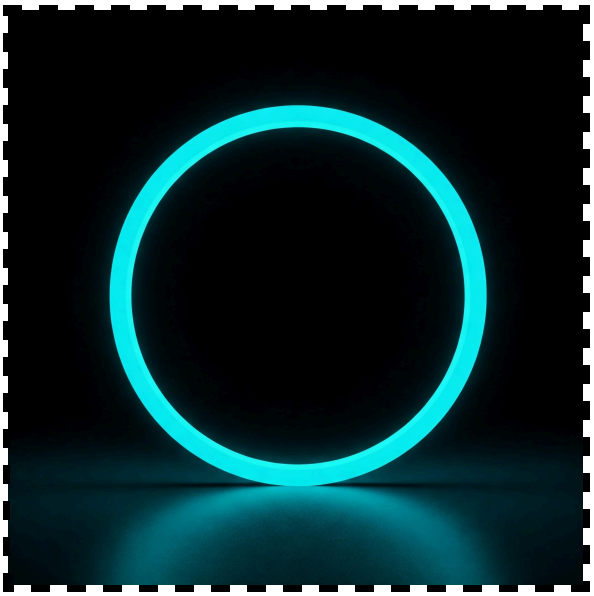
Set A

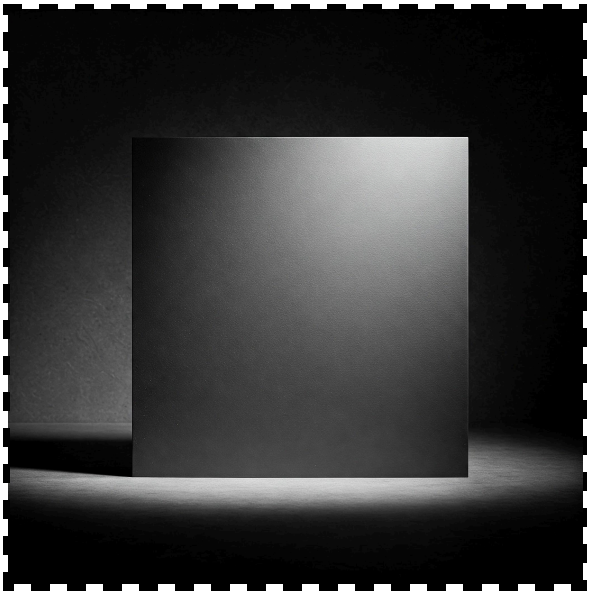
Set B



Set C







Bonus set (for challenge or ambiguity)

Images generated by Gemini

Printable neuron rule cards

Each creator in the Neuron role receives a rule to follow. These simulate how nodes in a neural network process data. Neuron creators observe the Input creator's card and hold up their rule card if they think the condition on their rule card is satisfied. Some rules are more helpful than others, which can lead to model errors!
Cut these into strips and hand them out. You can also add your own or let creators invent some!

Basic rule cards

Has wings	Is round
Is alive	Is blue
Is a shape	Moves on its own
Can fly	Is food
Has legs	Has fur or feathers

Challenging or biased rule cards

Is silver	Starts with a vowel (a, e, i, o or u)
Is an animal	Is a machine
You'd see it outside	More than one word in its name
You personally like it	Could appear in a cartoon

Encourage discussion after each round. Which rules were helpful? Which led to mistakes? How did changing a rule affect the model's accuracy? These insights help creators understand how neural networks process information and why bias, incomplete data, and weak rules can lead to poor predictions.