

Lesson Plan: Maths in the Wild – Neuroscience and Machine Learning

Subject: Mathematics (with STEM links to Biology & Computer Science)

Year Group: Junior Cycle / Transition Year / Early Senior Cycle

Duration: 50–60 minutes

Learning Intentions

- Understand how the brain processes information.
- Describe what neurons and neural networks are.
- Explain how the brain and machines make decisions.
- Recognise basic ideas behind machine learning.

Success Criteria

- I can describe what a neuron does.
- I can explain how decisions are made using left/right examples.
- I can explain what machine learning is in my own words.

Resources

- Maths in the Wild: Machine Learning slides
- Maths in the Wild: Machine Learning Worksheet and MCQs
- Projector / board
- Whiteboard markers

Lesson Structure

1. Starter – The Brain and Survival (5 mins)

Show tiger images and ask students how their brain knows what it is seeing. Introduce neuroscience as the study of the brain.

2. Neurons and Decisions (15 mins)

Explain neurons, spikes (0/1) and decision-making. Use the left vs right activity to model how groups of neurons vote.

3. Noise and Uncertainty (10 mins)

Show noisy motion examples. Discuss uncertainty and how noise makes decisions harder.

4. From Brains to Machines (15 mins)

Introduce perceptrons, activation functions, and neural networks. Explain machine learning as copying how the brain learns.

5. Real-World Uses & Wrap-Up (5 mins)

Discuss real-life uses of neural networks such as image recognition and speech recognition.

Assessment

Assessment through questioning, discussion, and completion of MCQs.