How Does AI Learn?

Student Self-Training Guide · Grade 5+ · Module 2 of 10

1. Learning from Examples

Humans learn by seeing examples and practising. AI learns the same way — by looking at thousands (or millions) of examples called "training data". The more good examples it sees, the smarter it gets.

2. Machine Learning in 4 Steps

1. COLLECT DATA — Gather many examples (photos, text, numbers).
2. TRAIN — Feed the data to the AI algorithm. It finds hidden patterns.
3. TEST — Show the AI new examples it has never seen. Check its accuracy.
4. DEPLOY — Put the trained AI into an app or device for real use.

3. Types of Machine Learning

Type	How it learns	Real example
Supervised	Labelled examples (right answers given)	Email spam detection
Unsupervised	Finds its own patterns — no labels	Customer grouping
Reinforcement	Trial & error, reward for good actions	AI playing video games

4. Training vs Testing

ANALOGY
Training data = your textbook. Testing data = your exam. The AI must not "memorise" the textbook — it must truly understand to pass the exam.

5. What Can Go Wrong?

- Overfitting: AI memorises training data but fails on new data.
- Bad data: If examples are wrong or biased, AI learns the wrong thing.
- Too little data: AI cannot spot real patterns with only a few examples.

6. Activity: Train Your Own Brain Like an AI

1. Ask a friend to show you 10 pictures of dogs and 10 of cats — all unlabelled.
2. Sort them into two groups based on patterns you notice.
3. Now check if you were right. How accurate were you?
4. This is exactly what a machine learning model does!