AI Basics Worksheet

Introduction to Artificial Intelligence • Student Activity • Ages 10 to 15

Name: _____ **Date:** _____

Part 1: What Do You Already Know?

1. In your own words, what is Artificial Intelligence (AI)?

2. Name 3 examples of AI that you use or have heard of:

a) _____

b) _____

c) _____

3. On a scale of 1 to 5, how much do you think you know about AI?

1 (Nothing) 2 (A little) 3 (Some) 4 (Quite a lot) 5 (Expert) Circle: _____

Part 2: Key Vocabulary Matching

Draw a line from each term to its correct definition:

Terms	Definitions
1. Artificial Intelligence _____	A. An AI program that can have text conversations with people
2. Machine Learning _____	B. When AI confidently generates false or made-up information
3. Algorithm _____	C. An unfair preference for or against certain groups of people
4. Training Data _____	D. The information used to teach an AI system
5. Chatbot _____	E. Computer systems that can perform tasks normally requiring human intelligence
6. Deepfake _____	F. A type of AI that improves by finding patterns in data
7. Bias _____	G. A set of step-by-step instructions that a computer follows

8. Hallucination (AI) _____	H. An AI-generated fake image, video, or audio of a real person

Part 3: AI or Not AI?

For each item, tick whether it uses AI or not, and explain why:

#	Item	AI?	Why?
1	A calculator app on your phone	Yes / No	
2	Siri or Alexa answering your question	Yes / No	
3	A traffic light changing from red to green on a timer	Yes / No	
4	Netflix suggesting a film you might like	Yes / No	
5	A microwave heating your food for 2 minutes	Yes / No	
6	Google Maps finding the fastest route and adjusting for traffic	Yes / No	
7	A spelling and grammar checker highlighting errors as you type	Yes / No	
8	An automatic door that opens when you walk towards it	Yes / No	
9	YouTube's "Up Next" video recommendations	Yes / No	
10	A vending machine giving you a drink when you put in a coin	Yes / No	

Part 4: How Does AI Learn?

Read each description and label the type of learning:

Scenario 1: A music app notices you skip sad songs on Monday mornings and starts showing more upbeat playlists at the start of the week.

What type of learning? _____ (Supervised / Unsupervised / Reinforcement)

Scenario 2: An AI is shown 10,000 photos of dogs and 10,000 photos of cats, each labelled “dog” or “cat”, and learns to tell them apart.

What type of learning? _____ (Supervised / Unsupervised / Reinforcement)

Scenario 3: An AI playing a video game gets +10 points every time it collects a coin and -5 points every time it falls off a platform. Over time, it gets better at the game.

What type of learning? _____ (Supervised / Unsupervised / Reinforcement)

Scenario 4: An online shop sorts customers into groups based on their shopping habits, without being told what the groups should be.

What type of learning? _____ (Supervised / Unsupervised / Reinforcement)

Part 5: Think About It

Answer these questions in full sentences:

1. A school uses AI to mark essays. Is this fair? What could go wrong?

2. An AI voice assistant accidentally records a private conversation. Who is responsible?

3. AI is trained on data from the internet. The internet contains false information and bias. What problems could this cause?

4. You discover your favourite influencer’s video was actually made by AI. How do you feel? Should they tell their audience?

5. If AI can write essays, create art, and compose music, what skills are still important for YOU to learn? Why?

Part 6: AI in the Real World

Read each real-world AI application and answer the question:

NHS AI Breast Cancer Screening

> The NHS has trialled AI that analyses mammograms to spot breast cancer. In trials, AI matched the accuracy of two expert radiologists combined, and could reduce waiting times by reading scans in seconds instead of weeks.

Question: What are the benefits AND risks of using AI in healthcare?

AI Weather Forecasting

> Google DeepMind's GraphCast AI can predict weather 10 days ahead more accurately than traditional supercomputer models, and it does so in under a minute instead of hours.

Question: Why might faster, more accurate weather prediction save lives?

AI Content Moderation

> Social media platforms use AI to automatically remove harmful content. TikTok's AI reviews millions of videos per day. However, AI moderators sometimes remove content that isn't harmful (false positives) and miss content that is (false negatives).

Question: Should AI or humans make the final decision about removing online content? Why?

AI in Criminal Justice

Some police forces use AI to predict where crimes might happen (predictive policing). Critics argue this reinforces existing biases; AI sends more police to areas already over-policed, leading to more arrests there, which “confirms” the AI’s prediction.

Question: Is this a fair use of AI? What could go wrong?

Answer Key

For teacher reference only.

Part 2: Vocabulary Matching

1=G, 2=H, 3=E, 4=A, 5=B, 6=F, 7=C, 8=D

Part 3: AI or Not?

1. No: Follows fixed mathematical rules, no learning or adaptation.

2. Yes: Uses NLP and machine learning to understand speech and find answers.

3. No: Simple timer/sensor mechanism, no intelligence or learning.

4. Yes: Collaborative filtering and ML algorithms analyse viewing patterns.

5. No: Simple timer circuit, no data processing or learning.

6. Yes: Uses ML to predict traffic, analyse routes, and adapt in real time.

7. Yes: Modern checkers use NLP/AI to understand context, not just dictionary matching.

8. No: Motion sensor triggers mechanism; no learning or decision-making.

9. Yes: Recommendation algorithm uses watch history and ML to predict preferences.

10. No: Mechanical process with no data analysis or pattern recognition.

Part 4: Types of Learning

1. Reinforcement Learning (learns from feedback/reward signals)
2. Supervised Learning (learns from labelled examples)
3. Reinforcement Learning (learns from point rewards)
4. Unsupervised Learning (finds patterns without labels)