

THE ROBOTS ARE ALIVE!

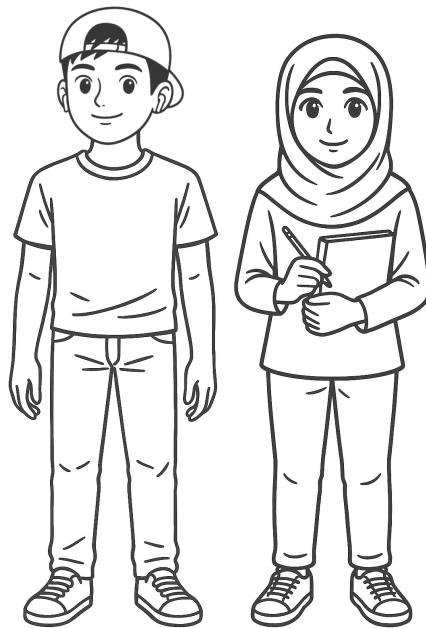
ADAM AND LAYLA DEMYSTIFY AI

PRINTABLE WORKSHEETS

WITH ANSWER KEY

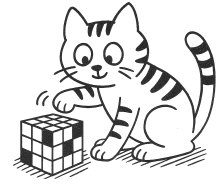
TEST YOUR KNOWLEDGE!

Welcome, AI Explorers! Think you're an AI Ace now? Let's see if your neural networks have processed all the information correctly! Dive into these fun and thought-provoking worksheets, packed with activities designed to bring the lessons from the book to life!



Worksheet 1

Let's begin by recalling the foundational concepts of what AI is, its history, and the different types.



QUESTIONS

1. Baba mentioned a Persian scholar whose name gave us a very important word for a "step-by-step recipe" that computers follow. What is this word?

2. Alan Turing created a famous test to see if a computer could exhibit intelligent behaviour. What is this test called?

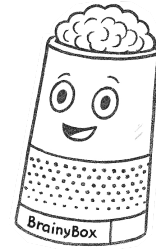
3. Adam dreams of a robot best friend that can do his homework, play games, and design rockets. Which of the three "AI Family" members (ANI, AGI, or ASI) would this robot be an example of, and why?

4. Layla gets frustrated with BrainyBox. What is the main difference between the "Narrow Intelligence" (ANI) of BrainyBox and the "General Intelligence" of a human?

5. Besides Al-Khwarizmi, name one other Muslim scholar from the Golden Age mentioned in the book and briefly explain how their work connected to the development of AI.

TRUE OR FALSE? BrainyBox's Reality Check!

BrainyBox has come up with some statements about AI. But is it telling the truth, or is its programming a bit... buggy today? Read each statement. If you think it's correct, circle TRUE. If you think it's incorrect, circle FALSE.



Statement 1: AI stands for "Amazingly Inventive Ideas." TRUE / FALSE

Statement 2: Alan Turing invented the first talking toaster. TRUE / FALSE

Statement 3: Neural Networks in AI are inspired by the human brain. TRUE / FALSE

Statement 4: NLP helps computers understand and generate human art. TRUE / FALSE

Statement 5: Generative AI can only copy existing images; it can't create new ones. TRUE / FALSE

Statement 6: Ethical AI means making sure we develop AI that is fair, transparent, accountable, and respects human values. TRUE / FALSE

Statement 7: A deepfake is a very comfortable type of blanket. TRUE / FALSE

Statement 8: AI is likely to take over all human jobs next year. TRUE / FALSE

Worksheet 2

Let's test your understanding of the technical concepts of how AI works, like Machine Learning, Neural Networks, and NLP.

QUESTIONS

1. What is the "food" that Machine Learning systems need to learn from, and why is it so important for this "food" to be good and diverse?

2. Baba uses an analogy to explain how a Neural Network learns to identify a cat. In your own words, briefly explain how the different "layers" of a neural network work together to spot the cat.

3. What does NLP stand for? Name two everyday examples of NLP that you might use on a phone or computer.

4. Layla is excited about Generative AI. What is the main difference between an AI that uses Computer Vision to recognise a picture of Muezza, and a Generative AI that creates a brand new picture of Muezza?

5. Adam worries about AI "hallucinations." What is an AI hallucination, and name one "guardrail" or method that developers use to try and prevent it.



Puzzle: AI Lingo Decoder Match-Up!

Time to decode some AI Lingo! Draw a line to match the AI term on the left with its correct meaning on the right.

AI Term	Definition
1. Artificial Intelligence	A. AI that can learn any task a human can (still future tech!).
2. Machine Learning	B. AI systems learning from data without explicit step-by-step programming.
3. Neural Network	C. The branch of AI focused on computers understanding human language.
4. Deep Learning	D. Creating computer systems that perform tasks requiring human intelligence.
5. NLP	E. AI that is very good at one specific, narrow task.
6. Computer Vision	F. AI using neural networks with many layers to learn complex patterns.
7. Generative AI	G. AI that can "see" and interpret images and videos.
8. ANI	H. An AI system inspired by the human brain's structure of neurons.
9. AGI	I. A fake video or audio created by AI to look realistic.
10. Deepfake	J. AI that can create new content like text, images, or music.

Worksheet 3

Focusing on AI in the real world and ethics. The application of AI, its impact in society, and the ethical considerations from an Islamic perspective.

QUESTIONS

1. Mama discusses several Islamic ethical principles for AI. Name two of these principles, you can use the Arabic term or its English meaning, and briefly explain what they mean in the context of AI.

2. The book discusses how AI can help in developing countries. Describe one specific example of how AI can be used for good (**Maslaha**) in a field like agriculture or healthcare.

3. Adam is worried that robots will take over all human jobs. What is a key reason why uniquely human skills like creativity and empathy will still be important in the future?

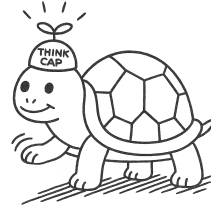
4. The book explains that an AI can be a helpful research assistant for an Islamic scholar, but it cannot issue a Fatwa. Why is a human scholar's role irreplaceable in this process?

5. Your friend tells you about a shocking video of a famous person saying something terrible. Based on what you learned about deepfakes and media literacy, what are two questions you should ask yourself before believing the video is real?

Sabr's Scenario Solver!

Ethical AI Dilemmas

AI presents many interesting puzzles. Let's ponder these scenarios. What would be a wise, ethical, and Islamically-sound approach?



Scenario 1: The Biased Bot

A company creates an AI to help sort job applications. They later discover it seems to unfairly favour applicants from certain neighbourhoods over others, even if their qualifications are similar.

What Islamic ethical principle is being violated here? What should the company do?

Scenario 2: The Creative Copier?

Layla uses a Generative AI art tool to create a beautiful picture for a school competition. She only typed in a few words as a prompt.

Should Layla say the artwork is entirely her own? What are the ethical considerations here?

Scenario 3: The Helpful Health App

A new AI health app promises to diagnose your illnesses just by you describing your symptoms. It's very popular because it's quick and free.

What are the potential benefits (**MASLAHA**) and harms (**MAFSADA**) of such an app? What precautions should users take?

Activity: Adam's Algorithm Anagrams!

Some of the biggest words in AI look like a jumble of letters if you don't know them. Unscramble the letters below to find some important words we learned about in the book!

GOMILHART

(Hint: A step-by-step recipe for a computer to solve a problem!)

RALLUEN KROWTEN

(Hint: An AI system inspired by the human brain!)

TEVANGERIE IA

(Hint: The AI that can CREATE new images and stories!)

CHINAME GINNLEAR

(Hint: How computers learn from data without being told every rule.)

PREETUMCO VISION

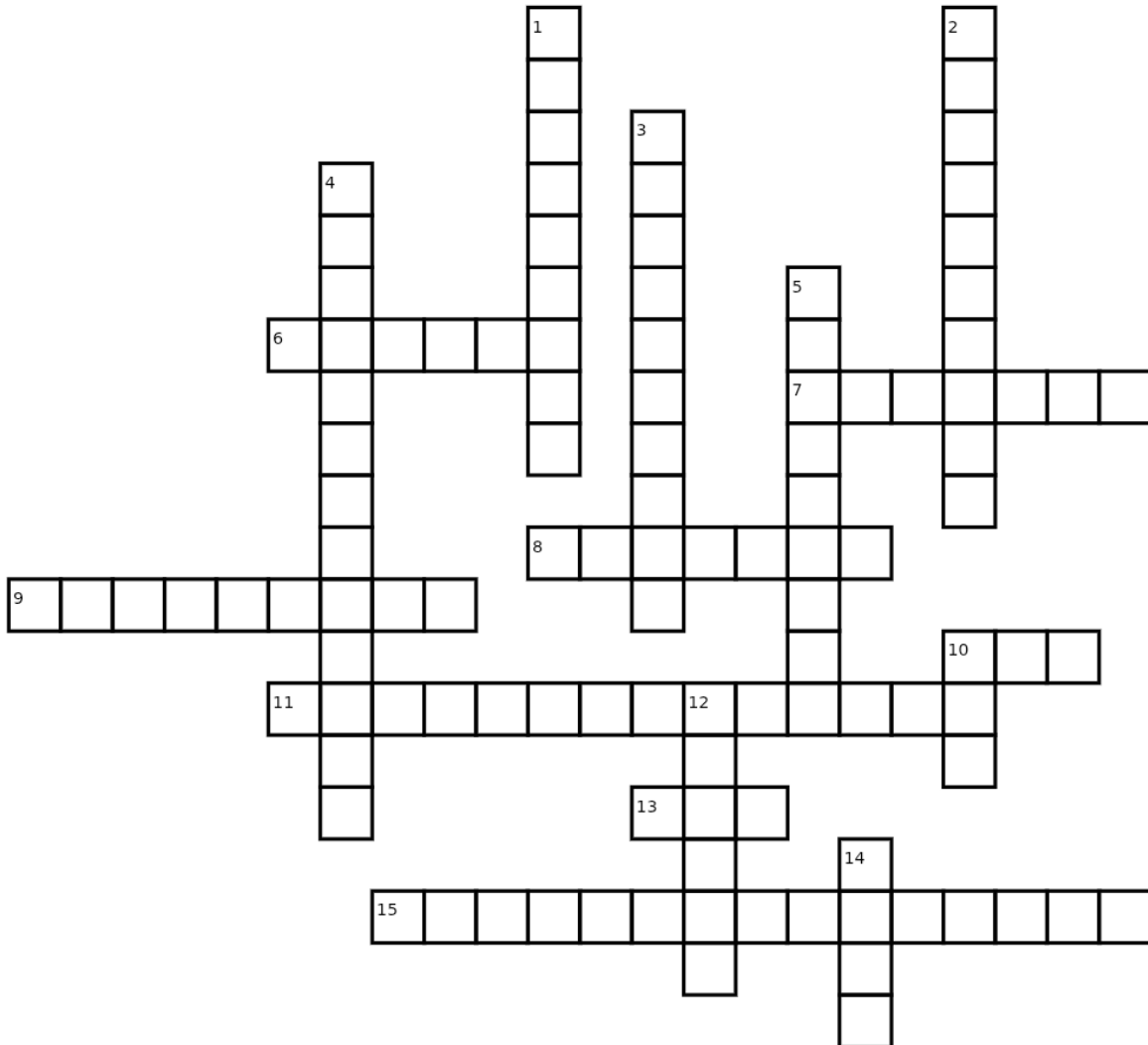
(Hint: How AI learns to "see" and understand pictures.)

CALHITE

(Hint: Making sure AI is fair, just, and used for good!)

Bonus Activity 1: AI Crossword!

Hey AI Explorers! Time to test your knowledge with our Super-Duper Crossword! Grab a pencil and read the clues below and fill in the answers in the puzzle grid.



Across

6. The instruction or question you give to a Generative AI (6)
7. How AI should be developed and used to be good, fair, and align with values (7)
8. The "G" in AGI stands for this (7)
9. Performed by machines without human input, like some tasks in AI (9)
10. The most advanced, purely theoretical type of AI (Abbr. 3)
11. The field of AI that gives computers digital "eyes" to understand images and videos (8, 6)
13. AI understanding human language (Abbr. 3)
15. The process of AI systems learning from data (7,8)

Down

1. Step-by-step recipe for solving problems, the absolute heart of all computer programming and AI (9)
2. AI that can create new images, text, or music (10)
3. The "father" of the Turing Test (4,6)
4. AI inspired by the human brain (6, 7)
5. Fake videos or audio created by AI (9)
10. AI that is good at only one specific task (Abbr. 3)
12. Ethical AI must be aligned with human principles and __ (6)
14. The raw information or "food" that Machine Learning systems learn from (4)

Bonus Activity 2: AI Word Search!

Muezza has hidden some important AI words. Find and circle those words like an AI Explorer! Words can be hidden forwards, backwards, up, down, or diagonally!



INTELLIGENCE	LEARNING	ROBOT	ALGORITHM	FUTURE
ARTIFICIAL	NEURAL	ASI	VISION	TURING
MACHINE	NETWORK	DEEPFAKE	DATA	LLM
AGENT	GENERATIVE	LANGUAGE	ETHICAL	AGI

ANSWER KEY FOR EDUCATORS

Answers for Worksheet 1

Fill in the Blanks:

1. The word is Algorithm. (From the name Al-Khwarizmi).
2. It is called the Turing Test. It works by having a human judge try to tell the difference between a human and a computer based on their typed conversations; if the judge can't tell, the computer passes.
3. This robot would be an example of AGI (Artificial General Intelligence) because it can learn and perform a wide range of different tasks, similar to a human, rather than just being good at one specific thing.
4. The main difference is that BrainyBox's Narrow Intelligence (ANI) is designed for a specific, limited set of tasks (like playing music or answering simple questions), whereas a human's General Intelligence allows them to learn, reason, and adapt across a wide variety of different and new tasks.
5. *Accept any one of the below:*
 - o Al-Jazari: He was an engineer who built sophisticated automata (self-operating machines), which were an early precursor to robotics and programming automated sequences.
 - o Ibn al-Haytham (Alhazen): He was a pioneer in optics (the science of vision), and his work laid the foundation for the field of Computer Vision in AI. He also championed the scientific method, which is the basis for all AI research.

True/False - BrainyBox's Reality Check:

1. FALSE (Artificial Intelligence)
2. FALSE (Alan Turing was a pioneer of AI theory/Turing Test, not toasters)
3. TRUE
4. FALSE (NLP helps with language; Computer Vision helps with art/images)
5. FALSE (It can create new ones)
6. TRUE
7. FALSE (It's a fake video/audio made by AI)
8. FALSE (This is unrealistic; change happens gradually. AI will change jobs, but not eliminate all human work "next year"; it's more complex)

Answers for Worksheet 2

Fill in the Blanks:

1. The "food" for Machine Learning is DATA. It's important for the data to be good and diverse so that the AI does not learn incorrect information or develop unfair biases.
2. A neural network uses layers of artificial 'neurons'. The first layer looks at basic parts of an image (like pixels), the middle layers recognise simple patterns (like edges or fur), and later layers combine those patterns to identify more complex features (like ears or a tail), until the final layer concludes that it is a cat.
3. NLP stands for Natural Language Processing. Two everyday examples are: voice assistants (like Siri or BrainyBox), chatbots on websites, translation apps, email spam filters, or keyboard auto-correct/prediction. *(Accept any two).*
4. The main difference is that Computer Vision analyses and understands existing images (recognising Muezza), while Generative AI creates brand new, original-looking content (making a new picture of Muezza from a text prompt).
5. An AI hallucination is when an AI model confidently makes up facts or details that are not true. One guardrail is using better training data, building in fact-checking layers, or having human review of the AI's output. *(Accept any one of the guardrails).*

AI Lingo Decoder Match-Up:

1	2	3	4	5	6	7	8	9	10
D	B	H	F	C	G	J	E	A	I

Answers for Worksheet 3

Fill in the Blanks:

1. *Accept any two with a correct explanation:*
 - Truthfulness (AI should not be designed to lie or deceive people.)
 - Justice (AI should be fair and not biased against any group of people.)
 - Benefit (AI should be used to do more good for society than harm.)
 - Responsibility (Humans are ultimately responsible and accountable for what AI systems do.)
2. *Accept any one clear example:*
 - In Agriculture: AI can analyse weather and satellite data to help farmers detect crop diseases early or use water more efficiently, leading to better harvests.
 - In Healthcare: AI can help local healthcare workers in remote areas diagnose diseases from medical images, allowing for faster treatment when a doctor isn't available.
3. Baba explains that AI is not good at uniquely human skills like creativity (coming up with truly original ideas), critical thinking (solving new problems with judgment), empathy (understanding and responding to feelings), or collaboration. These skills will become even more valuable. (*Accept any one of these skills*).
4. A human scholar is irreplaceable because issuing a Fatwa requires more than just information; it requires wisdom, context, understanding of the spirit of the law, empathy, and God-consciousness (which are all uniquely human qualities that an AI does not possess.)
5. You should ask: 1. Where did this video come from? Is it a trusted source? and 2. Are other reputable news sources reporting the same thing? (Also acceptable: Does this seem too good/bad to be true?).

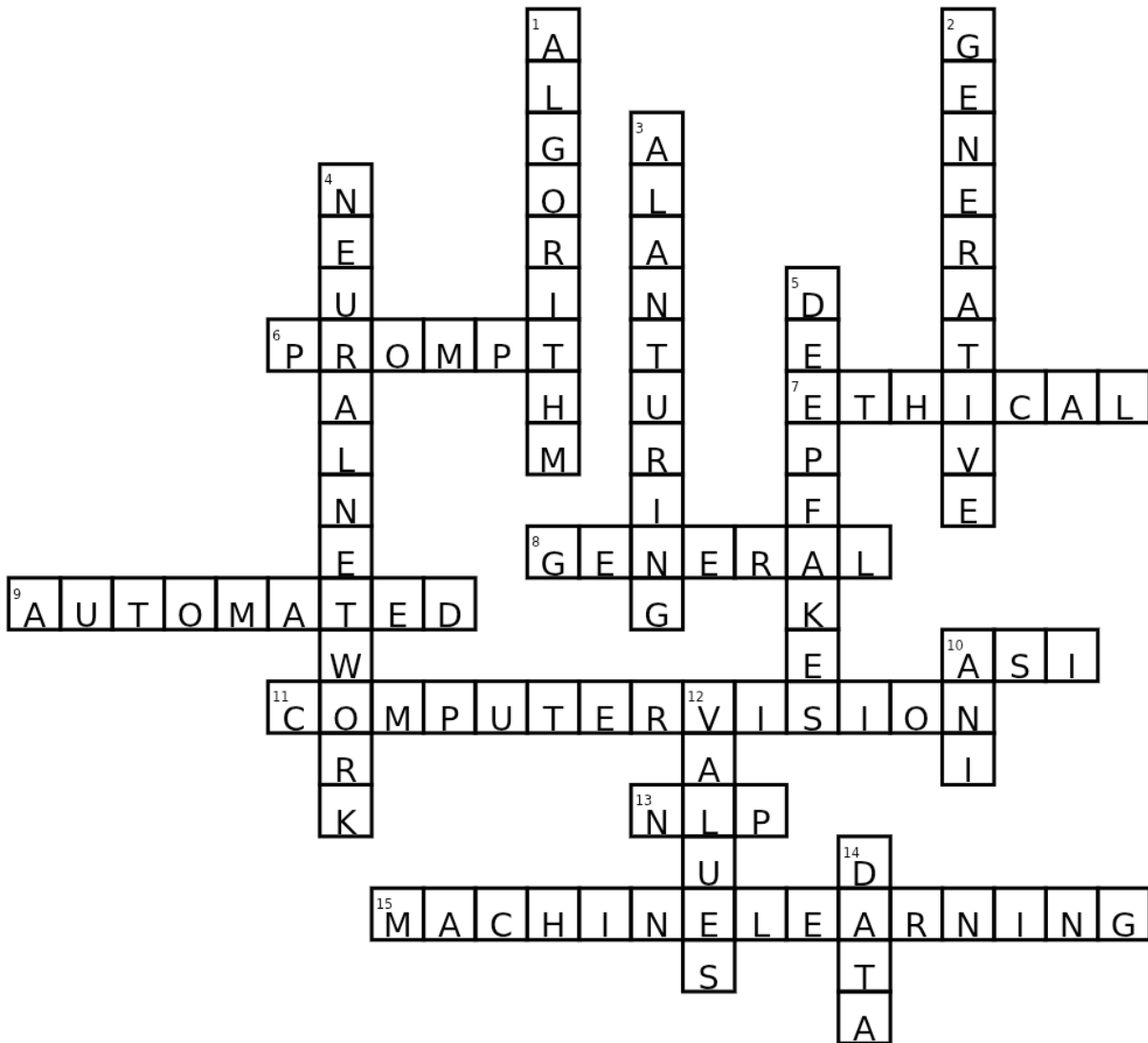
Sabr's Scenario Solver:

1. **Biased Bot:** Principle violated: Adl (Justice/Fairness). The company should stop using the AI, investigate the bias in the data/algorithm, retrain it with fairer data, and implement testing for bias.
2. **Creative Copier:** Layla should be honest about using an AI tool. It's a collaboration. She provided the prompt/idea. Ethical considerations: transparency, originality, rules of the competition.
3. **Helpful Health App:** Maslaha: Quick access to information, potential early symptom checker. Mafsada: Misdiagnosis, causing unnecessary worry or delaying proper medical attention, privacy of health data. Precautions: Use as a very general guide only, ALWAYS consult a real doctor for diagnosis and treatment, check the app's privacy policy.

Adam's Algorithm Anagrams:

1. ALGORITHM
2. NEURAL NETWORK
3. GENERATIVE AI
4. MACHINE LEARNING
5. COMPUTER VISION
6. ETHICAL

Crossword Answers:



Word Search Answers:



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ARE ALIVE!

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