Unit Plan: Discovering AI with Alya

Unit overview

In this unit, learners will explore the fundamentals of Artificial Intelligence (AI). They will distinguish between human intelligence, automated machines, and AI, while critically engaging with tools like Generative AI. Through hands-on activities based on the book *Alya the Pathmaker*, children will investigate key concepts, including algorithms, machine learning, AI hallucinations, and bias.

It is recommended that children read *Alya the Pathmaker* before the sessions to familiarise themselves with the characters. Teachers should emphasise that some robot characters in the book might display human-like emotions, and this is fiction, as scientists have not yet created a character like this.

For assessment, observations, targeted questions, and the evaluation of children's work will provide insight into their learning. Additionally, using tools such as a 'working wall display' can help teachers capture children's learning experiences. We suggest creating a designated display space in the classroom. Place the 'My AI Pledge' poster at the centre for constant reference. Provide different coloured sticky notes for children to record their progress by adding words, sentences, and images that represent their learning after each session. Use the key questions to check children's understanding throughout your sessions.

Resources

For this unit, you will need a copy of Alya the Pathmaker and the AI activity books, which can be downloaded from https://pathmakerlearning.co.uk. Children will also need access to computers and the Internet for completing some activities, where they can work in pairs or groups, depending on the devices available.

Brief information about AI Literacy

AI literacy refers to a set of skills that enable learners to understand, work with, manage, and critically evaluate artificial intelligence in safe, ethical, and responsible ways, while recognising its limitations, risks, and potential impact on people and society.

What should we teach about AI?

Knowing AI: We should focus on helping learners develop a clear understanding of what artificial intelligence is and what it is not. Learners recognise AI in everyday contexts and understand that AI systems are designed by people and trained using data. Learners discover that AI does not think or feel like humans and that it has limitations, including the potential to make mistakes.

Working with AI: We should emphasise using AI as a tool for learning, creativity, and problem-solving. Learners should have opportunities to interact with AI systems by giving instructions, exploring outputs, and making choices based on those outputs. Through scaffolding, learners understand how their inputs influence AI responses and recognise that they are the active decision-makers, with AI in a supporting role.

Responsible AI: We should support learners in developing agency so that they are equipped to manage and evaluate their interactions with AI tools. Learners consider when it is appropriate to use AI, what information should be shared and what should not, and how to use AI safely and respectfully. They are encouraged to think critically about AI systems and their outputs by questioning accuracy, recognising bias, and evaluating whether AI-generated content is helpful, fair, and suitable for a specific purpose. Learners are also guided to reflect on the wider social and ethical impacts of AI on people and communities, and to follow agreed safety rules and ethical guidelines.

Overview of lessons

Lesson	Lesson information	Learning objectives
L1 What is AI?	Tell learners that you will be learning about Artificial Intelligence, but first they must agree to some rules. Show '**My AI Pledge**' (**Slide 1 or Activity Book p.4**). Go through each rule aloud. Ask: *Why is it important to use our 'Brain Power' before asking a computer?* Have them sign the pledge. Give children sticky notes (the same colour) and ask them to write / draw everything they know about AI, then stick on the display board or in their activity book. Explain what AI means **(Slide 2).** Let children read the facts about AI on **Activity Book p.6 & p.7**. Or you could read and discuss these. Display **Slide 3** and ask children to discuss which objects are AI.	To learn what AI is and rules for keeping safe when using it. - I can list key rules for using AI safely (The AI Pledge). - I can explain what AI is and recognise objects that use AI, like smart assistants. **Key questions:** - Can you name two rules from our 'AI Pledge' that help keep us safe? - True or False: AI is a magic brain that knows everything instantly. (False, it is designed by people and trained on human data). - Why is it important to use your own 'Brain Power' before you ask a computer for help?

	You could also place images of the objects (e.g., toaster, smart speaker) on the wall. Give children blue tack and ask them to place a tick next to objects they *think* use AI. Explain that they can change their minds later as they learn more. Allow children to look at the AI timeline on their activity book (**Page 8**). Ask them to imagine 2030 and draw their prediction in the empty box. Let them share their ideas with the class.	
L2 How AI works?	Start by asking learners to explain what AI is to their partner based on the previous lesson. **Weak & Strong AI** Show them **Slide 4**. Explain that **'Weak AI'** is good at specific tasks (like Siri), while '**Strong AI**' can learn anything (like a human). Emphasise that 'Strong AI' doesn't exist yet and examples we see in films and books are fictional characters. In pairs, compare Kiki and Kim on **Activity Book p.10-11.** Ask: *"Why does Kiki sometimes get confused? Is she Weak or Strong AI?"*	To learn the difference between a robot (the body) and AI (the brain), and how to give them instructions. ● I can explain that a robot is the body and AI is the brain. ● I can tell the difference between 'Weak AI' (good at one thing) and 'Strong AI' (shows emotions like humans). ● I can write a simple algorithm (a list of steps) for a robot to follow. **Key questions:** ● We wrote an algorithm for the robot ATU-3.

	AI vs Robots: Use the analogy: "The robot is the body, the AI is the brain".	What would happen if we missed out one step, like 'open mouth'? Would the robot figure it out, or would it fail? Why?
	Show Slide 5. Discuss: *"Is a toaster AI?"* Explain that toasters and washing machines are **Automated Machines** because they follow fixed rules and don't make decisions **(Slide 5).**	• If you had to program a robot to brush its teeth, what is the very first instruction you would give it?
	Discuss with children that humans use algorithms to program robots. Explain that an algorithm is a set of step-by-step instructions for completing a task. Ask them to write an algorithm for ATU-3 to pick up the green toy car and put it in the mouth on its belly **(Activity book p.13).**	• Why do we say Kiki is 'Weak AI' even though she can talk? What is she missing that a human has?
	If there is time they can work on the activities on **Activity book pages 15, 16 and 17.**	
L3 How AI learns? (Machine learning)	Tell children that they will be learning about how AI works. Explain neurons and Artificial Neural networks and how it helps us to make decisions and learn **(Slide 6)**.	To understand how AI learns by finding patterns in pictures and data. • I can explain that AI needs training data (examples) to learn.
	Show Slide 7: Ask them to discuss which animals they recognise.	• I can recognize patterns, like knowing a lion has a mane, just like AI does.

	Ask "How do you know this is a lion?" (Mane, tail, face). Explain that AI uses 'Neural Networks' to find these patterns, just like neurons in our brains. Model this concept (https://quickdraw.withgoogle.com). Show how the AI guesses the drawing as you add more details. Let children experiment with this application in pairs. Let students complete the 'Lost Phone on the Moon' activity **(Activity Book p.23).** Ask: *"How did you decide who the phone belongs to?"* Highlight that they used the data table (hair, glasses, eyes) to make a match, this is exactly how Facial Recognition works.	• I can act like an AI to solve a puzzle using data clues. **Key questions:** • If we only showed an AI pictures of *green* apples, what would happen if we showed it a *red* apple? Would it know what it is? • Why does the AI become better at guessing your drawing in *QuickDraw* when you add more details?
L4 Spot the hallucination	Ask learners if they heard the term 'Generative AI'? Explain that Generative AI is a special type of computer program that can create new things by remixing information (data) that it learned from us. **Use Slide 8** (Dragon/Ice Cream) to visualize how it combines patterns.	To explore how AI can create new things and why we need to double-check its answers. • I can explain how 'Generative AI' remixes ideas to make new stories or pictures. • I can spot an 'AI Hallucination' (when AI makes things up).

	Explain that sometimes AI creates a confident answer that is completely wrong. This is called a **Hallucination**. **Show Slide 9** (Activity Book p.25). Ask students to spot the fake definition (Space Fork). Discuss why we must always double-check facts. **Display Slide 10.** Ben is training Kiki to make a cake but forgot a photo! Let them discuss in pairs what the missing data is. Have children draw the cake Kiki would make with the missing ingredient **(Activity Book p.26).** If time allows play **'Rock, Paper, Scissors'** on the Pathmaker website. Discuss: *"How is the AI guessing your next move?"* (It learns your patterns).	• I can explain why missing information makes AI confused. **Key questions:** • What does it mean when we say an AI is 'hallucinating'? (Answer: It creates a confident answer that is wrong). • What is 'Generative AI' able to do with the information it learns? (Remix it to create new things). • If you ask an AI for facts about space and it gives you a very cool answer, should you believe it immediately? What should you do next?
L5 AI Bias	Let children read the comic strip on **Activity Book p.31 (Slide 11).** Ask: *"Why did Aki put the football in the Boy Box?"* Explain that Aki isn't mean; it just has an old, unfair database. This is called AI **Bias** which means when a computer makes unfair mistakes because it was taught with missing or unfair information. Even though computers seem super smart,	To learn why AI can sometimes be unfair and how we can teach it to be fair to everyone. • I can explain that 'Bias' is an unfair mistake because the computer didn't have enough information. • I can spot unfair rules, like saying only boys play with footballs.

	they don't actually know anything about the world. They only know what humans show them. *Discussion:* "How can we fix Aki?" (Answer: Give it better data/rules). Introduce **Conditional Statements** (IF/THEN). • *Real-life Example:* 'IF it is raining, THEN take an umbrella'. Ask learners to write a new, fair statement for Aki to sort toys by fun, not gender **(Activity Book p.32).** Move to the 'Why is Aki Unfair?' **activity (p.33).** Aki is judging robots by colour/smiling. Students must use their brain and data to select the best robot based on their skills.	• I can write a fair rule (an IF/THEN statement) to help a robot decide. **Key questions:** • Why did Aki put the football in the 'Boy Box'? Was Aki being mean? (No, it had an old/unfair database). • Can you think of a rule (IF/THEN) that is unfair? Now, how would you rewrite it to be fair? • Why is it a problem if an AI only learns from pictures of one type of person?
L6 How to interact with AI?	**Show Slide 12.** Explain that AI needs clear instructions, called '**Prompts'**. The AI lost the word 'Rottweiler'. Students must describe the dog using only size, colour, and markings. Complete the part of the activity with the class, then let them work in pairs (**Activity Book p.30).**	To learn the best words to use when using AI and to remember how humans are special. • I can choose good descriptive words (prompts) to help an AI draw a picture. • I can list ways that I am different from a robot (like having feelings).

Use *KidsChatGPT* or *AutoDraw* to test how different descriptions change the result. https://www.kidschatgpt.org https://www.autodraw.com Reflect on the unit. Ask: *"How are you different from AI?"* (Focus on feelings, empathy, physical bodies). Record on Activity Book p.35. Have another discussion with children about their AI Pledge. Let them complete the AI Pop Quiz individually on page 36. Then complete it as a class.	**Key questions:** • Name one thing you can do that an AI cannot do (Feel emotions, have empathy, use a physical body). • If two people give an AI the exact same prompt, will they always get the exact same picture? Why might it be different? • We learned that AI can write poems and draw pictures. Does that mean AI is 'creative' like a human, or is it just copying patterns? What do you think? • Looking back at your AI Pledge from Lesson 1, which rule do you think is the most difficult to follow and why?