

 ST GEORGE'S INTERNATIONAL SCHOOL LUXEMBOURG		Year 4 CS planning	Term: 1.1	
		Theme: An introduction to AI and data sets		
Big Question or Focus Concept: (e.g. "How do we travel and why does it matter?" or "What makes a habitat a home?")	Cross Curricular Links: Sustainability, DEIJ (Diversity, Equity, Inclusion, and Justice), PSHE (Personal, Social, Health and Economic education) , Bias in AI			
CSTA Standards	• 1B-DA-07: Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea. • 1B-AP-09: Create programs that use variables to store and modify data. • 1B-AP-10: Create programs that include sequences, events, loops, and conditionals. • 1B-IC-18: Discuss computing technologies that have changed the world, and express how those technologies influence cultural practices. (Crucial for Bias in AI) • 1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.			
ISTE Standards	1.1.d: Understand fundamental concepts of how technology works, demonstrate the ability to choose and use current technologies effectively, and are adept at thoughtfully exploring emerging technologies. 1.2.b: Demonstrate empathetic, inclusive interactions online and use technology to responsibly contribute to their communities. 1.3.b: Evaluate the accuracy, validity, bias, origin, and relevance of digital content. 1.7.d: Explore local and global issues and use collaborative technologies to work with others to investigate solutions.			
Uk National Curriculum objectives	• CS1: Design, write and debug programs that accomplish specific goals, including simulating physical systems. • CS2: Use sequence, selection, and repetition in programs; work with variables and various forms of input/output. • CS3: Use logical reasoning to explain how some simple algorithms work and to detect and correct errors. • DL1: Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour. • IT1: Select, use and combine a variety of software (including internet services) to accomplish given goals.			

Week	Weekly Overview (What are we exploring this week? Link to big ideas in science and humanities, or to the topic/text.)
Session 1	Session 1: What is AI and making predictions
Session 2	Session 2: AI for Oceans
Session 3	Session 3: Programming the Chickbot
Session 4	Session 4: Completing the Chickbot and training it
Session 5	Session 5: Corrupting the Chickbot and implications of bias
Session 6	Session 6: Bias in AI

Session	Learning Goal and Success Criteria	Teaching input and learning opportunities <i>Including lesson structure, key vocabulary, and questioning</i>	Key questions	Universal design e.g. support, scaffolding and challenge, focus groups, EAL Resources	Resources
Session 1	UK NC (DL1): Use technology safely, respectfully, and responsibly.	0-10 Mins (Starter): Children log in, open Teams, and go to the Ndovu typing link. Practice touch-typing for 10 minutes while the teacher supports login issues. Emphasize correct finger positioning.	What does Artificial Intelligence mean?	Advanced students can progress further through the Code.org	Computers/laptops with internet access. Typing Practice: https://ndovu.org.uk/type

	CSTA (1B-DA-07): Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea. ISTE (1.1.d): Understand fundamental concepts of how technology works and thoughtfully explore emerging technologies.	10-45 Mins (Main): Direct students to Introduction to AI & Data Sets. Watch the embedded "What is AI" introductory video as a class. Afterwards, direct pupils to Making Predictions. Pupils will launch the Code.org AI Predictions module to explore how computers use existing data patterns to guess future outcomes. 45-60 Mins (Plenary): Recap the lesson. Use screen-sharing software to highlight a child's prediction model. Ask the class the exit ticket questions.	How do computers use data to make predictions?	predictions module independently. These are sessions and not lessons – if your group or individual children work at a faster rate feel free to push them into the next section. The AI training and scratch programming are areas where they can expand and play with the code further.	u.org.uk/type) (data-secure platform). Lesson Instructions: https://ndovu.org.uk/cs/category/year4/ Code.org AI predictions section. Screen sharing/mirroring software for the plenary.
Session 2	UK NC (DL1): Use technology safely, respectfully, and responsibly. CSTA (1B-DA-07): Use data to highlight or propose	0-10 Mins (Starter): Pupils log in and complete 10 minutes of typing practice on the Ndovu typing portal. 10-45 Mins (Main): Direct students to the AI for Oceans page. Watch the embedded "How Machine Learning Works" video together. Pupils then launch the Code.org AI for Oceans module. They will act as the "trainer," categorizing objects as "fish" or "trash." As they progress, they will add custom labels to sea creatures to see how the AI adapts based on their training data.	How does machine learning work? How does the data we give an AI change how it behaves?	Differentiation: Support pupils by ensuring they understand the difference between the "fish" and	Computers/laptops with internet access. Typing Practice: https://ndovu.org.uk/type Lesson Instructions: [https://ndovu.org.uk/cs/category/year

	cause-and-effect relationships, predict outcomes, or communicate an idea. ISTE (1.1.d): Understand fundamental concepts of how technology works. ISTE (1.7.d): Explore local and global issues and use collaborative technologies to work with others to investigate solutions.	45-60 Mins (Plenary): Use screen mirroring to show how different students' AIs might behave differently based on how accurately they trained it.		"trash" buttons. These are sessions and not lessons – if your group or individual children work at a faster rate feel free to push them into the next section. The AI training and scratch programming are areas where they can expand and play with the code further.	4/](https://ndovu.org.uk/cs/category/year4/) Code.org AI for Oceans module and introductory video.
<i>Session 3</i>	UK NC (CS1): Design, write, and debug programs that accomplish specific goals. UK NC (CS2): Use sequence, selection, and	0-10 Mins (Starter): Pupils log in and complete 10 minutes of typing practice. 10-45 Mins (Main): Direct students to Training the Chickbot. Pupils will launch Scratch. Using the instructions and video on the website, they will build the initial code framework for their "Chickbot." They will use variables to store user prompts and corresponding responses. <i>Note: Pupils should wear headphones to follow the video independently, pausing after each step.</i>	How can we use sequence and variables to create a chatbot? How do we structure code so a	Pair stronger coders with those struggling with Scratch variable logic.	Computers/laptops. Typing Practice: https://ndovu.org.uk/type Lesson Instructions: https://ndovu.org.uk/cs/category/year4/

	repetition in programs. CSTA (1B-AP-09): Create programs that use variables to store and modify data. CSTA (1B-AP-10): Create programs that include sequences, events, loops, and conditionals. ISTE (1.1.d): Understand fundamental concepts of how technology works.	45-60 Mins (Plenary): Ensure all pupils save their Scratch projects securely to OneDrive. Use screen mirroring to showcase a successfully coded variable.	computer can interact with a user?		g.uk/cs/category/year4/ Scratch (downloaded/installed or web version). Headphones for students to watch instructional videos independently. OneDrive access for saving work.
Session 4	UK NC (CS2): Use sequence, selection, and repetition in programs. UK NC (CS3): Use logical reasoning to explain algorithms	0-10 Mins (Starter): Pupils log in and complete 10 minutes of typing practice. 10-45 Mins (Main): Direct students back to Training the Chickbot. Pupils load their saved Scratch files from Session 3. Today, they are "training" their AI by inputting different questions and programming the correct responses. Encourage them to test edge cases: What happens if they use a capital letter vs. a lowercase letter? What if they forget a question mark?	Challenge fast finishers to program the Chickbot to recognize variations of the same question (e.g., "Hi" and "Hello").	In all sessions the class onenote built into teams should allow children to look at the instructions themselves	Computers/laptops. Typing Practice: https://ndovu.org.uk/type Lesson Instructions: https://ndovu.org.uk/cs/category/year4/

	and detect/correct errors. CSTA (1B-AP-09): Create programs that use variables to store and modify data. CSTA (1B-AP-10): Create programs that include sequences, events, loops, and conditionals. ISTE (1.1.d): Understand fundamental concepts of how technology works.	45-60 Mins (Plenary): Active Debugging Plenary. Mirror a student's screen where the Chickbot gave the wrong answer. Ask the class: "How do we debug our code if the AI gives the wrong answer?"		and rewind and repeat as often as possible – this should allow the teacher to focus on children who need more support. These are sessions and not lessons – if your group or individual children work at a faster rate feel free to push them into the next section. The AI training and scratch programming are areas where they can expand and play with the code further.	g.uk/cs/category/year4/ Scratch (with previously saved Chickbot files).
Session 5	UK NC (CS3): Use logical	0-10 Mins (Starter): Pupils log in and complete 10 minutes of typing practice.	What happens to	Ensure students	Computers/laptops.

reasoning to detect and correct errors in algorithms. UK NC (DL1): Use technology safely, respectfully, and responsibly. CSTA (1B-DA-07): Use data to highlight or propose cause-and-effect relationships or predict outcomes. ISTE (1.2.b): Demonstrate empathetic, inclusive interactions online and use technology to responsibly contribute. ISTE (1.3.b): Evaluate the accuracy, validity, bias, origin, and relevance of	10-45 Mins (Main): Direct students to Corrupting the Chickbot. To protect their own hard work, have pupils use the pre-made scratch project link on the page (or scratch.mit.edu/projects/1214104724). Task pupils with feeding the AI polite but highly inaccurate information (e.g., programming the AI to say that dogs have 8 legs, or that the pupil is the world's best football player). 45-60 Mins (Plenary): Have students swap computers and ask the "corrupted" Chickbots questions. Discuss how confident the AI sounds, even when it is completely wrong	an AI's responses if we feed it inaccurate or biased information? Why is data accuracy important when creating technology?	keep the "corrupt" data school-appropriate and polite. These are sessions and not lessons – if your group or individual children work at a faster rate feel free to push them into the next section. The AI training and scratch programming are areas where they can expand and play with the code further.	Typing Practice: https://ndovu.org.uk/type Lesson Instructions: https://ndovu.org.uk/cs/category/year4/ Scratch link: https://scratch.mit.edu/projects/1214104724 (to avoid corrupting their own datasets). Pre-prepared inaccurate dataset (e.g., incorrect capital cities or biased sports data).
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	digital content.				
<i>Session 6</i>	UK NC (DL1): Use technology safely, respectfully, and responsibly. CSTA (1B-DA-07): Use data to highlight or propose cause-and-effect relationships or predict outcomes. ISTE (1.2.b): Demonstrate empathetic, inclusive interactions online. ISTE (1.3.b): Evaluate the accuracy, validity, bias, origin, and relevance of digital content. ISTE (1.7.d): Explore local	0-10 Mins (Starter): Pupils log in and complete 10 minutes of typing practice. 10-45 Mins (Main): Direct students to Bias in AI. Lead a class discussion on what "Bias" means. Use the resources on the page (or the Science Buddies image reference) to show how AI image generators or decision-makers can favor certain demographics if the data they learned from wasn't diverse enough. Link this directly to the Corrupted Chickbot from Session 5: If the data is biased, the output is biased. 45-60 Mins (Plenary): Conduct the final unit recap. Use screen mirroring to review key learning points. Ask the exit ticket question to ensure pupils understand the real-world implications of AI bias.	What is bias, and how does it end up in AI systems? How can biased AI impact people in the real world? How can we evaluate digital content to see if it is fair or biased?	Use highly visual, relatable examples of bias (e.g., an AI that only recognizes one breed of dog as a "dog" because it was only trained on poodles).	Computers/laptops. Typing Practice: https://ndovu.org.uk/type Lesson Instructions: https://ndovu.org.uk/cs/category/year4/ Science Buddies reference link: https://www.sciencebuddies.org/science-fair-projects/project-ideas/Soc_p030/sociology/bias-in-AI-images Screen sharing/mirroring software.

	and global issues and use collaborative technologies to work with others to investigate solutions.				
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