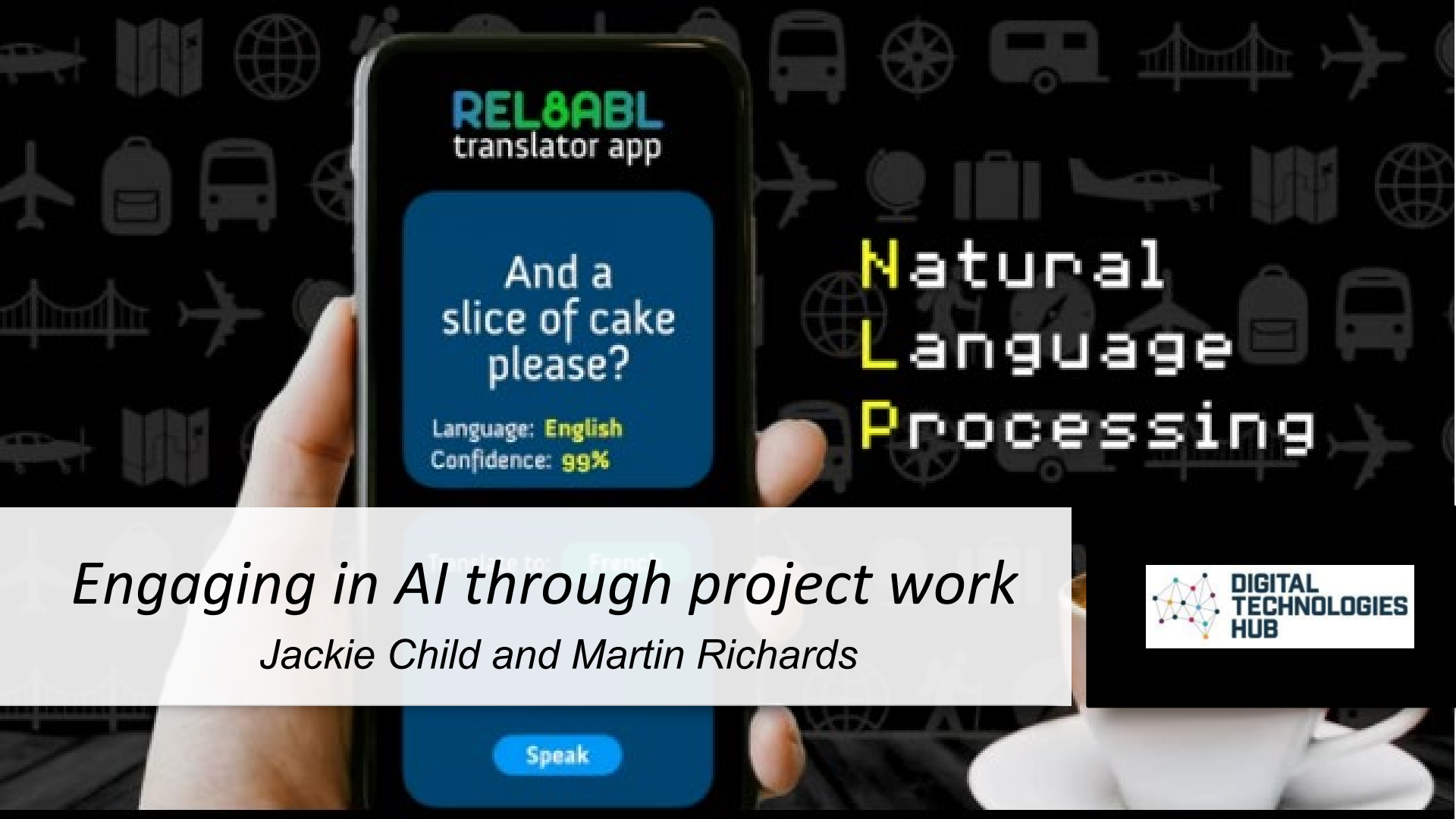

Engaging in AI through project work

Jackie Child and Martin Richards

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Location of participants

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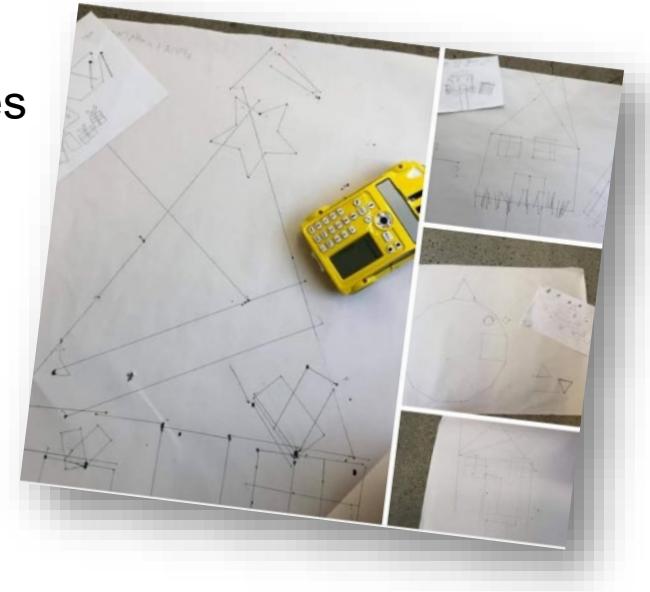
Acknowledgement

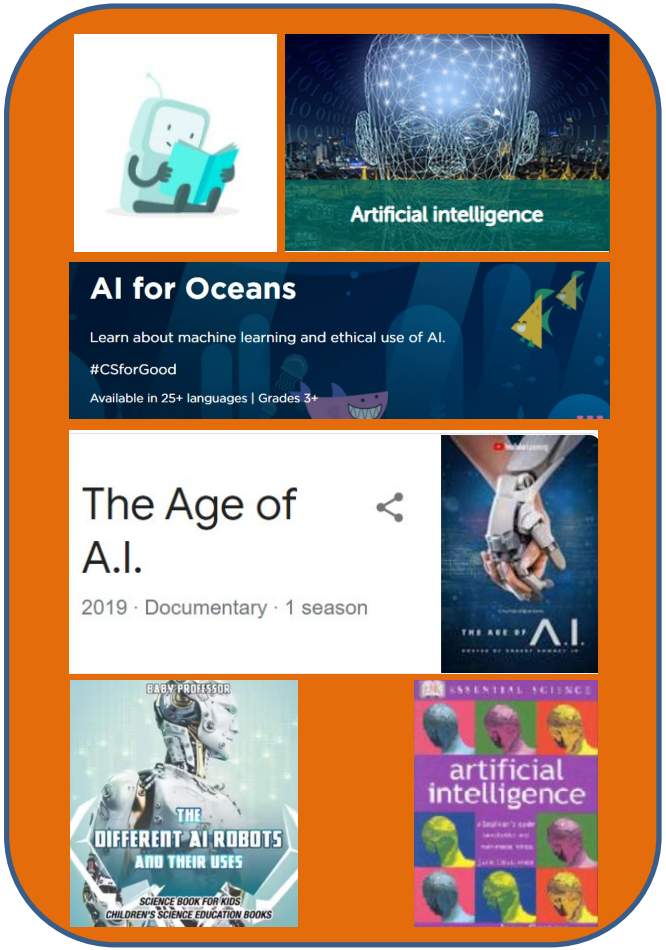
Meet Jackie Child …

- Work with Junior School teachers to integrate Technologies across the curriculum.
- Upskill teachers in new and exciting technologies to enhance teaching.
- Maintain and equip two Makerspaces and a Coding & Robotics space.
- Teaching with teachers from Prep to Year 6.
- Teach Year 7 and Year 8 Technologies.
- Provide extra-curricular activities of Coding & Robotics Club, STEMies Club and TechMate Evenings.



Jackie Child: my learning journey of AI

- CSER MOOC Teaching AI in the Primary Classroom
- Resources on Digital Technologies Hub on AI
- Code.org resources on AI
- Articles and videos about AI for PD
- Books on AI for children (and adults)



What have you tried in your classroom: Artificial Intelligence?

Explore AI applications?

Lesson ideas?

AI videos?

Courses?

Or unsure where to start?

An intro to AI: What did my students know?

Students' prior knowledge of Artificial Intelligence was limited. Here's some examples:

"I know that AI is intelligence formed through people and brought out by robots. AI also allows non-living things to think through the intelligence of tech creators."

"AI is an abbreviation of Artificial Intelligence. The way AI works is that its code makes it respond according to your actions that you make on the device. Examples of AI are : Siri, cortana, ect... Although AI was made to copy humans that proved to be too difficult so instead it was made to mimic humans."

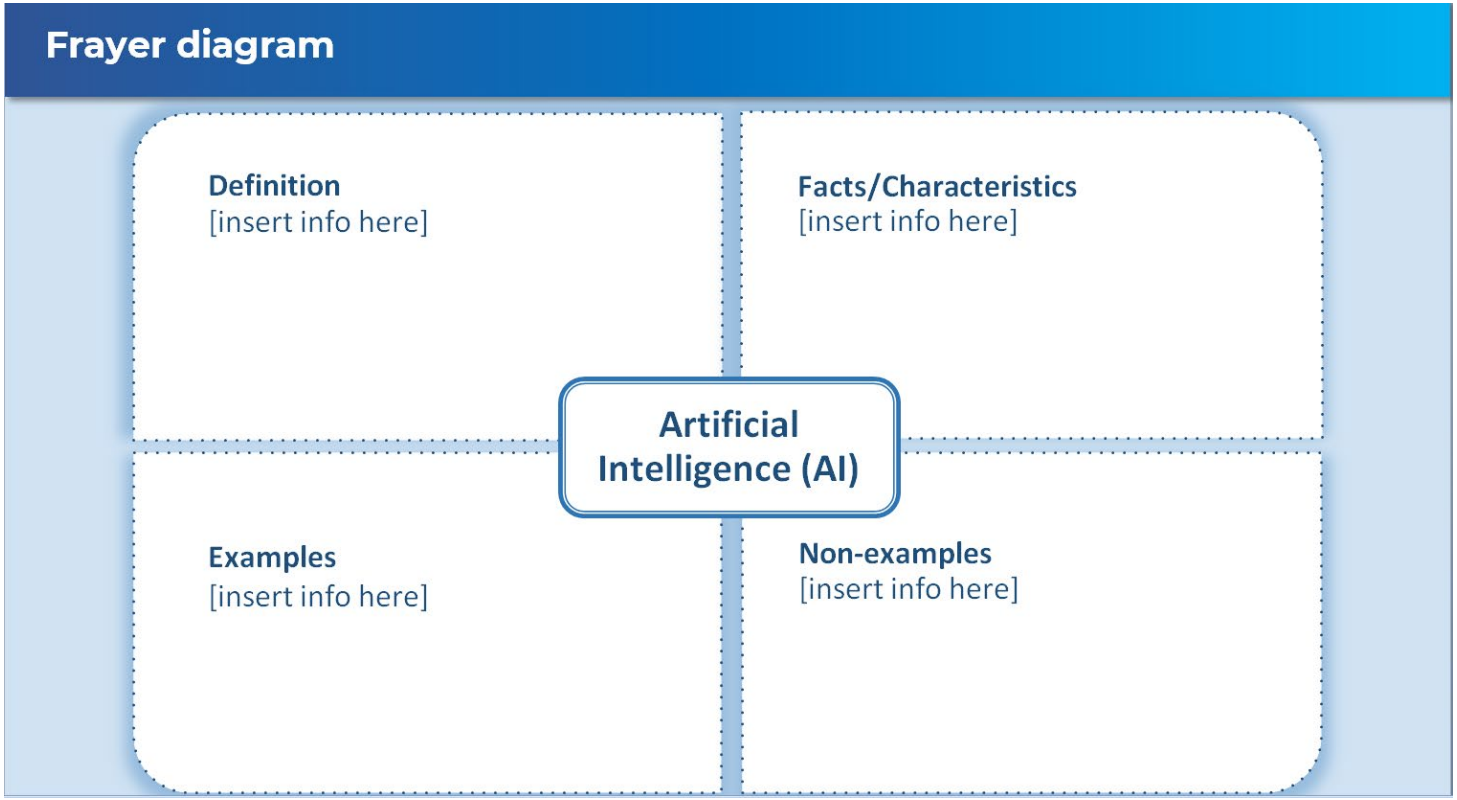
"I don't know anything about AI?? After i have watched the video about AI I know that it is an electronic device that is capable of preforming actions of human intelligence. Tries to mimic human behaviour."

what i know about AI

I do not know anything about AI apart from AI stands for artificial intellgence, but I hope to learn more over the term.

Discover what your student's know

Frayer diagram



What is Artificial Intelligence?

The **creation of machines to mimic human capabilities.**

Teaching a machine to "see" (recognise objects in an image).

Teaching a machine to "read" and "listen" (interpret and analyse text and sounds).

… solve problems autonomously without explicit guidance from a human being.

Developing their understanding

Resources from CSER MOOC Teaching AI in the Primary Classroom, You Tube, Books…

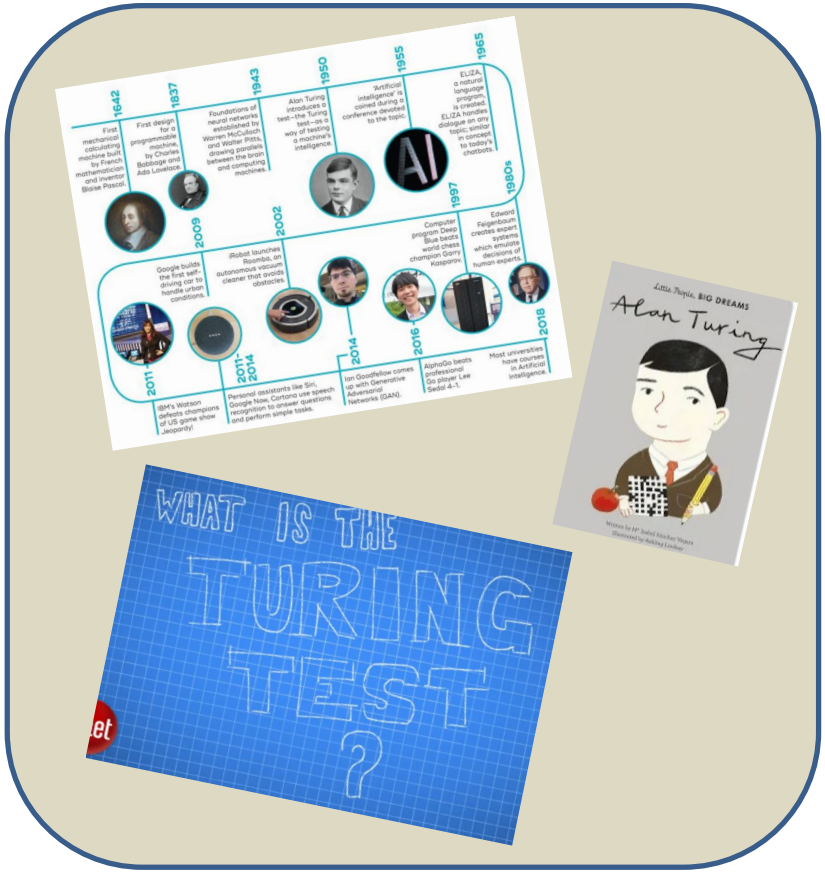
- Looked at the evolution of AI.

- Identify interesting events.
- Research important figures ie Alan Turing, John McCarthy.
- Watched video of Alan Turing …Can Machines think?

- Design a game based on the Turing Test in teams for others to work out human or computer.

- Play the ‘Intelligent Paper Game’…discuss.

(CS Unplugged)



Developing their understanding

Evolution of AI. Prezi from CSER.
https://prezi.com/view/GmFxO9w6KS8vhEAcaSC6/

Girls spent time exploring different events and enjoyed playing Eliza 1966…inspired Chat Bots (Grok Learning)

Watch and respond to video: What is Machine Learning?

Work through Code.org AI activity.
https://studio.code.org/s/oceans/stage/1/puzzle/2

Examples of AI

Types of ML…supervised & unsupervised (video on CSER MOOC).
How do humans learn?
Played memory game….discussed techniques.

Image recognition

Computer vision is the ability of machines to recognise objects in images or videos.

We refer to this ability as image recognition.

Examples of image recognition include face tagging on social media photos and vision used by self driving cars.

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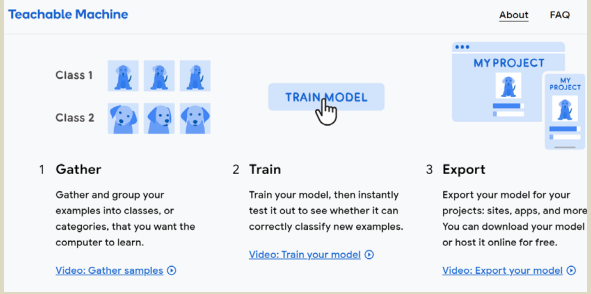
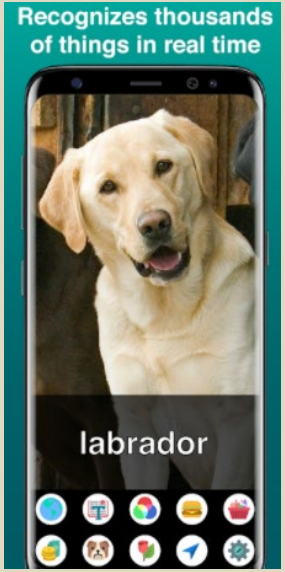
Developing their understanding

CSER video on Computer vision

Google's Teachable machine



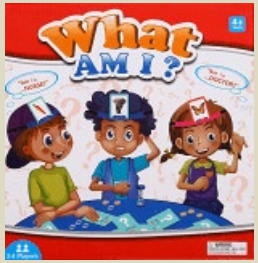
Apps that use AI



Internet search: Apps which used computer vision with a brief description.

Developing their understanding

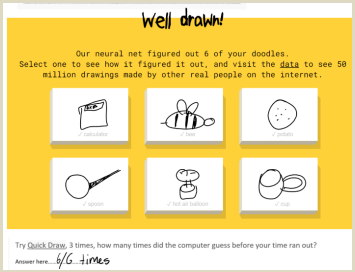
Celebrity Heads Guess Who?



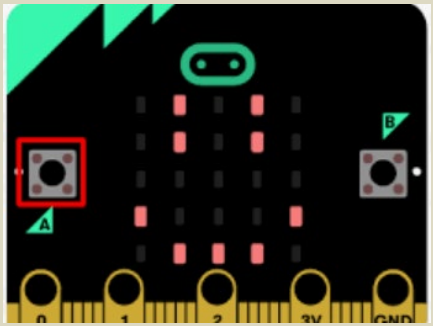
Feature extraction box

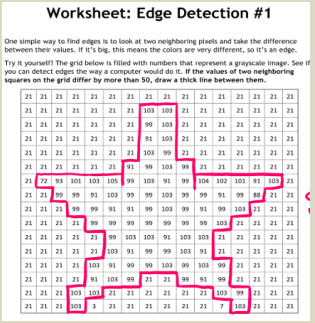
Without looking describe, guess the object

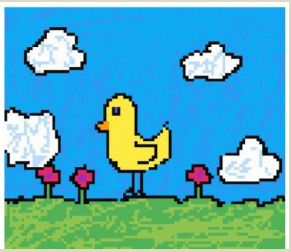
Play Pictionary… then race against Quick Draw

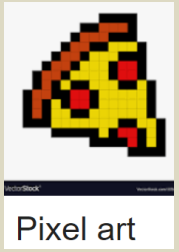


BBC: Microbit





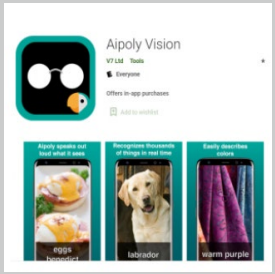




Pixel art

Year 3 Are Machines Clever?

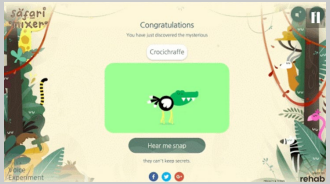
Airpoly Vision app



Computer vision is when computers can recognise and name them.

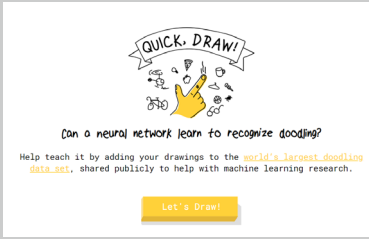
Using Airpoly Vision app see how many it can identify correctly. If not, why not?

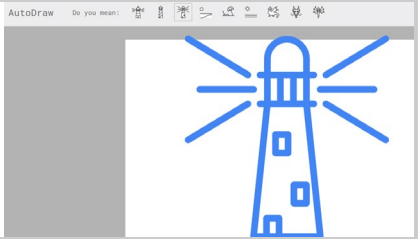
Safari Mixer app



Using AI, Safari Mixer gives a complete audio and visual experience of the student's unique creation.

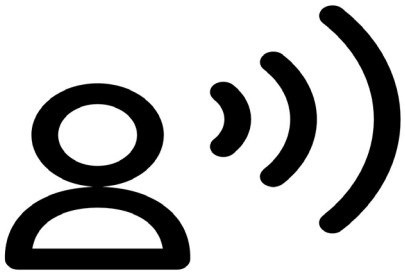
Quick draw and Auto draw





AI is using knowledge of shapes, pixels and feature extraction to guess what a human is drawing.

Speech recognition



Natural Language Processing (NLP) is the ability of machines to interpret and analyse forms of human communication, such as text and speech.

We refer to this ability as speech recognition.

Examples of speech recognition include chatbots and virtual assistants.

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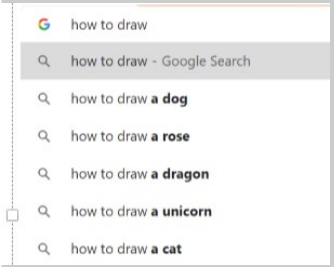
Developing their understanding

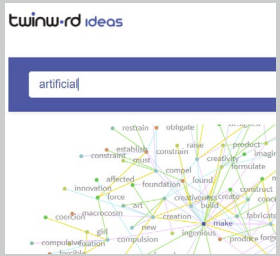
Natural Language Processing (NLP) is the ability for machines to interpret and analyse forms of human communication.

Internet searches



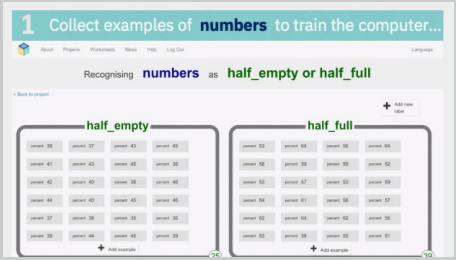
When I type in ‘How to draw’ the search engine uses past internet searches from other people to suggest terms.

Twinword ideas



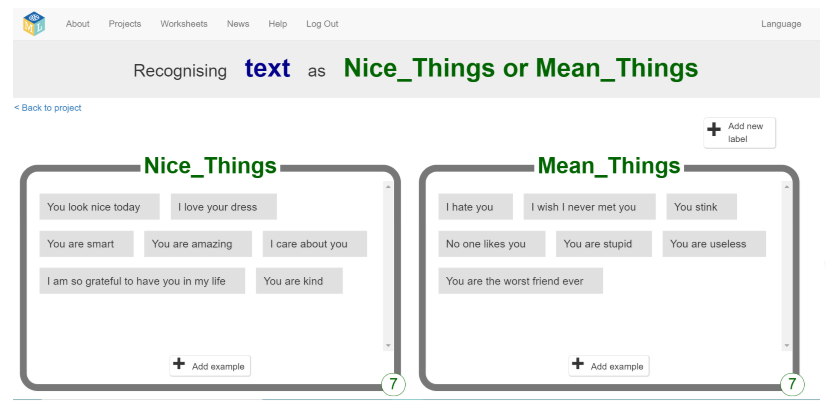
Discover new ideas and concepts through popular topics that got detected and grouped together by A.I.

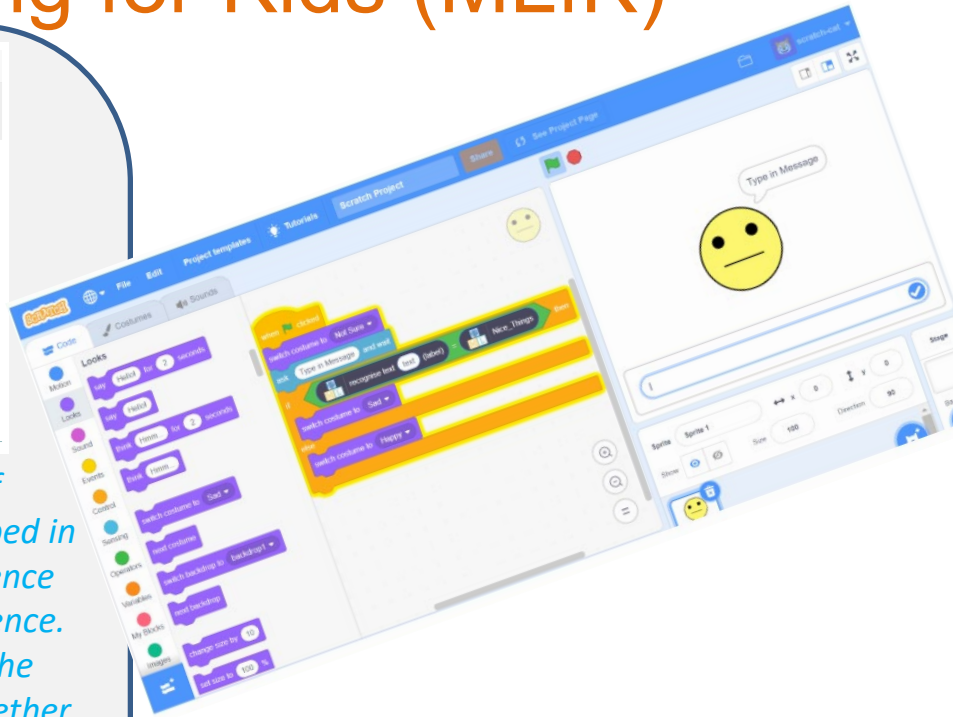
Machine Learning for Kids (MLfK)



Students train and create their own AI model and use a version of Scratch to incorporate their model into a computer program.

Machine Learning for Kids (MLfK)





"My model was successful in recognising if the majority of sentences were a nice or mean thing. However, when I typed in 'You are mean' it said it was a nice thing with 69% confidence and 'You aren't mean' was a mean thing with 75% confidence. This indicates that the model mainly focuses on whether the sentence uses positive or negative language to decide whether it is nice or mean. In the sentence 'You aren't mean', aren't is a negative word so the model describes it as a mean thing. In the next sentence 'You are mean', are is a positive word so the model described it as a nice thing. "

Ethical issues

A situation where there are competing alternatives and the right thing to do is not obvious or clear.

Sometimes terms such as good, bad, wrong, better or worse are used to consider the effect of particular actions on our lives, society, nature and the environment.

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Student project

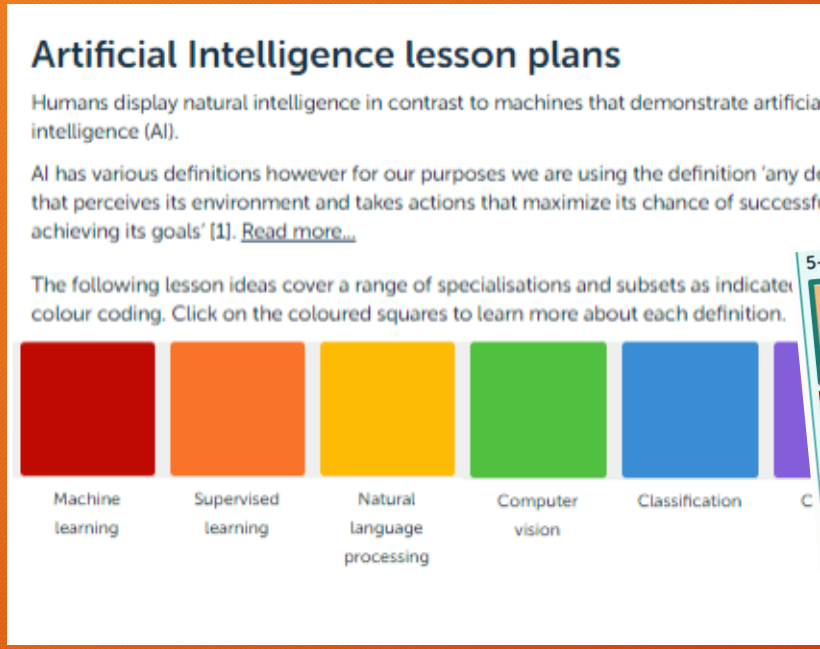
Coming up with their own AI app idea

Our team is...	
We're creating an AI model that...	(the target user)
to help people to...	(the problem/challenge)
by providing them with...	(the possible solution)

Student project examples

Lesson plans

Artificial Intelligence



[Search DT Hub AI lesson plans]

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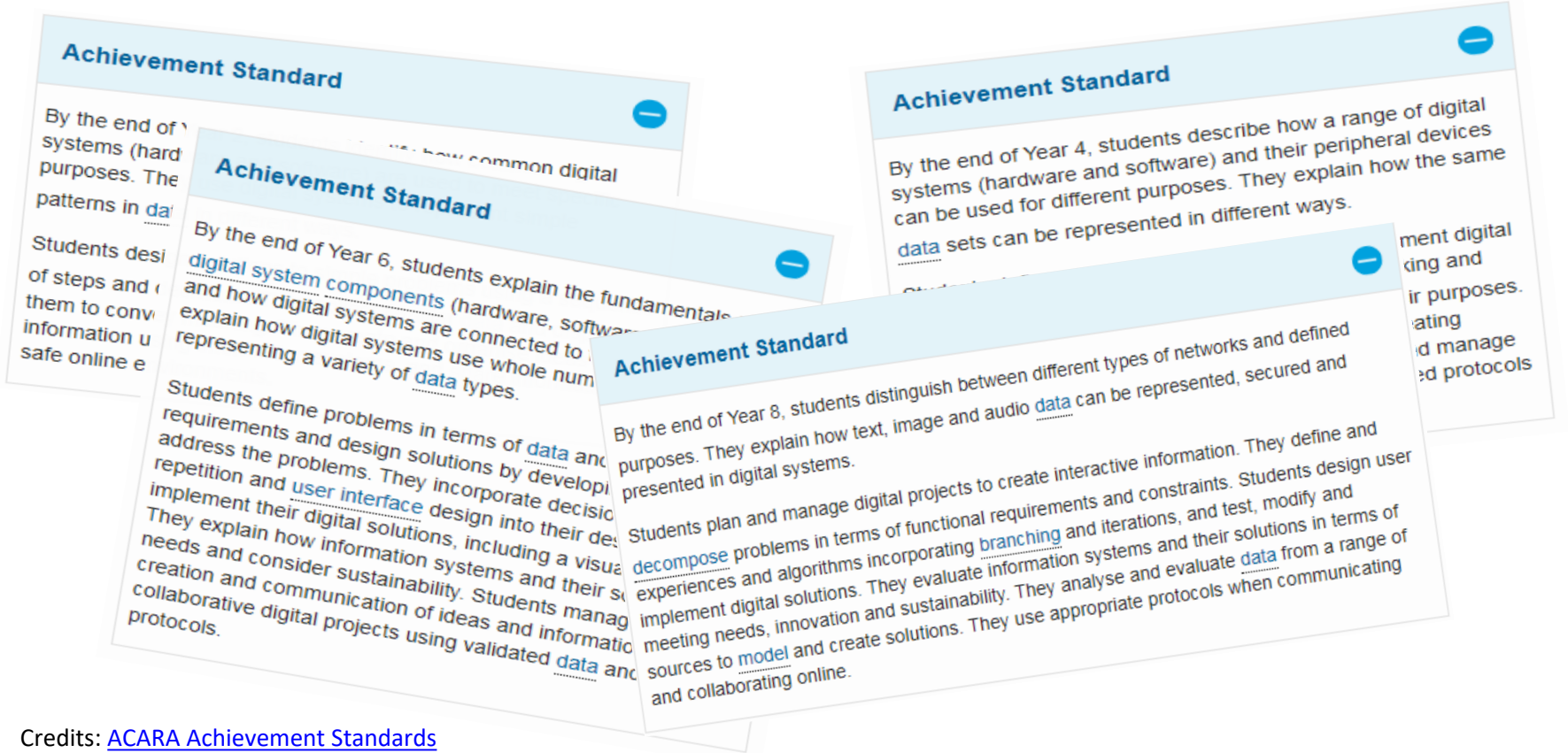
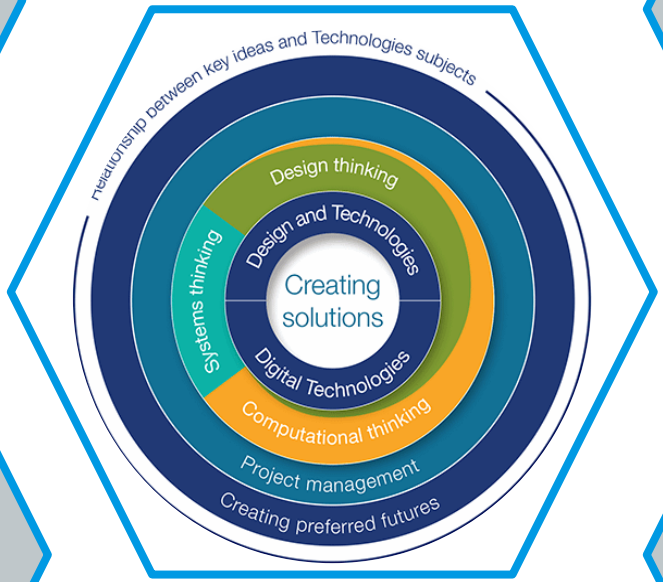
Achievement standards: what I covered

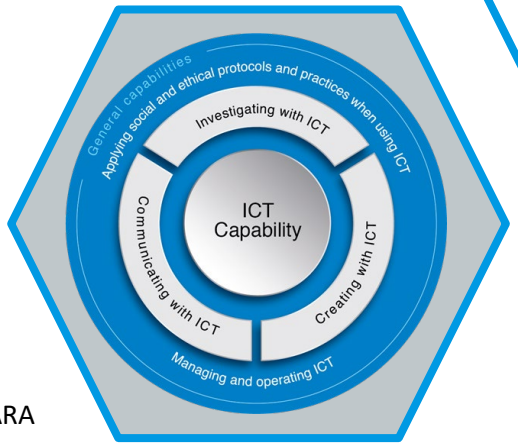


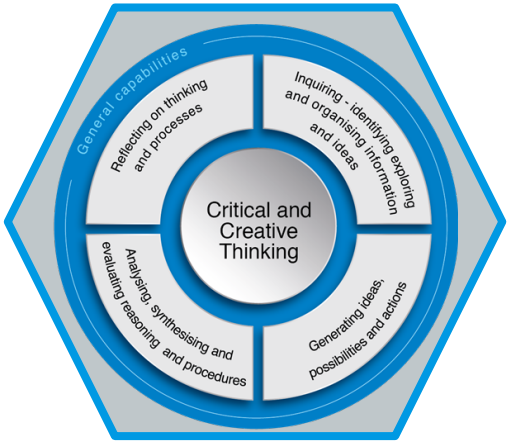
Credits: ACARA Achievement Standards

Australian CURRICULUM

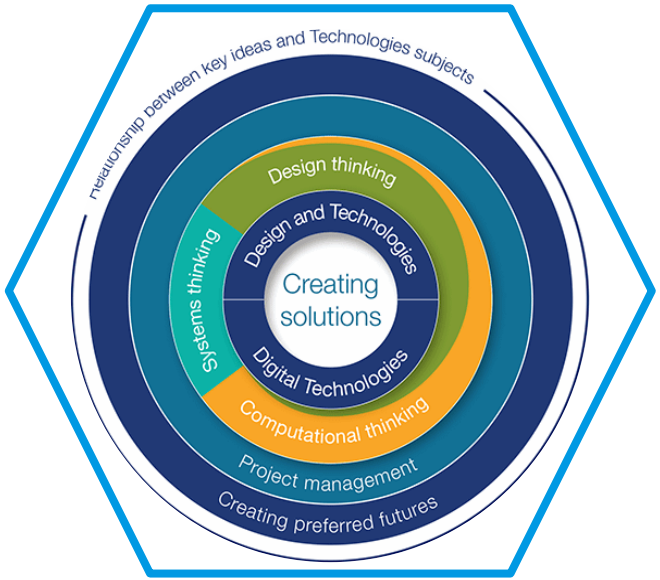
AI KEY CONCEPTS







Credits: ACARA


Relationship between Key ideas and Technologies subjects
Design thinking
Systems thinking
Design and Technologies
Creating solutions
Digital Technologies
Computational thinking
Project management
Creating preferred futures

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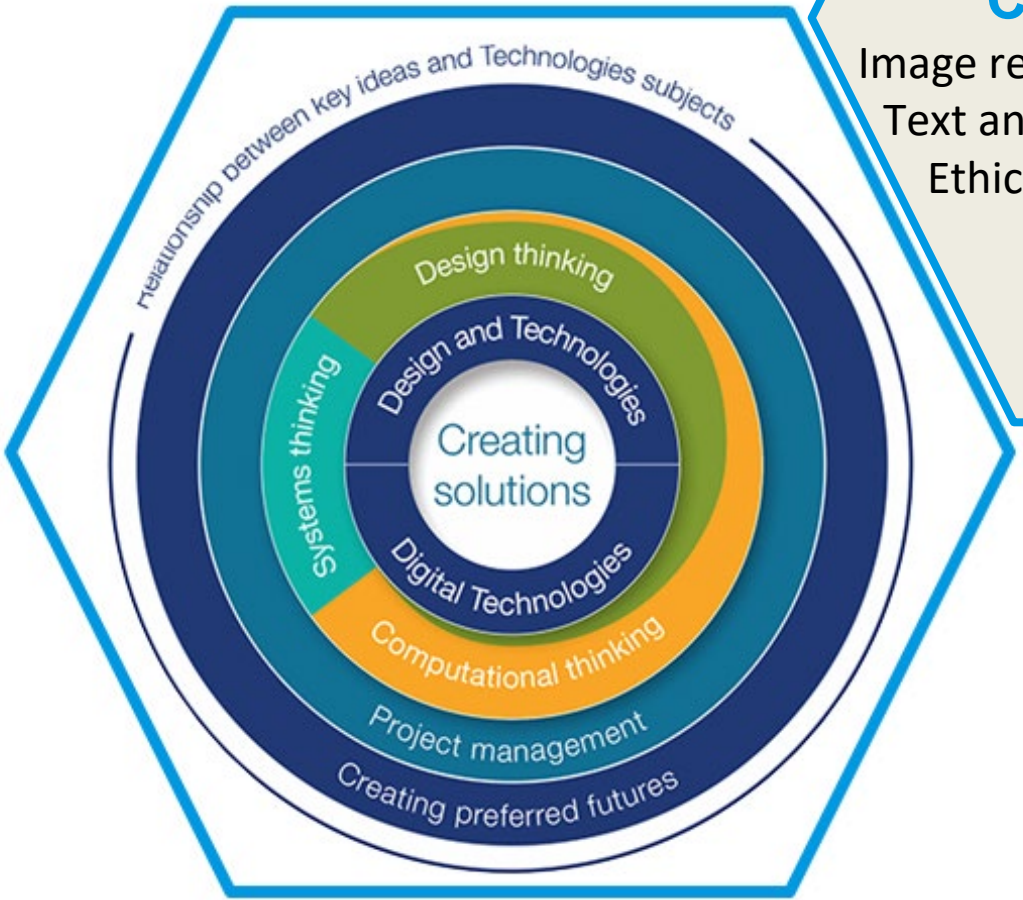
AI KEY CONCEPTS

Image recognition

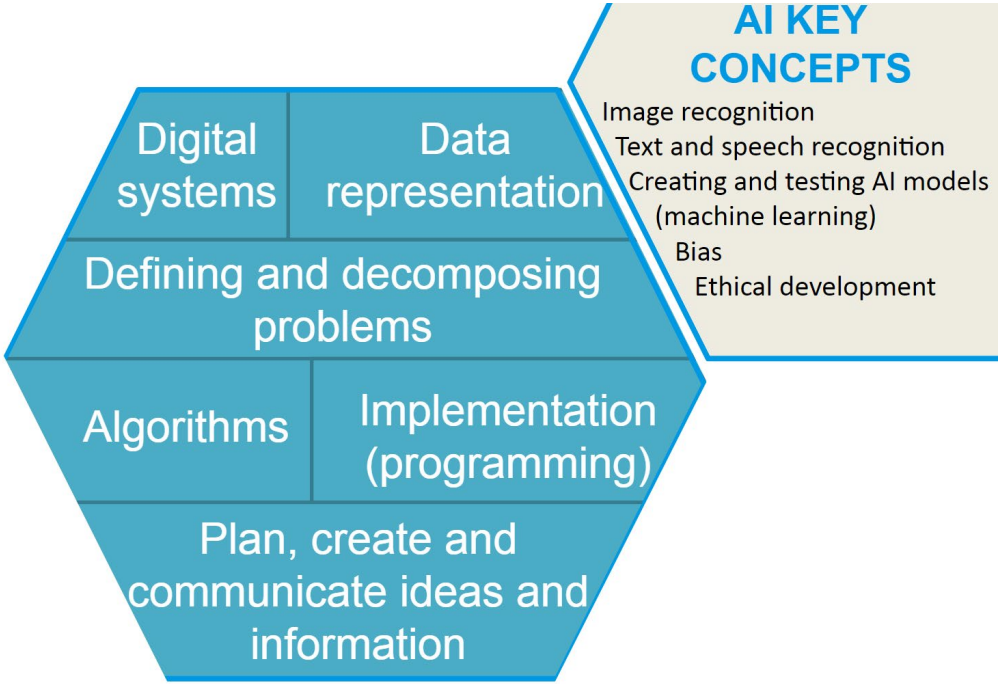
Text and speech recognition

Ethical development



Next steps…

Use the chat to write your idea of where you will include AI as part of your teaching and learning program



Term 3 free PL …

Primary AI PL	Secondary AI PL