

TEACHER RESOURCE PACK

perform!

EDUCATION

The logo features the letters 'AI' in a large, bold, white font with a yellow glow, enclosed within a glowing white circular outline. This circle is connected to a horizontal line that extends to the right, ending in a small circle. The line has a slight downward curve and a small circle at its end, resembling a circuit or data path.

AI

ACADEMY

SCIENCE/STEM IN SCHOOLS 2024

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LIVE-IN-SCHOOL PERFORMANCE TEACHER STEP-BY STEP GUIDE

BEFORE THE PERFORMANCE:

TEACHER RESOURCE PACK: Please copy, share and distribute this pack to all relevant classroom teachers **PRIOR** to the date of your incursion.

STUDENT NUMBERS: Please prepare **IN ADVANCE** the number of students attending so you can inform our Team Leader at the conclusion of the performance.

ON THE DAY OF THE PERFORMANCE:

SAFETY: Please ensure your school venue is clean and clear for the safety and wellbeing of both your students and the performers. To ensure we provide a safe incursion to your school, our performers have been trained with appropriate procedures, and they are ready and able to attend to any school specific procedures you may require.

TABLE REQUEST: The performance will require one table of medium size. Please pre-set a table in the performance venue at least 30 minutes before the scheduled performance start time.

PERFORMER ARRIVAL TIME: Performers will arrive approximately 30-40 minutes before the scheduled performance start time. Please make sure the venue is clear to ensure we can setup and start on time.

START TIME: Please ensure students are lined up outside the performance venue **5 minutes before** the commencement of the show to guarantee a prompt start. We are not able to work within your school bell times if the performance cannot start on time.

PERFORMANCE SPACE REQUIREMENTS: Access to power is required in the room so we can operate sound for the presentation.

The performers require an area of approx. 5m x 5m for the staging area. Students should be seated in front of this stage area and can be on seats or sitting on the floor, where they have a good view of the performers.

Please note: a small or medium sized room such as a multipurpose room or small hall is more effective acoustically and atmospherically than a large space such as a gym. Please make the performance area available at least **30 minutes** prior to the commencement of the show so that the performers can prepare the space to start on time.

TEACHER PRESENCE: We request teacher presence and support for the performers at all times during the performance.

AFTER THE PERFORMANCE:

STUDENT NUMBERS: Please provide the total number of students that have attended the performance to our Team Leader **before** they depart your school.

EVALUATION: Go to **PerformTeachers.com** and click on the name of this program to evaluate and be in the draw to **WIN \$200!**

CLASSROOM ACTIVITIES: Share with all teachers the classroom activities in this pack and use in your own follow up lessons.

STUDENT DIGITAL ACTIVITIES: Direct students onto our website **RESOURCE HUB** where they can access the digital games, videos, and student activities.

RESERVE A DISCOUNT & DATE FOR NEXT YEAR: Find details for next year's program at the end of this pack and reserve a date **NOW** to grab the **early bird special discount!**

PAYMENT: An invoice for the balance of payment will be forwarded to your school the day **after** the incursion. We have instructed our performers not to handle any money or financial issues. These should all be directed to our office. Please refer to your Booking Confirmation for your agreed pricing terms and conditions. If any queries, call our office on 0800 775 770.

MANY THANKS FOR YOUR ASSISTANCE AND SUPPORT!



ABOUT THE COMPANY

Perform! Education is a multi-award-winning educational production company and part of the largest in-school educational producing group globally, operating across New Zealand, Australia, and the USA.

The company specialises in touring curriculum-aligned, educational theatre and sketch comedy programs into schools and has been operating for over twenty years. Each year we tour to over 300,000 students in Australia and New Zealand. In total, the company and its writers have toured our specialty educational programs to over four million students across the world.

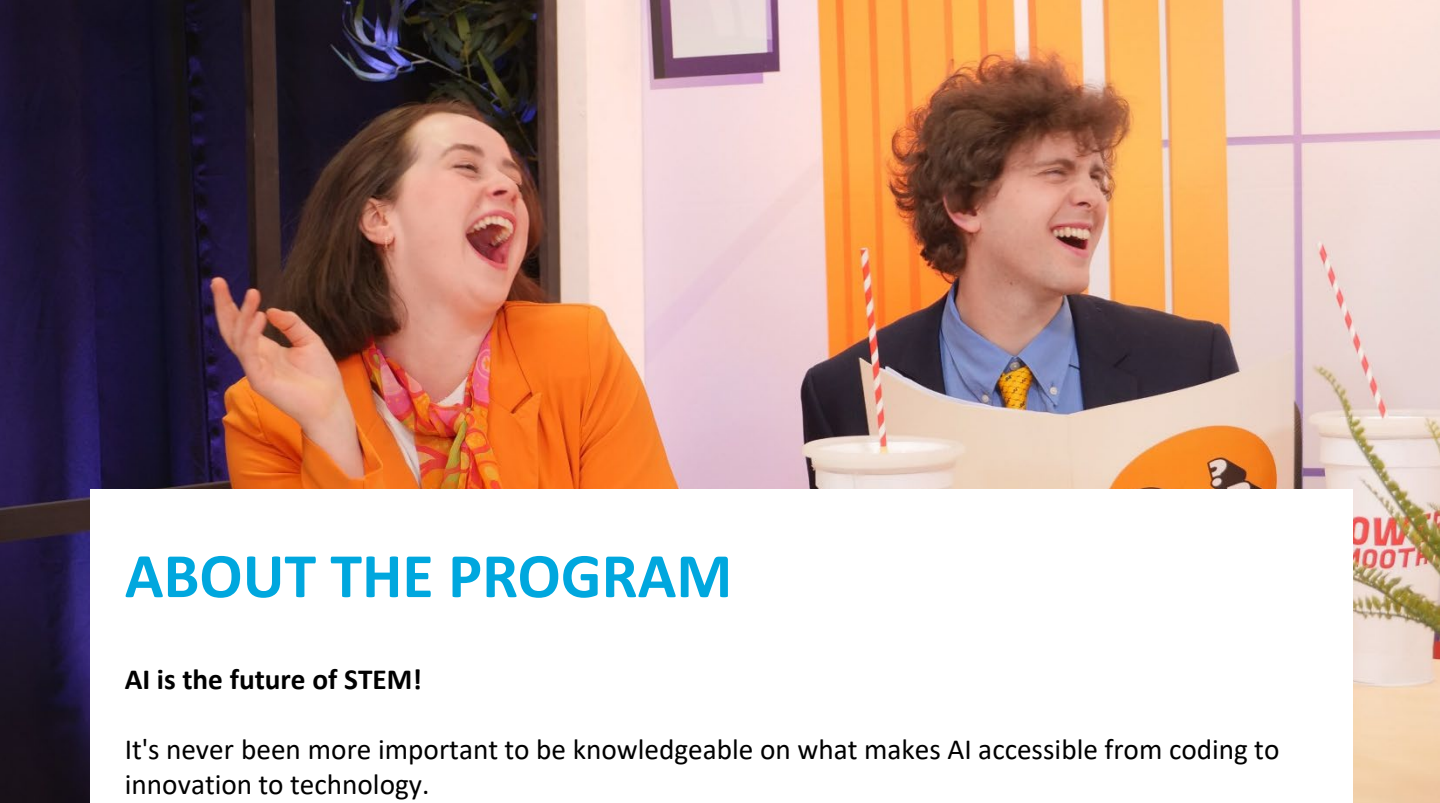
In New Zealand, we tour an annual **Science/STEM In Schools** educational sketch comedy program, as well as a **Book Week In Schools** literacy program. Our **Science/STEM** program inspires students with the limitless fun and possibilities offered by **Science, Technology, Engineering & Maths** – while promoting how science impacts our everyday lives and future careers.

The **Aotearoa Science/STEM In Schools** performances are **highly interactive** and feature comedic sketches, appealing and identifiable characters, loads of **comedy**, fun scientific facts, and student interaction that captivates and engages all audiences from ages 9 to 14 years old (as well as their teachers!).

Question/Discussion is included, which reinforces the learning outcomes, and this specially designed **Teacher Resource Pack** along with the **Digital Teacher Toolkit and Student Activities** offer a comprehensive selection of classroom resources for both before and after the performance.

To find out more about **Perform! Education** or to contact the company, please log onto our website at **www.PerformEducation.com**

If you or any of your students would like to find out more details about our company please visit our website: **www.PerformEducation.com**



ABOUT THE PROGRAM

AI is the future of STEM!

It's never been more important to be knowledgeable on what makes AI accessible from coding to innovation to technology.

The more we know about how powerful AI can be, the more we can solve problems in everyday life. Becoming familiar with AI innovation in industry and science, as well as its (sometimes unintended) consequences, will make students better prepared for the advances in technology, and the ways in which STEM is leading our future study and career pathways.

The first goal is to explore:

- **Coding is useful and powerful**
- **Innovation drives technology**
- **Technology advances our lives**
- **How AI impacts our future**

The second goal is to make your students laugh so hard that they forget they're learning!

LEARNING AREAS: Technology, Science, Social Sciences, English, Health and Physical Education, The Arts – Drama

KEY COMPETENCIES: Thinking, Relating to others, Using language, symbols, and texts, Managing self, Participating and contributing

VALUES: Innovation, Inquiry and Curiosity; Equity, Community and Participation; Ecological Sustainability; Integrity; Respect

THEMES: Technology, Artificial Intelligence, Innovation, Coding, STEM Careers, Limitations of Generative AI.

The show consists of **comedic and interactive science sketches**, introducing eccentric characters and relatable situations, delivered by our **Actor/Educators**. Student audience and volunteers become part of the action and are encouraged to offer suggestions that the actor will incorporate. The result is that students get to have input in the show, while watching and learning!



SCENE BREAKDOWN

SKETCH 1 – CODING IS USEFUL AND POWERFUL

Gigi and student volunteer enter the DeltaTECH boardroom to pitch their groundbreaking app. It boasts artificial intelligence that takes coolness to the next level. Will their presentation on coding, AI and machine learning win over high-powered exec Royce and establish them as the rising stars of app development?

SKETCH 2 – INNOVATION DRIVES TECHNOLOGY

It's the school science fair and the competition is running hot! Kirby thinks his AI food robot played by a student volunteer will dazzle the judges. Fellow student Val on the other hand sees its untapped potential and opens Kirby's eyes to the endless creative possibilities of AI. Together they explore how innovation and creative thinking drive technology to deliver a future of unlimited potential.

SKETCH 3 – TECHNOLOGY ADVANCES OUR LIVES

Get ready for the ultimate showdown on New Zealand's favourite game show, Future Earth! Watch as a student volunteer goes head-to-head with carry-over champ Sheryl Gumption to show who knows more about the ways in which technology advances our lives. From everyday AI tools like predictive text and virtual assistants to AI robots revolutionizing the workplace, this humorous sketch explores how Artificial Intelligence is propelling our lives forward.

SKETCH 4 – HOW AI IMPACTS OUR FUTURE

Year 9 student Nicholas is bewildered by his Saturday morning detention with Principal McShoulderpads until he works out that Principal McShoulderpads' AI virtual assistants - Malcolm, Dougall and Sean Connery - have mistakenly assigned detention to any student not wearing tartan. Nicholas helps Principal McShoulderpads understand that AI systems mirror the biases of their data and creators.

POST INCURSION

FURTHER CLASSROOM ACTIVITIES

Visit our website resources at:

TEACHER TOOLKIT: <https://www.performeducation.com/sw-nz-teacher-toolkit>

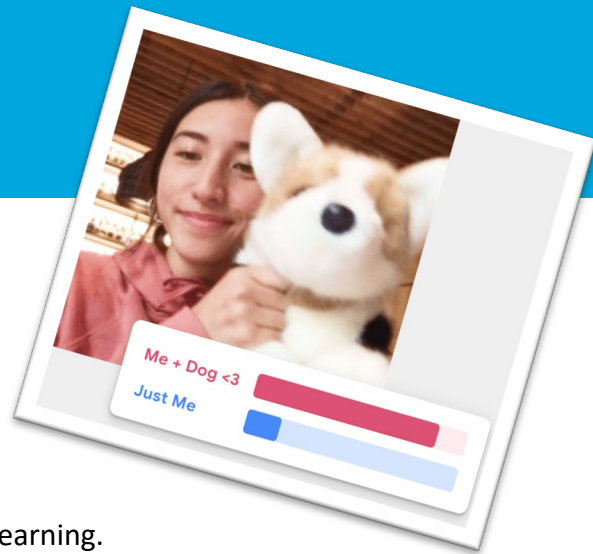
STUDENT RESOURCES: <https://performeducation.com/sw-nz-student-activities>

Additional resources include:

- [Post-Performance Student Quiz](#)
- [Digital games](#)
- [Videos from the Writers/Creative Team](#)
- [Printable downloads](#)

LESSON PLAN #1

TEACHABLE MACHINE



Years: 5 to 10

Time required: 2 hours

Learning Intentions:

- Understand the basic concepts of AI and machine learning.
- Gain hands-on experience with a machine learning tool.
- Develop an understanding of how AI can be used in real-world applications.

Teachable Machine: <https://teachablemachine.withgoogle.com/>

Teachable Machine is a free, web-based tool created by Google that allows anyone to build machine learning models without coding. Teachable Machine is a great educational tool for learning and teaching the basics of machine learning in a fun, hands-on way. Both students and teachers can use it to gain experience with training and applying machine learning models. It is safe to use and, whilst you train the model, no data is shared with any servers.

Introduction (20 minutes)

- Explain the concepts of AI and machine learning in simple terms. (see Glossary p11)
- Review the applications of AI featured in AI ACADEMY. (Gigi's new app, Kirby's food robot, Principal McShoulderpads' virtual assistants, Chat GPT)

Teachable Machine (20 minutes)

- Introduce Teachable Machine as a tool that allows us to create machine learning models.
- Show a demo of how Teachable Machine works. How to:
 - **Gather samples** <https://youtu.be/DFBbSTvtpy4>
 - **Train your model** <https://youtu.be/CO67EQOZWgA>
 - **Export your model** <https://youtu.be/n-zeeRLBgd0>

Hands-On Activity: Creating a Machine Learning Model (60 minutes)

- Guide students to create their own machine learning models using Teachable Machine.
- They can choose to create either an image, a sound, or a pose project.
- Encourage them to experiment with different inputs and outputs.

Sharing and Discussion (20 minutes)

- Ask students to share their projects with the class.
- Discuss the potential uses of their machine learning models in real-world applications.

Curriculum Links:

Technology: Technological Practice, Nature of Technology
English: Listening, Reading and Viewing; Speaking, Writing and Presenting
Key Competencies: Thinking, Using language, skills, and texts; Relating to others

LESSON PLAN #2

AI & SUSTAINABILITY

Years: 5-10

Time required: 120 mins or multiple lessons.

Learning intentions:

- Understand the role of AI in solving real-world sustainability challenges.
- Apply creative thinking to design an AI solution for a given sustainability challenge.

Introduction (5 minutes)

- Review the concepts of Artificial Intelligence (AI) and Machine Learning (ML). (see Glossary p11).

Explore (15 mins)

- Explore how AI and ML are being used to support the conservation of New Zealand's native frogs. Introduce 'Wildlife AI', an organisation in New Plymouth focused on the use of AI to support sustainability. One of their projects aims to ensure the survival of the three remaining species of native NZ frogs.
- Using an electronic whiteboard or digital device, click on 'Background' on their webpage <https://wildlife.ai/projects/pepeketua-id/> to share with students the plight of the frogs.
- Then click on 'News and Updates' to share with students an app they've developed called 'Pepeketua ID', which uses machine learning to identify critically endangered Archey's frogs.

Problem-Solving (60 minutes more)

- Divide students into groups and present them with a sustainability challenge:
 - **Biodiversity:** NZ's native plants and animals are at risk from habitat loss, human activities and invasive species. How might AI be used to protect and conserve them?
 - **Water Pollution:** Water resources in NZ face pressures from agricultural runoff and pollution. How could AI help monitor, manage and preserve our water sources?
 - **Waste management:** In NZ, we each throw out about 700kg of waste every year. How could we use AI to reduce this amount?
- Students brainstorm and design an AI tool to solve one of the given problems. Consider functionality, how it uses AI, and how it addresses the sustainability problem.

Presentation (30 minutes)

- Each group presents their AI tool design to the class.

Conclusion (10 minutes)

- Summarise the lesson, highlighting the potential of AI to address a wide array of sustainability issues.

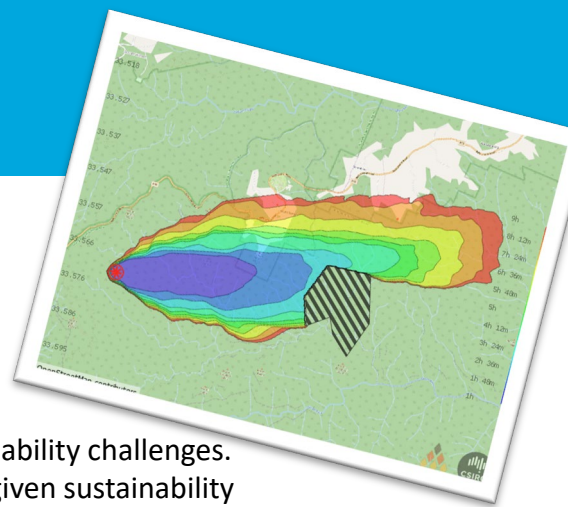
Curriculum Links:

Technology: Technological Practice, Nature of Technology

Science: Living World, Planet Earth and Beyond

Key Competencies: Thinking, Using language, skills, and texts; Participating and contributing

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LESSON PLAN #3

EVALUATE ChatGPT 3.5

Years: 5 to 10

Time required: 1 hour

Learning Intentions:

- Understand the capabilities and limitations of ChatGPT.
- Analyse reliability, biases, inaccuracies, and ethical concerns associated with AI-generated content.
- Reflect on the impact of AI language models on communication, information access, and critical thinking.

Introduction (10 minutes)

- Introduce ChatGPT as an AI language model that uses machine learning to generate text and facilitate conversations.
- Explain that ChatGPT has certain limitations and potential drawbacks that need to be critically examined.

Exploring ChatGPT (15 minutes)

- Allow students to engage with ChatGPT individually or in pairs, generating responses and evaluating them while taking notes on any limitations and concerns they observe.

Evaluating Credibility (10 minutes)

- Examine the credibility and reliability of information generated by ChatGPT.
- Introduce the concept of fact-checking and critical evaluation of AI-generated content.
- Discuss topics where AI language models could provide misleading or inaccurate information: Historical Information, News and Current Events, Legal Advice.
- Discuss the importance of cross-referencing information, seeking multiple sources and verifying claims.

Analysing Limitations (15 mins)

- Students choose a topic to explore through ChatGPT.
- Instruct students to take notes on their interactions, then fact check these interactions using the internet.

Reflection and Discussion (15 minutes)

- Ask students to reflect on their discoveries with ChatGPT.
- Encourage students to share their thoughts and insights regarding the limitations and ethical considerations associated with AI-generated content.

Conclusion (5 minutes)

- Review the key points discussed during the lesson, highlighting the limitations and implications of ChatGPT and similar AI language models.
- Emphasise the importance of critical thinking, fact-checking, and human judgment when interacting with AI-generated content.

Curriculum Links:

Technology: Technological Practice; Nature of Technology

English: Listening, Reading and Viewing; Speaking, Writing and Presenting

Key Competencies: Thinking, Using language, skills, and texts; Relating to Others



GLOSSARY

- **Artificial Intelligence:** A computer program or machine that can think and learn like humans.
- **Code:** The instructions we give computers, written in a programming language.
- **Coding:** Writing instructions (code) for a computer program, using a programming language.
- **Machine Learning:** A type of AI where the machine uses data to learn something by itself.
- **Generative AI:** A type of AI that creates new content.
- **Innovation:** Making a connection between two objects or ideas. A new way of doing something.
- **Data:** Digital information.
- **Technology:** The tools, skills and methods used to make things or get things done, to make our lives easier.
- **STEM** Science, Technology, Engineering and Mathematics.
- **Bias** A tendency to prefer one person or thing to another.

USEFUL WEBLINKS

- **TKI – Technology Online**

<https://technology.tki.org.nz/>

- **Ministry of Education - Digital Technologies and Hangarau Matihiko learning**

<https://www.education.govt.nz/our-work/changes-in-education/digital-technologies-and-hangarau-matihiko-learning/#sh-digital%20technologies>

- **Ministry of Education – Generative AI**

<https://www.education.govt.nz/school/digital-technology/generative-ai-tools-things-to-consider-if-youre-thinking-of-using-them-at-school/#sh-generative%20ai>

- **NZASE**

<https://nzase.org.nz/>

- **Techweek:**

<https://techweek.co.nz/>

If you or any of your students would like to find out more details about our company please visit our website: www.PerformEducation.com



PUZZLE SOLUTIONS from PerformEducation.com

Primary Word Find Solution:

X D J V L F U T U R E G C P N V Z N G S
G G N R A K K U E C U J H O Z P F Q H X
A W B P P Z O M V K F Z J B I F Q T B O
G D Z J O H M A M A C H I N E M S A H N
C I X M S I N T E L L I G E N C E R E T
W I A Z P R O G R A M I G A P X I W A T
U J Q P O Z E U Y A M Q T R T T V I Z M
W W X V M L K I N N O V A T I O N I W J
C V U L B E A K G V S I P I P O K G H Z
U M I E N B C V U Y X J F F W T Q Z Z Z
U C I A O Z P V D O K Q P I C E J Q Z E
J B N R A F M Q I W O Z U C S C P T M U
A Y I N K O C B O Q W Q T I Z H M O H E
E K U I N F H Q C S D A T A J N Y O Q I
X B B N X H A H O B Z K Q L Z O B M Q C
K V N G O W T A D L V C M G Q L I J O R
F U Q U D R G V E U B Q Z K S O M D Q V
U P S C L A P B R V I M M C M G E I F E
I N V M X O T Q Q S A U I W O Y Y P Y D
P D U D J Z X U F N S B J M U F N E C N

CODE
ARTIFICIAL
FUTURE
INNOVATION
INTELLIGENCE
PROGRAM

DATA
MACHINE
BIAS
TECHNOLOGY
LEARNING
CHATGPT

Primary Crossword Solution:

Across

2. The most popular Generative AI tool on the planet. (**chatgpt**)
3. think the _____, then build it. (**link**)
7. _____ text is when our phone or computer learns to predict the words we often use. (**predictive**)
8. _____ is making a connection between two objects or ideas. (**innovation**)
10. _____ Learning is a type of AI where the program uses data to learn something by itself. (**machine**)
11. Science, Technology, Engineering and Maths. (**stem**)

Down

1. STEM drives our _____. (**future**)
2. _____ code is the instructions we give computers, written in a programming language. (**computer**)
4. Artificial _____ refers to a computer program or machine that can think and learn like humans. (**intelligence**)
5. All Artificial Intelligence is built using _____. (**code**)
6. _____ advances our lives. (**technology**)
9. It's important that the data fed to AI is not _____. (**biased**)

PUZZLE SOLUTIONS from PerformEducation.com

Intermediate Word Find Solution:

V	J	G	W	X	J	S	R	S	T	T	V	J	U	U	T	M	M	Z	R
H	W	J	B	I	M	V	Q	T	J	V	O	F	V	F	U	J	B	E	Z
A	M	W	H	N	H	G	V	G	G	O	D	B	H	X	B	D	A	I	N
A	U	G	E	N	E	R	A	T	I	V	E	D	P	L	P	A	A	K	S
W	V	G	D	O	B	I	O	M	E	T	R	I	C	A	E	T	R	O	H
D	L	A	D	V	K	H	E	A	I	G	X	T	T	S	N	C	E	J	I
J	S	N	T	A	I	T	E	E	A	Z	O	L	Q	S	G	E	Q	K	N
Z	F	D	A	T	A	E	J	I	D	S	L	N	L	I	E	D	U	A	T
T	H	F	V	I	V	C	H	A	Y	X	E	Q	W	S	S	M	S	C	E
P	Z	Q	F	O	Q	H	O	R	J	C	A	B	O	T	E	E	T	O	L
F	L	N	T	N	S	N	A	T	K	D	R	H	I	A	C	E	E	D	L
H	J	S	X	G	G	O	L	I	Z	F	N	O	V	N	U	W	X	E	I
F	D	O	T	W	Q	L	L	F	I	P	I	M	H	T	R	I	T	H	G
L	M	G	O	L	J	O	R	I	B	M	N	B	J	S	I	Y	Y	R	E
Q	O	V	Q	T	N	G	W	C	Y	I	G	C	U	D	T	C	S	A	N
O	I	V	M	L	J	Y	S	I	Q	G	A	P	Z	X	Y	J	M	Y	C
G	Y	K	D	H	A	V	J	A	L	P	R	E	D	I	C	T	I	V	E
V	V	I	R	T	U	A	L	L	H	N	V	L	E	T	H	M	U	W	E
P	Q	P	Y	V	H	U	V	I	F	K	P	L	J	F	P	J	C	D	Z
I	F	M	A	C	H	I	N	E	W	D	V	P	B	B	C	E	A	D	N

DATA
LEARNING
INNOVATION
GENERATIVE
VIRTUAL
BIOMETRIC
PREDICTIVE
ARTIFICIAL

MACHINE
CODE
TECHNOLOGY
AI
ASSISTANTS
SECURITY
TEXT
INTELLIGENCE

Intermediate Crossword Solution:

Across

- Virtual _____ like Siri and Alexa use artificial intelligence. (**assistants**)
- Alan _____ was a pioneer of Artificial Intelligence. (**turing**)
- The instructions we give computers, written in a programming language is called _____. (**code**)
- A type of AI where the program uses data to learn something by itself. (**machine learning**)
- A commonly used computer language. (**python**)
- _____ is a concern in AI tools because they're limited to the data they've been fed. (**bias**)

Down

- Science, Technology, Engineering and Maths. (**stem**)
- A computer program or machine that can think and learn like humans is called _____. Intelligence. (**artificial**)
- _____ is making a connection between two objects or ideas. (**innovation**)
- _____ AI is a type of AI that creates new content. (**generative**)
- The tools, skills and methods used to make things or get things done, that make our lives easier. (**technology**)
- Self-driving cars are also known as _____ cars. (**autonomous**)

AOTEAROA SCIENCE/STEM IN SCHOOLS – **STEMANIA!**

Primary & Intermediate Grades 5-10 (Ages 9-14)

STEMania! is a live-in-school, fact-filled, Science/STEM presentation using action packed sketches, comedy, appealing characters, high energy and audience interaction that educate students about **STEM, our future, and career pathways!** Played out through a series of theatrical comedy sketches to create hilarious and fact-filled scenes that educate on STEM subjects, **STEMania** uses suggestions from the audience where performers will build educational sketches, creating a unique and customised performance with each presentation. **Students laugh so hard that they forget they're learning!**

1) *By applying scientific method to a cricket game, this sketch shows how science is all about asking and answering questions.* 2) *A crazed inventor shows that technology involves creativity and innovation – making a link between an idea and physical objects to build solutions.* 3) *While designing a new car, an engineer solves complex problems through artistry, testing and the implementation of trial and error.* 4) *Walking through a 'day in the life' of a student, performers illustrate how we use maths every day!*

AOTEAROA BOOK WEEK/SLANZA LIBRARY WEEK – **MAYBE A MIRACLE!**

Primary Grades 0-8 (Junior, General and Senior primary versions available)

*Charlie is feeling just a bit overwhelmed. He does his best but sometimes his best doesn't seem good enough, especially when he compares himself to other kids who seem to make difficult tasks look so easy. Like any other kid Charlie has dreams – to be a rock star, explorer, a scientist that solves the problems of the world – but they seem to get further away every day. Charlie wonders that **MAYBE A MIRACLE** is what he needs to change things for the better. However when something totally unexpected reveals that there are miracles happening all around him, he needs to figure out what to do with them.*

Will some of the books that Charlie recently discovered provide a clue?

A highly interactive musical exploration of making the most of even the most ordinary situations, and a celebration of the power of **positive thinking**.

MAYBE A MIRACLE! is a joyful leap into the world of **imagination** that books **inspire every individual** to be part of, while featuring the **BEST Aotearoa New Zealand Children's Books of 2025**.

BOOK ONLINE WITH QR CODE



Reserve your 2025 date
NOW to receive a 10%
EARLY BIRD DISCOUNT

Tour Dates 2025

- Term 2: CHCH Mon 12th May – Fri 16th May
- Term 2: WELL Mon 19th May – Fri 23rd May
- Term 2: AUCK Mon 26th May – Fri 20th Jun
- Term 3: CHCH Mon 28th Jul – Fri 1st Aug
- Term 3: WELL Mon 4th Aug – Fri 8th Aug
- Term 3: AUCK Mon 11th Aug – Fri 22nd Aug

Ph: 0800 775 770

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