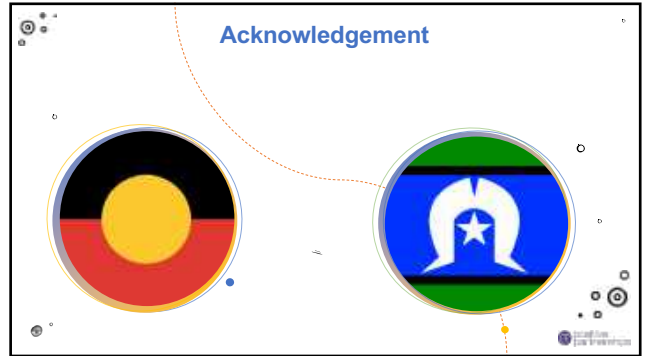
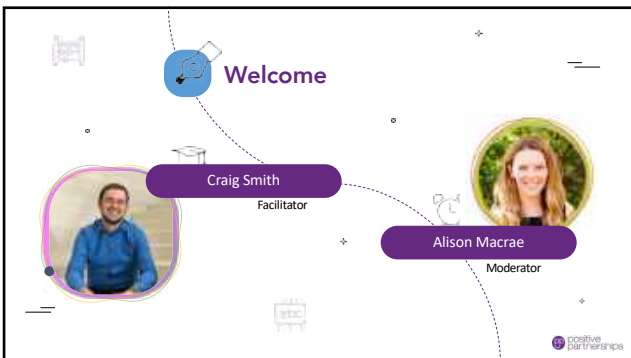


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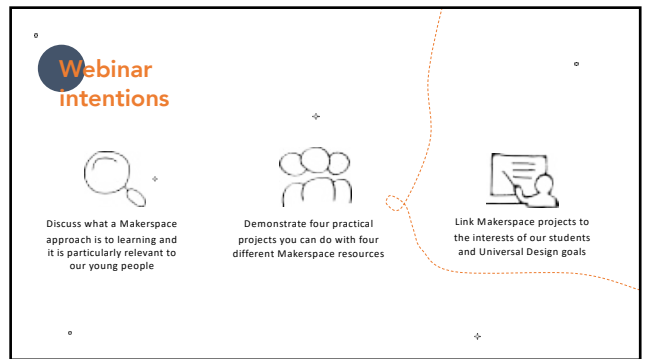
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✦ **What is a Makerspace?**

Makerspaces are areas you can create in a school (or home!) that allow you to tinker and build with technology and other resources.

It is also a way of thinking, of problem solving.

When schools talk about 'STEM' (Science, Technology, Engineering and Maths), they are talking about skills that are readily applied in Makerspace situations.



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✦ **Makerspaces + Universal Design for Learning**

Makerspace lessons are a natural fit for Universal Design for Learning. They allow students to select the tools that best suit their interests and skills in order to solve real world problems.



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✦ **Strengths and Interests**

Makerspace tasks allow you to easily incorporate the interests and natural areas of strength that students have.

I have taught many students who enjoy reading and making maps, and building cities with Lego. This is going to be our lesson focus for today: creating a city using Makerspace resources.




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Our Projects Today:

- Environmental Science: Measure soil moisture
- Creative Arts (Music): Interactive sound art
- Maths and Design: Street light planning
- Engineering: Motorised signs

Hardware used: Arduino, Makey Makey, Squishy Circuits, LittleBits

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Environmental Science: Measure soil moisture

Creative Arts (Music): Interactive Sound Art

Maths and Design: Street light planning

Engineering: Motorised Signs

Hardware: Arduino, Makey Makey, Squishy Circuits, LittleBits

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Makey Makey is a circuit board that you can connect physical objects to, and then use those physical objects to control your computer.

For example, we can play music with fruit or water, or control a computer game using play dough or a lead pencil.

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Musical Fruit

1. Connect fruit and other objects to Makey Makey
2. Open piano website on computer
3. Play and experiment with different objects to make music

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Little Bits are magnetic electrical components that click together to perform different actions. There are many components to choose from – light and movement sensors, motors, and many more.

You can complete step-by-step projects using instructions, or you can create your own creations.

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Motorised Sign



1. Connect LittleBit components together
2. Create a sign from cardboard
3. Build the LittleBits and sign together and turn it on

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Arduino is an open-source circuit board and coding software that allows you to build all manner of electronic tools.

It is like the circuit boards inside household items like microwaves, televisions, cars and toys. Arduino is simple enough for children to learn to program and connect to resources.

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I have twenty-five Arduino tutorials available on YouTube – check our website for links.



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Garden Moisture Sensor



1. Connect Arduino to moisture sensor using wires
2. Add moisture sensor code to Arduino software
3. Run the code and place the sensor in damp soil

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Squishy Circuits are electrical components like lights and fans that can be operated using a battery connected to playdough.

It is a great resource for young children as a fine motor exercise as well as a science problem solving exercise. You don't need to use the playdough the kit comes with, you can use any playdough or make your own.

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Blinking Street Lights



1. Connect LED light diode to playdough
2. Connect battery to playdough
3. Control the frequency of the lights flashing on and off

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