Unit Title	Smart Cities	Year Level	5/6	Number of lessons	2

Unit Plan

This unit of work will see students explore the concept of a smart city by examining the notions of sustainability and cost effectiveness. Students will apply computational thinking and design thinking techniques to create a personalised smart city.

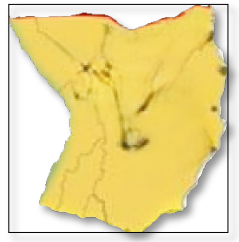
The core concepts covered in this unit of work are:

- Design thinking
- Develop solutions to meet a need

By the end of this unit, students will:

- define and decompose real-world problems
- develop design criteria
- create user-stories
- evaluate each other's solutions against design criteria, user stories and future impact

Lesson Plan

Lesson	*Teaching and Learning Activities*	*Resources*
1	By the end of this lesson, students will demonstrate creative and critical thinking techniques to transform a First Nations Country into a fictional sustainable and economical land using a digital platform, while also developing their user story.	
	Discuss the learning goals of today's lesson (**5 min**) <u>Lesson content</u> • Students use Sketchpad to redesign and personalise their First Nations Country. • Watch Katrie Lowe video and have class discussion on content. • Students identify sustainable resources to add to their fictional land. <u>Student activity 1 **(15 min):**</u> • Provide students with an outline of the First Nation Country either in Sketchpad or a printed picture can be used as an unplugged option.	<u>Digital Version</u> • 1 device between 2 to use Sketchpad - Draw, Create, Share! • A digital image of the local First Nation country (e.g. Bundjalung country.)  <u>Unplugged Version</u>

	*Meaningful Adaption: Provide the option for individual students to research the Country they originated from (clarify and give examples).
	• Students work in pairs to transform country into their own land inspired by their own interests.
	  ○ What is the landscape (rainforest, desert, swamp, plain, valley, mountain, etc)?
	  ○ Do any creatures live on your land?
	  ○ Are there any sources of water?
	
	<u>Student activity 2 **(15 min)**</u>:
	• Watch the Katrie Lowe video: https://vimeo.com/359201961
	• Whole class discussion
	  ○ What were some of the ways Katrie used Digital Technologies in her work?
	  ○ Katrie is now working to make cities more sustainable and affordable. What does this mean? (Recap on Stage 2 HASS & Design & Technologies topics)
	  ○ Define Sustainability
	  ○ What does affordability look like?
	
	<u>Student activity 3 **(15 min)**</u>:
	• In their partnerships, student's discuss possible sustainable resources that are produced on their land.
	• Students choose 3 sustainable resources and add them to their Sketchpad images.
	• Student's work with their partners to write a descriptive passage about their land outlining the name, inspiration and sustainable resources.
		• Printed image of the local First National Country (approx. 15cm)
		• Pencils, textas

2	By the end of this lesson, students will demonstrate collaborative skills to explore the most suitable resources and positions, apply reasoning and thinking strategies to support their designs and determine the most economical outcome, while also cementing their user story.	
	Discuss the learning goals of today's lesson (**5 min**) <u>Lesson content:</u> • Teacher to print out student's fictional lands. • Students will place the least amount of mobile towers to get the best coverage throughout their fictional land, but also cost the least amount of money to build.	• Printed copy of student's fictional lands • Pencils/textas • Tokens

	• Using a yarning circle, students discuss the fictional lands they have created with the class.
	
	<u>Student Activity 1 (15 min):</u>
	
	• Provide students with a printout of their fictional lands.
	• Inform students that 10 people have moved to their fictional land. Ask each group to place a dot to mark where the 10 people will live in their fictional land.
	• Students will need to build mobile towers for the people on the land to be able to communicate. Each counter represents a tower. Each tower cost $500.
	  ○ What is the best coverage that students can get for the lowest price?
	  ○ Does everyone on the island have coverage if there is an emergency?
	
	<u>Student Activity 2 (15 min):</u>
	
	• Ask students to sit in a yarning circle with their partners beside them.
	• Ask students to take turns in sharing the aspects of lands with the rest of the class, outlining their inspiration, landscapes, and sustainable resources.
	• Students to provide feedback on their classmates' descriptions
	For example, inquiry questions could include:
	Why did you place the people/towers in those positions?
	After listening to the other groups, are there any other sustainable resources you could suggest?
	• Think-Pair-Share. Ask students to self-reflect on their fictional land and if there would be any elements they would modify to improve their fictional land after hearing class feedback.