Application and Project Aim

To monitor and display soil moisture in a plant pot. Can also add sensors (additional code required) such as temperature and humidity; switch on a pump to water the plant if the soil is too dry; and then switch off the pump when the soil is wet enough.

Outcomes Covered (National Curriculum)

OUTCOME	DESCRIPTION	RELEVANT ELABORATION	HOW KOOKABERRY CAN BE USED	YEAR
SCIENCE				
ACSSU043	Living things have structural features and adaptations that help them to survive in their environment	● **exploring general adaptations for particular environments such as adaptations that aid water conservation in deserts**	● Influence of moisture in soil on plant life	5
ACSIS086	Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks	● experiencing a range of ways of investigating questions, including experimental testing, internet research, **field observations and exploring simulations**	● Measuring soil moisture, temperature or humidity over a period of time in the field	5
ACSIS087	Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate	● **using tools to accurately measure objects and events in investigation** and exploring which tools provide the most accurate measurements ● **recording data in tables and diagrams or electronically as**	● Using the Kookaberry to gather data ● Transferring data to a PC ● Naming and using spreadsheet files representing digital temperature readings	5

		digital images and spreadsheets		
[ACSIS090](#)	Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate	**● constructing tables, graphs and other graphic organisers to show trends in data** **● identifying patterns in data and developing explanations that fit these patterns** **● identifying similarities and differences in qualitative data in order to group items or materials**	● Constructing and analysing graphs of data gathered over time. ● Varying the sample rate (which requires changing a variable in the coding or deconstructing graphs) and discussing the results	5
[ACSIS093](#)	Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multimodal texts	● discussing how models represent scientific ideas and **constructing physical models to demonstrate an aspect of scientific understanding**	● Making and monitoring a garden to demonstrate particular aspects of influence of habitat on plant health.	5
		TECHNOLOGIES		
[ACTDEK020](#)	Investigate how electrical energy can control movement, sound or light in a designed product or system	**● deconstructing a product or system to discover how movement, sound or light can be controlled, for example deconstructing a torch or buzzer and exploring circuit design** **● investigating the features of electrical devices such as switches, light globes and sensors**	● Can cover all relevant elaborations ● Use both a resistive and capacitive moisture probe and research the difference in operation.	5/

		recognising the need to carefully plan and select components for a system to perform a specific task **producing models using materials, tools and equipment to show how to control movement, sound or light** **investigating the technologies in a control system for an identified need or opportunity and user, for example a system that allows safe passage at pedestrian crossings**		
ACTDEK021	Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy.	investigating and experimenting with different tools, **equipment and methods of preparing soil and the effect on soil quality** and sustainability including conserving and recycling nutrients, for example when designing a sustainable school vegetable garden or cropping area	Measure different rates of drying out of soil using the moisture probe.	5/
ACTDIP016	Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information	**using digital systems to validate data, for example setting data types in a spreadsheet to make sure a date is input correctly.**	Can cover all relevant elaborations	5/

		● **selecting and using peripheral devices suitable to the data, for example using a data probe to collect data about changing soil temperatures for plants, interpreting the data and sharing the results as a digital graph** ● **using data visualisation software to help in interpreting trends, for example uploading data to a web application and building a visualisation of the dataset**		
MATHEMATICS				
[ACMMG110](#)	Compare 12- and 24-hour time systems and convert between them	● **using units hours, minutes and seconds**	● Use different clocks and units (eg, 12 and 24 hr clocks and all seconds or all minutes)	5
[ACMMG113](#)	Use a grid reference system to describe locations. Describe routes using landmarks and directional language	● **creating a grid reference system for the classroom and using it to locate objects and describe routes from one object to another**	● Making a plan of a garden and locate and identify position of Kookaberries used to monitor conditions at different places	5
[ACMSP119](#)	Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies	● identifying the best methods of presenting data to illustrate the results of investigations and justifying the choice of representations	● Transferring time and variable (eg, temperature, moisture, humidity) to a PC and choosing the best Excel graph to illustrate the data measured.	5