



TASK B: Investigating the Voltage in a Series Circuit and a Parallel Circuit

A student driven, hands on investigation to determine the voltage in a series and parallel circuit. This lesson will explain and develop scientific explanations for observations.

Assessment

Formative assessment – monitoring students' learning and developing understanding via observation and providing feedback to extend learning.

Equipment

- Role badges used in Lesson 4
- Each team member's SciTech journal
- 2 x 1.5 volt battery
- Multimeter

Activity steps

- Review previous sessions (series and parallel circuits), refer to word wall and KWL chart.
- Ask the students what they know about the way electricity is measured.
- Introduce the term volts and discuss.
- Explain and demonstrate the use of the multimeter to the students.
- Have the students predict whether increasing the number of batteries will increase the voltage.
- Ask the students to conduct an investigation to test their prediction
- Divide the class into groups, assign roles (Chief Scientist, Safety Officer, Lab Technician, Science Journalist and Science Communicator) and hand out the role badges.
- Ask Lab Technicians to collect equipment.
- Students reconstruct their series and parallel circuits, replacing the light bulb with the multimeter to complete the circuit.
- Students construct a table to record their observations in their SciTech Journals (sample below).

Type of circuit	Number of batteries	Multimeter reading (DCV)/(DCA)
	One battery	
Series	Two batteries	
	Three batteries	

- Using a multimeter students measure record and compare the voltage and amps of each circuit.
- Students construct a graph using the collected data.
- Discuss with students what type of graph would best represent the data in a way that best addresses their prediction.
- What labels must they include on the X and Y axes?
- Once students have constructed their charts discuss the results and construct a statement summarising what they have learnt about batteries set in series and parallel circuits. Add the statements to the KWL chart and any new words should be added to the word wall.

Extension Activity

- Ask students to predict what may happen to the brightness of 2 bulbs if they were placed in series.
- Ask students to predict what may happen to the brightness of 2 bulbs if they were placed parallel.

Useful Links and Resources

- Ausgrid's SMART Notebook Lesson 1
- Slide 2 – Video about “What is Electricity?”
- Slide 7 – Picture match activity “Objects that use Electricity”

