Marvellous Machines

This sequence supports teachers to facilitate science learning for students who are at home. The resource is developed in a way that acknowledges the different models of home-supported learning that schools are adopting. It acknowledges that parents are supporters of learning led by teacher expertise.

This learning sequence offers flexibility

- Teachers can edit to cater for student literacy levels, and for family resources.
- Teachers can use the PowerPoint to
  - facilitate lessons in real-time, or
  - record a voice-over for students to access at a time that suits them, or
  - send the PowerPoint to parents to guide the learning at home.
- Teachers can upload, email or print and post materials.

Resources suggested in the unit:

Toy cars, dominoes or blocks, small balls of various sizes (golf balls, tennis table balls, etc.), cardboard or plastic tube, small piece of cardboard, 5 small blocks or books or equal width (2cm), bucket, pop-sticks, scissors, tape, ruler, rope or string, pencils, pen with a lid, device for taking photos.

Assessment:

Lesson	Formative assessment embedded in each lesson	Curriculum Links
1	Students examine toys and how they move. They represent their thinking and ideas in labelled diagrams.	Lessons 1-5 address: **Foundation** ACSSU005, ACSIS014, ACSIS011, ACSIS233, ACSIS012 **Year 2** ACSSU033, ACSIS024 & ACSIS037, ACSIS025 & ACSIS038, ACSIS026 & ACSIS039, ACSIS027 & ACSIS040, ACSIS213 & ACSIS041, ACSIS029 & ACSIS042 **General Capabilities** • Literacy • Numeracy • Critical and creative thinking
2	Students investigate different ways to make toys move using equipment. They test their ideas and compare predictions with their results.	
3	Students respond to questions and compare predictions to results of a ramp height investigation. They record measurement data from the investigation and make claims based on their evidence.	
4	Students respond to questions and compare predictions to results of a lever/force investigation. They record measurement data from the investigation and make claims based on evidence.	
5	Students describe why selected simple machines will not work. They represent their understanding by drawing arrows to show pushes and pulls. They annotate their drawing to demonstrate their thinking.	

5E model of guided inquiry

This lesson sequence follows the first three phases of the 5E model – **Engage** (Lesson 1), **Explore** (Lessons 2-4), **Explain** (Lesson 5).

Informed by formative assessment of students' work samples, teachers are guided to design and facilitate the next two phases, Elaborate and Evaluate, in the following ways:

Elaborate

Students apply what they have learned about push and pull forces to design and/or make a simple machine with moving parts e.g.

- Design and/or build a Rube Goldberg machine
- Design and/or build a toy that uses push and pull forces and levers and ramps

Evaluate

Students re-represent their understanding of push and pull forces e.g.

- Explain the push and pull forces used in their Rube Goldberg machine, identify and levers and ramps used and evaluate the machines effectiveness.
- Explain the push and pull forces used in their toy, identify and levers and ramps used and evaluate the toys effectiveness