

MINI BOTS

Design Challenge | Recommended for Prep–Year 6

ACTIVITY OVERVIEW Students construct and personalise a take-home scribble bot using a lightweight body, AA battery, small motor and an off-centre propeller or clay weight. They connect the components, observe how vibration creates movement and patterns, then test, troubleshoot and refine their design.

RELEVANT CURRICULUM CONNECTIONS

Year band	ACARA content	How the incursion supports learning
Prep	AC9TDEFP01 Generate, communicate and evaluate design ideas, and safely use materials, equipment and steps to make a solution for a purpose.	Students make a purposeful moving product by following a supported sequence, choosing decorative ideas and safely using supplied components.
Years 1–2	AC9TDE2K02 Explore how technologies, including materials, affect movement in products. AC9TDE2P01–P04 Generate ideas; safely make and evaluate a solution; sequence steps cooperatively.	Students explore how the motor, battery, body material and uneven rotating weight work together, then build and evaluate their bot.
Years 3–4	AC9TDE4K02 Describe how forces and material properties affect function in a product or system. AC9TDE4P01, P03–P05 Test components; safely produce, evaluate and sequence a designed solution.	Students investigate vibration, friction, balance and material choices; compare performance and refine the bot against simple criteria.
Years 5–6	AC9TDE6K02 Explain how electrical energy can be transformed into movement in a product or system. AC9TDE6K05; AC9TDE6P01–P05 Explain component choices and apply an iterative design-and-production process.	Students trace energy from battery to motor and motion, justify component choices, diagnose faults and improve performance.
Science	AC9SFU02 / AC9S1U03 Movement, pushes and pulls. AC9S4U03 Effects of frictional, gravitational and other forces on motion. AC9S6U03 Energy transfer and transformation in electrical circuits.	Age-appropriate discussion links observable bot movement to forces, friction, vibration, circuit components and energy transformation.

LEARNING AND ASSESSMENT OPPORTUNITIES

Students will - assemble a simple battery-powered system safely - predict, observe and explain how design changes affect movement - test, troubleshoot and improve a working product - use STEM vocabulary such as circuit, motor, vibration, friction and balance	Observable evidence - a functioning scribble bot assembled in sequence - safe and appropriate use of components and materials - verbal, drawn or written explanation of how the bot works - evaluation of one successful feature and one possible improvement
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GENERAL CAPABILITIES Critical and Creative Thinking | Personal and Social Capability | Literacy | Numeracy

Curriculum source: [Australian Curriculum Version 9.0 – Design and Technologies](#) and [Science](#). This guide identifies strong activity connections; teachers may select and differentiate descriptors for their year level and learning sequence.