Questacon

Engineering is Elementary

# Windmills

## Background

This year we are exploring the theme of Innovation: Powering Future industries. We use innovations every day without even realising. Without innovations we would struggle to do many daily tasks from travelling between places to simple tasks like making breakfast.

But what is Innovation? Innovation is applying ideas to improve a product or service to create more value. People who innovate find better ways of doing things and think creatively to solve complex problems.

## Design Challenge Activities

Many people contribute to innovation in Australia including Engineers. Engineers use creativity and an understanding of mathematics, science and materials to solve complex problems. The activities for the design challenge will build students understanding of mechanical engineering and challenge them to use the engineering design process to design and build a windmill. They will also explore how engineers and windmills are critical for powering future industries.


## Materials

To participate in the activities, you will need the following materials:

### Activity 1: Exploring mechanisms

- Card Stock
- Tape
- Paper Clips
- Split Pins
- Hole Punch
- Scissors

### Activity 2: Build and Test a Windmill

- Fan/Hairdryer (Optional)
- Paper/cardboard
- Cotton reels/bobbins
- Paper cups (small and large)
- Straws
- Skewers
- Tape, Blu-Tack
- Scissors
- String
- Weights (marbles, bolts/nuts, rocks)

## Process

On the day of the Design Challenge a Questacon facilitator will guide your students through the activities.