

# CURRICULUM RESOURCE RENEWABLE ENERGY

EDUCATION LEAD: BEN NEWSOME CF  
UTS CHANCELLOR'S AWARD FOR EXCELLENCE  
& CHURCHILL FELLOW



## OVERVIEW

This resource provides a structured, multi-modal framework for teaching Physical Sciences (Energy Transformation) and Sustainability.

Designed to navigate the global shift from fossil fuels to renewables, the unit bridges the gap between environmental theory and mechanical engineering.



## PEDAGOGICAL FRAMEWORK: VARIABLE-LED INQUIRY

While the content is highly engaging, the underlying pedagogy is rooted in the Scientific Method.

- **Variable Isolation**

Designed to teach students how to identify, change, and measure variables.

- **Energy Transformation Mastery**

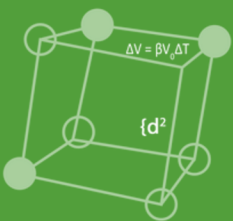
Through the construction of functional solar ovens and simple motors, students move from abstract concepts to observing energy changes

- **Systems Analysis**

The curriculum focus shifts from simple observation to students analysing data from their own school to propose evidence-based sustainability solutions.

## REGULATORY COMPLIANCE & DOCUMENTATION

- Comprehensive alignment with Australian Curriculum v9.0, NSW 2024 Syllabus, Victorian F-10 v2.0, IB PYP & MYP, Cambridge International, US NGSS, The Ontario Curriculum & The New Zealand Curriculum
- Assessment Tools with formative knowledge quizzes and summative marking rubrics for student projects.



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## CORE INVESTIGATIONS

- **Thermal Engineering**

Designing and testing solar ovens to observe heat radiation and insulation.

- **Kinetic Energy Conversion**

Engineering wind turbine prototypes to measure the transformation of air movement into mechanical force.

- **Electromagnetic Induction**

Constructing simple motors to demystify the relationship between magnetism and electricity.



## IMPLEMENTATION & DATA PRIVACY

- **Resource Neutral**

Evidence-based experiments are designed around safe, accessible, everyday materials to minimise departmental overhead & reduce risk.

- **Privacy Compliance**

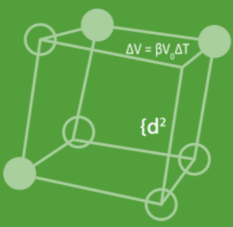
100% student data security. The platform requires zero student accounts, ensuring no PII (Personally Identifiable Information) is collected or stored.

## RESOURCE ACCESS SUMMARY

- **Instructional Access**

On-demand expert video guest-teaching (30-day or 12-month access).

- **Permanent Library** with all technical documentation, safety frameworks, and student worksheets retained by the school as permanent teaching assets on download



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## ABOUT FIZZICS EDUCATION

Founded in 2004, Fizzics Education is a global leader in the design and delivery of high-impact science education. Our mission is to provide educators with the tools and expertise required to foster deep inquiry and scientific literacy in the primary classroom.

## PROVEN GLOBAL IMPACT

- **4 Million+ Students**

Our programs have been delivered to students across Australia, the USA, and over 40 countries via live video conferencing and in-person workshops.

- **Corporate & Government Partnerships**

We provide STEM outreach for leading organisations, including the NRMA, Optus, the GWS Giants and many more

- **Award-Winning Pedagogy**



## EXPERT LEADERSHIP: BEN NEWSOME CF

Ben Newsome CF is a qualified science teacher, 2013 Churchill Fellow, and founder of Fizzics Education. Having reached over 4 million students, his work has earned the UTS Chancellor's Award for Excellence and a spot as an ASETNSW Ambassador. Author of 'Be Amazing!' and host of the FizzicsEd Podcast,



Ben serves on international boards such as Educating for Leadership (Alaska) and as a board advisor to the Center for Interactive Learning & Collaboration to advance global STEM learning.