

# Low-Cost Experiments in STEM Education

Alex Black | Let's Think Forum Council | UK

## Predict-Explain-Observe

Simple experiments to stimulate student thinking

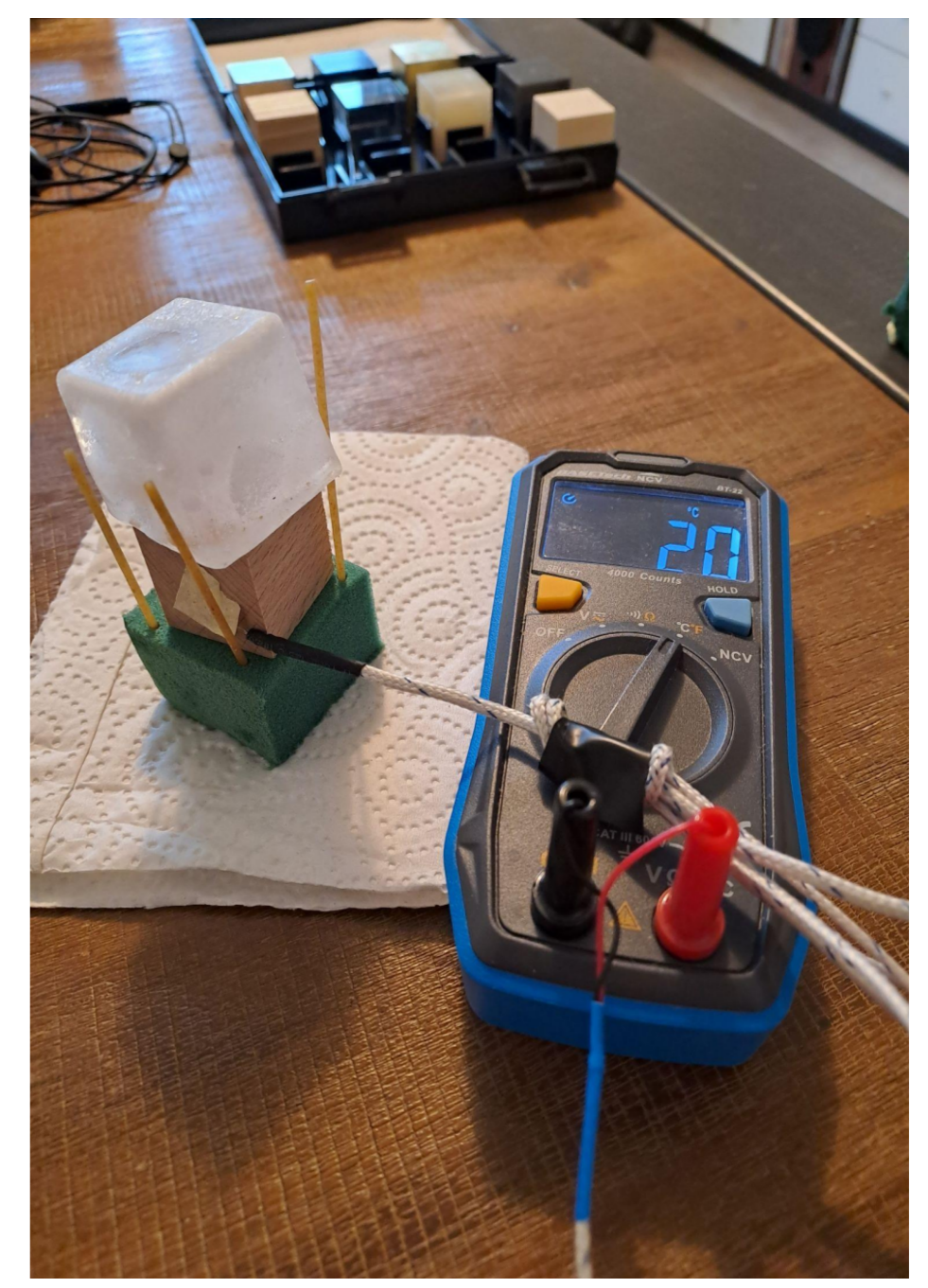
This project uses simple experimental stimuli from the Cognitive Acceleration through Science Education (CASE) intervention.

Each activity presents a practical problem that are easy to understand in **concrete preparation** for the challenge to students in making predictions and explanations of what will happen next. The observations will often cause fruitful **cognitive conflict** and the need for new explanations which will be developed by small group and teacher led **social construction**.

Each experiment will then allow opportunities for students to monitor and evaluate what they thought they knew and how a more abstract and formal model of the phenomena is needed to explain the variety of observations. This **metacognition** should allow students to **bridge** this new understanding to new situation.

**Lessons** on density, forces, changes of state and thermal conductivity. They are used to develop thinking schema e.g variables, equilibrium, compound variables and formal models.

**Making predictions about simple but important stimuli can lead to increased attention, insightful discussions and deeper knowledge.**



Lessons



Community resources



Let's Think

