Boyne Island Environmental Education Centre

"Empowering Extraordinary Minds"

Overview

Heat it Up — Year 3 Program

'Heat it up' is a scientific program that engages students through many hands-on learning opportunities related to heat. The day commences with a visit from 'Reg the Bushman' who is experiencing difficult boiling his tea around the fire and poses some questions to the students regarding heat.

Session 1 – Students meet in the Bushcooking Hut to discuss Aboriginal and Torres Strait Islander practices to care for country through fire management as well as traditional methods to start a fire. Students also learn about the science of fire and safe practices around fires. In small groups, students build their own camp fire after collecting sticks and leaves from the surrounding area. After lighting the fires, students make and cook their own damper as well use infra-red thermometers to record the temperature of the fires.

Session 2 - Students conduct scientific experiments to investigate conduction by exploring heat transfer. With guidance, students develop fair tests and are encouraged to have safe work practices during their scientific investigations. They predict results and suggest possible reasons for their findings. The first investigation involves melting butter on spoons made from different materials. The second investigation involves exploring the different types of solar ovens then using S.T.E.M. to create their own solar oven to observe the effects on chocolate when heated over a period of time.

The day is concluded with a visit from 'Reg the Bushman' to check in on their learning for day.

Curriculum Intent

Science

Science Understanding

Chemical sciences

- A change of state between solid and liquid can be caused by adding or removing heat (ACSSU046)

Science as a Human Endeavour

Nature and development of science

- Science involves making predictions and describing patterns and relationships (ACSHE050)

Use and influence of science

- Science knowledge helps people to understand the effect of their actions (ACSHE051)

Science Inquiry Skills

Questioning and predicting

- With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (ACSIS053)

Planning and conducting

- With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment (ACSIS054)
- Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (ACSIS055)

Processing and analysing data and information

- Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSIS057)
- Compare results with predictions, suggesting possible reasons for findings (ACSIS215)

Evaluating

- Reflect on investigations, including whether a test was fair or not (ACSIS058)

Communicating

- Represent and communicate observations, ideas and findings using formal and informal representations (ACSIS060)

General capabilities

- Literacy
- Numeracy
- Critical and Creative Thinking
- Information and Communication Technology (ICT) Capability

Cross-curriculum priorities

Aboriginal and Torres Strait Islander Histories and Cultures

Country/Place

- OI.2 Aboriginal and Torres Strait Islander communities maintain a special connection to and responsibility for Country/Place.

Culture

- OI.5 Aboriginal and Torres Strait Islander Peoples' ways of life are uniquely expressed through ways of being, knowing, thinking and doing

Itinerary

Learning Intentions:

WHAT… are we learning?

- *Heat* is energy that can be observed, measured, transferred and produced in many different ways
- *Apply* our knowledge of materials and the behaviour of heat to complete investigations about heat transfer

WHY … are we learning this?

- Science explains how the world around us works and uses investigations to answer questions
- To learn about safe practices and fair testing during scientific experiments

HOW … will you know you're successful?

I can…

- *Create & observe* heat through bush cooking using safe practices
- *Measure* heat using scientific tools
- *Predict, conduct, and record* results in scientific experiments
- *Suggest explanations* about heat transfer

*Suggested Timetable of the day (subject to change)

	TIME	ACTIVITIES
EMPOWERING EXTRORDINARY MINDS	8:45am	Welcome & Induction Australian Curriculum focus: WHAT WHY HOW Pre-test data collection Heat spoon experiment (Predict/Test/Explain)
	9:15	**Morning Tea (+)**
	9:30	Butter conduction investigation Solar ovens Fair test: Cows Moo Softly Choc melting STEM activity Insulator and Conductor game
	11:15	**Lunch(+)**
	12.00	Bush Cooking • Conductors • Science of fire • Aboriginal & Torres Strait Islander perspectives
	1.45	Revisit Australian Curriculum focus: WHAT WHY HOW

		Review Goal Setting & complete Post-test BIEEC feedback
	2.15	Students depart (+)
	*Denotes – activity taken by BIEEC staff with visiting school staff support # Denotes – activity taken by visiting school staff with BIEEC staff support + Denotes – activity taken by visiting school staff	

Students and adults will need:

- Closed in shoes
- Sun-safe clothing and hat
- Sunscreen and insect repellent already applied
- Water bottle
- Morning tea and lunch (litter-free)

Litter-free Lunch:

We encourage students and staff to pack a litter-free lunch. Everything in it can be re-used, composted or recycled. Drinks are brought in refillable bottles.