

# Overview-Classroom Activities

## 4<sup>th</sup> Grade Electricity, Circuits & Thermal Energy



### Electricity & Circuits

Lesson	Lesson Materials	NEED Curriculum & Additional Resources
Lesson 1: Open & Closed Circuits	Energy Batons (5)	<i>Elementary Energy Infobook</i>
Lesson 2: Electricity Conductors & Insulators	Student Worksheet; Not included: Samples of electric insulators & conductors	
Lesson 3: Circuits	Snap Circuits Jr. (5); Batteries for Snap Circuits (10);	

### Thermal Energy

Lesson	Lessons & Activities	NEED Curriculum & Additional Resources
Save the Penguins Lesson 1: Introduction to Thermal Insulation	Student Worksheet; Digital Thermometers (6); Not included: Pop or water, samples of insulators, brown paper lunch bags, Handouts-Direction of Thermal Energy Transfer/Arrows, Insulation Samples	<i>EnergyWorks Teacher &amp; Student Guides</i>
Save the Penguins Lesson 2: Thermal Transfer by Conduction	Student Worksheet; Metal spoons (15); Plastic spoons (15); Penguin Ice Cube Tray	
Save the Penguins Lesson 3: Penguin Dwelling Design & Construction	Student Worksheet; Penguin Ice Cube Tray, Balance, Plastic Condiment Containers (25); Not included: Rulers, tape/glue, scissors, tongs, dwelling building materials	
Lesson: Ice Melting Blocks	Melting Blocks	

Student Worksheets, Teacher Lesson Plans and Pre/Post Polls are available at:

[www.ohioenergy.org/educators](http://www.ohioenergy.org/educators)

NEED Curriculum in PDF format is available at:

[www.need.org](http://www.need.org)