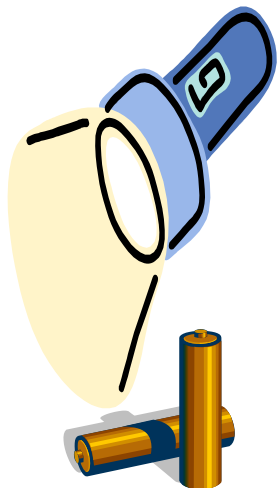


Cool Cubbies Project: Energy teaching Notes



Batteries store the energy that makes the torch work.

What is energy?

Energy is what makes things work. It is so much a part of life that we often use it without thinking, especially when it's in the form of electricity. We use energy everyday to grow food, run our cars, and make electricity. Energy comes in many forms, like batteries, wind, sunlight, food, or petrol. Some types of energy can be used over and over, like solar energy from the sun or wind power. They are renewable forms of energy. Other types of energy cannot be replaced, like coal, which is formed over millions of years from the remains of plants and animals. Coal, like gas and oil, are non-renewable forms of energy. This means that they are limited and may run out.

Where does energy come from?

At present, most electricity in Australia comes from coal-fired power stations. The burning of fossil fuels, such as coal, is a major contributor to the increase in carbon dioxide concentrations in the atmosphere. This contributes to the 'greenhouse effect' and enhances climate changes, which can have a detrimental effect.

Responsible use of our valuable energy resources of coal, oil and gas is critical. Also important, is research into sustainable and renewable energy sources, like sun, wind, water and the tides. In addition, reducing wastage through energy efficiency is seen as a primary means to reduce the emission of greenhouse gas. For every thousand kilowatt hours we save, a whole tonne less carbon dioxide will be released into the air.

Sustainable energy management actions

To reduce and manage energy wisely at your centre, consider these action ideas:

- ✓ Choose appliances with a high energy rating (four stars or higher).
- ✓ Turn off appliances at power points each night or install timers. Remember tea urns and water coolers.
- ✓ Use compact fluorescent light globes and tubes.
- ✓ Turn off the lights when there is no one in the room.
- ✓ Make use of natural light whenever it is available.
- ✓ Use sensor lights instead of timed lights.
- ✓ Only heat or cool the areas you need to.
- ✓ Close internal doors and curtains where possible to prevent heat or cool loss.
- ✓ Install curtains on windows to block out cold or heat.
- ✓ Block out drafts under doors with weather strips or door 'snakes'.
- ✓ Ensure staff and children dress for the weather.
- ✓ Create a 'cosy corner' for children in winter.
- ✓ Use ceiling fans to cool the room or distribute heat.
- ✓ Shade the western side of your building in summer with awnings or vegetation.
- ✓ Make use of cross-ventilation wherever possible.
- ✓ Regularly clean and service air-conditioner filters.
- ✓ Regularly service heaters and keep them free of dust and fluff.
- ✓ Turn hot water systems off when the centre is closed for holidays.
- ✓ Install a solar hot water heater.
- ✓ Have windows double-glazed to keep it cool in summer and warm in winter.
- ✓ Insulate exposed hot water pipes.
- ✓ Install insulation in the roof (and walls if possible).
- ✓ Use the hot plate that matches the size of your pot.
- ✓ Keep lids on pots as much as possible when cooking.
- ✓ Reuse or recycle wherever you can (manufacturing consumes a lot of energy and water).



Eating healthy food gives us the energy to play.



The sun gives the flower energy to grow.



- ✓ Only turn the dishwasher on when you have a full load.
- ✓ Repair damaged fridge seals. Regularly defrost fridge (if required) and turn it off during holidays.
- ✓ Clean coils at back of fridge to remove any dust.
- ✓ Only turn the washing machine on when you have a full load.
- ✓ Do not overload the washing machine or dryer, and clean filters regularly.
- ✓ Use cold water in the washing machine whenever possible.
- ✓ Hang clothes on clothesline whenever possible.
- ✓ Buy a battery recharger and replace used batteries with a set of rechargeable batteries.
- ✓ Turn off computers when they are not in use.
- ✓ Choose a photocopier that can do double-sided copies, and that has a stand-by facility.

Program ideas

Movement or music sessions – ‘The wind is passing by’, use scarves and other floating materials outside.

Stories – Picture story books and poetry. Tell the story of a stormy night when the power went off and nothing was working in the house.

Creative arts – Make pin wheels and display them somewhere inside where they catch the breeze.

Centre walks – Walk around your centre with the children and place energy stickers (draw) on items in the centre that use energy. Talk about how energy can be saved with this item or use. These stickers will also act as a reminder for everyone of the commitment made in the centre towards saving energy on a daily basis.

Interest table – A collection of toy cars, trains, ships, etc. with photographs of power lines, power stations, oil rigs, petrol pumps, etc.

Sensory – Set up a collection of materials on a sunny table and see how they change with sunlight on them, e.g. black plastic, shiny tin, wool, wood, foil, etc. Set up a thermometer and record the temperature on a chart from time to time. Make sure they do not get too hot to touch!

Dramatic play – Provide materials to make ears or tails of local native animals, e.g. swamp wallaby, pelican and humpback whale. Act out how they move and how they feed. Discuss what they eat. i.e. where they get their energy.

Science – Handle, discuss and sketch devices like see-through torches, battery-less torches, solar-powered calculators and battery operated toys. Set up an experiment growing seeds in the light and in the dark.

Teachable moments – In the garden to demonstrate how plants use the sun’s energy to grow. At the clothesline, the clothes are drying without electricity. A cloud covers the sun and it gets dark. At morning tea we eat healthy food to give us energy to play again. Lizards warm up in the sun.

Website

- Energy Kids Page: Energy facts, fun and games. <http://www.eia.doe.gov/kids/>