

8. Solar World

Opening

Start by standing in a large circle spread out as much as possible. Walk in slowly, holding hands as girls can reach. Explain to girls that we are going to 'Solar World' to use the sun for lots of activities.

HEAT UP A MEAL USING A SOLAR COOKER

Cereal box toaster

Cut a large window out of one side of a cereal box and line the inside with aluminium foil. Put the cooker in the sun and toast food on a skewer. Try a piece of cheese wrapped with ham. Marshmallows are another good choice.



Pizza box oven

You will need a pizza box, foil, plastic wrap, black poster paper and newspaper, scissors and tape.

1. Cut the lid to make a flap with a thick edge left uncut. Cover the flap with foil on the underside. Open the lid and tape a double layer of plastic wrap on the underside of the lid.
2. Line the base and sides with black poster paper. Roll newspaper and cut it to fit along each side, cover with foil. The black paper and newspaper are to keep the heat in.
3. To set up, sit the pizza box on the ground with the lid catch facing the sun. Lift the lid flap so sunshine hits the foil and bounces into the box. A ruler or stick can be used to prop the flap open.

4. Pizza box cookers will reach about 100 degrees on a sunny day. Make sure the cooker is always facing the sun, the flap is reflecting light through the plastic and that the lid is shut well to keep the heat trapped inside.

This oven is hot enough to heat up a cheese roll (cheese and tomato sauce melted on a tortilla then rolled up), apple dessert (thin apple slices sprinkled with sugar and cinnamon) or a cup of soup (pour the prepared soup into a zip lock bag). It will take about an hour to do this, so set it up and do something else while you wait.

The pizza box oven will cook slow cooker recipes if it is sunny all day – things like a casserole of rice, chicken chunks and vegetables.

Wheelbarrow cooker

You will need a wheelbarrow (shallow ones work really well), lots of foil, a piece of glass (to cover the top of the wheelbarrow) and a cake rack.

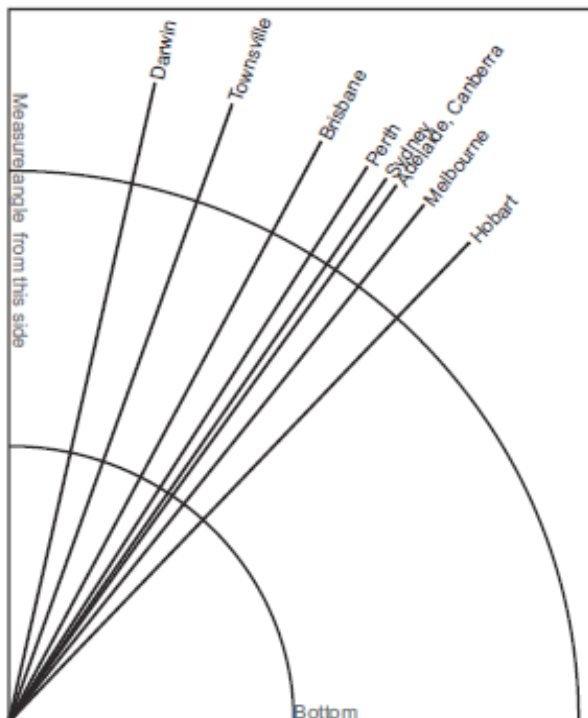
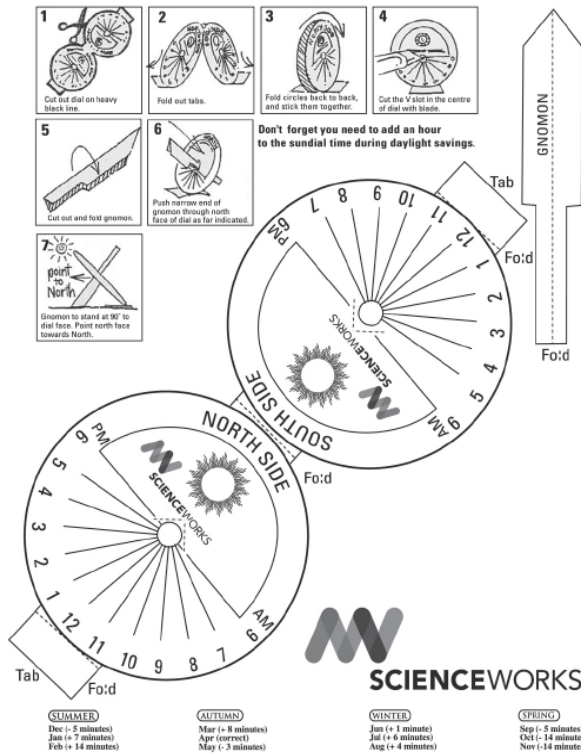
1. Cover the inside of the wheelbarrow with foil.
2. Sit the rack on the foil floor.
3. Place food on the rack (things like the suggestions above).
4. Place the glass on top.
5. Sit the wheelbarrow so the maximum heat hits it from the sun.



SUNDIAL

Make your own sundial.

Tell the time anywhere around Melbourne



Sundial

A sundial uses the sun to tell the time. It is based on the fact that the sun is east at 6am, is north at 12pm and west at 6pm.

The angle of the sun depends on how far you live from the equator, so you will need to tilt your sundial at an angle depending on where you live. In this pattern, the gnomon is the right length for Melbourne. You will need to make the thick part shorter or longer depending on where you live.

Signalling

On a sunny day, a mirror can be used to flash light across an open space. Set up one person on the southern side of a field holding a mirror. A second person stands to the north. The mirror is tilted so it faces away from the second person then back their way. This will make a flash of light. Practise until the light flashes are about equal each time.

The flashes can be used to send Morse code messages. How about the distress signal S.O.S? Or can you send your name?

Morse

A . -	J . - - -	S . . .
B - . . .	K - - -	T -
C - . - .	L . - . .	U . . -
D - . .	M - -	V . . . -
E .	N - .	W . - -
F	O - - -	X - . . -
G - - .	P . - . .	Y - - - -
H . . .	Q - - . -	Z - - . .
I . .	R . - .	

Solar Hot Water

You will need a long plastic pipe that is a dark colour (black is best but dark green garden hose also works well). You will also need a hose tap and some way of filling the hose with water. Fill the hose then close the tap. Leave the water-filled hose in the sun. After a few hours the pipe will be full of hot water.



SUN AND GAMES AT 'SOLAR WORLD'

Here are some things to do while you are waiting for your solar cooker to do its job.

Ice Blocking

A warm sunny day is an ideal time to use a block of ice for some fun!

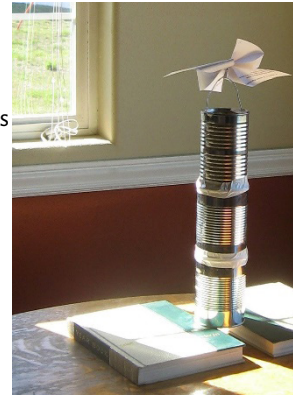
You will need a grassy slope, a large block of ice (freeze water in a large ice cream container) and a large bag or a square of carpet the same size as the ice (ask a carpet shop for a sample).

Magnifier Fire

Hold a race to use magnifying glasses to light a piece of paper. Can you char the paper to draw an image such as a sun shape? Remember to have a bucket of water close by in case the fire gets out of hand.

Solar Windmills

1. Find three metal cans, take off the labels and use a can opener to remove both ends on each one.
2. Tape the cans together to make a tower.
3. Fold a loop of wire (a large paperclip opened up works well) and tape it on top of the tower.
4. Tape a thumb tack to the wire, pointy end up.
5. Fold a paper pinwheel and balance it on the pin.
6. Sit the tower in the sun and the heated air inside the cans will rise and make the paper spin.



Shadow Puppets

Make some black outlines of creatures and tape them onto icy pole sticks. There are also shapes you can make by holding your hand in certain ways e.g. a rabbit.

Find a light coloured wall and make shadows on its surface. Invent a play using your puppets.



Closing

Stand in a circle and sing 'This Little Guiding Light'. Finish with Taps.