



Do-it-yourself parabolic solar cooker

Model: CosmoPoliticalCoop_SolarCooker 1

1. Key features

The do-it-yourself solar cooker proposed by the CosmoPolitical Cooperative is:

- very easy to make ;
- very cheap ;
- very powerful ;
- very quick to assemble and dismantle;
- very compact to store.

2. Materials required

To **make** our solar cooker, you will need :

- a 1 m x 1 m **square of flexible mirror, either commercially available** or self-made (see § 3.1). A smaller surface is possible. In this case, keep the square shape and reduce all the dimensions of the plane in the same proportion as you reduce the side of the square. We recommend that the side of your square remains larger than 50 cm ;
- **8 desktop-style clips** (see illustration below) ;



- 1 roll of 5 cm wide **adhesive tape** for wrapping boxes;
- **2 solid terracotta bricks** measuring approximately 5 cm x 10 cm x 20 cm.

To **use** our solar cooker, you will need :

- a transparent plastic **cooking bag** resistant to a temperature of 150°C ;
- a **black** metal cooking pot approximately 20 cm in diameter and 10 cm high.



To **stock** our solar cooker, you will need :

- a **square of soft fabric** (e.g. an old sheet) measuring approximately 1.20 m x 1.20 m.

3. Preparation

3.1 Option: manufacture of the flexible mirror

3.1.1 Materials required

To **make** the flexible mirror **yourself**, you'll need..:

- a square of non-corrugated cardboard measuring 1 m x 1 m, between 1 and 2 mm thick;
- A tube of glue suitable for bonding aluminium;
- a roll of aluminium foil.

3.1.2 Production

Cut the aluminium foils into squares (approximately: the intention is to make gluing easier, not to be precise about dimensions). There should be enough aluminium squares to cover the entire surface of the cardboard square. For a cardboard surface of 1 m x 1 m, and a roll of aluminium 30 cm wide, we recommend 12 sheets, each 30 cm x 34 cm.

Apply the adhesive to the cardboard according to the manufacturer's instructions, over an area corresponding to a square of aluminium foil, starting with the top left-hand corner of the cardboard. Then apply the aluminium foil to the glued surface, as indicated in the glue instructions.

Then repeat the operation on the square surface of the cardboard next to the one you have just covered with aluminium foil, from left to right, then from top to bottom, until you have covered the whole cardboard with aluminium foil. Make sure your aluminium sheets overlap a little to make sure you cover the whole surface of the cardboard.

3.2 Manufacture of the reflector

Use the figures in the document **CosmoCoopSolarCooker_Pict** :

1. Cut the flexible mirror along the continuous lines shown in **Figure 1: Cut** ;
2. Mark the non-reflective side of the mirror as shown in **Figure 2: Backside marks** ;
3. On the non-reflective side of the flexible mirror, place 16 strips of adhesive tape the length of which corresponds to the diameter of the central disc, starting with a cross of vertical and horizontal branches, then a cross inclined at 45° (quarter turn), then two crosses inclined at 1/8° and 3/8° turns, as shown in **Figure 3 Backside adhesive tape - 1**. The central disc is now almost completely covered with adhesive tape;
4. On the non-reflective side of the flexible mirror, place 8 strips of adhesive tape twice as long as their width at the end of the cut-outs at the edge of the central disc, as shown in **Figure 4 Backside adhesive tape - 2**.

Your reflector is ready to be installed to cook your first dish!



If you don't use it straight away, we advise you to store your reflector in accordance with the recommendations in § 6.

4. Installation for cooking

1. Place the food you want to cook in the black metal pot, then put the whole thing in the cooking bag.
2. Place the reflector in the position where you want to cook, with the reflective side facing up and one side of the square facing the sun (the sun's rays arrive at right angles to the side of the square).
3. Partially overlap the mirror elements on the side facing the sun, matching the marks made on the non-reflecting edge, and hold the overlapping elements together with a clip as shown in **Figure 5: Creating the parabola - 1**. The reflector begins to curve;
4. Place the two bricks on the reflective surface of the reflector, on either side of the slot you have just covered, as shown in **Figure 6: Placing the bricks**, and place the pot in its cooking bag on top of the bricks. When the sun is high on the horizon, place the bricks near the centre of the reflector. When the sun is low on the horizon, place them further away;
5. **Important! Safety advice: From now on, stand facing the sun, behind the non-reflective side of the reflector. Wear high-protection sunglasses. Do not stand facing the reflector.**
6. Continue to partially cover the reflector elements along the sides of the square, as shown in **Figure 5: Creating the parabola - 1** and in point 3 above;
7. Partially overlap the reflector elements around the corners of the square, matching the marks made on the non-reflecting edge, and hold the overlapping elements together with a clip, as shown in **Figure 7: Creating the parabola - 2**.

Your solar cooker has started cooking your meal!

5. Uninstalling at the end of cooking

When you have finished cooking, uninstall the solar cooker by following the installation steps in reverse:

1. **Important! Safety instructions: Operate from the rear of the cooker.** Perform the following operations:
 - a) open the clips on the corners ;
 - b) open the clips on the top, right and left sides ;
2. The solar cooker is now open, flat;
3. Take the pot and its bag, protecting your hands **with a high-temperature glove**;
4. Remove the bricks;
5. Open the last clip.

Your solar cooker is now open, flat and ready for storage.



6. Storage

Place the reflector flat on the floor, with the reflective side facing upwards.

Place the square of fabric over the reflective surface, so that it covers it completely, and allow the square of fabric to extend several centimetres beyond all sides of the reflector.

Fold the edge of the square of fabric over the edges of the reflector, and secure the square of fabric to the reflector with the clips:

- a clip on each corner;
- a clip in the middle of each side ;

ensuring that the pieces of reflector do not overlap.

This protects the reflective surface from scratches and keeps the reflector flat.

Store the protected reflector vertically, hidden behind a piece of furniture.

7. Licensing terms

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8. Legal information

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