

The Solar Zeppelin

A 3m long airship made from super-thin black film which rises into the air on solar energy.

413.SLS

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Black objects warm up much faster than light coloured ones when exposed to sunlight. The black film tube of the zeppelin warms up quickly and transfers the heat to the air inside. The air warms up and expands at the same time. Therefore the air inside the zeppelin has a lower density than the air outside: the inside air weighs less than the same volume of outside air – the zeppelin becomes “lighter than (outside) air” and starts rising! This is the same principle as is used in hot air balloons, only in balloons the air is heated by a gas burner.

Important notice:

This flying toy rises by solar energy and is suitable for children from the age of 6 yrs. Because of its immense flying height it should only be used under the guidance of adults. It should never be used when thunderstorms are to be expected, or in the vicinity of airfields or power lines.

Instructions:

The Solar Zeppelin can be used at any time of the year. Sunny weather conditions (temperatures below freezing are no problem) and no wind are important though.

Step 1:

Carefully unfold the tube of black film and make sure that it is not torn. Small punctures can be mended using sticky tape.

Step 2:

Bind and seal one end of the tube with a short length of the thread so that no air can escape.

Step 3:

The other end is opened wide so that air can fill the tube. This works best if you walk a few steps, holding the end open. The tube then opens out like a sausage. You can also try blowing it up carefully if you need more air.

Step 4:

Now the other end is also bound together to trap the air inside. The zeppelin should not be filled too tightly, otherwise it will burst when the air expands.

Important: From now on don't let go of the zeppelin or it might fly away! It is best to immediately tie the long string to one end.

Step 5:

Put the Solar Zeppelin into the sun and after a short while it will slowly rise. It can even carry small loads up to 5g. Afterwards, carefully open one end to squeeze the air out of the tube. Of course you can't fold it as small as it was initially, but if you carefully stow it away in a plastic bag you can use it for a long time.

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