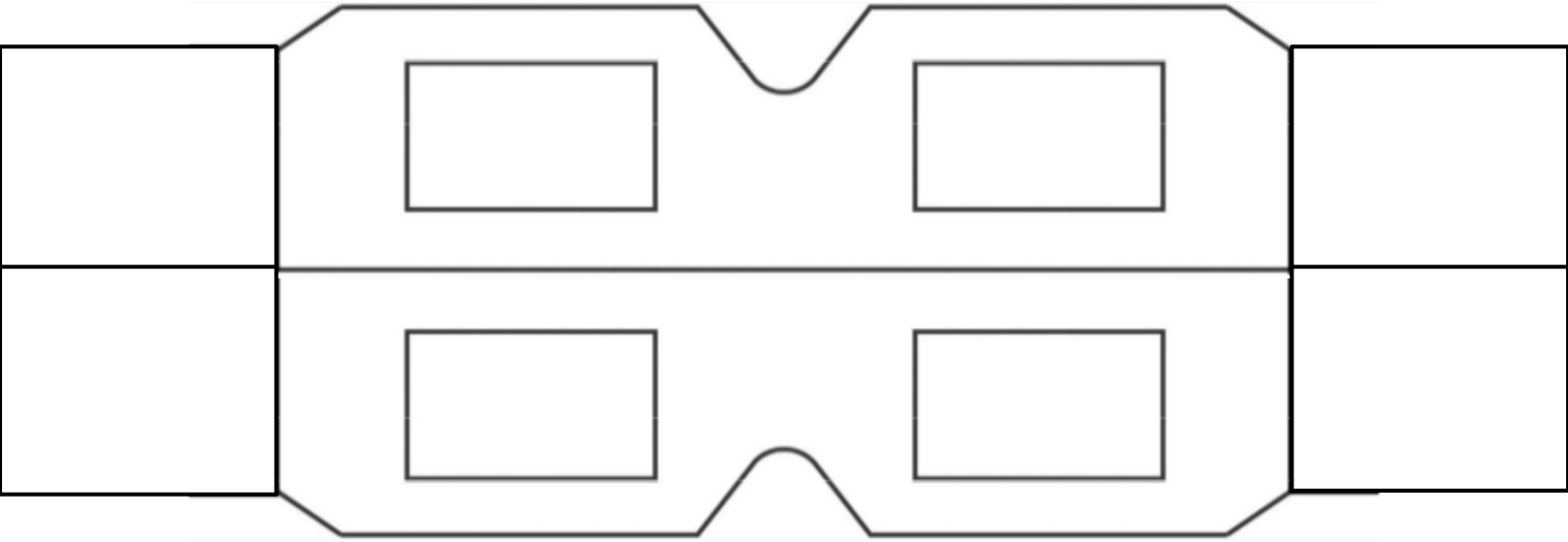
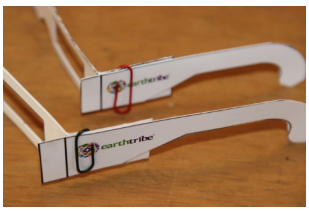
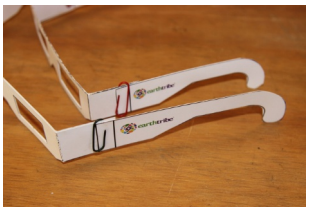
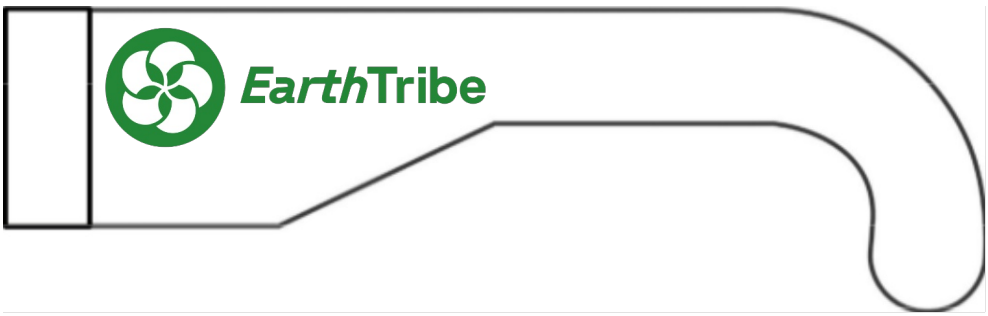


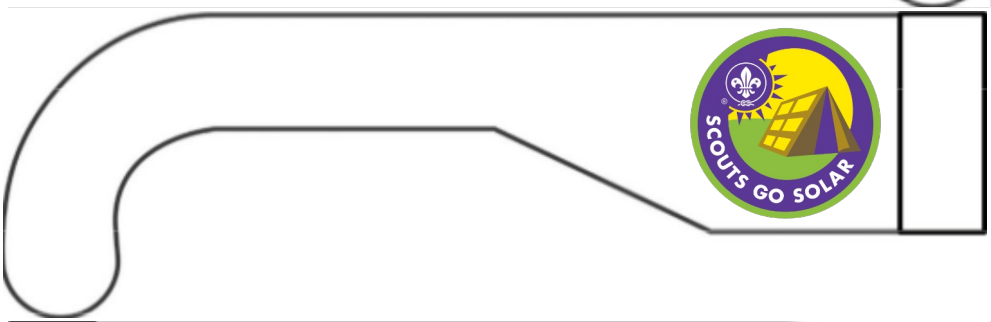
Template for sunglasses, size 100 %

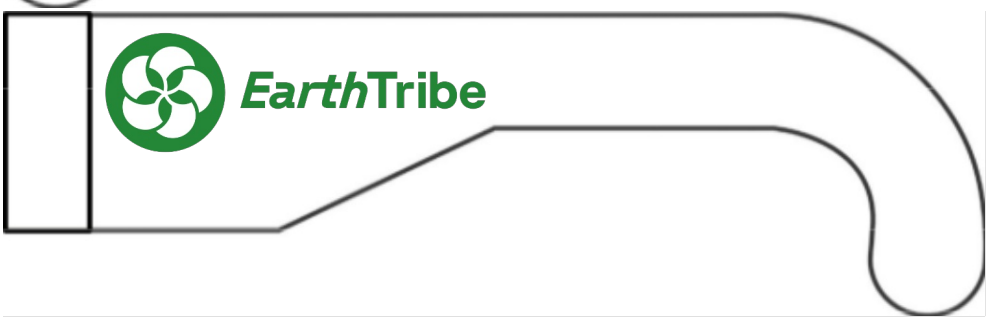


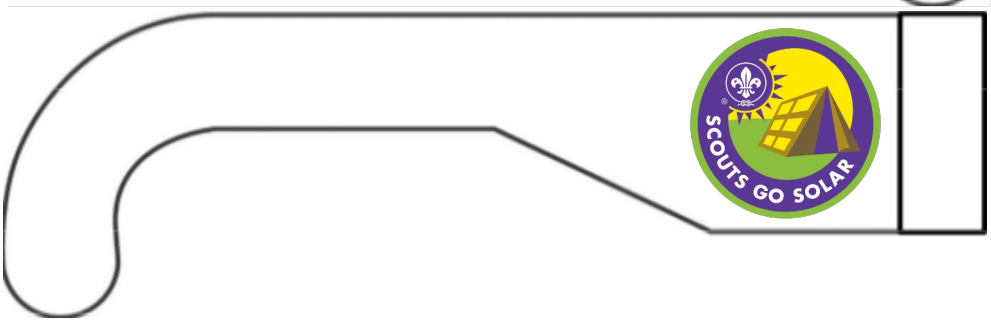


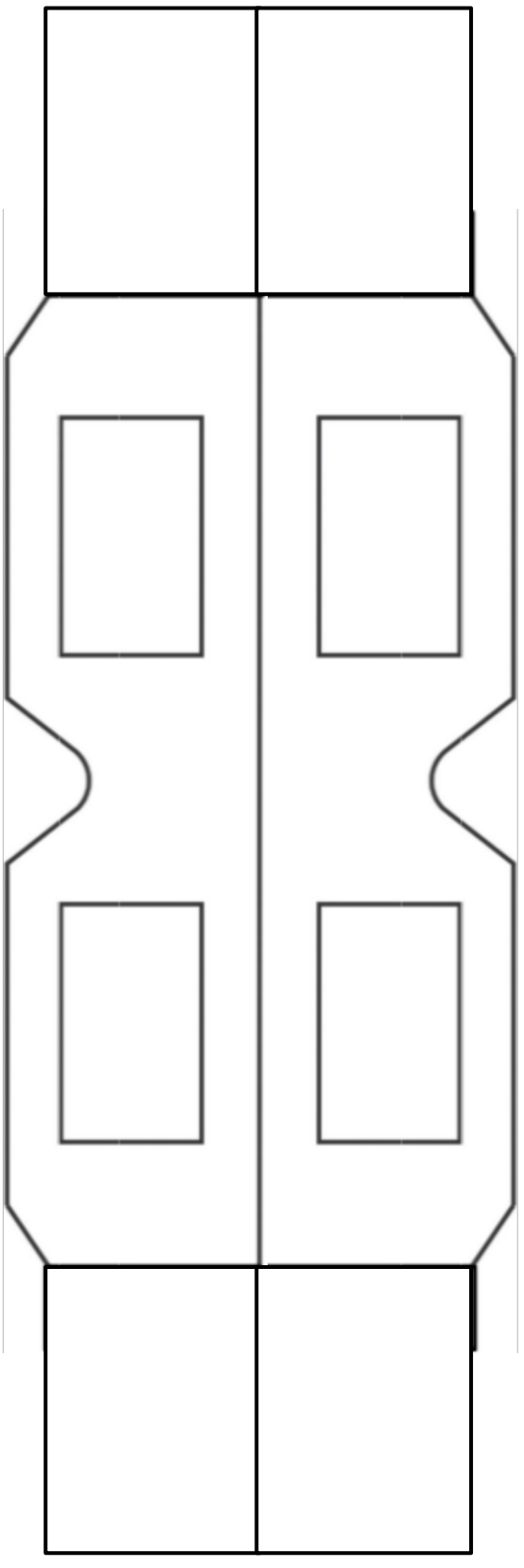
S (📎✂) **M** (📎) **L/XL** (📎)

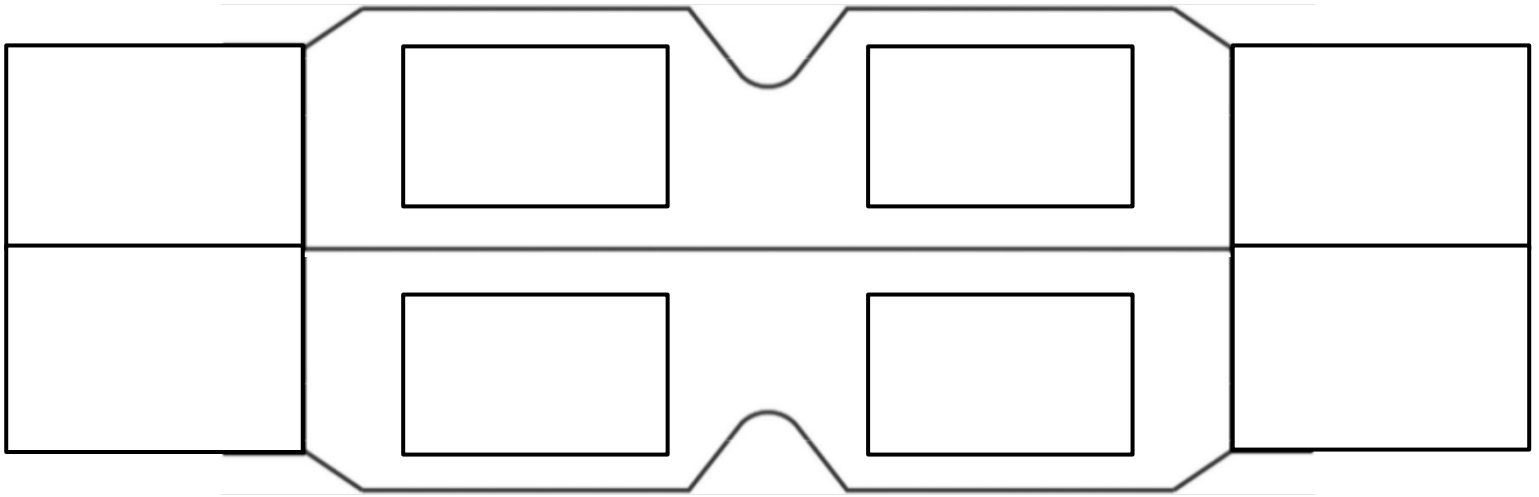




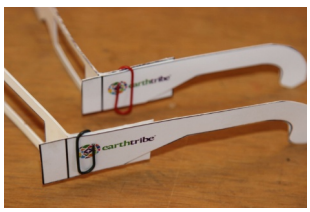


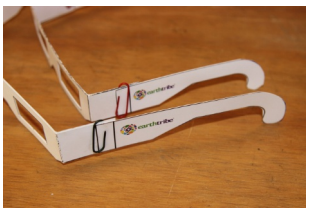




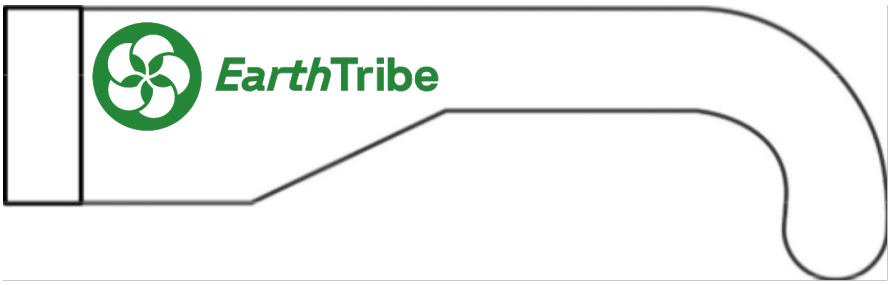


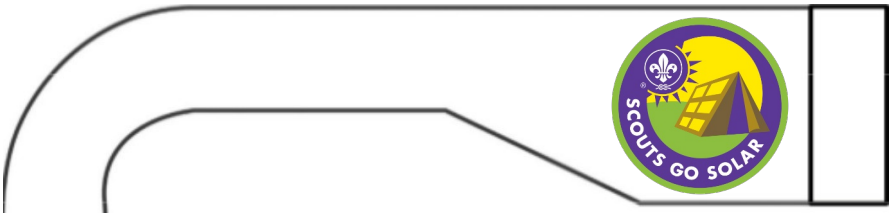
Template for sunglasses, size 90 %

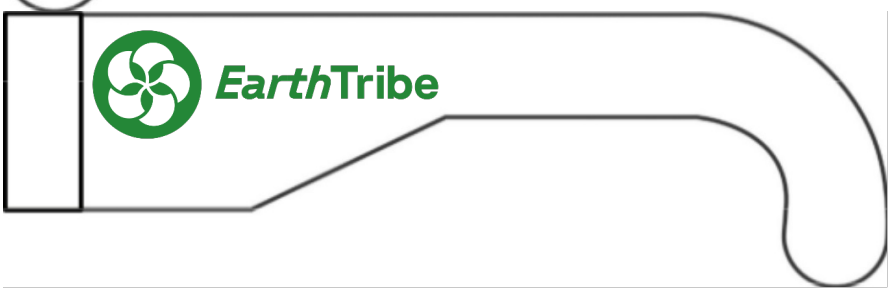


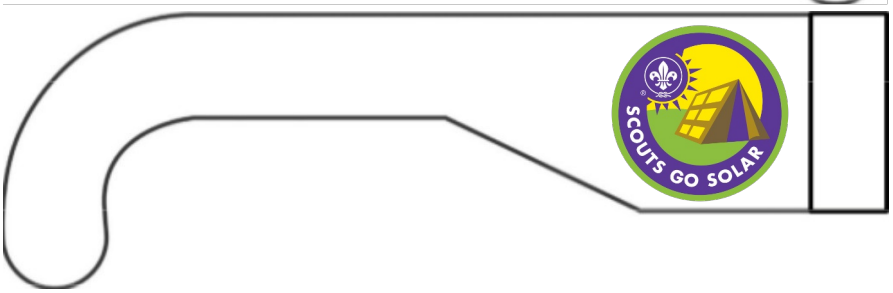


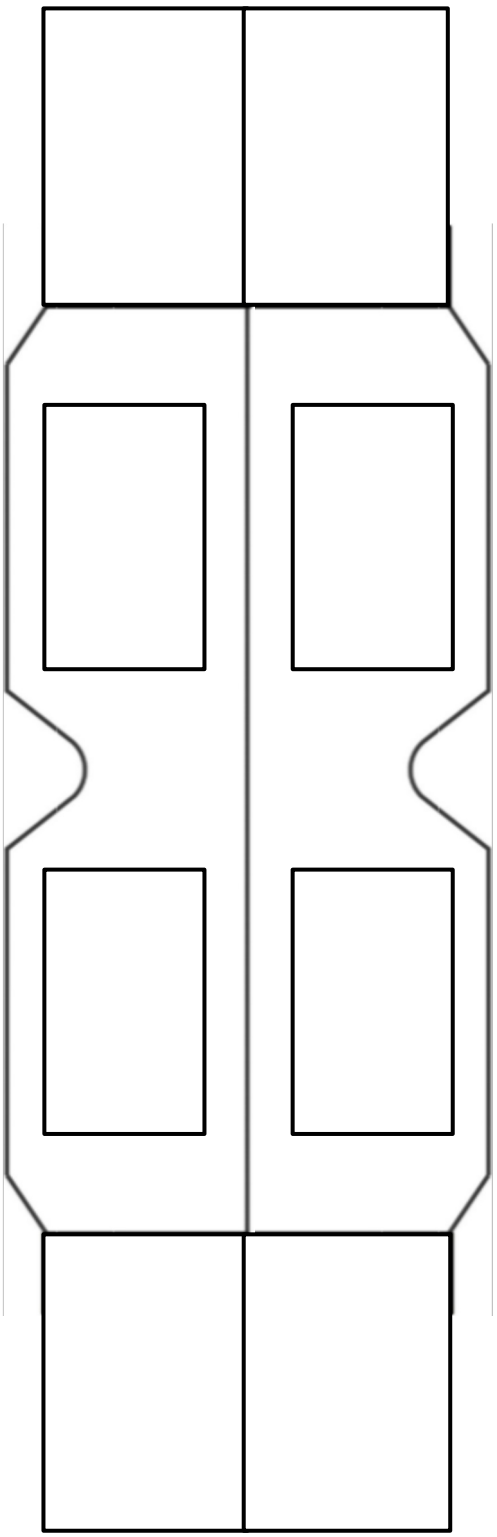
S (📎✂) **M** (📎) **L/XL** (📎)



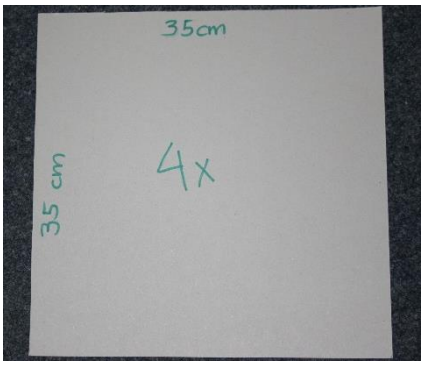






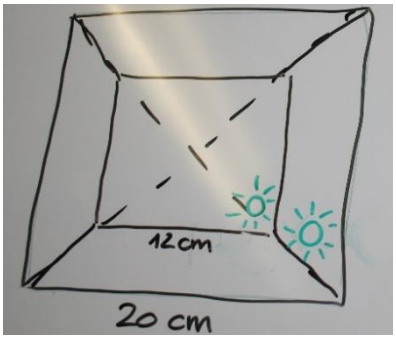


Manual on How to build a Copenhagen Cooker

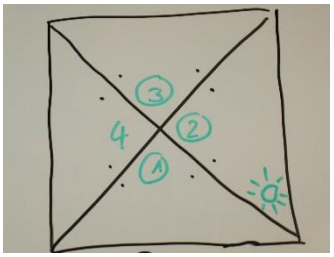


Step 1
Cut four square pieces of cardboard with the size of 35cm on each side.

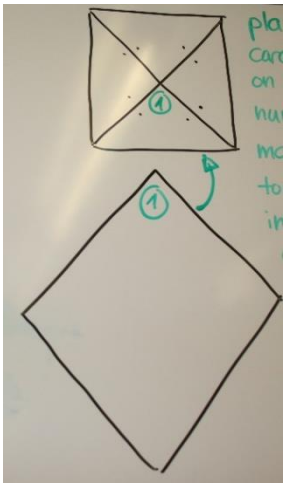
Step 2
Cover one side of each four cardboard pieces (of the size of 35x35 cm) with silver foil. (no photo available)



Step 3
Take two pieces of wooden plates: one square piece of 12 cm and one square piece of 20 cm. Put the 12 cm piece in the center of the 20 cm piece and draw two lines, which each goes from the opposite site through the center. Number each corner of both plates from 1 to 4.

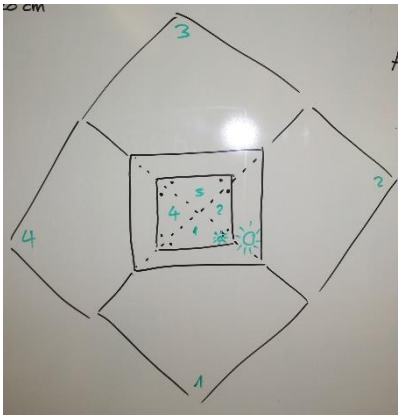


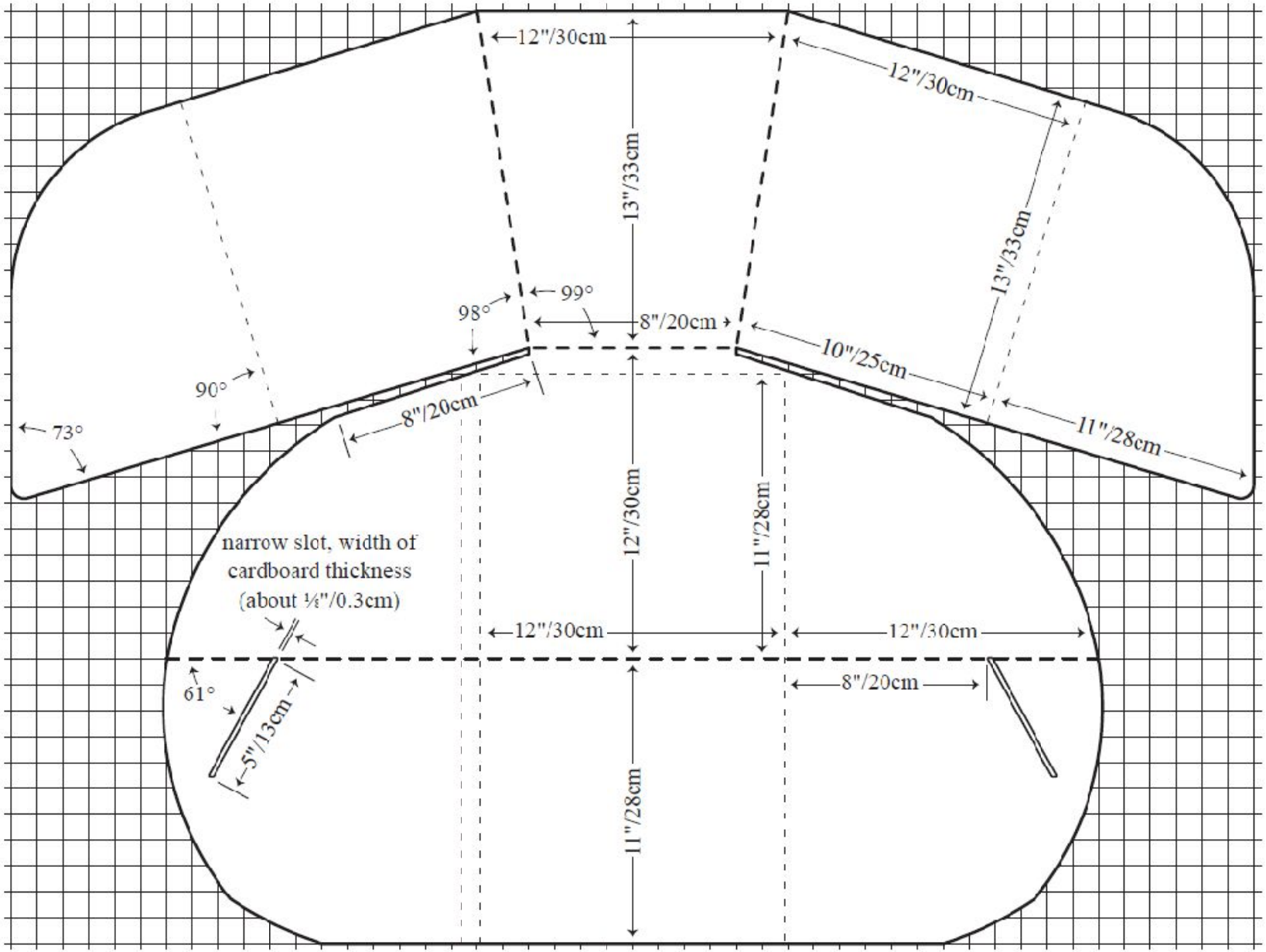
Step 4
Make sure that the numbers of the lower, bigger piece of wood correspond with the numbers of the smaller wooden piece on top. This is important, as the next step will be drilling: Hold both of the pieces tightly together (with the help of another training participant) and drill one hole at the right- hand and one at the left-hand side of each corner.

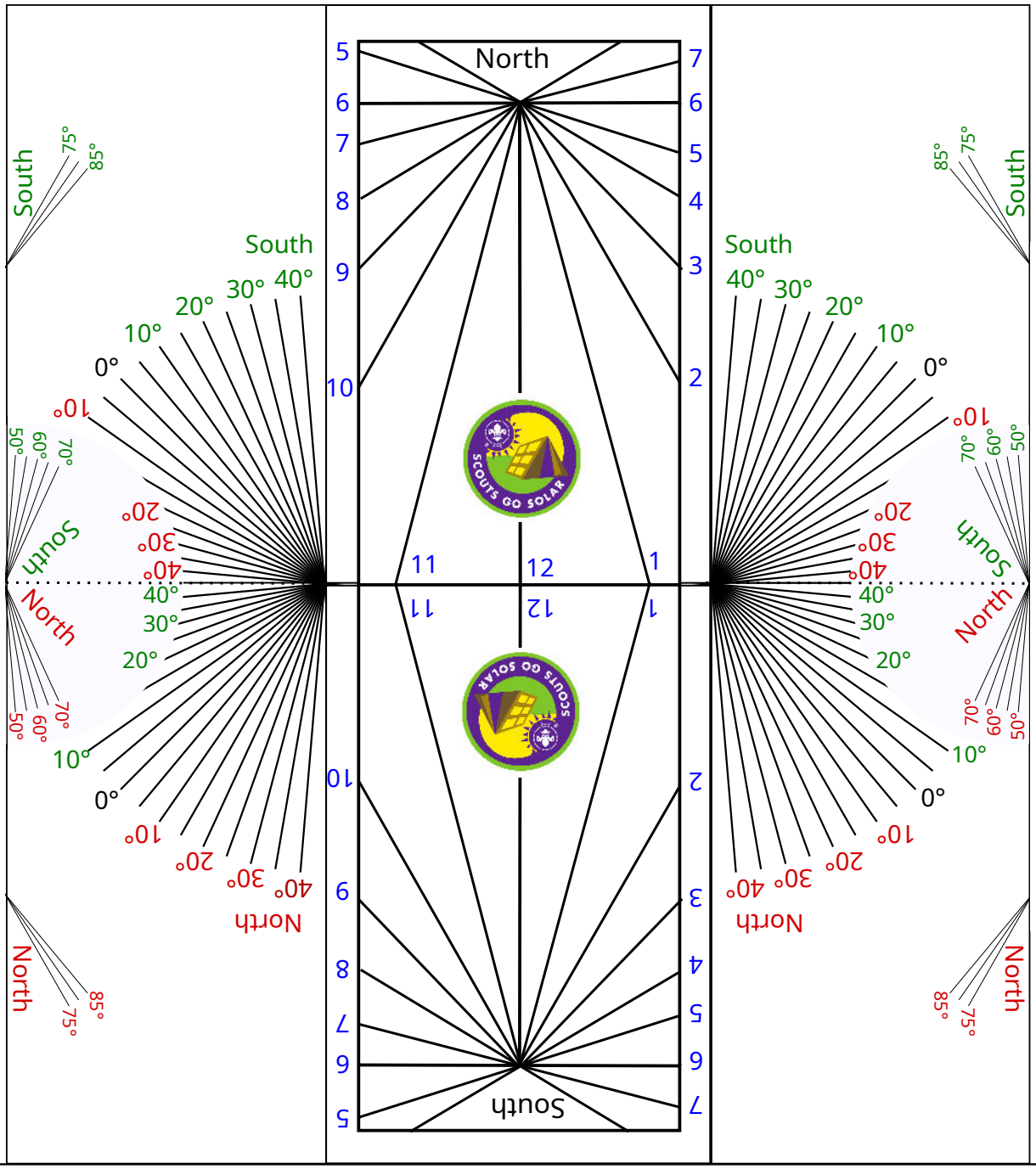


Step 5
Mark one corner of each 35x35 cardboard piece with a number from 1 to 4. Place the cardboard on the corresponding number of a wooden piece and mark where to make holes in the cardboard.

Step 6- Final Step
The assembling can start now ☺ Join the corresponding pieces of the two wooden plates and the 35x35 cardboard pieces together and attach with string. Use four clips to shape the cooker in the form of a flower.




12"/30cm
13"/33cm
12"/30cm
13"/33cm
99°
98°
8"/20cm
10"/25cm
11"/28cm
90°
73°
8"/20cm
narrow slot, width of
cardboard thickness
(about ⅛"/0.3cm)
12"/30cm
11"/28cm
12"/30cm
12"/30cm
61°
5"/13cm
8"/20cm
11"/28cm



Scouts go Solar Diptych Sundial model

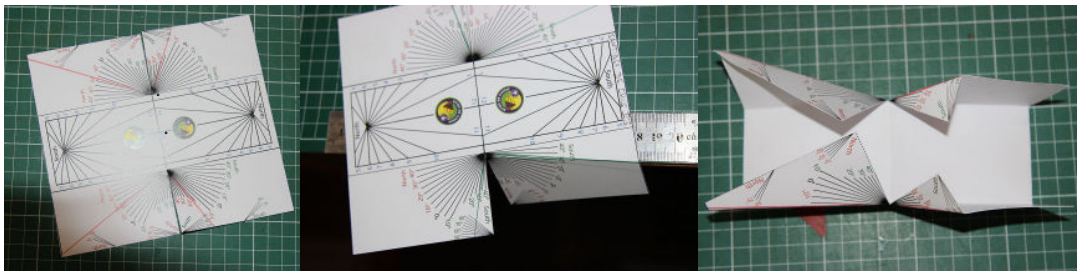
This Sundial was first designed by Dr. Allan Mills, Astronomy Group, Leicester University, UK. It was updated and redrawn by Anders Bergström and finally adapted to all latitudes by Dr. Michael Götz.

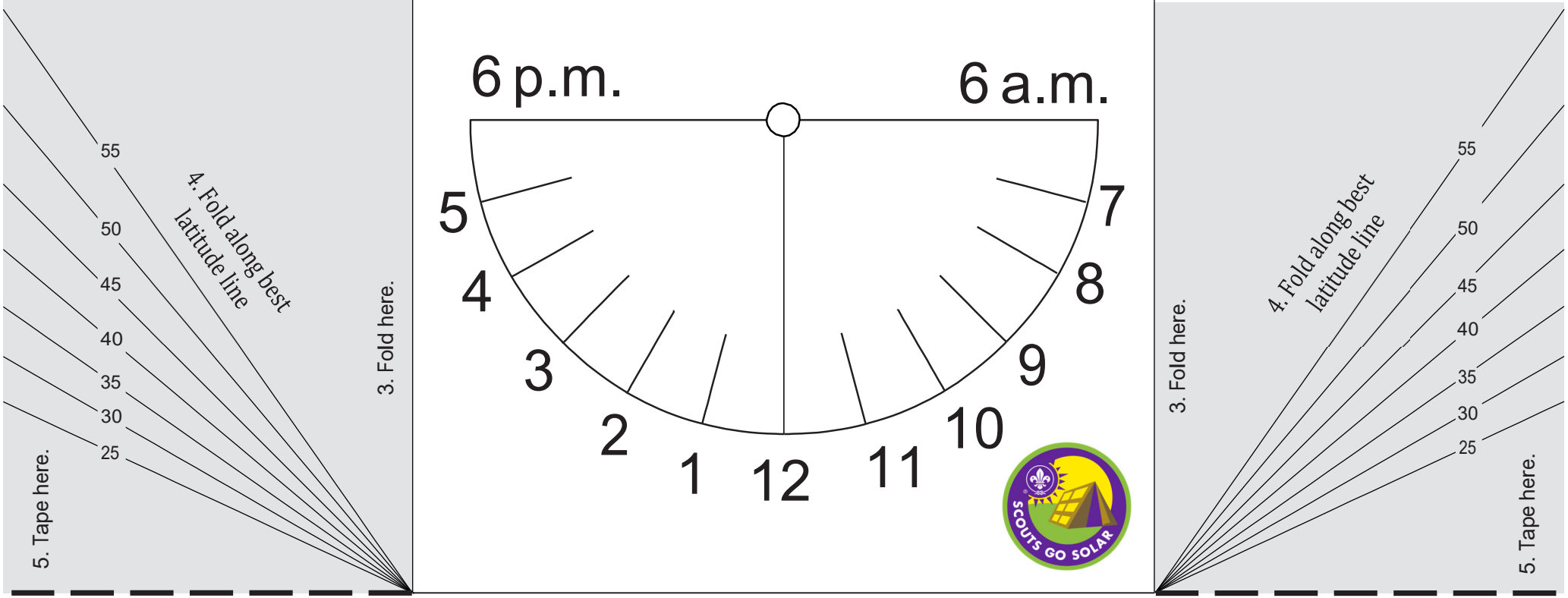
Please be cautious when handling sharp objects and tools !

Find more information here: https://sdgs.scout.org/explore/activity-types

1) Print or copy the Scouts go Solar Diptych Sundial model on paper. For sturdiness, consider pasting it on cardboard.
2) Carefully cut along the outer and pointed lines, following the instructions to create the sundial's shape
3) To customise the sundial to your location, find your latitude using an Atlas or online resources.
4) Mark lines on each side of the sundial's base corresponding to your latitude and hemisphere (from 0° to 45° North or South, you draw lines on all four side flips, from 45° upwards there are two lines to be drawn). Extend the lines to the border of the paper.
5) Fold the side flips downwards by 90°. All folds are easier to realise if bend against a metal ruler.
6) Fold the paper upwards along the horizontal central line by 90°.
7) Fold the paper downwards along the lines you drew corresponding to your latitude.
8) Correct all folds until they have an angle of 90°.
9) Create small holes where all the hour lines meet at the top and bottom of the sundial.
10) Tie a string through those holes. The shadow cast by the string will act as the sundial's pointer and tell the time. Install the string in a way that the sundial has a 90° bend in its centre.
11) We suggest to glue your sundial on this paper square (printed side facing down) which serves as base. Cut the excess length after glueing.
12) For the sundial to function, find a place where the pointer (the string) casts a shadow.

(Use the square above as base (printed side facing down))





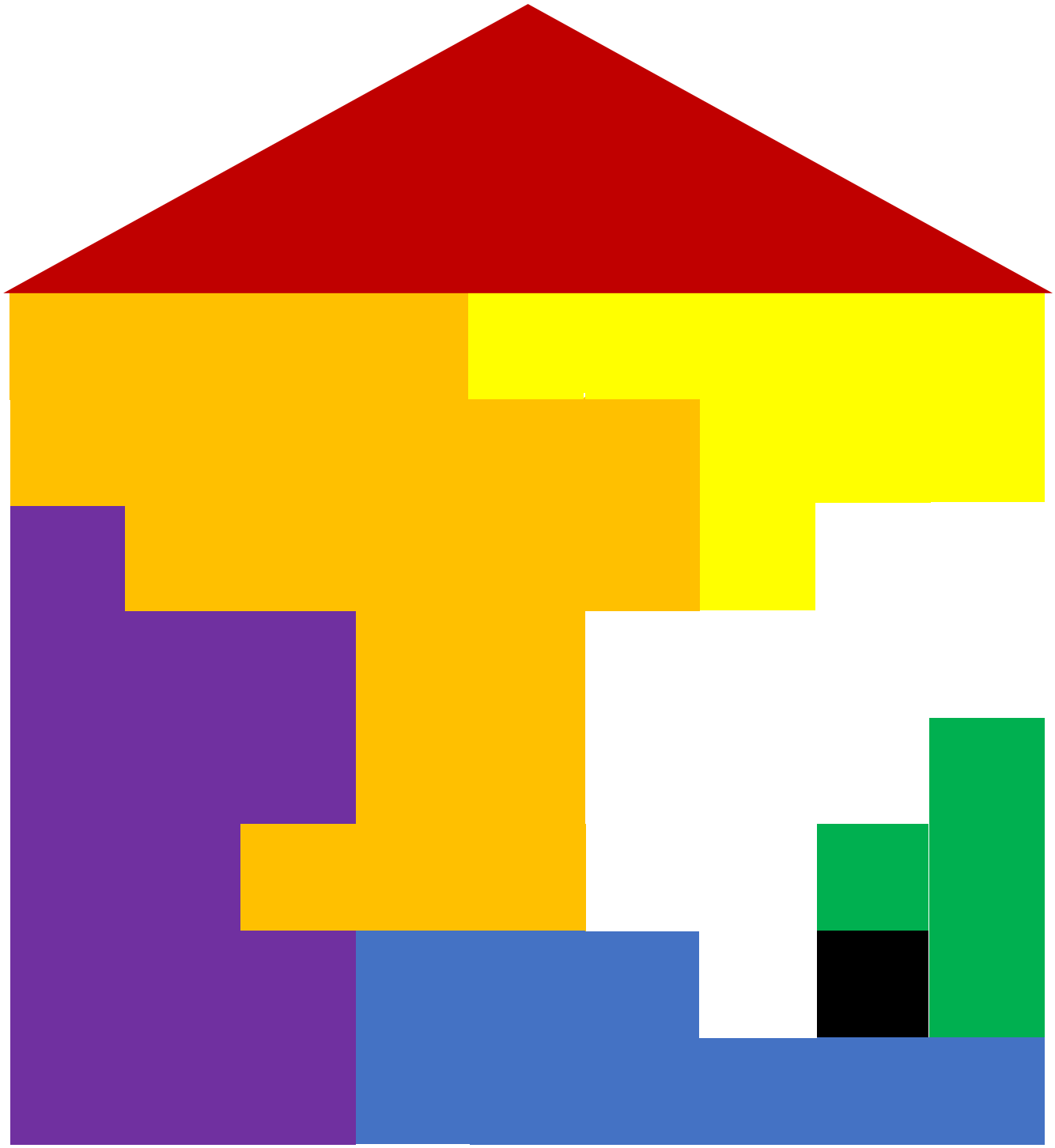
Sundial Instructions

1. Cut in from edge of paper along dotted lines. Stop at solid lines.
2. Fold along solid horizontal line with line on outside. Crease, then open flat again.
3. Fold along solid vertical lines with lines on outside. Crease, then open flat again.
4. Select the latitude line closest to your latitude. Fold with line outside, crease, and fold again with line on the *inside*.
5. Tape the paper together as shown at right.
6. Insert a sharp pencil point-first through the small circle at top center.
   Remove pencil and reinsert it with the eraser first.
7. If needed for stability or durability, tape the whole thing to a sheet of cardboard.
8. Southern Hemisphere:
   Turn the sundial so the pencil points due south, as determined by a map or a compass.
   Northern Hemisphere:
   Turn the sundial so the pencil points due north, as determined by a map or a compass.
9. If you can't find south/north, orient the sundial so that it agrees with your clock. (Subtract one hour from the clock time if you're on daylight-saving time.)
10. The shadow of the pencil indicates the time.

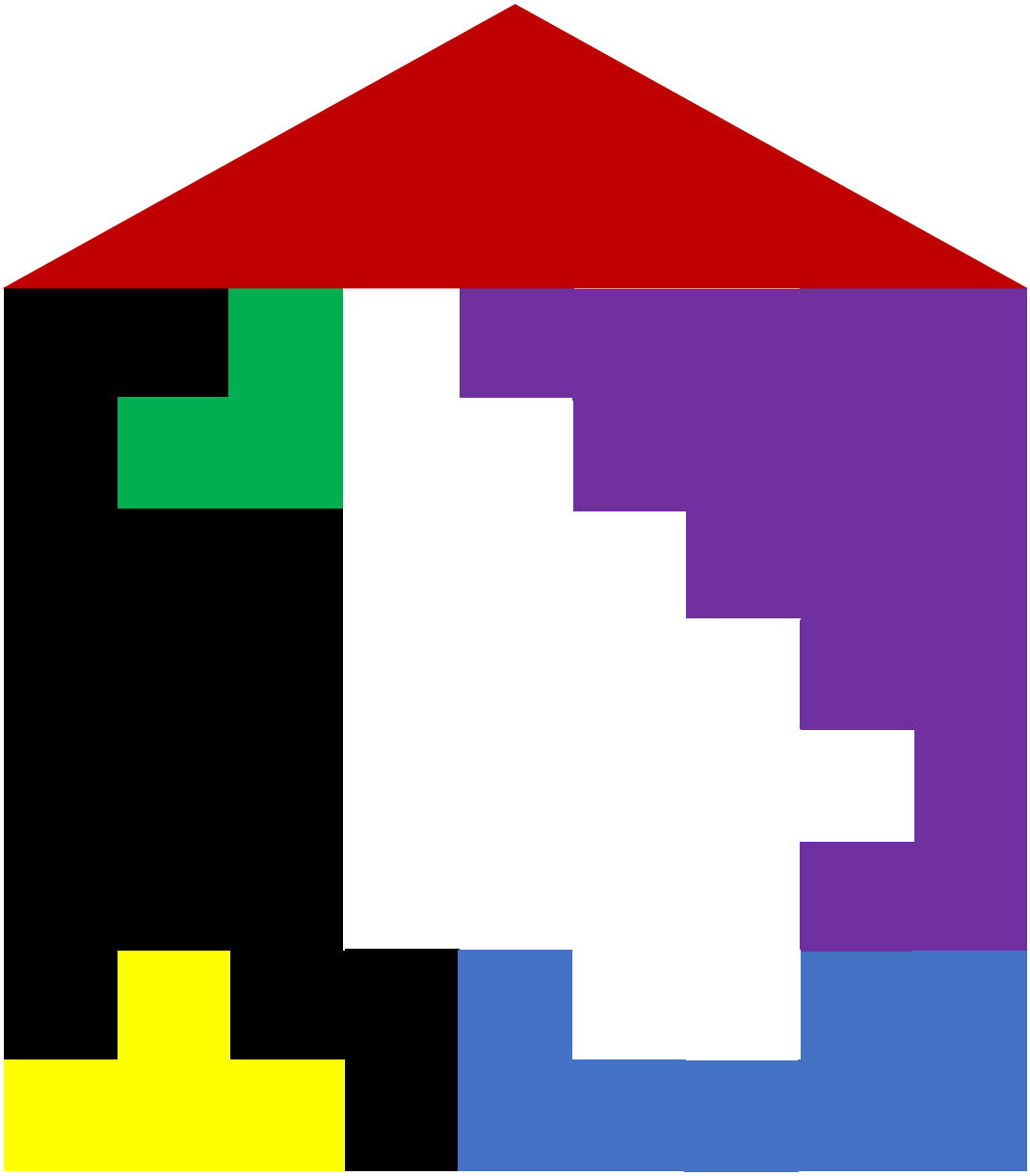
Colours of solar energy - Temperature chart

Colour				**Black**
Initial temperature				
Our estimate				
After 30 minutes				
Temperature difference				

USA



Singapore



Meaning of the colours:

Orange = heating

Yellow = light

Purple = appliances

White = cooling

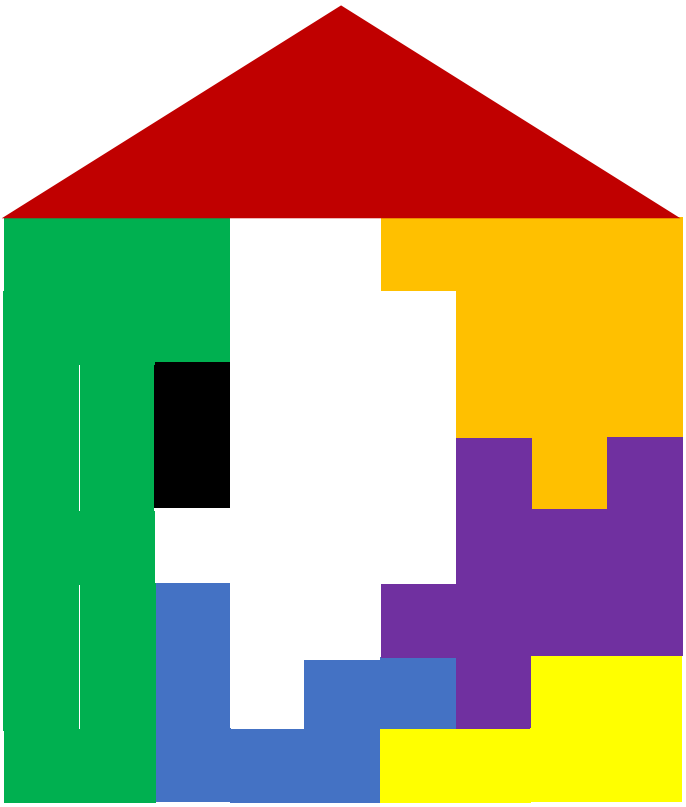
Blue = water heating

Green = cooking

Black = other

Argentine

Botswana



SCOUTS GO SOLAR

What is coal made from?

A) Dead plants

B) Dinosaur fossils

C) A whole bunch of chemicals mixed together by scientists

SCOUTS GO SOLAR

What does the word "petroleum" mean?

A) Rock oil

B) Ancient sea creature

C) Swamp gas

SCOUTS GO SOLAR

Burning oil produces most of all…

A) nitrogen (N2)

B) oxygen (O2)

C) carbon dioxide (CO2)

D) ozone (O3)

SCOUTS GO SOLAR

Renewable energy sources…

A) Are constantly reproduced by nature

B) Protect the ozone layer

C) Can be easily transmitted over long distances

D) Do not pollute the environment

SCOUTS GO SOLAR

Solar, biomass, geothermal, wind, and hydropower energy are all renewable sources of energy. They are called renewable because they ...

A) are clean and free to use

B) can be converted directly into heat and electricity

C) can be replenished by nature in a short period of time

SCOUTS GO SOLAR

When will the sun stop shining?

A) Never

B) In a few billion years

C) Next week on Tuesday

SCOUTS GO SOLAR

One kilowatt-hour equals…

A) 10 kilovolt

B) 1,000,000 calories

C) 100 Celsius

D) 1000 watt-hours

SCOUTS GO SOLAR

What are the black spots on the surface of the sun called?

A) Sunspots

B) Turbulences

C) Eruptions

D) Sun acne

SCOUTS GO SOLAR

A) Rock oil (petra + oleum)

SCOUTS GO SOLAR

A) Dead plants

SCOUTS GO SOLAR

A) are constantly re-produced by nature

SCOUTS GO SOLAR

C) carbon dioxide (CO_2)

SCOUTS GO SOLAR

B) The Sun should keep shining like it is now for a few billion years. Then it will gradually run out of fuel and die.

SCOUTS GO SOLAR

C) can be replenished by nature in a short period of time

SCOUTS GO SOLAR

A) Sunspots

SCOUTS GO SOLAR

D) 1000 watt-hours

SCOUTS GO SOLAR

The distance between Earth and Sun is about 150,000,000 km. How long does light travel to cover this distance?

A) About 1 second

B) About 8 minutes

C) Exactly 24 hours

SCOUTS GO SOLAR

The amount of solar energy poured onto the earth by the sun every hour could cover the world's use of energy for how long?

A) For 10 years
B) For 1 year
C) For 1 month
D) For 1 day

SCOUTS GO SOLAR

The solar energy that reaches the earth is … for all our energy needs.

A) just enough
B) 50 times less than enough
C) not enough
D) almost 10'000 times more than enough

SCOUTS GO SOLAR

Which of these sources of renewable energy do NOT depend on the weather?

A) Hydropower

B) Wind

C) Geothermal

D) Solar

SCOUTS GO SOLAR

Green plants convert solar energy into…

A) hydrogen

B) uranium

C) chemical energy

D) X-rays

SCOUTS GO SOLAR

Global warming focuses on an increase in the level of which gas in the atmosphere?

A) Ozone (O3)
B) Sulphur dioxide (SO2)
C) Carbon dioxide (CO2)
D) Nitrous oxide (N2O)

SCOUTS GO SOLAR

How many years does a solar panel normally work before it needs to be replaced?

A) 10-15 years

B) 25-30 years

C) 100-130 years

SCOUTS GO SOLAR

Which of the following declarations about solar panels is NOT true?

A) A solar panel consists of many small solar cells that are connected with each other
B) Solar panels produce electricity even if the sky is cloudy
C) The price for solar panels has been rising heavily in the past years

SCOUTS GO SOLAR

B) For 1 year

SCOUTS GO SOLAR

B) 8 minutes and 19 seconds

SCOUTS GO SOLAR

C) Geothermal

SCOUTS GO SOLAR

D) almost 10’000 times more than enough

SCOUTS GO SOLAR

C) Carbon dioxide (CO2)

SCOUTS GO SOLAR

C) chemical energy

SCOUTS GO SOLAR

C) The price for solar panels has been rising heavily in the past years.

On the contrary, it has been decreasing heavily.

SCOUTS GO SOLAR

B) 25-30 years

SCOUTS GO SOLAR

What percentage of the energy consumption of the space station ISS is covered by solar energy?

A) 50%
B) 85%
C) 100%
D) 25%

SCOUTS GO SOLAR

What percentage of the energy used around the world comes from fossil fuels?

A) None
B) 80%
C) 40%

SCOUTS GO SOLAR

To produce an aluminium can from recycled aluminium uses much less energy than to produce one from "new" aluminium. How much less?

A) 35% less
B) 65% less
C) 75% less
D) 95% less

SCOUTS GO SOLAR

Electrical energy can be produced from…

A) mechanical energy
B) chemical energy
C) kinetic energy (movement)
D) all of the above

SCOUTS GO SOLAR

Most of the energy we use originally came from…

A) the sun
B) the ozone layer
C) the centre of the earth
D) the oceans

SCOUTS GO SOLAR

Which of these three has the most energy?

A) A hurricane
B) A nuclear bomb
C) All the oceans' waves together

SCOUTS GO SOLAR

Electricity is the movement of…

A) atoms
B) molecules
C) electrons
D) neutrons

SCOUTS GO SOLAR

How much energy does a bolt of lightning has?

A) Enough to toast 160,000 slices of bread
B) Enough to toast one loaf of bread
C) Enough to toast one slice of bread

SCOUTS GO SOLAR

B) 80%

SCOUTS GO SOLAR

C) 100%

The solar panels of the ISS produce even more energy than the space station needs.

SCOUTS GO SOLAR

D) all of the above

SCOUTS GO SOLAR

D) Making cans from aluminium scrap uses 95% less energy than making cans from aluminium-bearing bauxite ore, according to US and Swiss Energy Information Agencies

SCOUTS GO SOLAR

A) A hurricane

It has about as much energy as 53 nuclear bombs. All the waves worldwide have about as much energy as a nuclear bomb

SCOUTS GO SOLAR

A) Most of the energy on Earth comes from the sun – but some comes from the centre of the earth, as well. The sun gives us light and keeps us warm. It makes the wind blow and plants grow. And even the energy stored up in the oil, coal and gas that we use today came originally from the sun.

SCOUTS GO SOLAR

A) It would be tricky, but in theory a bolt of lightning has enough energy to toast 160,000 slices.

Now somebody just needs to work out how to transfer that energy to your toaster and how to put all these slices in there!

SCOUTS GO SOLAR

C) electrons

SCOUTS GO SOLAR

A 100-watt light bulb consumes in 24 hours…

A) 24 calories
B) 2.4 kilowatt-hours
C) 240 electron-volt
D) 2400 joules

SCOUTS GO SOLAR

How many times does the earth fit into the sun?

A) 3000 times
B) 13,000 times
C) 1,300,000 times

SCOUTS GO SOLAR

What energy source does the sun use?

A) Thermal
B) Nuclear fusion
C) Biomass
D) Light

SCOUTS GO SOLAR

What material is the sun mainly made of?

A) Water
B) Hydrogen
C) Iron
D) Oxygen

SCOUTS GO SOLAR

How old is the sun?

A) 365 days
B) 4.57 billion years
C) 10.2 billion years

SCOUTS GO SOLAR

How hot is the surface of the sun?

A) About 200°C
B) About 500°C
C) About 6000°C
D) About 125,000°C

SCOUTS GO SOLAR

Geysers (periodically spouting hot springs) are examples of … energy

A) solar
B) wind
C) tidal (low tide and high tide)
D) geothermal

SCOUTS GO SOLAR

What's the name of the outermost visible layer of the sun, from where the rays of the sun come from?

A) Photosphere
B) Atmosphere
C) Stratosphere
D) Cosmosphere

SCOUTS GO SOLAR

C) 1,300,000 times

SCOUTS GO SOLAR

B) 2.4 kilowatt-hours

SCOUTS GO SOLAR

B) 73.5% hydrogen, 25% helium

SCOUTS GO SOLAR

B) nuclear fusion (nitrogen to helium)

SCOUTS GO SOLAR

B) About 6000°C.

But it seems that in the centre of the sun, there are temperatures of several billion °C.

SCOUTS GO SOLAR

B) 4.57 billion years

SCOUTS GO SOLAR

A) Photosphere

SCOUTS GO SOLAR

D) Geothermal

SCOUTS GO SOLAR

Cell phone batteries convert … energy into electricity.

A) nuclear

B) chemical

C) gravitational

D) kinetic

SCOUTS GO SOLAR

Which of these declarations about solar energy is NOT true?

A) Solar energy is highly scalable, so it can be used on a very small, but also on a very big level

B) In many countries, the production of solar energy is cheaper than the production of other sources of energy

C) At the moment (status 2022), solar energy is used more than hydropower

SCOUTS GO SOLAR

In 2020, from which country did 7 out of the 10 biggest producers for solar panels come from?

A) USA

B) Japan

C) China

D) South Korea

SCOUTS GO SOLAR

After how much time of functioning a solar panel has compensated the energy that has been used for its production?

A) 9 months

B) Almost 15 years

C) The life span of a solar panel is too short to compensate this energy

SCOUTS GO SOLAR

How fast does the performance level of a typical solar panel decrease per year?

A) 10%

B) 30%

C) 6%

D) 1%

SCOUTS GO SOLAR

On 19th of October 1879, the first light bulb has been switched on. How long did it shine?

A) 23 minutes

B) 5 hours

C) 13.5 hours

D) 3 days and 4 hours

SCOUTS GO SOLAR

In 2017, which countries have been the leaders in the production of renewable energies?

A) Japan, Kenya, South Korea

B) China, Japan, Sweden

C) Germany, USA, China

D) USA, Japan, Argentina

SCOUTS GO SOLAR

The city infrastructure of which big city in the USA relies completely on renewable energies since 2016?

A) Las Vegas

B) New York City

C) Florida

D) Massachusetts

SCOUTS GO SOLAR

C) At the moment (status 2022), solar energy is used more than hydropower

SCOUTS GO SOLAR

B) chemical energy

SCOUTS GO SOLAR

D) About 2 years

SCOUTS GO SOLAR

C) China

SCOUTS GO SOLAR

C) 13.5 hours

SCOUTS GO SOLAR

D) 1%

SCOUTS GO SOLAR

A) Las Vegas

SCOUTS GO SOLAR

C) Germany, USA, China

SCOUTS GO SOLAR

Which of these declarations about the sun are NOT true?

A) The sun is an almost perfectly ball-shaped
B) Astronauts at the ISS can see 15 sunrises and sunsets per day
C) On the sun, there is no gravitation

SCOUTS GO SOLAR

The sun is the biggest object in our sun system. What percentage of the overall mass of the sun system does the sun have?

A) Hardly 28%
B) Exactly 54%
C) More than 75%
D) More than 98%

SCOUTS GO SOLAR

At what moment there is the smallest distance between the earth and the sun?

A) In July
B) In January
C) The distance is always the same

SCOUTS GO SOLAR

One square meter of the sun shines brighter than …

A) 1 million light bulbs
B) 20,000 light bulbs
C) 350 light bulbs

SCOUTS GO SOLAR

How fast is the speed of light?

A) 100 km/s
B) 365 km/h
C) 2,500,000 km/h
D) 1,000,000,000 km/h

SCOUTS GO SOLAR

The orbit of the sun has the form of…

A) a circle
B) an ellipsis
C) an egg
D) a square

SCOUTS GO SOLAR

The seasons are caused by…

A) the inclination of the earth axis
B) the distance to the sun
C) cold winds from the cosmos

SCOUTS GO SOLAR

If you live in Switzerland, how much energy do you use compared to a person in India?

A) About the same
B) Twice as much
C) Almost nine times more

SCOUTS GO SOLAR

D) More than 98%

SCOUTS GO SOLAR

C) On the sun, there is no gravitation.

On the contrary, the gravitation is several times stronger than on earth.

SCOUTS GO SOLAR

A) 1 million light bulbs

SCOUTS GO SOLAR

B) In January.

The difference compared to July (when the distance is the biggest) is about 5 million kilometres

SCOUTS GO SOLAR

B) an ellipsis.

This is due to the influence of other planets. Without this, the orbit would be an almost perfect circle.

SCOUTS GO SOLAR

D) Almost 1,000,000,000 km/h

SCOUTS GO SOLAR

C) Almost nine times more (compared with the USA, it would be almost 14 times more)

SCOUTS GO SOLAR

A) the inclination of the earth axis.

The earth is not turning around vertically around its axis, but with a slight inclination. That's why we have more insolation on the southern or northern hemisphere and therefore summer or winter, respectively.

SCOUTS GO SOLAR

Which innovator was the first who created a device capable of generating alternative electricity?

A) Thomas Edison
B) Nicola Tesla
C) Benjamin Franklin
D) Michael Pupin

SCOUTS GO SOLAR

The heat energy stored in the uppermost 10km of the Earth's crust is equivalent to how many times the total energy stored in all the world's oil and gas?

A) 50,000 times bigger
B) 500 times bigger
C) 5 times bigger
D) Half as big

SCOUTS GO SOLAR

A flywheel stores … energy

A) potential (position)
B) kinetic (movement)
C) chemical
D) electrical

SCOUTS GO SOLAR

Who was the first in discovering the photovoltaic effect, meaning the fact that you can produce electricity from sunlight?

A) Alexandre Edmond Becquerel
B) Marie Curie
C) Gyro Gearloose
D) Alessandro Volta

SCOUTS GO SOLAR

When and where has the first solar panel made of silicon been produced?

A) 1932 in Switzerland
B) 1985 in Japan
C) 2004 in China
D) 1954 in the USA

SCOUTS GO SOLAR

In 1956, the first solar cells were sold. For how much money?

A) 7 $ per watt
B) 100 $ per watt
C) 300 $ per watt
D) 2500 $ per watt

SCOUTS GO SOLAR

How many tons of dynamite would you need to explode per second to produce the same amount of energy as the sun does?

A) 35 tons
B) 0.8 tons
C) 48,000 tons
D) 100 billion tons

SCOUTS GO SOLAR

What kind of star is the sun?

A) The sun is not a star
B) white giant
C) A yellow dwarf
D) A firestar

SCOUTS GO SOLAR

A) 50,000 times bigger

SCOUTS GO SOLAR

B) Nicola Tesla

Tesla, who has been born in Austria-Hungary in 1856, emigrated to the United States, where he sold the patent on his alternative current generating device to the American inventor and industrialist George Westinghouse.

SCOUTS GO SOLAR

A) Alexandre Edmond Becquerel, in 1839

SCOUTS GO SOLAR

B) kinetic energy

SCOUTS GO SOLAR

C) 300 $ per watt

SCOUTS GO SOLAR

D) 1954 in the USA, at the Bell Laboratories.

A little bit earlier, there has been the first solar panel made from selenium and gold

SCOUTS GO SOLAR

C) A yellow dwarf.

Compared to other stars, the sun is only average in size.

SCOUTS GO SOLAR

D) 100 billion tons.

What a firework...