UNAWE
Universe Awareness for Young Children

Safe Sun Viewer

"Don't look at the Sun!"
"Looking at the Sun is incredibly dangerous."
"If you look at the Sun you'll go blind."

Have you heard this before?
Do you know why?

The Sun is a powerhouse of energy, an enormous ball of gas, a great, big, non-stop explosion.
Even though Earth is 149 million kilometres away from the Sun, we still feel that energy. In fact, all life on earth depends upon the heat and light coming from the Sun.
But looking directly at the Sun, even briefly, is a bad idea.
Our eyes are very sensitive 'seeing instruments'.
Even in the darkness, where there is only the tiniest amount of light, your eyes still manage to see things. So imagine what happens when you focus all that bright light of the Sun onto a tiny area like an eye. The light detectors at the back of the eye burn. Unfortunately, unlike sunburn to your skin, your eye won't get better.

"What about a telescope or binoculars? Are they safe?"

Looking at the Sun using a telescope is an even worse idea! A telescope has a lens that gathers even more light and then focuses it for you to see. A telescope would cook your eyes even faster!
Your eyes are precious.
So, please, no matter what, don't look DIRECTLY at the Sun.

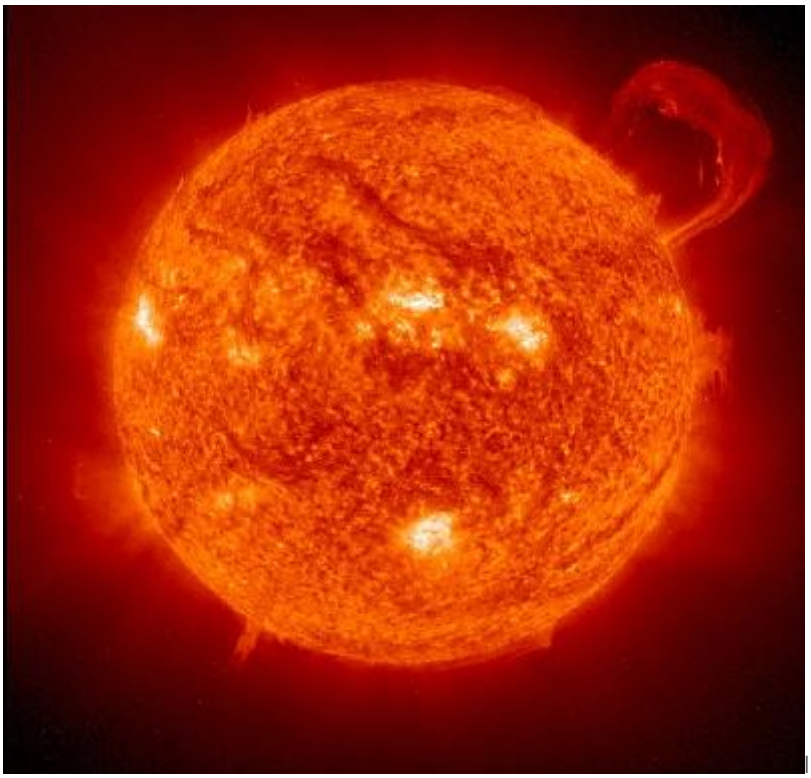
Image: SOHO(ESA& NASA)

Safe Sun Viewer

We can't look at the Sun but we can look at a projection of the Sun.
Here is a safe way to do so.
Sometimes the shadow of the Moon passes in front of the Sun and blocks out some or all of its light. This is called an eclipse. When that happens, with the Safe Sun Viewer, you can also see that shadow.

- GOAL: Introduce children to solar observation safely.

- MATERIALS: A cardboard box, white cardboard, scissors, tape, aluminium foil, a small nail.

- AGE GROUP: Adult supervised activity for 5 years and up
CAUTION Care with scissors

Download the activity sheet here
Safe Sun Viewer PDF (17.5Mb)

- **What to do**
Step 1.
Take a cardboard box and cut a window at one end about the same span as the height and width of your eyes.

- **Step 2.**
  Cut another larger window directly above the first.

- **Step 3.**
  The smaller hole is going to be your viewing window. The bigger hole is going to be your projection window.

- **Step 4.**
  Measure a piece of white cardboard so that it fits the opposite end.

- **Step 5.**
  Insert the white cardboard into the opposite end.

- **Step 6.**
  This is going to be your projection screen.

- **Step 7.**
  Cut a piece of aluminium foil large enough to completely cover the projection window.

- **Step 8.**
  Hold it up to the light to make sure that there are no holes in the foil.

- **Step 9.**
  Tape the foil over the projection window.

- **Step 10.**
  Hold your box up to an electric light and look through it to make sure that there are no pinpricks of light managing to sneak in.

- **Step 11.**
  Seal any extra holes in the box.

- **Step 12.**
  Take a sharp nail and make a small hole in the foil. (You can experiment with the size of the hole, but about 3mm works well).

- **Step 13.**
  Go outside and stand with your back to the Sun.
  Hold the box pointed at the ground so that the Sun's light can pass through the pinhole in the foil and onto the screen.
  * DO NOT point the pinhole at the Sun!

- **Step 14.**
  Look through the bottom window. The small circle of light that you will see is not just 'light' coming through the pinhole, it is an image of the Sun.