



Exploring **Sunshine!**

How does the sun work?

As curious as we may be about the sun, it's not safe to stare it! To start, the sun is actually just another star in the sky, like the ones we see at night. The sun is so big, you could fit 1.3 million planet Earths inside of it! It produces enough energy to warm our planet from 193 million miles, or 8 light-speed minutes away. The sun is made of gas, and is therefore not a solid surface. The sun is made of 74% hydrogen gas, 25% helium gas and 1% of other elements.

This sun has been shining for 4.5 billion and scientists believe that it will keep burning for another 5-6 billion years before it runs out of hydrogen, expands and then eventually implodes into a white dwarf, taking planet Earth with it. But don't worry, 6 billion years is a long ways away!

Watch this video for more sun information!

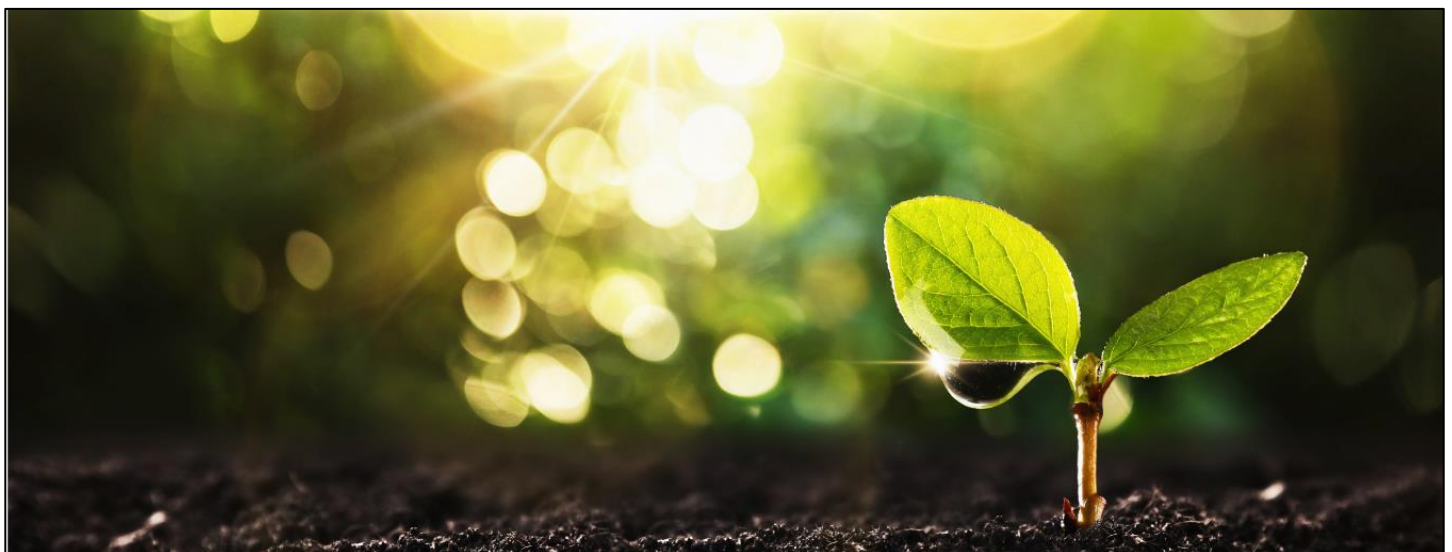


What the sun brings to our watershed

The sun is the most important part of our watersheds (and of our planet's) **food web**. It is vital to the growth of plant life which sustains all other parts of the food web. The plant is able to grow by absorbing the sun's rays through **photosynthesis** and turn that sunlight into plant matter. **Herbivores**, that only eat plants, and **omnivores**, that eat some plants and animals, are then able to eat the plants and turn that into fuel for their own bodies. **Carnivores**, which eat meat, are then able to eat herbivores and omnivores and turn their plant-fueled bodies into a protein source. If you've eaten anything, then you are benefiting from the sun's handwork.

When all of these plants and animals die, they **decompose** on the earth's surface, thanks to fungi. In the place of this decomposing matter, new plants emerge, and the sun helps begin the cycle all over again.

The clean air and water in our watershed are all thanks to the sun's help in growing plant matter that filters toxins out of our air and purifies our rivers. Thanks sunshine! Today we will run an experiment and do some craft activities to help us appreciate the sun more!



EXPERIMENT 1: Sun Tea!

The sun brings a lot of heat to our planet! We use that heat to grow our food, make electricity, and today heat up water to make tea!

You will need:

- 1 large clear glass jar
- 3 of your favorite tea bags or dried herbs
- small cloth or paper towel
- rubber band
- Sunlight



Instructions:

1. Fill your glass jar with water and your tea bags of choice. I used a citrus tea bag and a black tea bag.



2. Cover your jar with a small cloth or paper towel and a rubber band



3. Place your jar out in the sun for 4 hours. Check on it from time to time to watch the tea bag flavor 'bleed' into the water as it heats up.



4. Place a lid on your jar and put it in the fridge until its cooled.
5. Enjoy as a summer day treat with ice cubes!
6. Experiment with how many tea bags you put in and how long you let the tea sit out in the sun until you've found your favorite combination!



CRAFT 2: Stained Glass Mandala



Mandalas are a geometric group of symbols. They are often geometric shapes that move out from the center in a ring pattern. Stained glass is often seen in old windows, like churches, and is a beautiful way to depict an image or sea of color using sunlight. We will make our own stained 'glass' with a mandala pattern using nature!



You will need:

- Leaves and flowers from outside
- A piece of paper cut into a circle
- Scissors
- Permanent markers
- Wax Paper
- String



Instructions:

1. Head outside and collect some small leaves and flowers in different shapes and sizes.
2. Cut your piece of paper into a circle by folding it in $\frac{1}{2}$ twice and then snipping off a rounded edge.



3. Unfold your paper and begin laying out your pieces of nature. You will be tracing them onto your plate in a pattern starting from the center.



4. As you start to make your pattern, outline each piece with a dark black marker until it looks something like this:



5. Next, trace your plate onto the wax paper and trace every leaf and flower onto the paper.



6. Color in your mandala with permanent markers. You can either color it the same as the natural colors, or be creative and choose different colors. When you're done coloring, cut out the circle.



7. Finally punch a hole in the top of your wax paper and run the string through it.
8. Your mandala stained glass is now ready to hang in a window and have the sun shine through it!



EXPERIMENT 3: Shadow Art

You will need:

- Your shadow
- A friend
- A piece of chalk
- Sunlight



Instructions:

1. Find a place outside where you get sunlight on the pavement most of the day.
2. Draw an X to mark your starting point and see where your shadow falls.
3. Have your friend outline your shadow with chalk and then write the time of day next to the drawing.
4. Come back in an hour and stand on your X and repeat.
5. Try again in a few more hours. What are you noticing? How is the sun moving?
6. As we near the longest day of the year (June 20th), the sun is higher and higher in the sky. If you stand on this same spot and draw your shadow in January or November, it would look quite different!



Thanks for conducting science with me for this Home Explorer activity from Umpqua Watersheds Education Program.
Join me for new activities posted every week!

- Ms. Robyn

