

Date: _____

Name: _____

Natural Light Phenomena Journal

This activity was created by Katy.

Natural light phenomena are all around us and can be seen across the world. They are unusual displays of light from the sun being reflected, refracted, and dispersed to create interesting visual phenomena. Examples of natural light phenomena are discussed below!

Over the course of the next few weeks (or months), see how many of these natural light phenomena you can observe for yourself! Use this journal as a guide to find and observe natural light phenomena and draw pictures of what you see in the spaces provided. If you see one of the following phenomena multiple times, be sure to record the information on a new sheet of paper!

SUN DOGS

Sun Dogs are two bright spots of light that can appear on either side of the sun. They are visible when the sun shines light through ice crystals in the atmosphere, and the light rays are refracted, or bent, as they travel through the ice crystals. Because light travels differently through ice than through the atmosphere, the direction of its motion changes slightly, producing the appearance of multiple sources of light, or smaller bright spots next to the sun.

Location:

Date and Time:

Observations:

RAINBOW

A rainbow is a reflection, refraction, and scattering of light as it passes through water droplets in the atmosphere. Rainbows are most commonly seen after rain, and can even be created (on a small scale) when sunlight is filtered through the spray of a garden hose, or water in the air. You have probably seen one before! The multicoloured arc of a rainbow is every colour of the visible colour spectrum, from red on the outer arc to violet on the inner arc.

Location:

Date and Time:

Observations:

CLEAR BLUE SKY

The sky is blue because of the way sunlight is scattered as it enters the atmosphere and interacts with all the gases and air particles there. Blue light has a shorter wavelength and is more frequently scattered than other wavelengths (and colours) of light. Purple light has even shorter wavelengths and is the most frequently scattered colour, but the sky is not usually this colour because some of the purple colour is absorbed within the atmosphere.

Location:

Date and Time:

Observations:

Date: _____

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SUNRISE

We learned about why the sky is blue, so why do you think the sky changes colour from dark to red, pink, orange, yellow, and sometimes purple as the sun rises? Record your reasoning in the observation section, and see if you can wake up early enough to watch a sunrise! Take note of the colours you see, and what that means about the wavelengths of light.

Location:

Date and Time:

Observations:

SUNSET

When the sun is shining from a far distance, or at the horizon, sunlight has to travel a greater distance through the atmosphere to reach you! At sunrise and sunset, the light is scattered differently by atmospheric particles (there simply is more atmosphere to travel through) and less blue is visible, with more of the other wavelengths and colours being scattered instead.

Location:

Date and Time:

Observations:

LIGHTNING & THUNDER

Lightning is the result of electrical discharge in storm clouds. An electrical charge builds up in the clouds, and lightning connects it to the ground, in a powerful bolt of electricity. It is usually accompanied by thunder, the sound produced from lightning. Although the light and sounds are produced at the same time, thunder is usually heard a little later, because light travels faster than sound.

Location:

Date and Time:

Observations:

HEAT LIGHTNING

Heat lightning, also known as silent lightning, is faint lightning visible in the sky without the accompanying thunder or rain. Not only can light travel faster than sound, it can also be seen from a greater distance. Heat lightning is simply lightning from a thunderstorm far away being reflected off the clouds. It is most likely to occur in the summer months on warm, humid nights.

Location:

Date and Time:

Observations: