
Reading Nature‘s Signs

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Reading Terrestrial Ecosystems

Animal tracks and signs

All animals leave their traces behind, and many provide clues to read and to predict about the nature…

Mosses, Algae, Fungi and Lichens

Mosses, Algae, Fungi and Lichens are important organisms in reading the nature

Plants and trees

Plants and trees are powerful indicators of many natural scenes & facts…

The ground

The ground has its own picture album telling the history of the earth beneath…

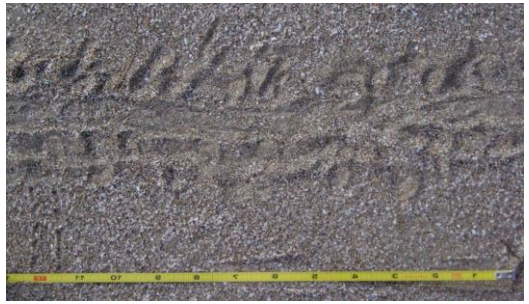
Animal tracks and signs

Whether you are trying to find wild animals for food or trying to know where they are so you can keep safely away from them, nature gives us many signs that can help us.

Animals not only leave footprints or tracks, they usually leave a tell-tale path. Animals often follow the same route when they hunt for food or make their way to the nearest water source. They also leave tell-tale signs that point to the places where they sleep and eat.

Footprint of a European Lynx on the mud

Snow cover and sand are very nice place to observe animal tracks



Animal tracks and signs

Most common animals' track and signs

Grey Wolf scat can be easily distinguished from the dog scat by the presence of hair and bones

A typical footprint of European Hare

Animal tracks and signs

Animals are also indicators to make weather predictions. For example, the followings are the signs of a hard winter ahead

The Early Departure of Geese and Ducks

The Early Migration of the Monarch butterfly

Early Seclusion of Bees Within the Hive

In addition, you can also watch the animals to find water in the nature.....

Insects can help point the way. Swarms of insects usually indicate that water is near. Look to the sky, especially in the early morning and the early evening, for flocks of birds. They may be heading to a body of water to drink, bathe, and find food.

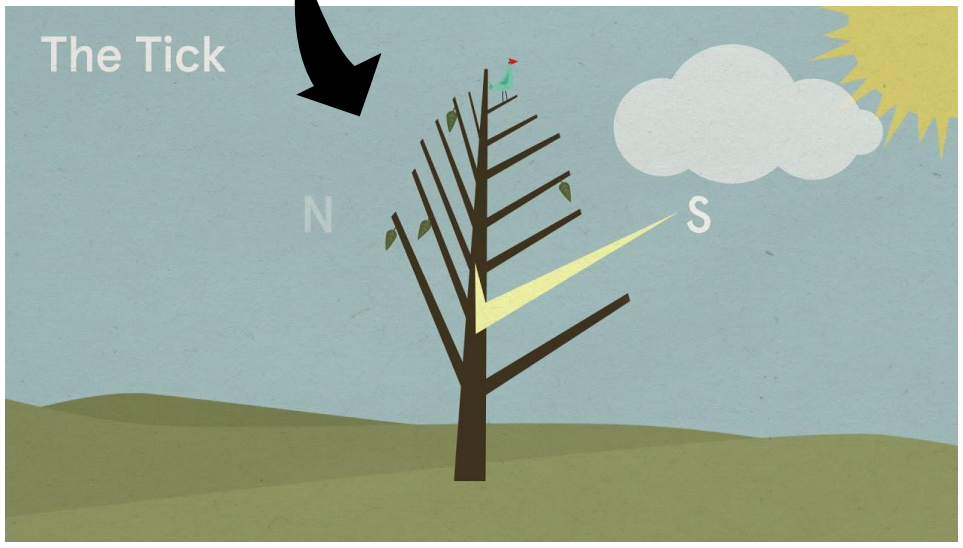
Plants and trees

The wedge effect

The growth of trees is altered by the wind, the more wind a tree has to tolerate the shorter and stouter it will grow.

The thick effect

More branches grow on the south side of trees. The branches on the south side tend to grow toward the horizontal and the branches on the north side tend to grow more vertically.

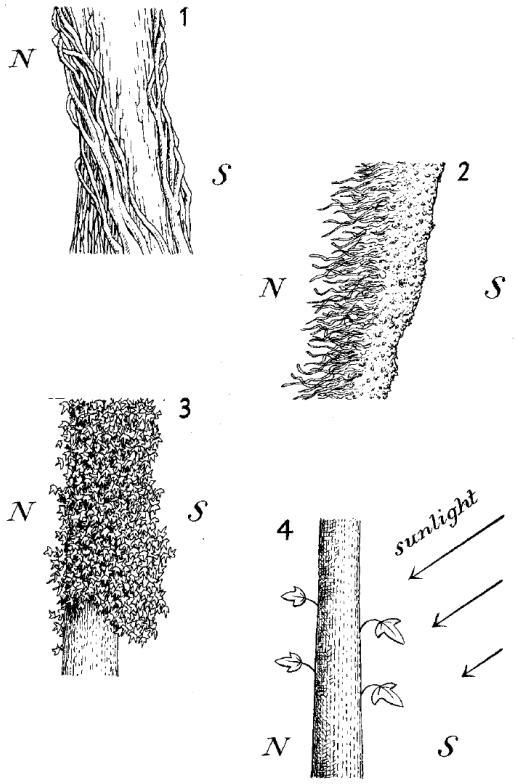


Plants and trees

Wind tunnel effect & the flagging effects

The prevailing winds have come from the right of the picture. Note the shape of the tree, but also the way more light gets through on the downwind side and the "lone straggler."

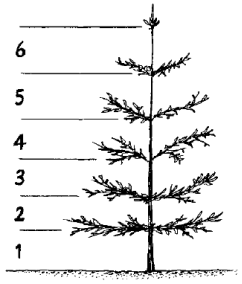
In this picture the surviving branches are pointing away from the prevailing wind.

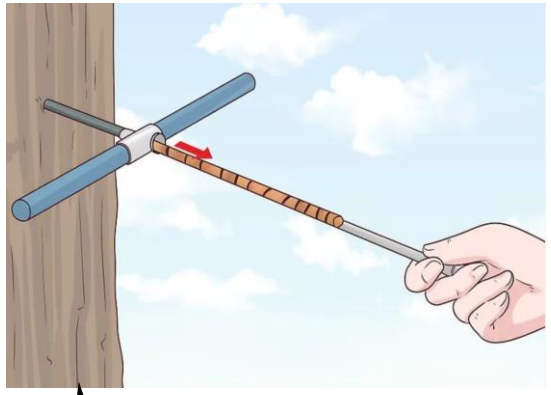


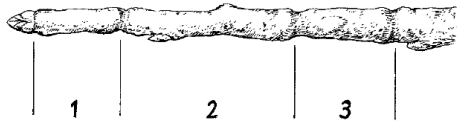
1. Juvenile ivy will grow away from light and can be found reaching round from the south side of trees to the north.
2. Ivy roots grow away from the light and can indicate north.
3. Mature ivy growing toward the light and heavier on southern side.
4. Leaves on the southern side tend to point a little lower than those on the northern side.

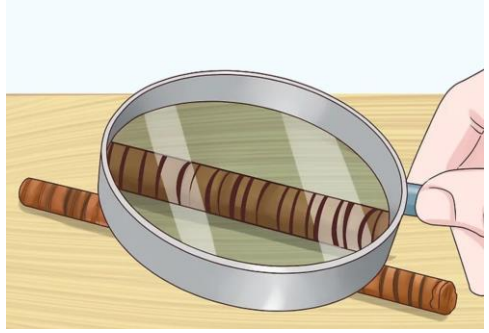
Plants and trees

You can age a tree in different ways, where they leave annual growth signs









Flowering plants are great indicators of the change of seasons

For example, Rosaceae trees or poppies announce the spring ahead and many crocus species (*Colchicum speciosum*) calling the winter...

Mosses, Algae, Fungi and Lichens

If you learn the trick that moss grows on the north side of trees, rocks and buildings then it may help you sometimes, but it will hinder you on an equal number of occasions. If, however, you learn that moss does not care about north or south, but thrives on moist surfaces, then your chances of finding direction accurately shoot up. Moss needs moisture to reproduce.

For example, Moss grows below forks in trees, even in south-facing sunny spots, because the forks channel rainwater and keep the environment moistured.

Lichens are widely used as environmental indicators or bio-indicators. If air is very badly polluted with sulphur dioxide there may be no lichens present, just green algae may be found. If the air is clean, shrubby, hairy and leafy lichens become abundant.

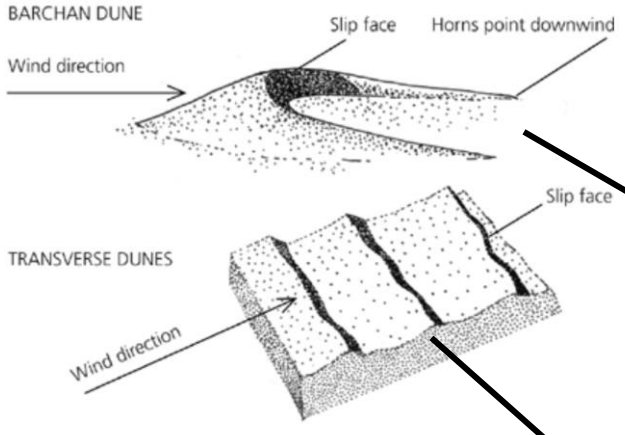
The ground

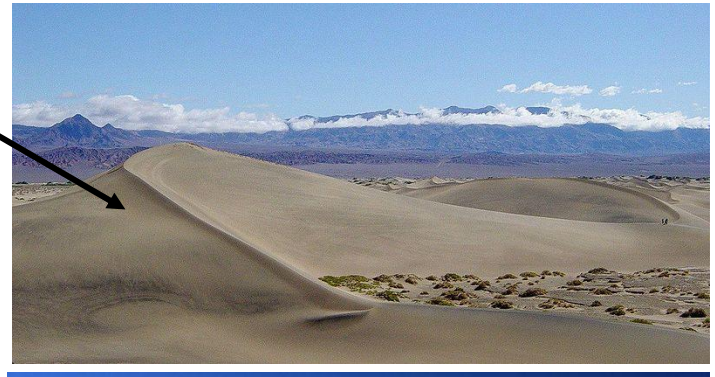
Reading rocks and ground is, in a way, reading the autobiography of the Earth

Every single layer in stratified ground is a remnant of different times that tells us about the history of that part of the Earth...

The ground

The volcano rocks announce an (hopefully) ancient volcano around





Some sand dunes yield clues to the prevailing wind direction.


Reading Marine Ecosystems


Marine Signs

Physical signs

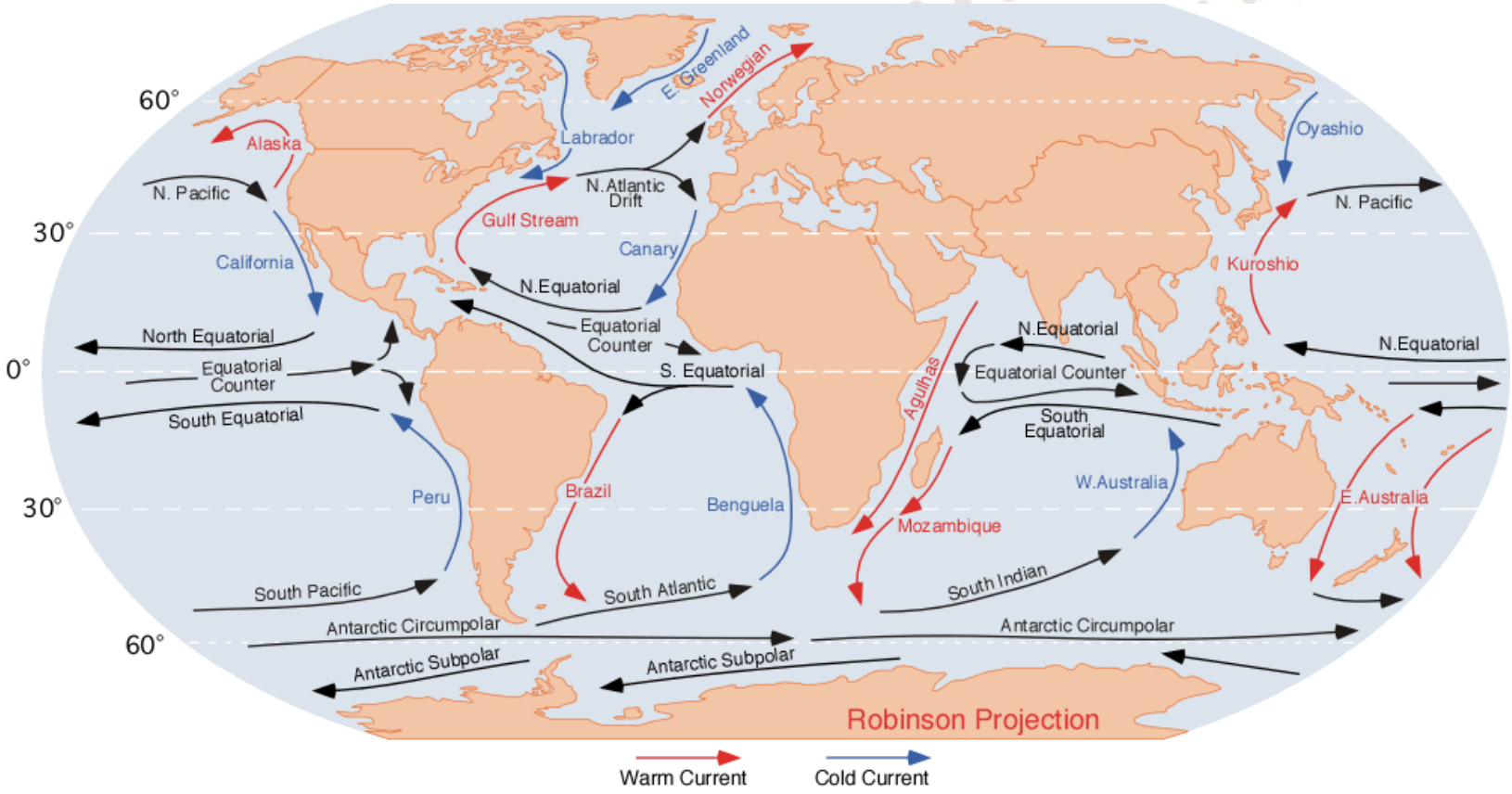
Biological signs

Reading the signs of marine ecosystems include those associated with physical events (e.g. tides, currents and waves) and biological components (e.g. track and signs of animals and plants)

Physical signs

Ocean Currents

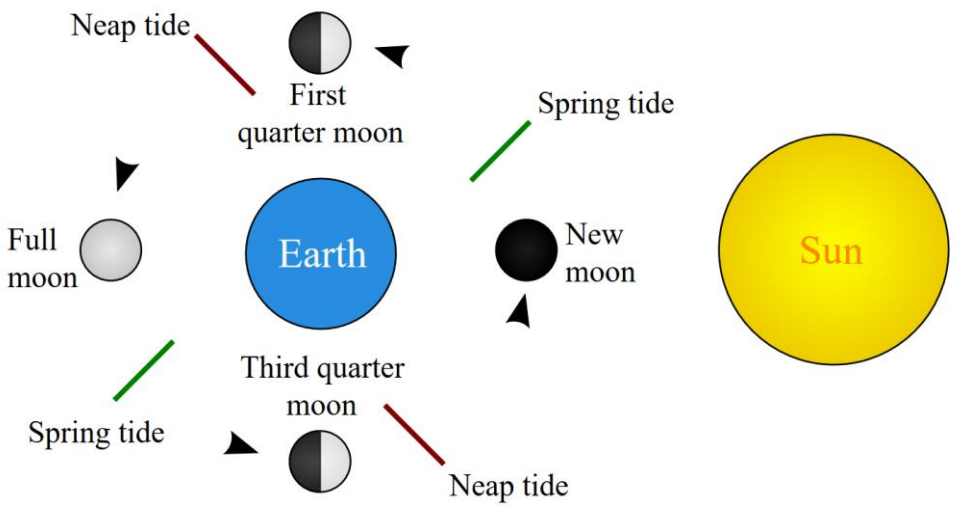
Ocean currents are the continuous, predictable, directional movement of seawater driven by gravity, wind (Coriolis Effect), and water density. This abiotic system is responsible for the transfer of heat, variations in biodiversity, and Earth's climate system.

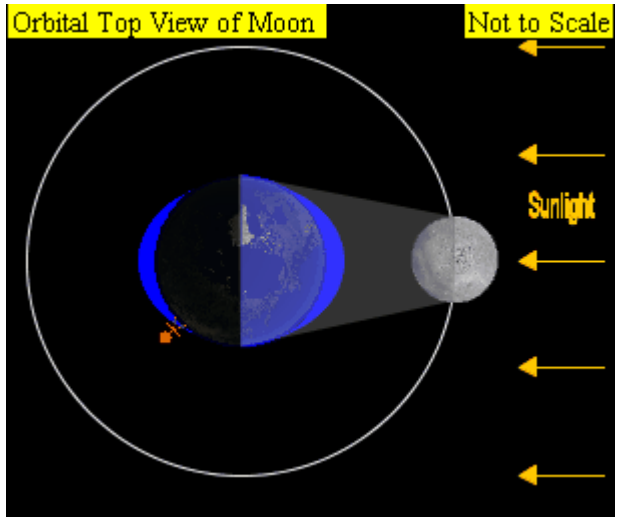


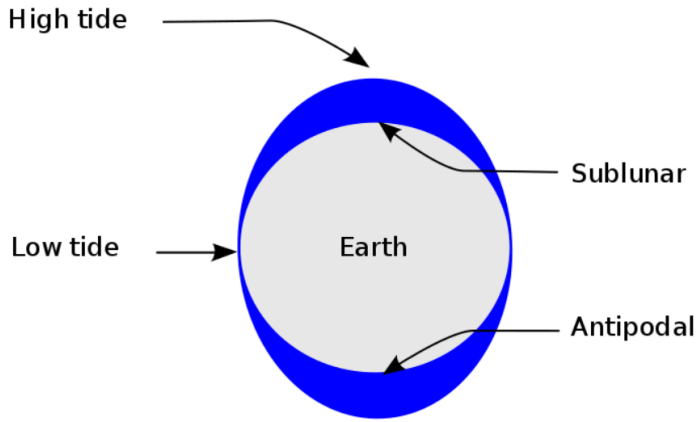
Physical signs

Tides

Tides are the rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun, and the rotation of the Earth.







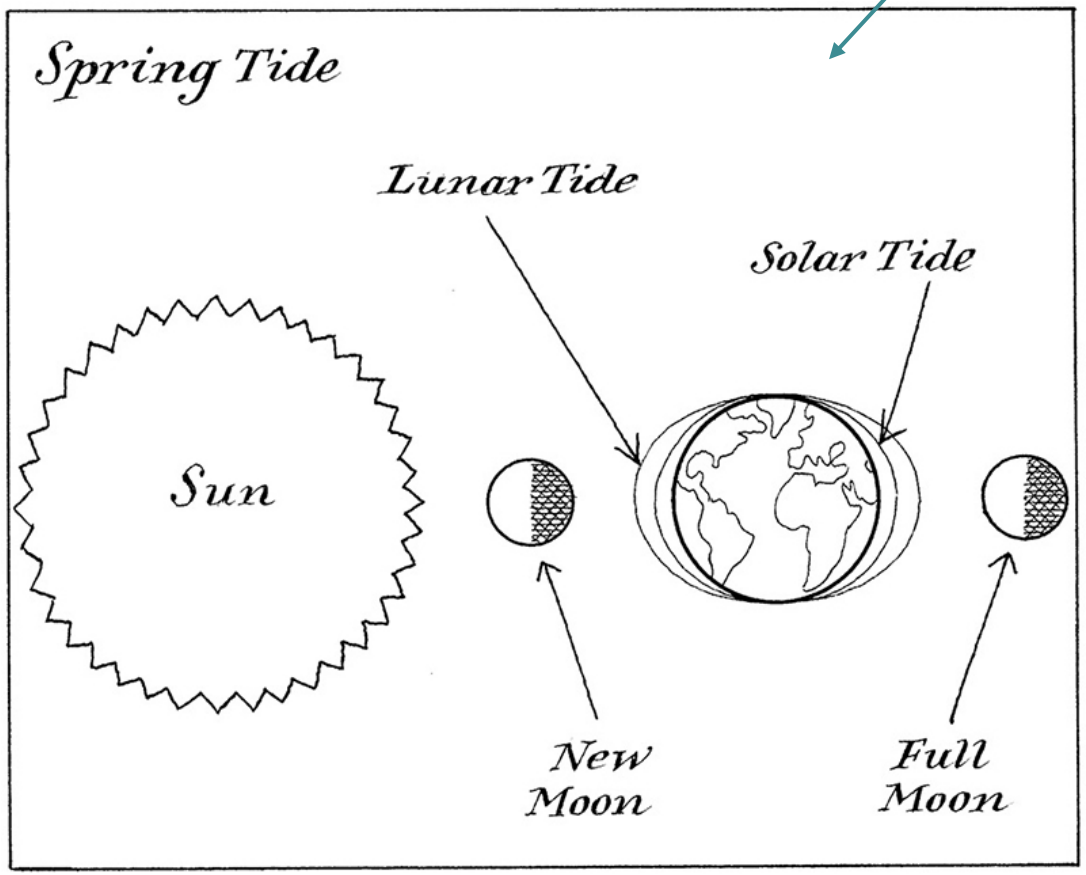
Simplified schematic of only the lunar portion of Earth's tides, showing (exaggerated) high tides at the sublunar point and its antipode for the hypothetical case of an ocean of constant depth without land.

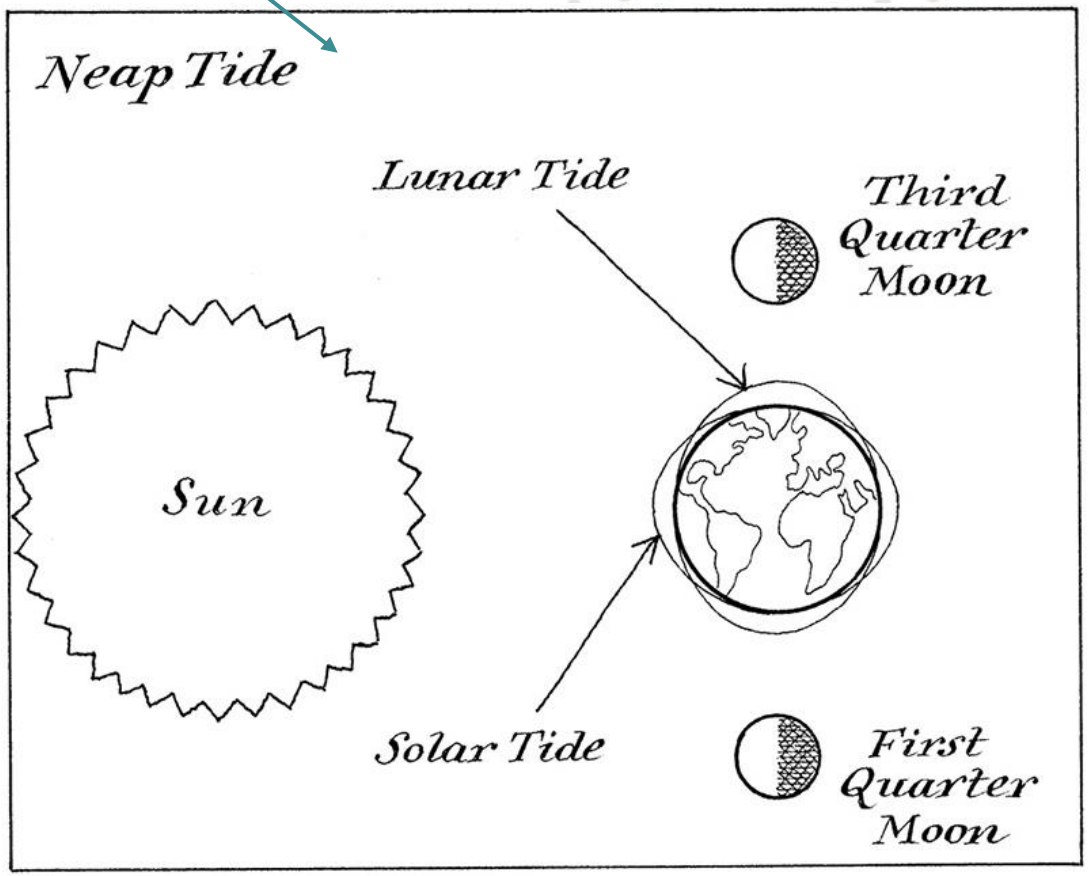
Moon

Physical signs

A simplified schematization of Spring and Neap Tides

Tides

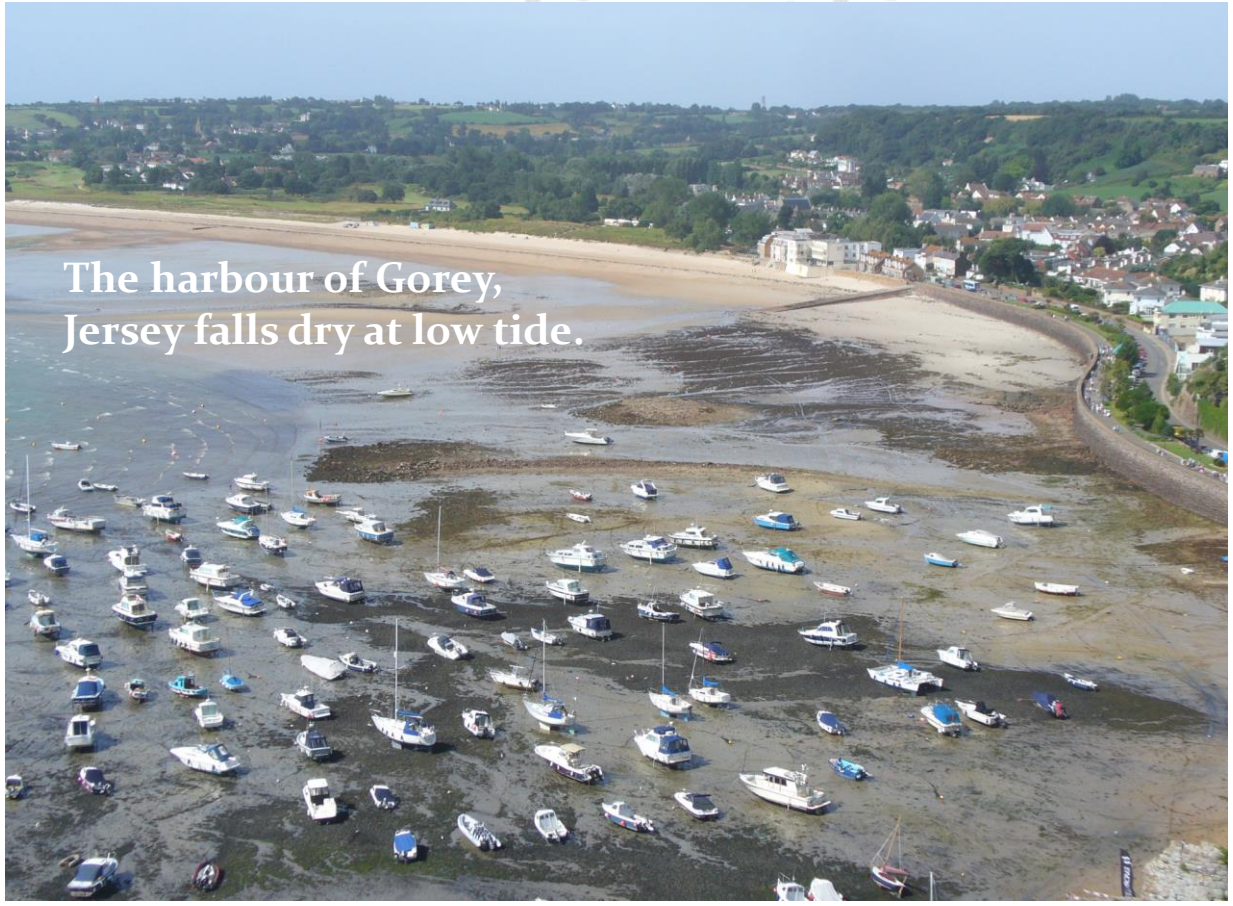




Physical signs

High tide, Alma, New Brunswick, Canada in the Bay of Fundy, 1972

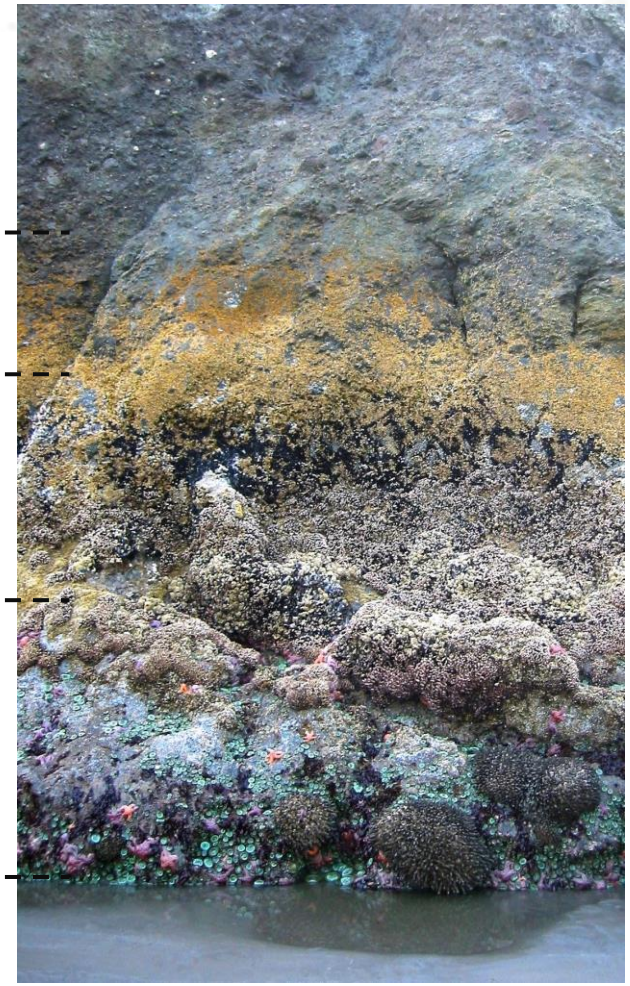
Low tide, Alma, New Brunswick, Canada in the Bay of Fundy, 1972



The harbour of Gorey, Jersey falls dry at low tide.

Physical signs

Tides

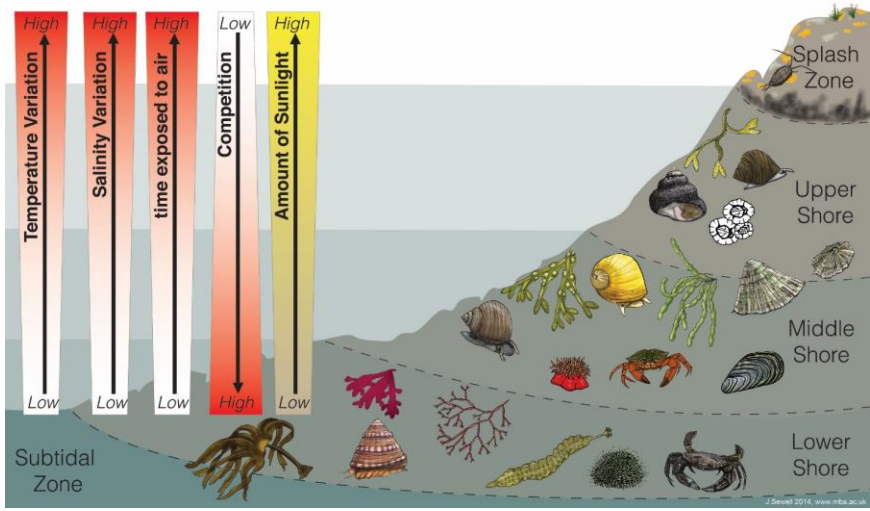


The sign of the tides can be read by the lichen formations on the rocks

In ecological reading of the tides;

Biological signs

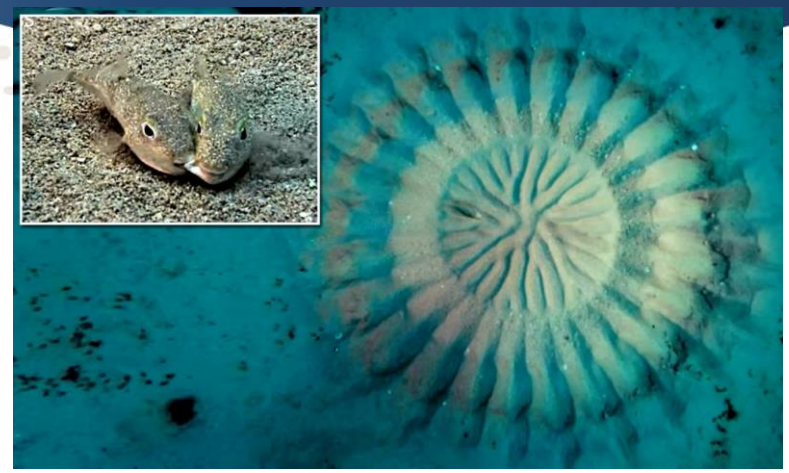
The area that exposed to tides (intertidal area) is important in ecological term that can harbour many lives having various strategies to cope with high and low tide conditions.



Biological signs

Animal track and signs in marine ecosystems

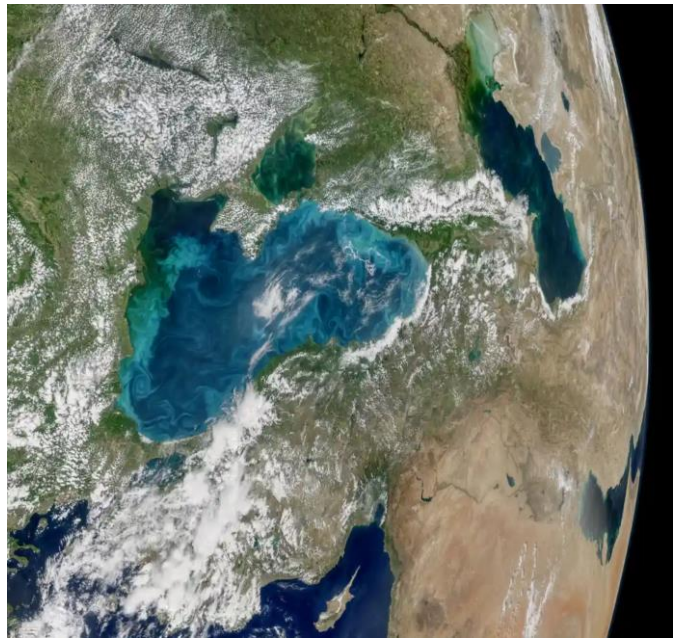
Sea turtles often left their tracks on the sand. And if you see a track of a sea turtle there is also likely a nest of her nearby.

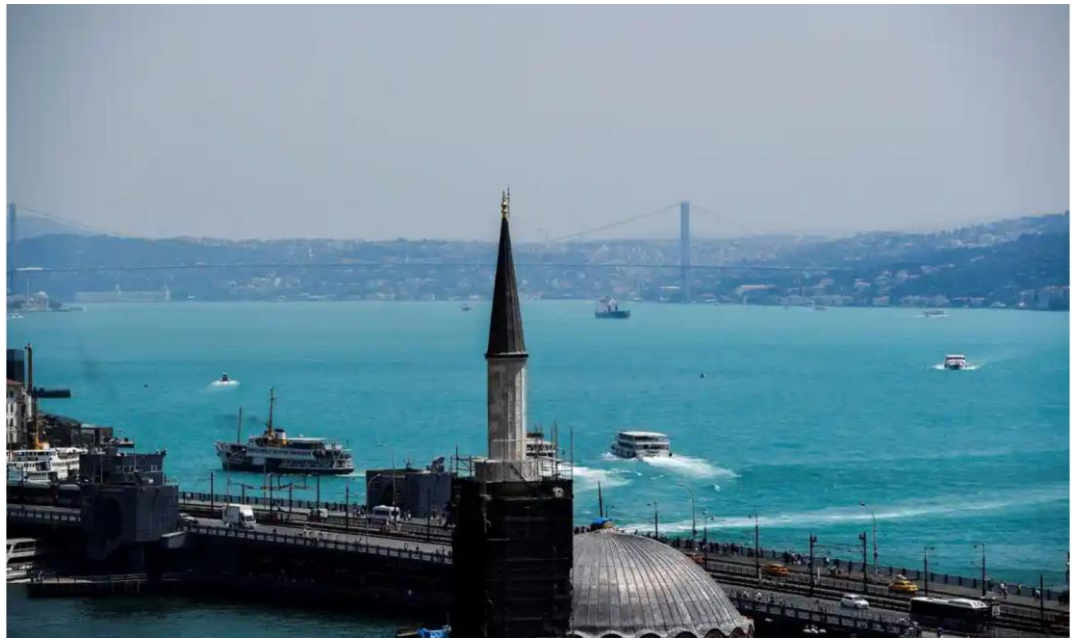


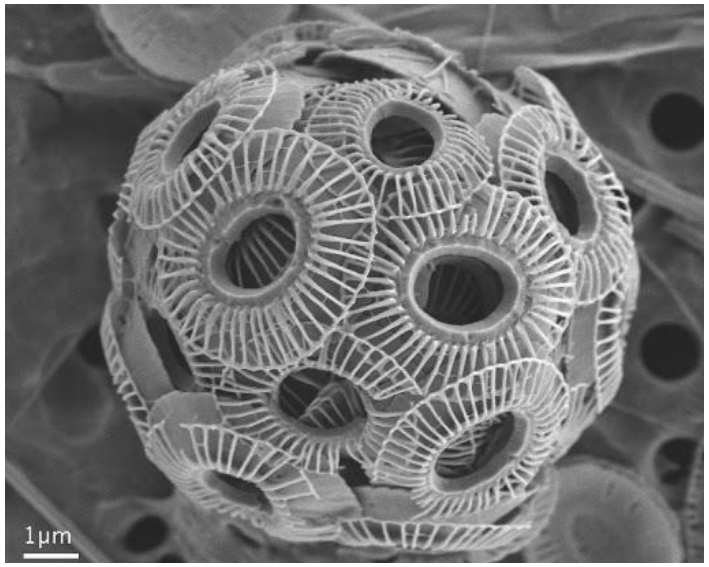
A typical nest of puffer-fish, making their sign on the seabed

Biological signs

The **turquoise color** stretches along the Bosporus to a large portion of the western Black **Sea**, which puzzled residents and raised questions about pollution. NASA explained that the **color** was caused by **phytoplankton**, single-celled microscopic organisms that make food from sunlight and nutrients in the **water**. The specific name of this organism is *Emiliania huxleyi*

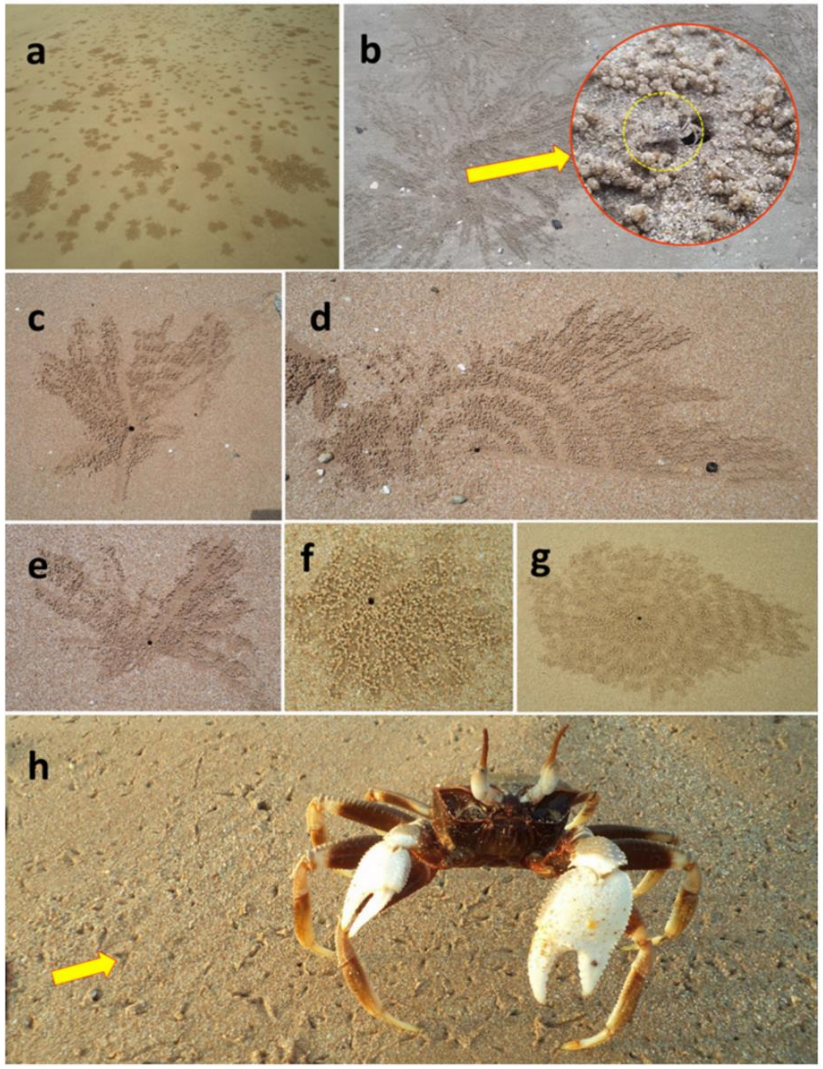




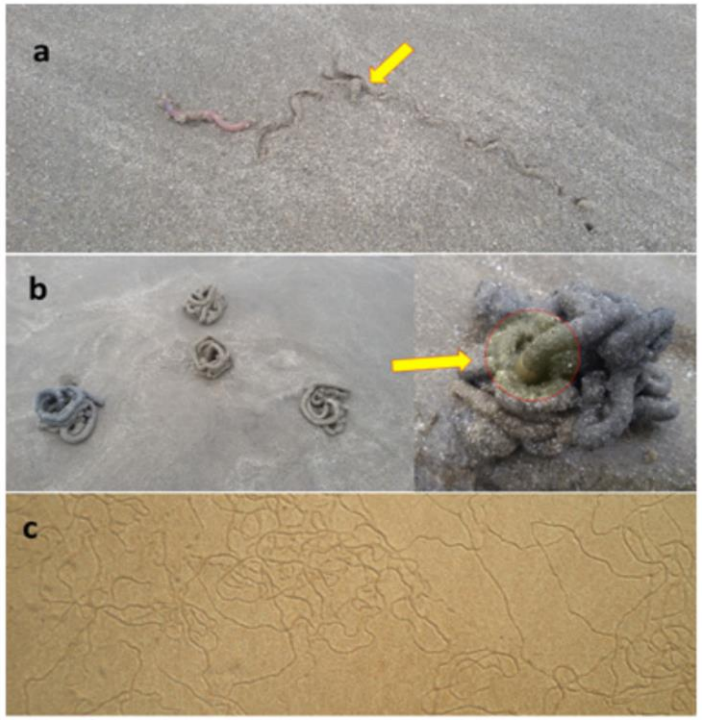


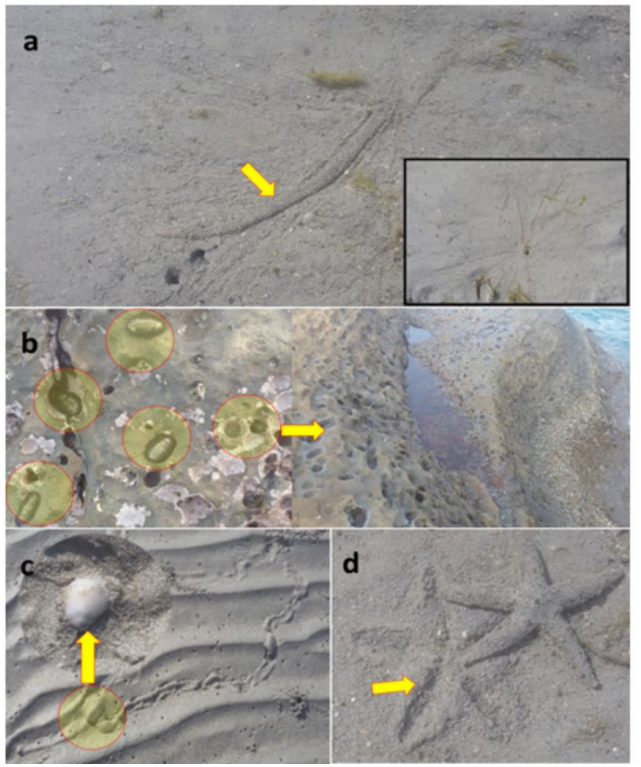
Emiliania huxleyi

Biological signs



Track and signs of various animals on sand





Biological signs

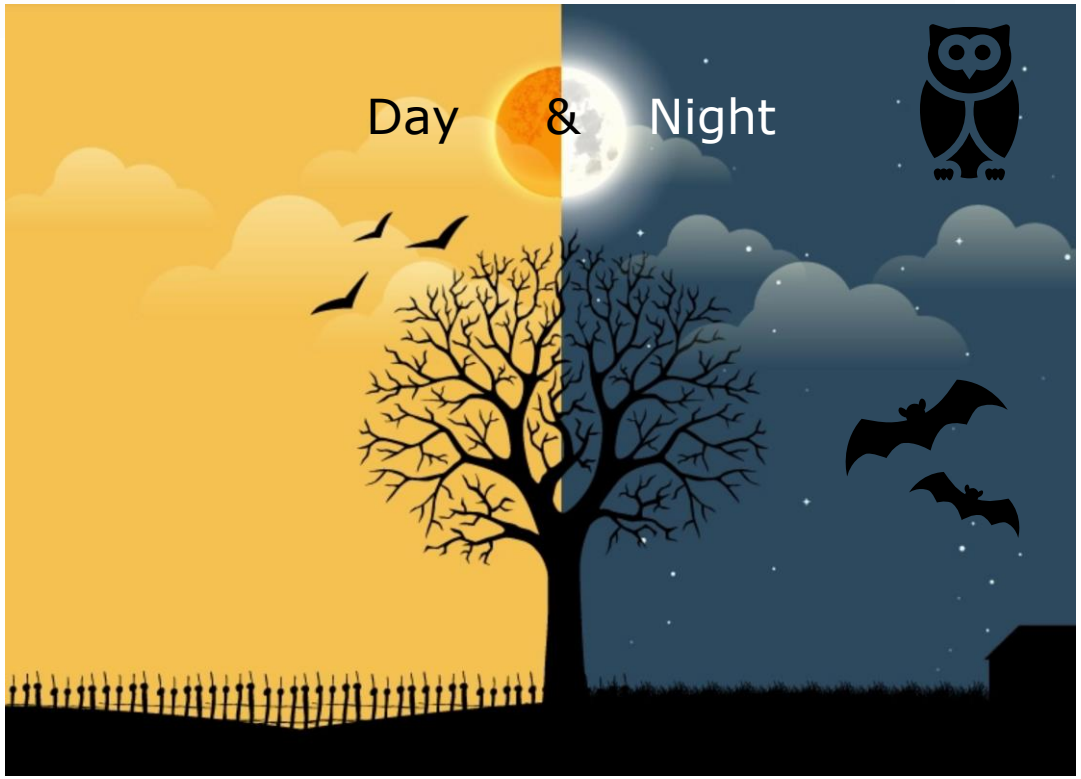
Track and signs of various animals on sand

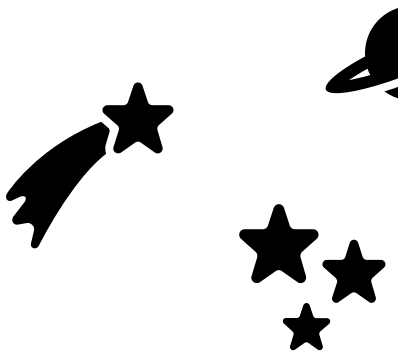
Biological signs

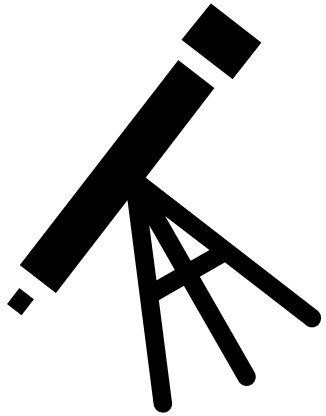
And the human being...

Reading Sky

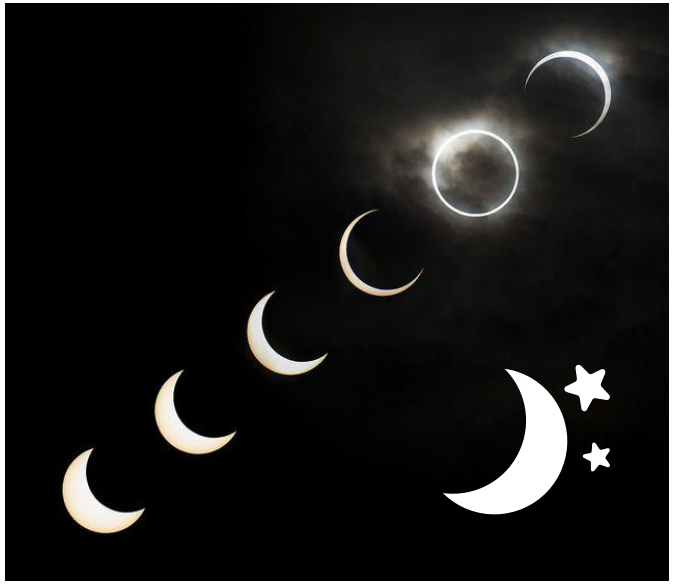
Moon phases



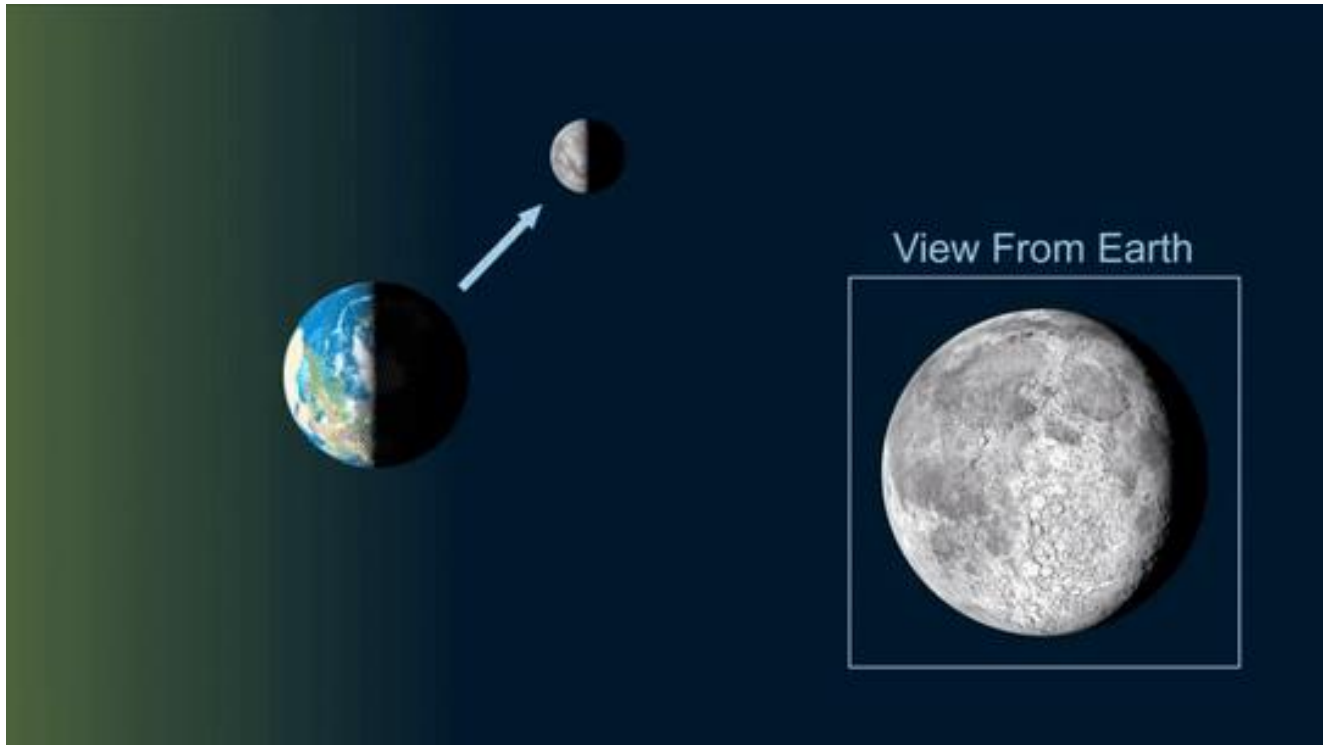




Solar eclipse



Moon phases



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

The Moon's cycle of phases repeats about every 29 ½ days, with the cycle shown here from a new moon on Day 1 to the next new moon on Day 30.

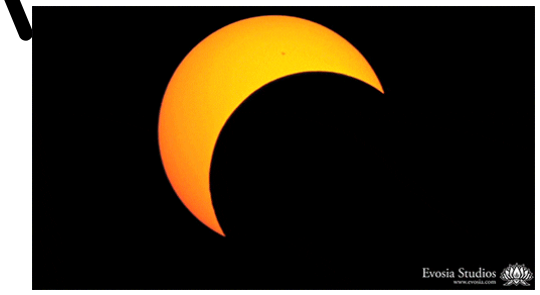
Solar & lunar eclipses

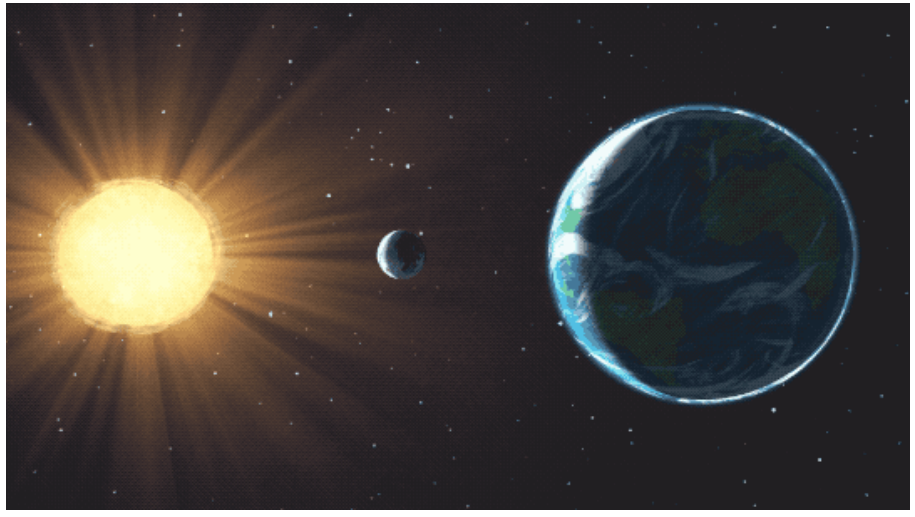
An eclipse is an astronomical event that occurs when an astronomical object or spacecraft is temporarily obscured, by passing into the shadow of another body or by having another body pass between it and the viewer.

A **solar eclipse** occurs when the Moon passes in front of the Sun. During a solar eclipse, the Moon can sometimes perfectly cover the Sun because its apparent size is nearly the same as the Sun's when viewed from the Earth.

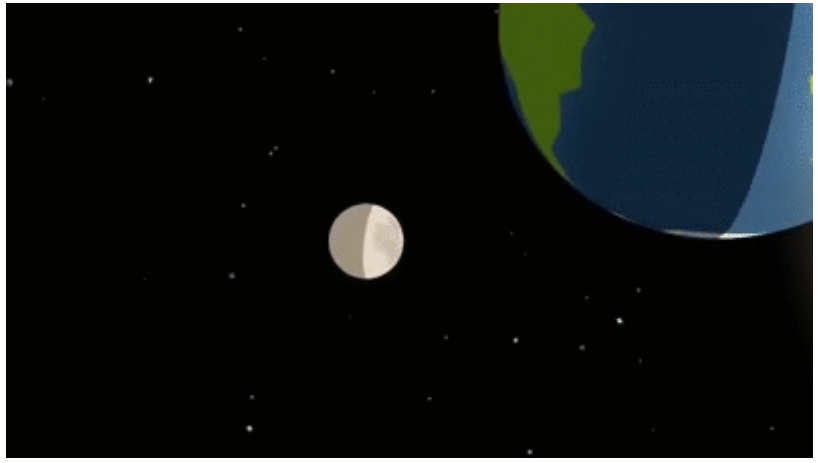
Lunar eclipses occur when the Moon passes through the Earth's shadow. This happens only during a full moon, when the Moon is on the far side of the Earth from the Sun.

Solar eclipse



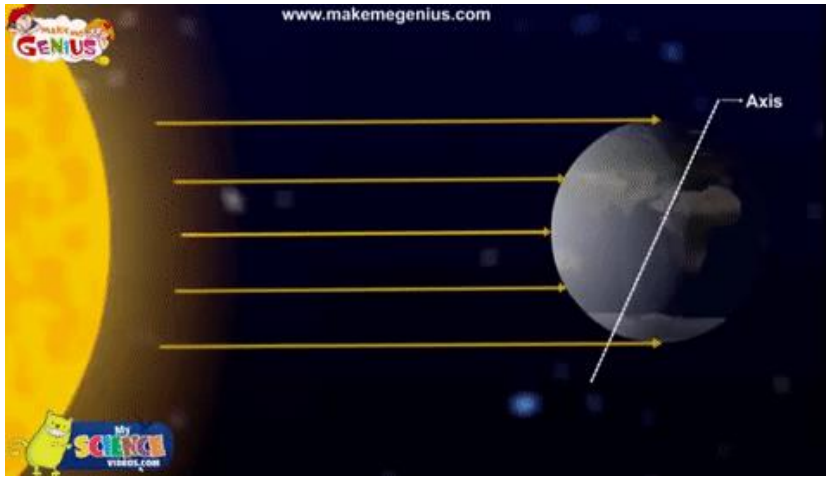


Lunar eclipse



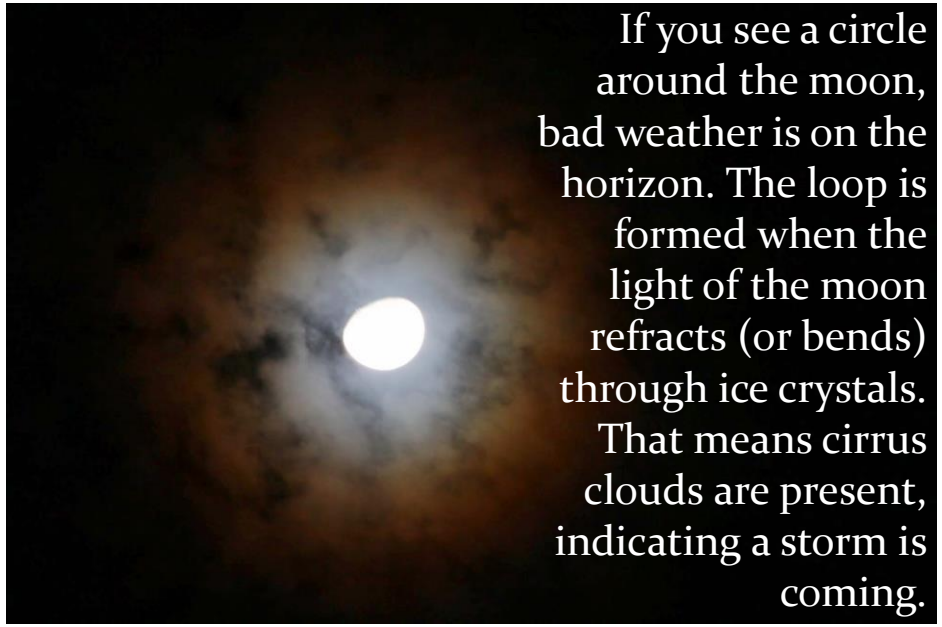
Day and night

The **Earth** orbits the sun once every 365 days and rotates about its axis once every **24** hours. **Day and night** are due to the Earth rotating on its axis, not its orbiting around the sun.



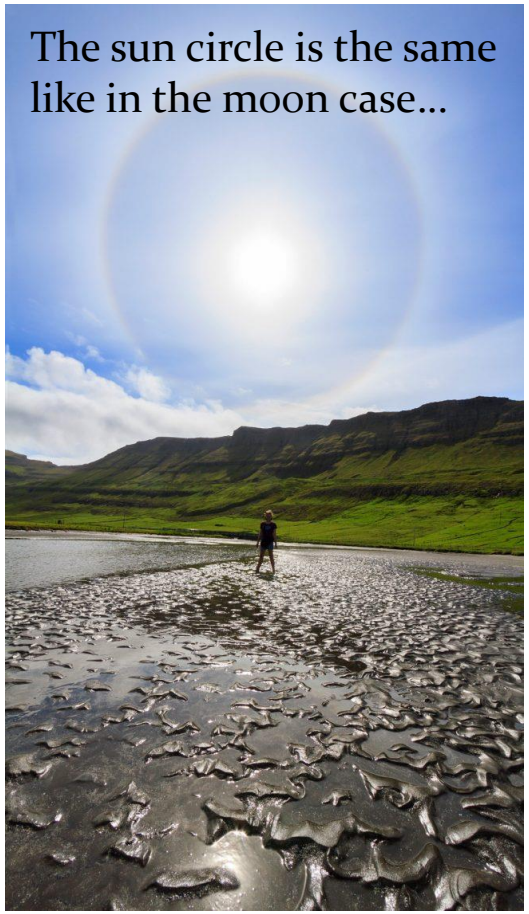
Weather

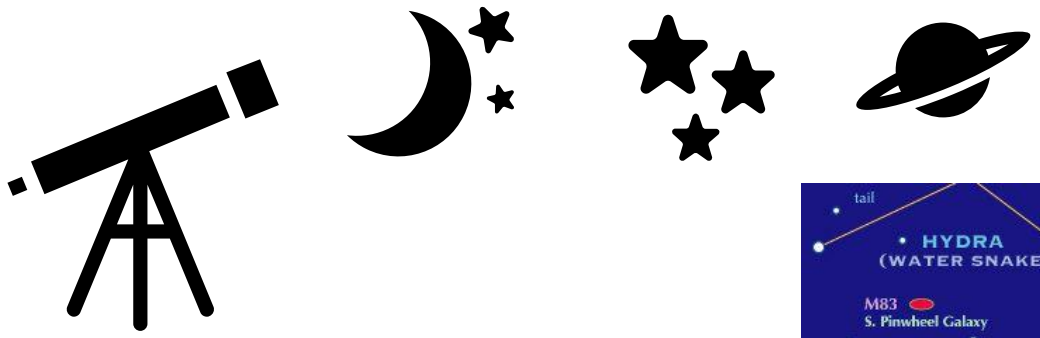
If there is a pink sunset, the sun is shining on dust particles that are being pushed by a high-pressure system. This situation brings warm, dry air. However, if the sunrise is red, it indicates that a low-pressure system likely is pushing moisture – and potentially winds. A storm will arrive soon.



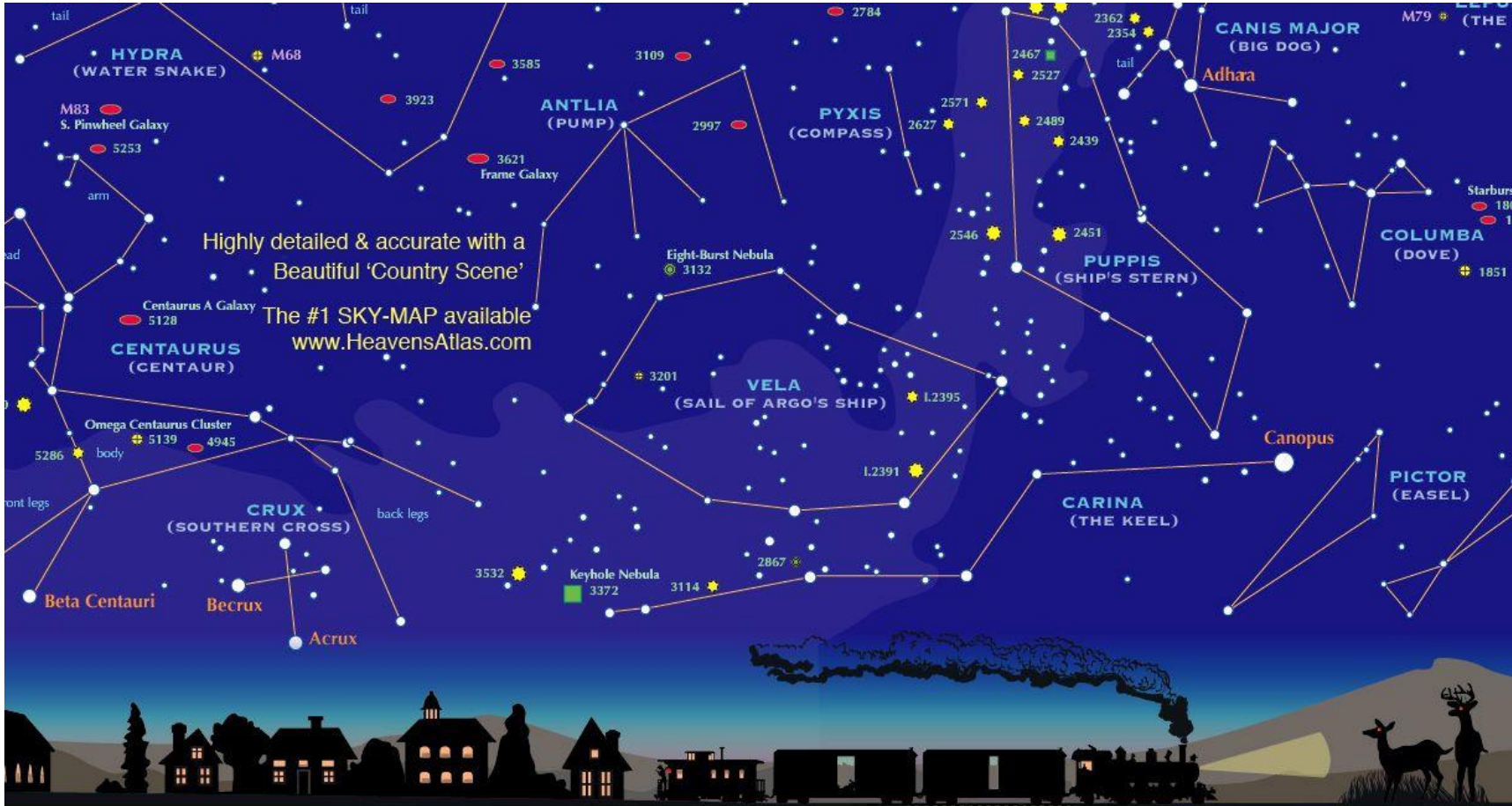
If you see a circle around the moon, bad weather is on the horizon. The loop is formed when the light of the moon refracts (or bends) through ice crystals. That means cirrus clouds are present, indicating a storm is coming.

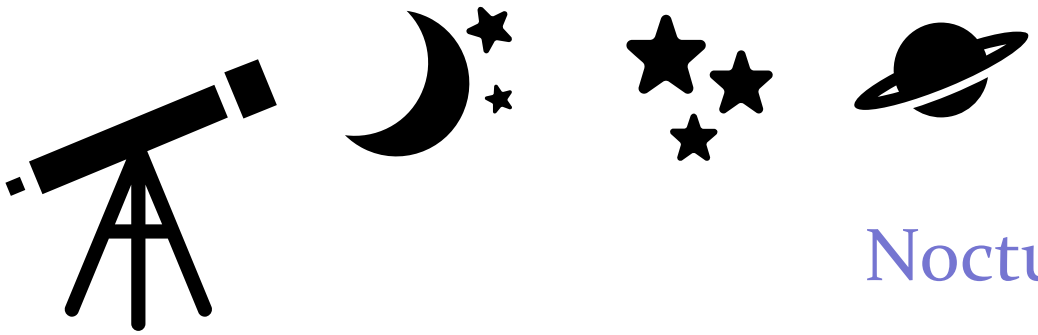
The sun circle is the same like in the moon case...





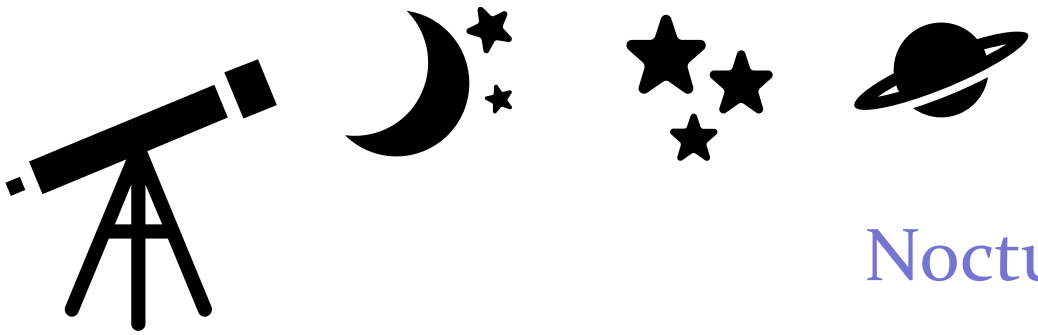
Here is a simple constellation atlas for those who willing to start stargazing…





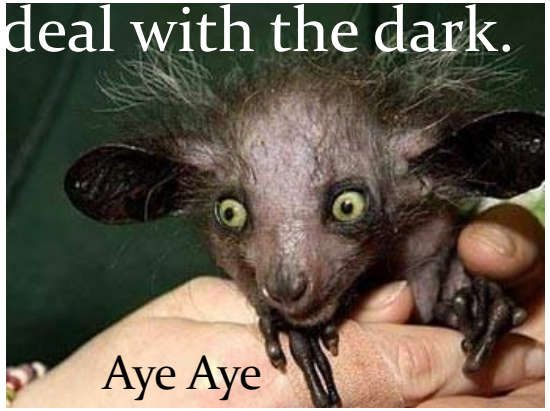
Nocturnal Animals

Nocturnality is an animal behavior characterized by being active during the night and sleeping during the day. The common adjective is "nocturnal", versus diurnal meaning the opposite. The most famous nocturnal animals are the bats and the owls...But lets see also more other less known examples of nocturnal animals.



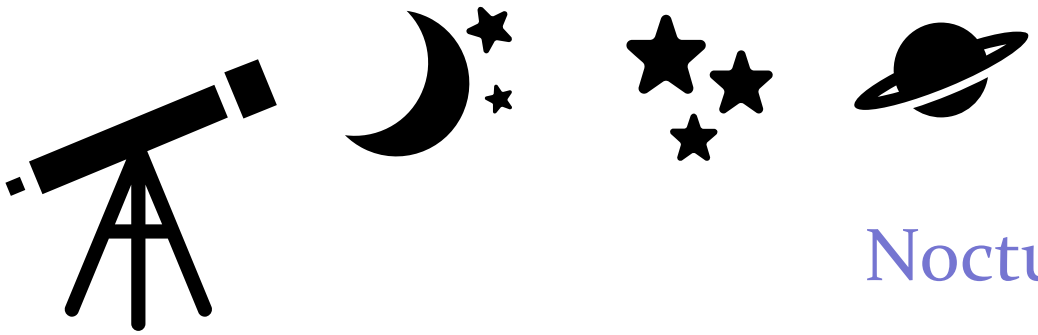
Nocturnal Animals

Nocturnal animals generally have highly developed senses of hearing, smell, and specially adapted eyesight with **large eyes** to deal with the dark.


Aye Aye


Tarsius


Night monkey



Nocturnal Animals

Many mice,

Porcupine,

Moths &

Raccoons are real nocturnals

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