

Instructions:

1. Print all 24 cards. (2 on each page)
2. Cut each card out individually.
3. Fold each card along the dotted line provided.
3. Secure with either tape or glue. It is recommended that the cards be laminated for multiple usage and durability.

I am made up of all eight planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune) that orbit the sun.

I also consist of all the moons that orbit the planets, comets, asteroids, dwarf planets (Pluto), the Kuiper belt, and dust and gas.

Even with all of these objects, I still consist of mostly empty space.

What am I?

International Dark-Sky Association

Images Courtesy NASA/JPL-Caltech



Meteors

I have over 60 moons that orbit around me.

I have a red spot on my surface. This is a very large storm that has lasted at least 300 years.

I am made of all gas. This means I have no actual surface.

If you were able to stand on my surface, a person weighing 70 pounds on Earth would weigh 185 pounds on me.

What am I?

International Dark-Sky Association

Images Courtesy NASA/JPL-Caltech



Solar System

Images Courtesy NASA/JPL-Caltech

I provide most of the natural energy needed to live on Earth.

I consume almost 98% of all the solar system's mass.

I am not red because I'm actually on fire. My color comes from the nuclear reactions inside my core rapidly turning the gas hydrogen into the gas helium

My outer visible layer is called the photosphere and it can reach almost 11,000° F.

What am I?

International Dark-Sky Association



Jupiter

Images Courtesy NASA/JPL-Caltech

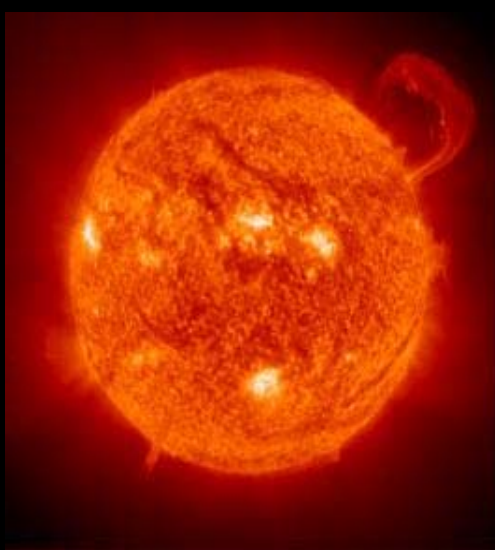
We first studied the universe with only our eyes and simple telescopes. In those days, the skies were bright with stars!

Today, we have the ability to use very large telescopes and advanced technology to learn about the far reaches of outer space.

Light pollution, however, is making it more and more difficult for us to do this because of the artificial glow coming from cities and towns.

What am I?

International Dark-Sky Association



The Sun

I was the first planet discovered by mathematics rather than observation.

I am a blue planet. This isn't because I am made of water, but because I have methane in my atmosphere..

I also have storms that can be more than 4 times more destructive than any hurricane on Earth.

Because I am 2.8 billion miles away from the sun, my temperatures can reach as low as -328° F.

What am I?

International Dark-Sky Association



Astronomers

More than \$10 billion is spent on me each year due to inefficient, intrusive lighting.

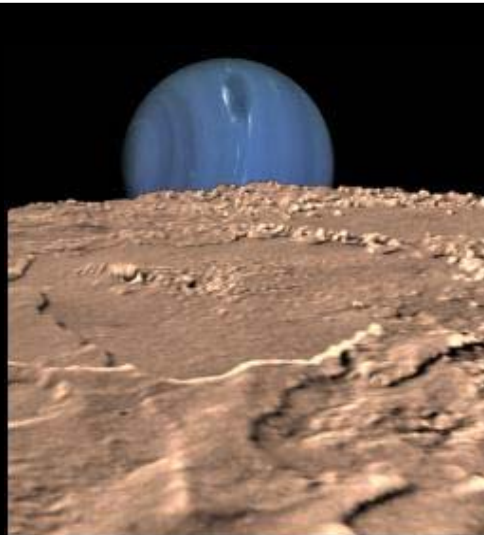
I result in over 38 million tons of carbon dioxide being unnecessarily released into our atmosphere.

All of this carbon dioxide contributes to global warming and air pollution.

Turning off outdoor lights when they are not in use is a great way to reduce the effects of me.

What am I?

International Dark-Sky Association



Neptune on Triton's Horizon

Neptune

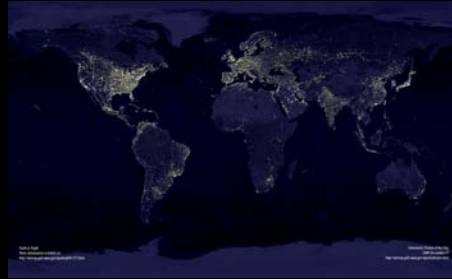
One of the most interesting facts about me is that my day is actually longer than my year. This means it takes longer for me to rotate on my axis than it does for me to orbit the sun.

I am a blistering inferno with temperatures reaching over 864° F with rains of sulphuric acid!

I am also unique because I spin in the opposite direction from all the other planets. This is called retrograde rotation.

What am I?

International Dark-Sky Association



Wasted Energy

I shine my light only on the ground where it is needed. This means I am a full cutoff lighting fixture.

I help visibility and insure safety by eliminating shadows and dark areas.

A good example of me is motion detectors, which only turns on lights when there is movement. This save energy and our night skies.

I eliminate glare and other issues associated with light pollution

What am I?

International Dark-Sky Association

Images Courtesy NASA/JPL-Caltech



Venus

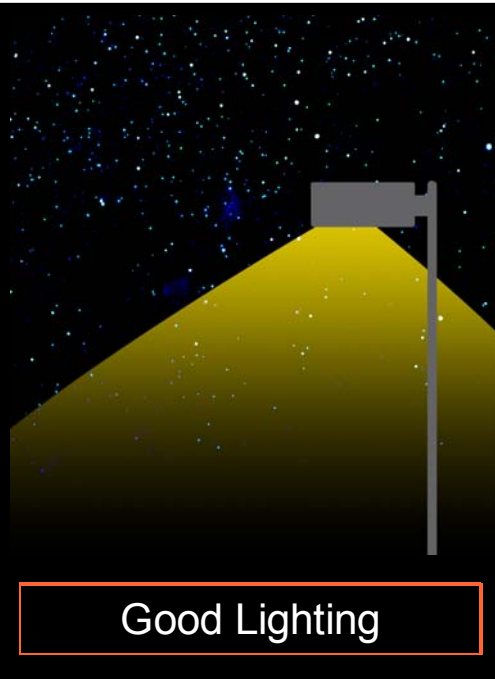
I am a gaseous planet. My atmosphere is so thin that if we could put me in a huge bathtub filled with water I could float.

I have very thick rings made of rocks and ice.

I was first discovered by Galileo in 1610. Because of my rings, scientists were not certain I was a planet until 1659 when better telescopes allowed them to see me more clearly.

What am I?

International Dark-Sky Association



Good Lighting

In 2006, I was designated a dwarf planet because I am so small and my orbit doesn't lineup with those of the other planets.

I am usually the farthest planet from the sun, but sometimes my oval orbit brings me closer to the sun than Neptune!

In even the best and biggest Earth-based telescopes, I appear to be no more than a dot.

My year is 248 Earth years long.

What am I?

International Dark-Sky Association



Saturn

I am 1.8 billion miles from the sun and has a diameter of almost 32,000 miles.

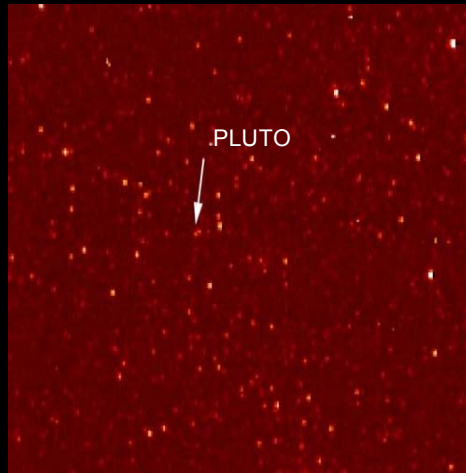
I am not blue because I am made of water. I am blue because I am mostly made of helium.

I, much like Jupiter and Saturn, am made of gas without a solid surface.

Although I am the next planet after Saturn, I am over twice Saturn's distance from the sun.

What am I?

International Dark-Sky Association



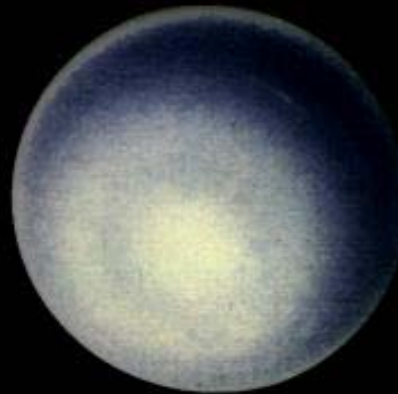
Pluto

• I am caused by:

- Tall building in cities that keep their lights on all night
- Unshielded lighting on houses and businesses that cause glare and sky glow
- Hotels and lighted tourist attractions
- Fishing boats, cruise ships, and off-shore oil platforms
- People who are unaware of my adverse effects or who do nothing to improve the situation

• **What am I?**

International Dark-Sky Association



Uranus

My day is only slightly longer than the day on Earth at 24.6 hours.

My southern hemisphere is vastly cratered and resembles the surface of Earth's moon.

My northern hemisphere is much different we fewer craters that are far less eroded. This indicates they are younger than the southern ones.

I am the most explored planet, with many research spacecraft sent by NASA.

What am I?

International Dark-Sky Association



← Before

After →



Light Pollution

• All of me – including birds, insects, mammals, reptiles, amphibians, and fish – are disrupted by light pollution .

- Baby sea turtles have difficulty find they way to the ocean after hatching because they are distracted by artificial lighting.
- Every year, 100 million birds die in North America from flying into brightly lit buildings
- Moths and other insects become so attracted to outdoor lights they they become easy prey for predators.

Light during night hours affects all nocturnal wildlife.

• **What am I?**

International Dark-Sky Association



Mars

Unlike the other small bodies in the solar system, I am noticed sooner because of my greater visibility.

I am a mixture of ices (both water and frozen gases) mixed with dust that were not incorporated into planets when the solar system was formed.

I am sometimes referred to as a dirty snowball.

As I get closer to the sun, the ice I'm made of begins to melt. This is why sometimes it appears that I have a tail.

What am I?

International Dark-Sky Association



Wildlife

I am the only planet with liquid water, which is needed to sustain life.

Over 70% of my surface is covered with water.

My plate tectonics result in active volcanoes, mountains, sea trenches, and earthquakes.

My atmosphere protects me from solar radiation and meteors.

I am the only planet that humans can naturally live on.

What am I?

International Dark-Sky Association



Comets

Images Courtesy NASA/JPL-Caltech

I am the result of improper lighting that poorly directs its light.

I can also be caused by very bright and intrusive light.

You can see me up close and far away.

I can be damaging to the eyes and I decrease an individual's ability to see. This may limit safety.

In order to preserve your night skies and your night environment, I need to be eliminated.

What am I?

International Dark-Sky Association



Earth

The desire to further study our galaxies inspired astronomers to launch me into space.

I was the first optical observatory launched into space.

I have become more necessary as light pollution has increased and affected Earth-based telescopes.

I have needed repairs several times, but I still have the ability to produce amazing images of outer space.

What am I?

International Dark-Sky Association



Glare

Several hundred thousands of me have been discovered, an several thousand more are discovered each year.

There are 26 of me that are bigger than 200km in diameter.

The total mass of all of me combined is less than that of the moon.

The largest one of me is Ceres and it contains 25% of the mass of all the known pieces of me in our solar system.

What am I?

International Dark-Sky Association



Hubble Space Telescope

I have no air, clouds, wind, water, or rain because I have no atmosphere.

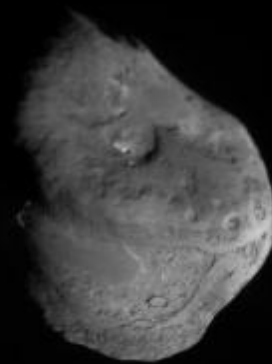
I look cratered like the moon because without wind or rain there is nothing to blow my them away.

Scientists have a model for my formation and history. It is believed that I have an iron core, much like Earth's.

My temperatures are very diverse. They can reach up to 800° F in the day and lows of -300° F at night.

What am I?

International Dark-Sky Association



Asteroids

Images Courtesy NASA/JPL-Caltech

I am the natural, internal 24-hour clock that humans and other creatures have.

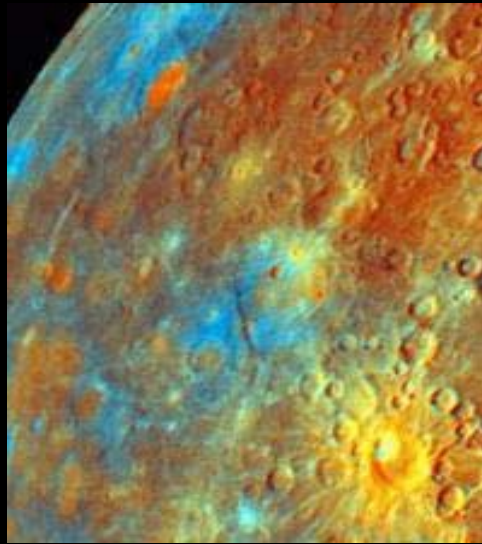
For humans, I can be greatly effected by the amount of quality sleep a person receives each night.

Today, artificial light allows us to be more active during night hours, which can cause disruptions to me.

This can affect our immune systems, cell productions, mental abilities, and physical strength.

What am I?

International Dark-Sky Association



Mercury

I consist of many small icy bodies and I'm considered a source of asteroids, comets, and meteors in our solar system.

I am located outside the orbit of Neptune.

The study of me is a rapidly growing field that has had major advancements in the last few years.

Many scientists believe that Pluto was formed within me.

What am I?

International Dark-Sky Association



Circadian Rhythm

Meteoroids become me when they enter Earth's atmosphere. At this time, they are heated by friction, and streak across the sky as a glowing tail.

I can be the brightest object in the sky, yet I can also be the smallest objects observed by the human eye.

When you see me in Earth's atmosphere, you often refer to me as a shooting star.

What am I?



Kuiper Belt

How to play:

1. Distribute one card to each student until there are no cards remaining.
2. Allow the students to read the backs of their cards.
3. Choose one child to begin the game.
4. This child reads the information contained on the back of their card. The student should finish by asking "What am I?"
5. The student who's picture on the front of their card matches the information read, holds their card in the air and calls out the answer.
6. Steps 4 through 5 are then repeated.



How to Play