Speed of light "c" = 3.0×10^8 m/s

or

"c" = 3.0×10^5 km/s

300 000 km/s

1 yr = 365 days
1 day = 24 hr
1 hr = 60 min
1 min = 60 sec

1 year in seconds

$$\text{Time} = 1 \text{ year} \times \frac{365 \text{ days}}{1 \text{ year}} \times \frac{24 \text{ hr}}{\text{day}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{60 \text{ sec}}{\text{min}}$$

= 31 536 000 seconds

Distance of 1 light year = c x t

= (3.0 x 10^5 km /sec) x (31 536 000 sec)

= 9.4606 x 10^{12} km

given on a test

Conversion is

1 Light year = 9.4606×10^{12} km

it is a measure of Distance

Ex) If a star is 18 light years away, what is its distance in "km"?

$$18 \text{ Light years} \times \frac{9.4606 \times 10^{12} \text{ km}}{1 \text{ Light year}} = 1.70 \times 10^{14} \text{ km}$$

exp button not "x"

1.70 14

Space on calculator means x10

Ex) If a star is 2.76×10^{14} km away, how many light years is that?

$$2.76 \times 10^{14} \text{ km} \times \frac{1 \text{ Ly}}{9.4606 \times 10^{12} \text{ km}} = 29 \text{ Light years}$$

This is Really Division

It is light years away

Exp or $\cdot 10^{x}$

9.4606 Exp 12

9.4606 12 9.4606 $\times_{10}$ 12

So if a star is 9 Light years away

What is it's distance in km?

exp button on calculator

9.4606 Exp 12

1 Light year = 9.4606×10^{12} km

$9\ Ly \times \frac{9.4606 \times 10^{12}}{1\ Ly} =$ [ ]

9 light years= (9.4606×10^{12}) km x 9

$= 8.51454 \times 10^{13}$ km

≈ 85145400000000 km

on calculator screen

8.5145413

space

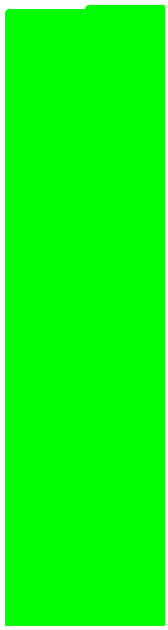
x10

Starting with the sun, can you list the planets?

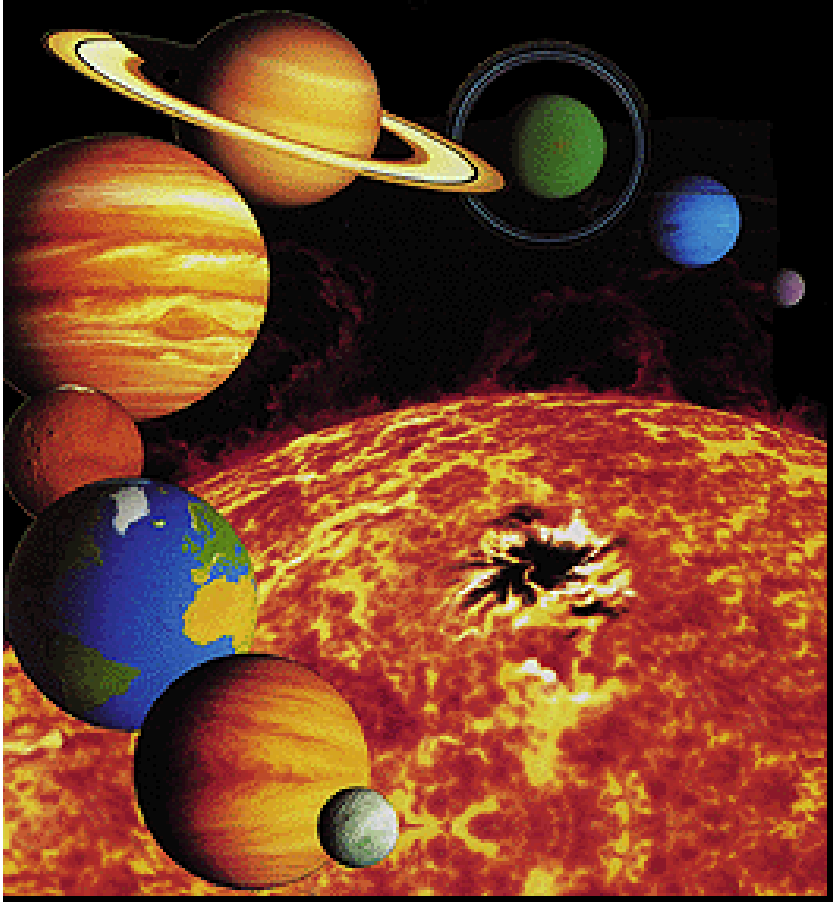
Sun

My
Very
Excited
Mother
Just
Served
Us
Nachos

Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune



Our solar system consists of the sun and everything that travels around it.

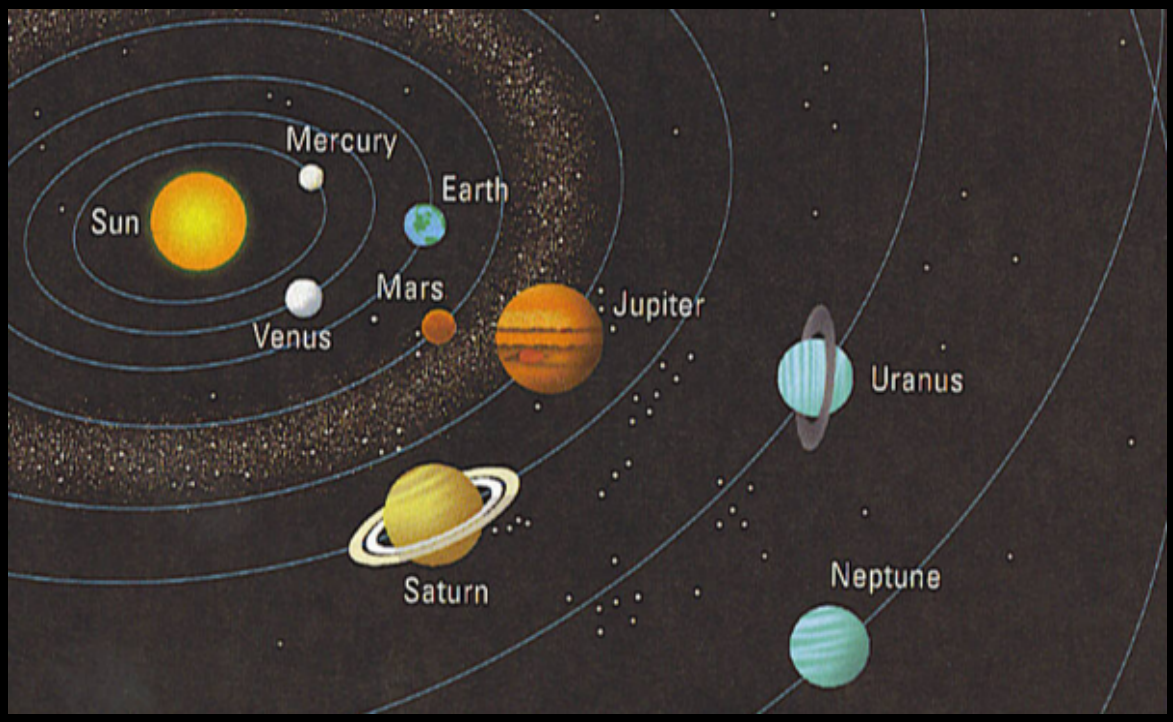


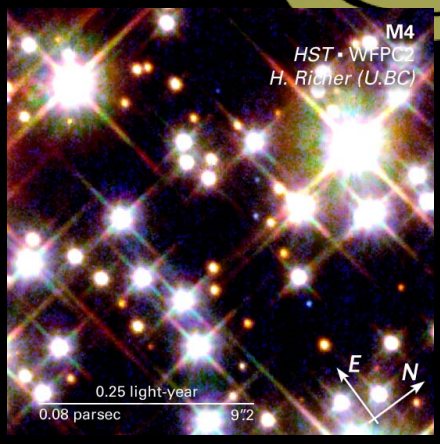
Planets and moons do not emit their own light. They are nonluminous. We can see them because light from the sun reflects off them.

FUN NOTE: Everything in the solar system is much closer to earth than the stars.

How come we can't see all the planets

The sun is very bright, so objects close to it get hidden in the daytime glare.
So when Mercury comes close to the sun it becomes difficult to see from Earth.





A star is matter that emits huge amounts of energy.

A planet is matter that revolves around a star.

Table 1 **Comparing Planets and Stars**

Feature	Planet	Star
location	in the solar system	far beyond the solar system
distance from Earth	fairly near	very far
real size	smaller than most stars	usually larger than planets
reason we see object	reflects light from the Sun	emits its own light
surface temperature	usually cool or very cold	very hot
what object is made of	usually rocks or gases	gases under high pressure and temperature
observable feature	does not appear to twinkle	appears to twinkle
long-term observable feature	very slowly wanders through constellations	appears to move through sky as part of a constellation

Attachments

Natural Science 9 Course Outline 2018 (Semester 2).pdf