

## National Numeracy Day

# Become a time traveller with the Royal Astronomical Society!

Time passes in different ways when you're in space. Learn why looking at distant objects in space is like looking back in time and create your own space timeline.

**Activity length: 25 minutes**

### What you'll need:

Paper, pen/pencil, calculator, access to history books/the internet, and this worksheet.

### For the space timeline:

1. Use the table to work out when in time we see the light from the different objects emitted and fill in column 3 (the first few have been done for you).
2. Use the information in column 3 to calculate how far back in time we would be seeing: use that information to fill in column 4 and create your space timeline in column 5 (the first few examples have been done).

Light travels at a speed of 186,000 miles per second in the vacuum of space, but space is so huge that even light, which is the fastest thing in space, takes time to travel to us.

A 'lightyear' is the distance that light takes to travel in one year.

Light from the Sun takes 8 'light minutes' to get to us. So, if we look at the Sun (which you should never do with the naked eye), we see it 8 minutes in the past.

This is the same for more distant objects: light takes 5.5 'light hours' to get from Pluto to Earth, so we see Pluto 5.5 hours in the past.

If we look at a really distant object, we might be seeing it 300 years in the past. That makes us able to travel back in time!



Check out our **FREE** resources at [nationalnumeracy.org.uk/numeracyday](https://nationalnumeracy.org.uk/numeracyday)





Object	Distance	Light emitted	Date in time	At that time in history
The Sun	8 light minutes	8 minutes ago	8 minutes ago	I was reading this activity sheet.
Pluto	5.5 light hours	5.5 hours ago	This morning	I was having my breakfast
Alpha Centauri	4.3 light years (ly)	4.3 years ago	2020	COVID pandemic
Gliese 436b	33 light years			
Aldebaran	65.23 ly			
Polaris	433 light years			
Betelgeuse	642.5 ly			
Crab Nebula	6523 ly			
Sagittarius A	26,000 ly			
Andromeda Galaxy	2.5 million ly			
Sombrero Galaxy	29 million light years			
A Galaxy Far Far Away! (made up!)	13 billion light years			

### Extra learning:

See if you can find out which object in space is the furthest away from us, and what that tells us about the age (and fate) of the Universe.

### Career options:

If you study astrophysics at university you could be a researcher, astronomer, astrobiologist or astronaut amongst other things.

The sky isn't the limit in the space industry! For more information about careers in space have a look at [www.ras.ac.uk](http://www.ras.ac.uk) and [www.spacecareers.uk](http://www.spacecareers.uk)

