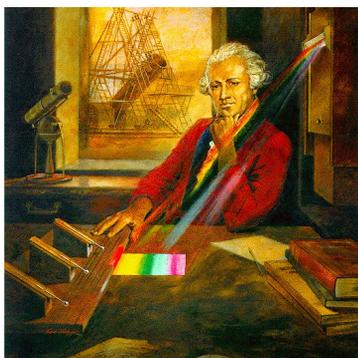


To Infrared and Beyond with Herschel!

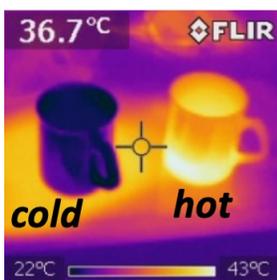
The **Herschel Space Observatory** is a telescope run by the European Space Agency. It works by observing the Universe in Infrared light, giving us a new view of the Universe that we cannot see with our naked eyes. Herschel can see things that were previously obscured by dust, and objects so cold that they were invisible to telescopes that came before.



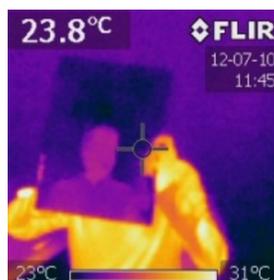
Infrared radiation was first discovered by **William Herschel** in the year 1800. We can use it to tell us about the temperatures of hot and cold objects.



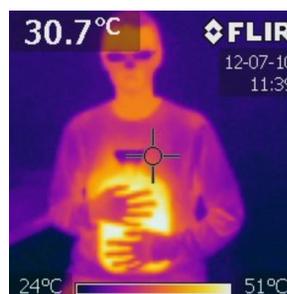
Side note: William Herschel is also credited with the discovery of Uranus in 1781 and wrote in 1801 of his belief that the Sun had an internal habitable surface!



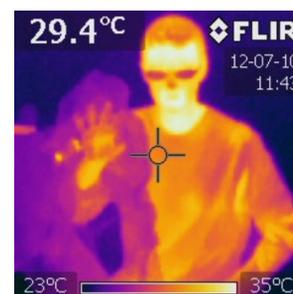
Cups of tea at different temperatures



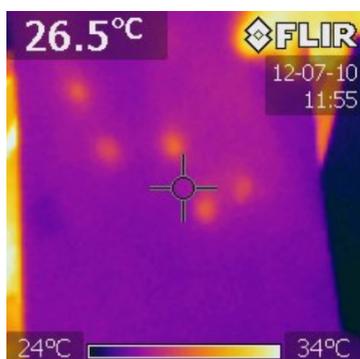
Glass acts like a mirror



Hot water bottle



Hand inside a bin bag



Heat transfer through a screen

Today we use an **infrared camera** to investigate infrared light:

- Looking at hot and cold objects (for example: cups of tea, hot water bottle).
- Looking at which materials let infrared light pass through them (the bin bag in the above image)
- Passing heat through a screen to make hidden hot objects appear.

This resource was created by Dr Chris Pearson and Dr Ed Polehampton (RAL), updated in April 2024. They worked on the SPIRE instrument onboard Herschel.

More information about Herschel can be found at:

- **UK Public Outreach site**
(<https://herscheltelescope.org.uk/>)
- **ESA Public Outreach site**
(https://www.esa.int/Science_Exploration/Space_Science/Herschel)