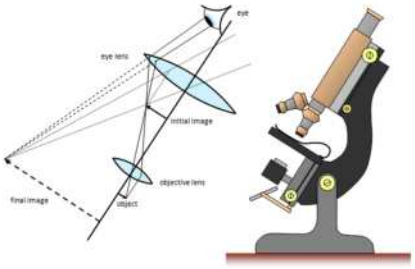
OPTICAL DEVICES

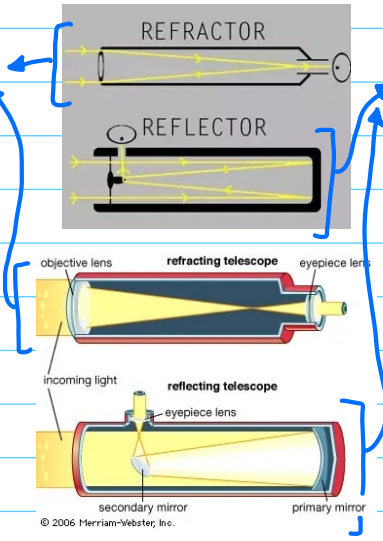
OPTICAL DEVICES → ANY TECHNOLOGY THAT USES LIGHT
→ CAN BE ANYTHING FROM A MIRROR TO THE JAMES WEBB TELESCOPE

MICROSCOPE → FIRST INVENTED C.1595 → EVOLVED GREATLY SINCE
→ ENABLES GREAT DETAIL BY COMBINING MULTIPLE LENSES.
→ AT LEAST 1 OBJECTIVE LENS & EYEPIECE = OBJECT IS MAGNIFIED.
→ ALL MICROSCOPES FOLLOW THE SAME PRINCIPLES @ BASIC LEVEL



TELESCOPES → TWO MAIN TYPES OF TELESCOPES...

REFRACTING TELESCOPES
→ 2 LENSES ON BOTH ENDS OF LONG TUBE
→ LARGE LENS = OBJECTIVE LENS (GATHERS LIGHT)
FOCUSES LIGHT TO THE EYEPIECE



REFLECTING TELESCOPE
→ USES LARGE CIRCULAR MIRROR CURVING INWARDS
→ GATHERS LIGHT VERY EFFICIENTLY
→ SMALLER MIRROR DIRECTS LIGHT TO EYEPIECE



https://www.youtube.com/watch?v=mYhy7eaazIk

WATCH: CRASH COURSE - TELESCOPES

http://www.youtube.com/watch?v=Gx4uq83GSrE

https://www.youtube.com/watch?v=6VqG3Jazrfs





JAMES WEBB SPACE TELESCOPE

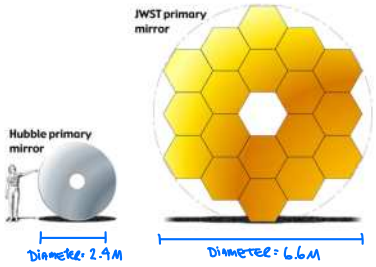
- A JOINT NASA-ESA-CSA TELESCOPE THAT REPLACED THE HUBBLE SPACE TELESCOPE in 2022.
  - → $10 Billion (2016)
  - → ORBITS THE SUN, NOT EARTH
    - → 1.5 Million Km FROM EARTH



HUBBLE



JAMES WEBB

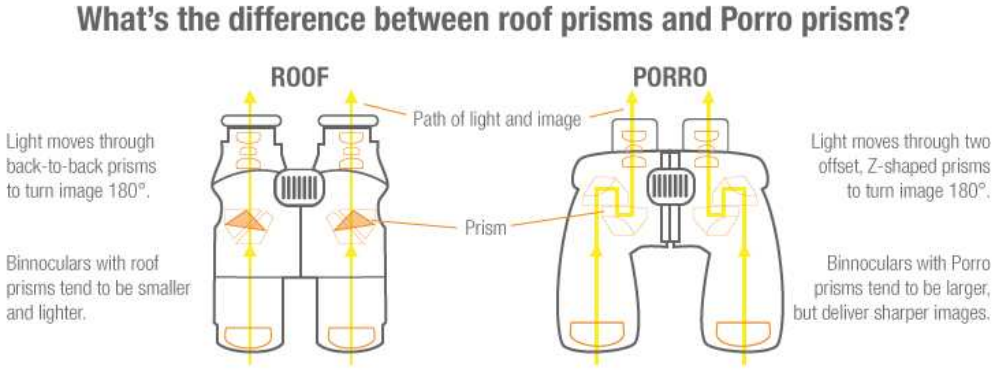




HUBBLE ↑ JAMES WEBB ↑

BINOCULARS

- → CAN'T ALWAYS CARRY TELESCOPE SO... BINOCULARS it is
- → 2 SHORT REFRACTING TELESCOPES FIXED TOGETHER, JUST NOT AS POWERFUL



PINHOLE CAMERA

- → CAMERA W/ TINY APERTURE & NO LENS
- → USEFUL FOR REAL-TIME VIEWING | SAFE OBSERVATION of SUN

