ABINGDON SCIENCE PARTNERSHIP

1. The Lunar Disc

Edexcel GCSE Astronomy Course

2.1 Know the shape of the Moon
2.2 Be able to use information about the mean diameter of the Moon (3500 km)

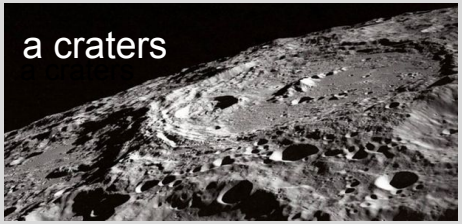
1. The diameter of the Earth is 13000km. Calculate the ratio of Moon to Earth diameters.

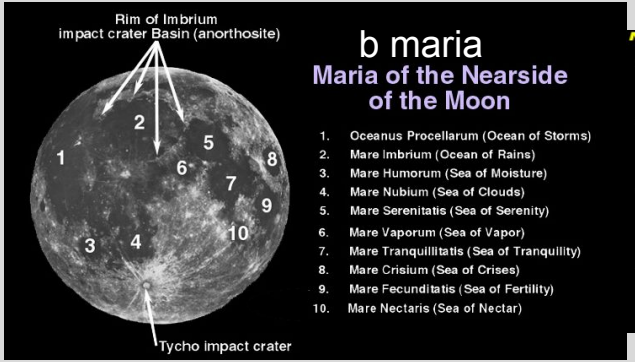
Try some calculation challenges using the mean diameter of the Moon:

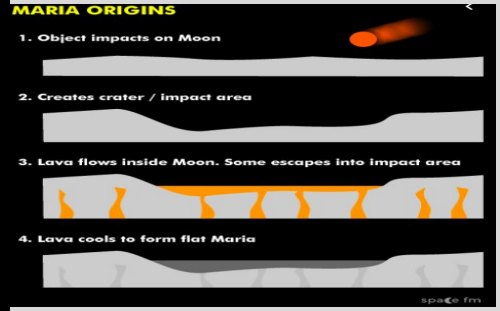
(d = 3500km)

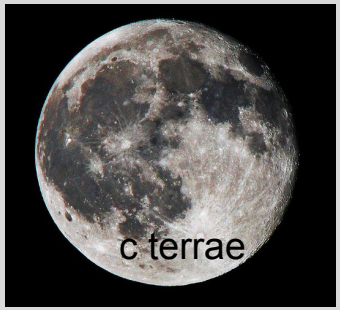
2. Calculate the Moon's circumference using πd
3. Calculate the surface area of the Moon using $4\pi(d/2)^2$
4. Calculate the volume of the Moon using $4/3(\pi(d/2)^3)$
5. Calculate the volume of Earth estimate how many Moons would fit inside it

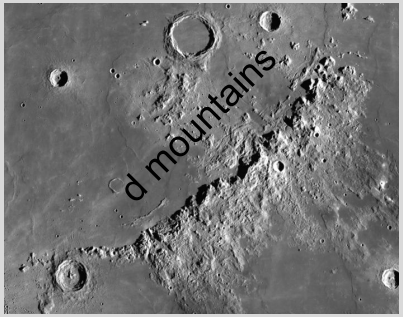
2.3 Be able to recognise the appearance of the principal naked-eye lunar surface formations, including: a craters b maria c terrae d mountains e valleys

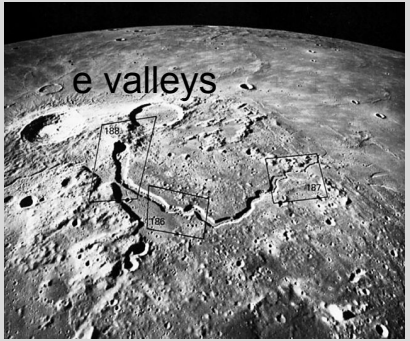












2.4 Understand the structure and origin of the principal naked-eye lunar surface formations, including:
a craters b maria c terrae d mountains e valleys

Write down definitions and explanations in two or three sentences using these sources:
a craters
https://astronmy.swin.edu.au/~smaddiso/astro/moon/craters.html

b maria

https://www.youtube.com/watch?time_continue=88&v=mIRPeYGKfic&feature=emb_logo 3 min video

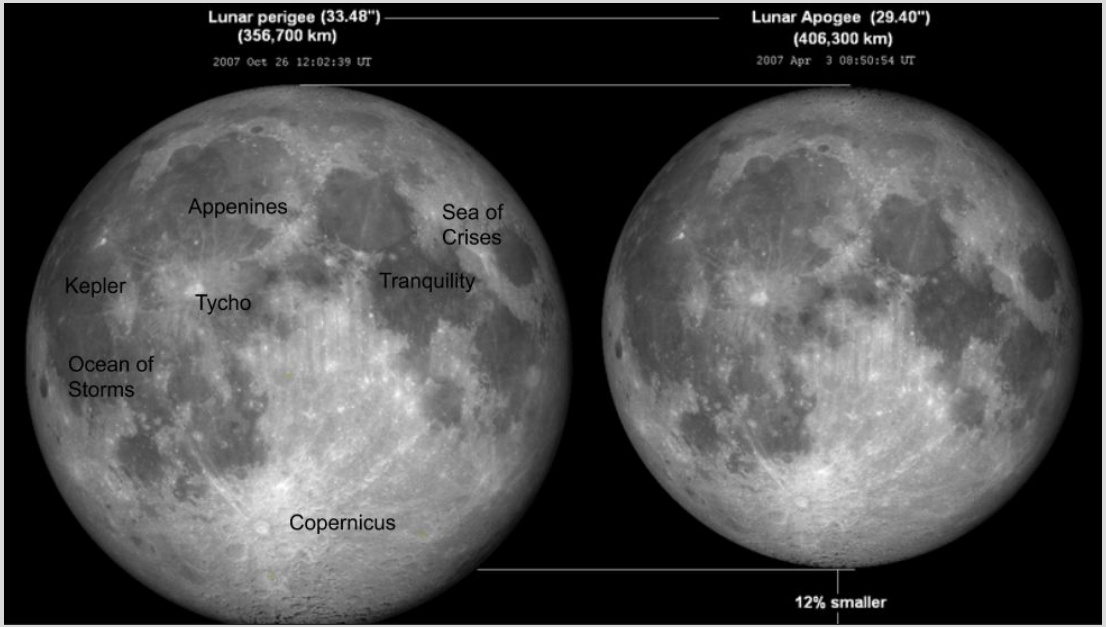
c terrae
https://www.space.fm/astronomy/earthmoonsun/mariaterrae.html

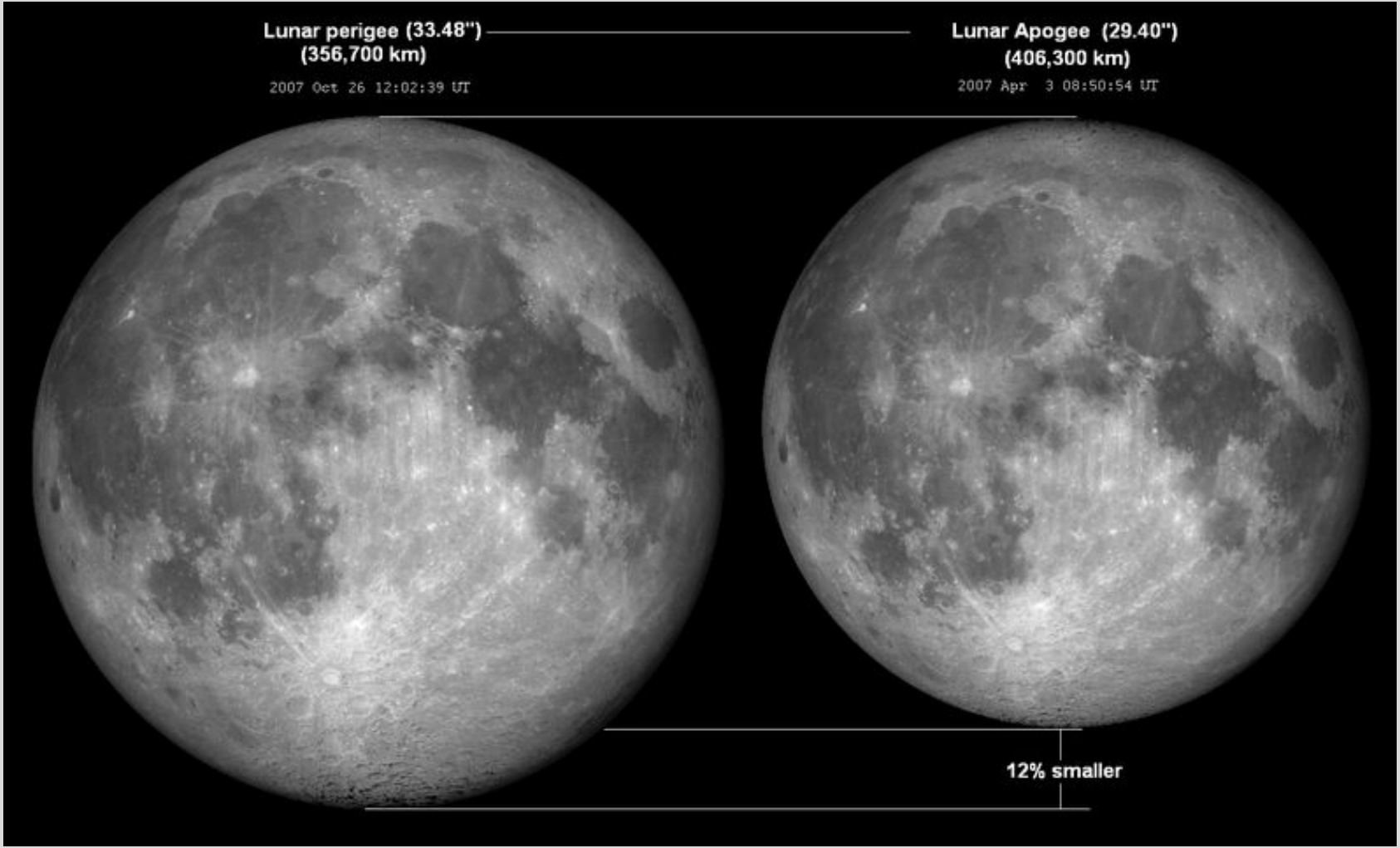
d mountains
https://www.universetoday.com/145254/comparing-mountains-on-the-moon-to-the-earths-peaks/

e valleys
https://www.space.fm/astronomy/earthmoonsun/valleys.html

2.5 Be able to identify the following features on the lunar disc:
a Sea of Tranquility b Ocean of Storms c Sea of Crises d Tycho e Copernicus f Kepler g Apennine mountain range

Learn the names and features then use the blank image on the next page to practise recalling them:




Lunar perigee (33.48")
(356,700 km)
2007 Oct 26 12:02:39 UT
Lunar Apogee (29.40")
(406,300 km)
2007 Apr 3 08:50:54 UT
12% smaller

2.6 Be able to use the **rotation** and **revolution** (orbital) periods of the Moon
2.7 Understand the **synchronous** nature of the Moon's orbit
2.8 Understand the causes of lunar **libration** and its effect on the visibility of the lunar disc

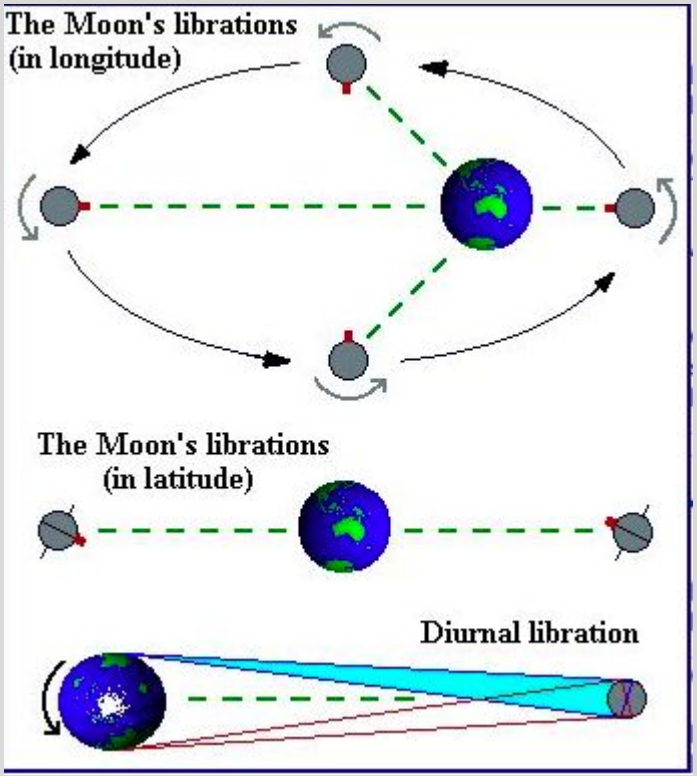
Rotation rates and video:
https://www.space.com/24871-does-the-moon-rotate.html

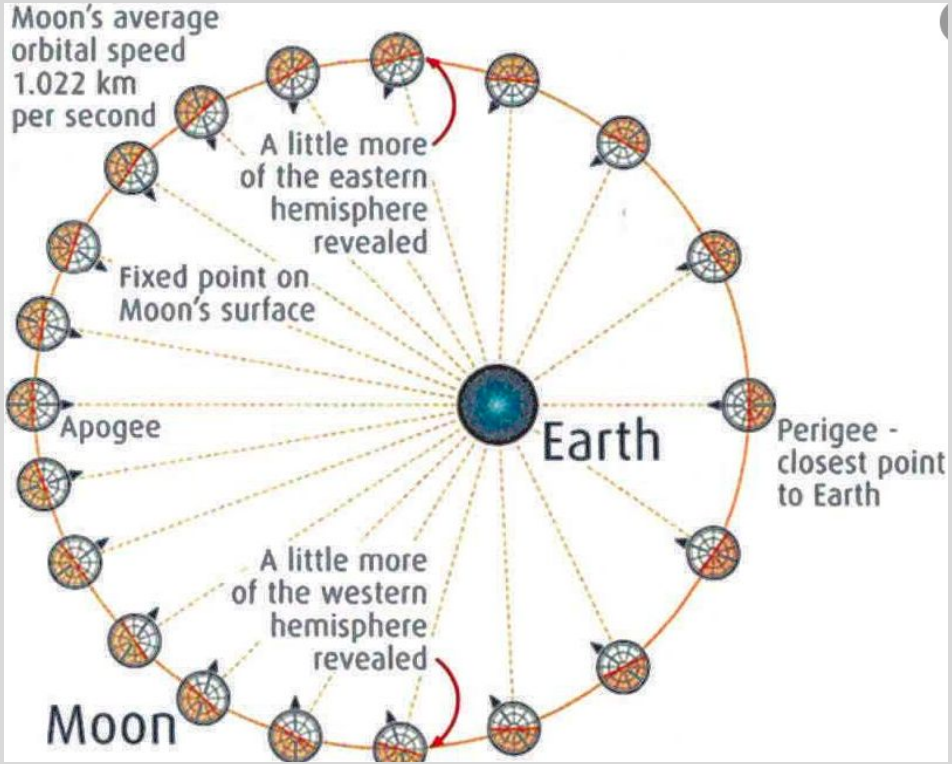
Synchronous orbit:
https://www.space.com/14808-moon-man-illusion-explained.html

Libration basically means that the Moon appears to 'wobble' so we see a bit round one edge and a bit round the other, like peering round a corner - we can see more than 50% of its face from Earth:
https://en.wikipedia.org/wiki/Libration
https://solarsystem.nasa.gov/resources/2233/moon-phase-and-libration-2019/
https://www.lunarphasepro.com/what-is-lunar-libration/

Play the video! Yellow dot is sun; blue dot is Earth; play a moon orbit to see how sun angle changes so lunar month is 29.5 days. Libration is the apparent wobble due to both inclinations. Inclination is explained here: https://commons.wikimedia.org/wiki/File:Earth-Moon.PNG#/media/File:Earth-Moon.PNG

2.8 Understand the causes of lunar **libration** and its effect on the visibility of the lunar disc





Summary resources and videos about the Moon

Read and watch these if you want to find out more:

https://www.lpi.usra.edu/exploration/education/hsResearch/presentations/2011_2012/CamdenFairview.pdf

https://www.nhm.ac.uk/discover/how-did-the-moon-form.html

https://history.nasa.gov/SP-362/ch4.1.htm

https://www.bbc.co.uk/programmes/articles/5gdrKwHtXhRkcq0xHDdhqvj/section-1-the-lunar-seas