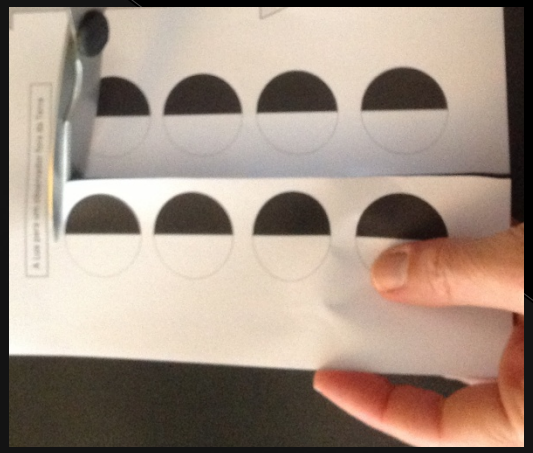
Moon Phases

GOALS:

- **Understand Moon phases.**
- **Understand why the Moon always shows the same face to Earth.**
- **Recognise the importance of the usage of models in the study of astronomy.**

Moon Phases



While you cut all pieces, take a look at the video "Full Moon Silhouettes"

http://vimeo.com/58385453

Leonor Cabral – Cascais, 4th of September 2014

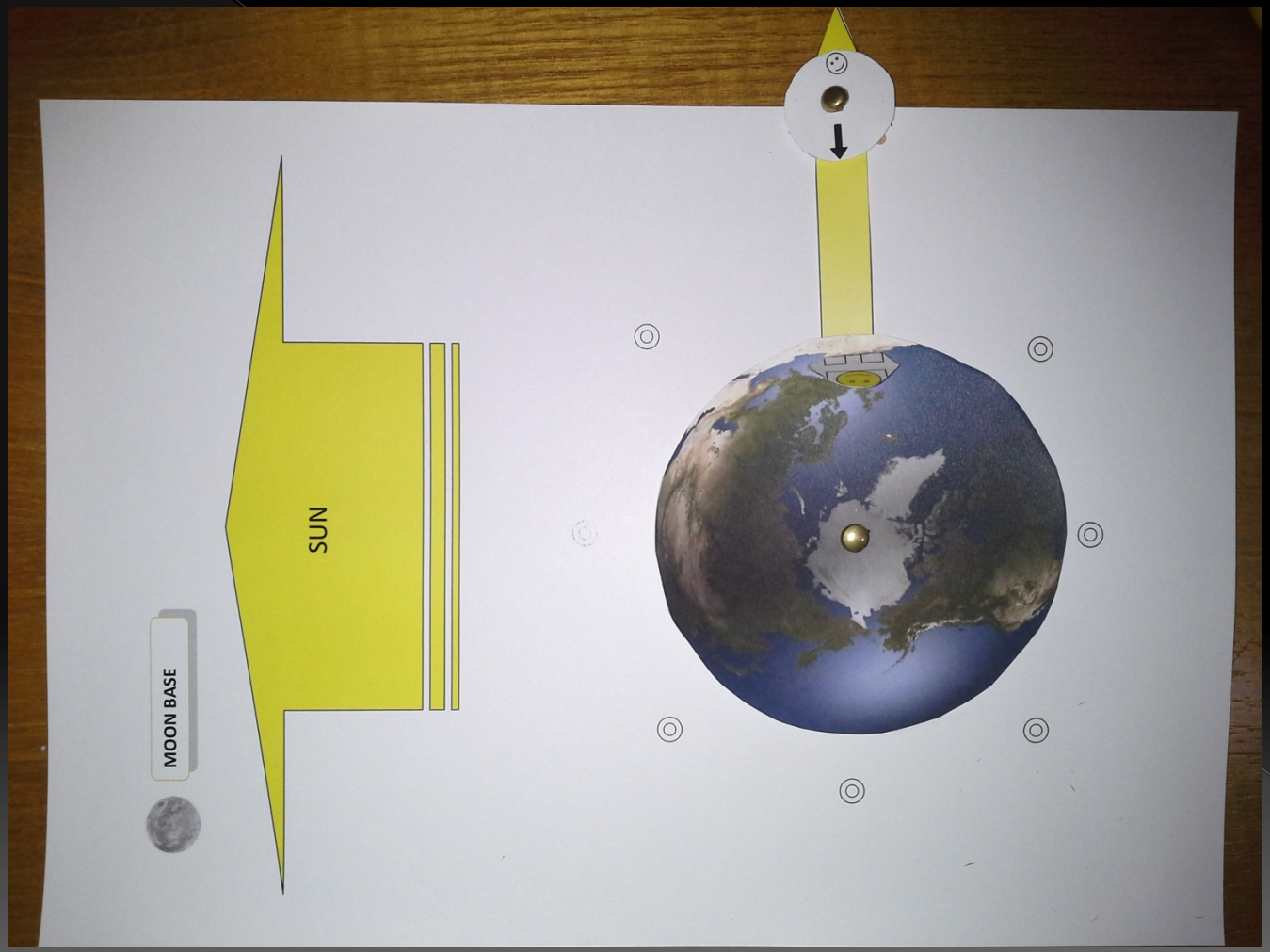
Some statements about the video for your consideration

- The video was made in Cascais.
- The Moon will show the same phase again, in one week.
- The movement of the Moon results of its motion around the Earth.

Investigation with Stellarium or real observation

- Look for the Moon and advance the days to find how many days are necessary in order to repeat the same Moon phase.
- Look the features on the Moon seen from different places on Earth.
- Find how much the position of the Moon changes in one day.

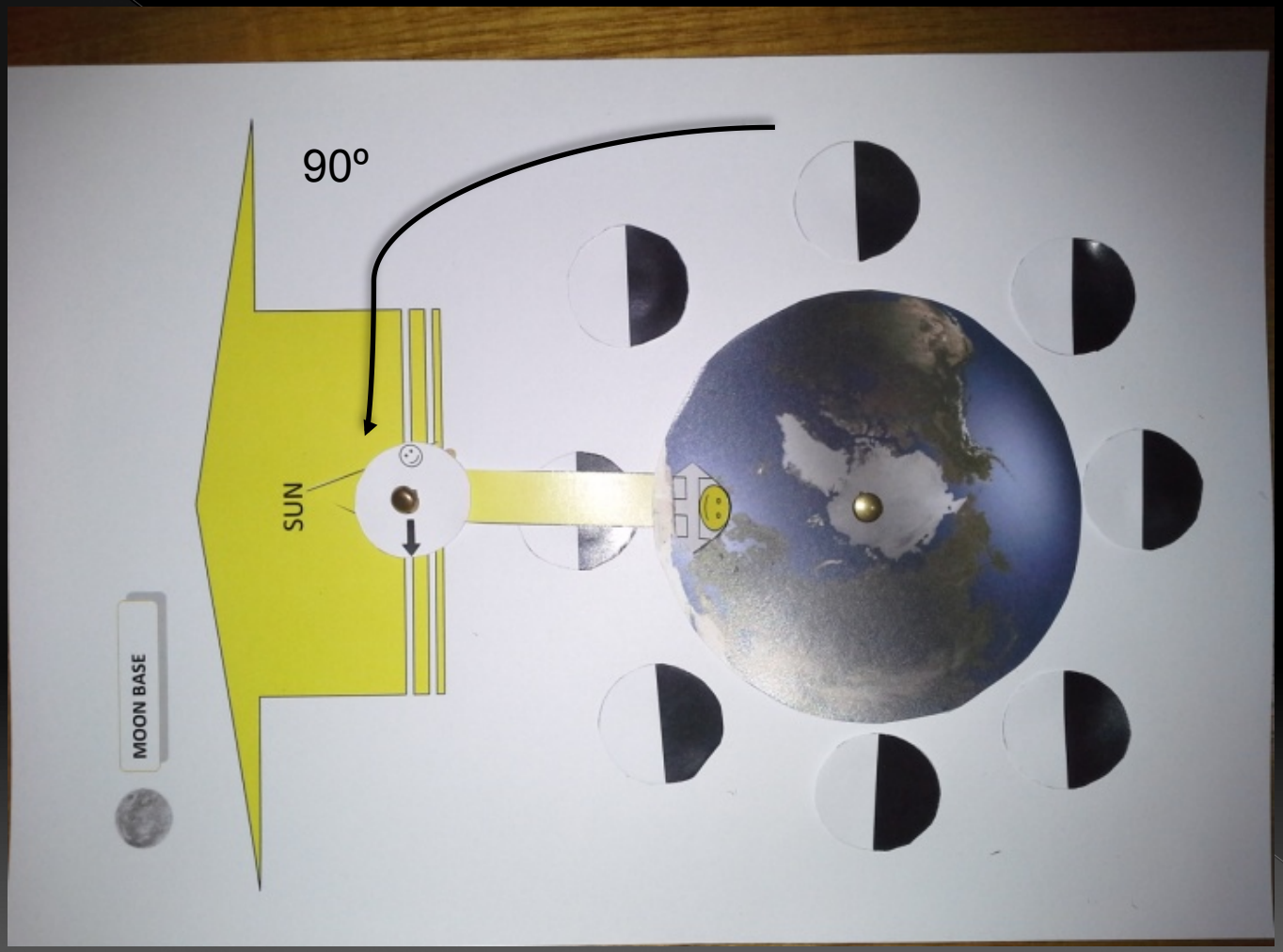
Moon Phases



- Assemble the Earth, the circle with a smile and an the arrow on the base as shown in the picture
- Place the black/ white circles around the Earth representing the illuminated face of the Moon

Leonor Cabral – Cascais, 4th of September 2014

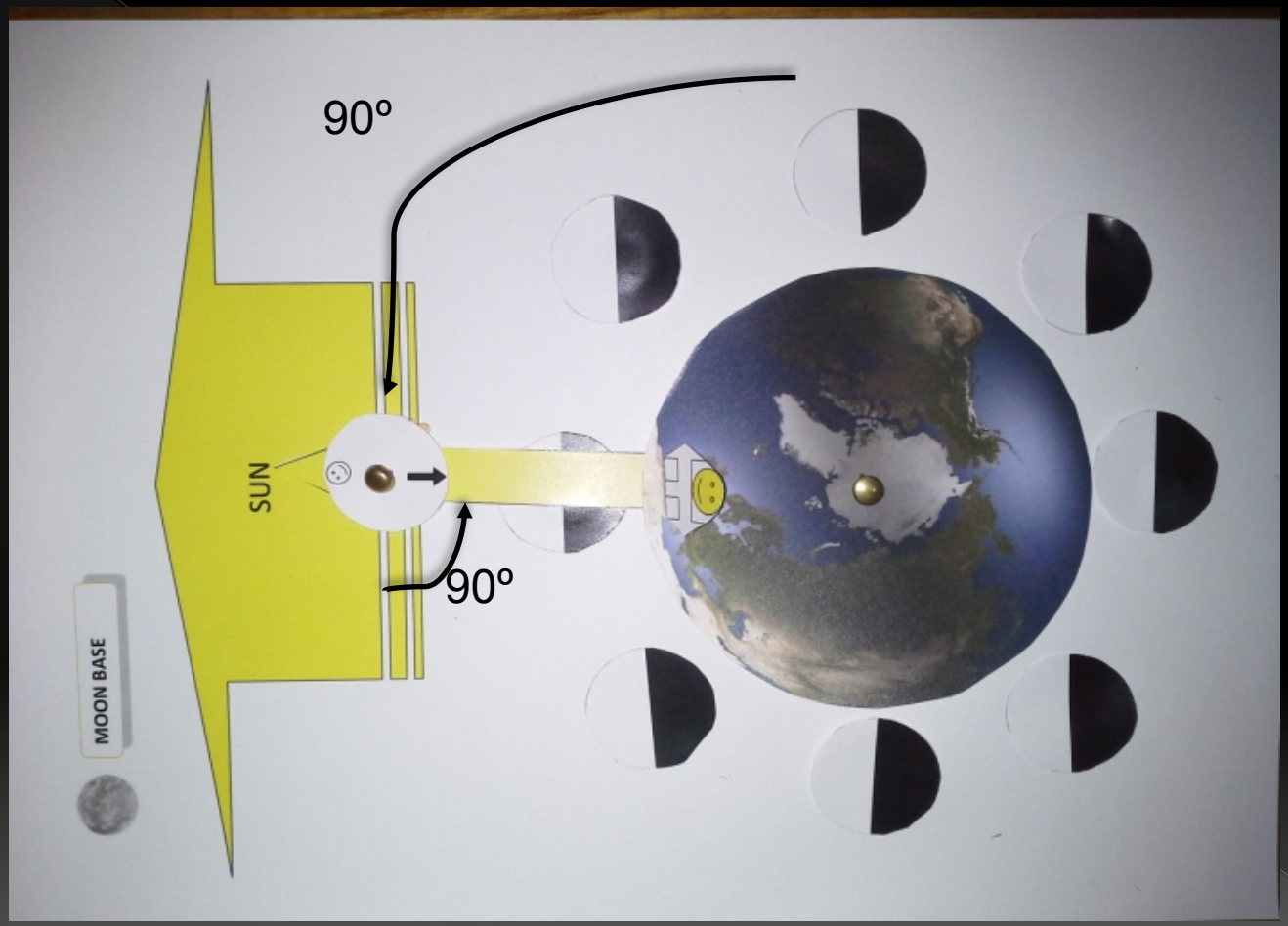
Moon Phases



If the Moon doesn't rotate around its axes we will see the "smile"!

Leonor Cabral – Cascais, 4th of September 2014

Moon Phases



If the rotational and revolution periods of the Moon are the same, we will see always the same face.

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Moon Phases

Place the Moon phase correctly distributed around the Earth.

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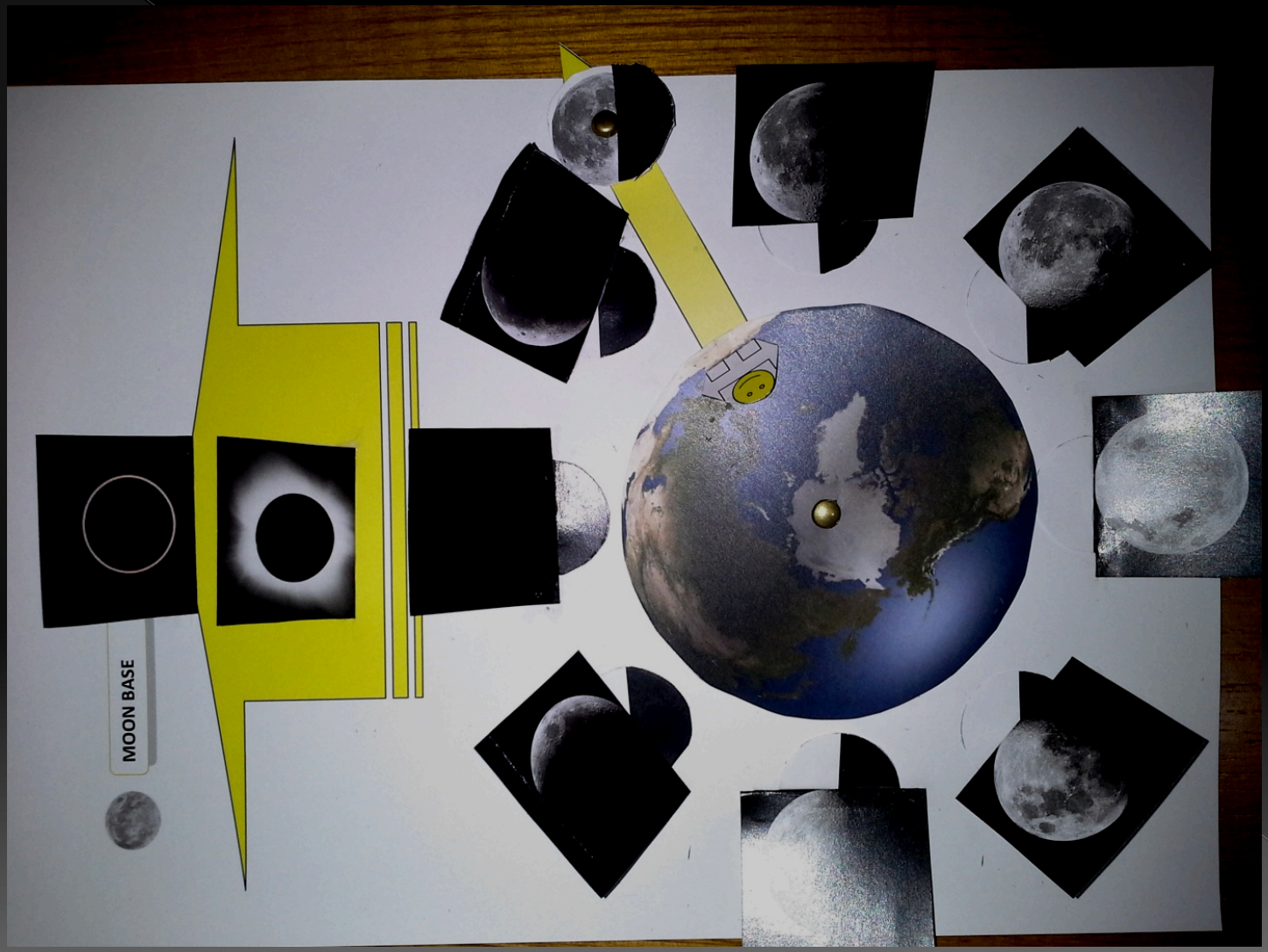
Moon Phases



Place in the right position the pictures of the total and the annular solar eclipse.

(Pay attention to the difference on the distance Moon/Earth in both cases)

Leonor Cabral – Cascais, 4th of September 2014

Moon Phases

More information:

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Link to materials

Moon Phases

http://portal.discoverthecosmos.eu/en/node/195740

Fases da Lua

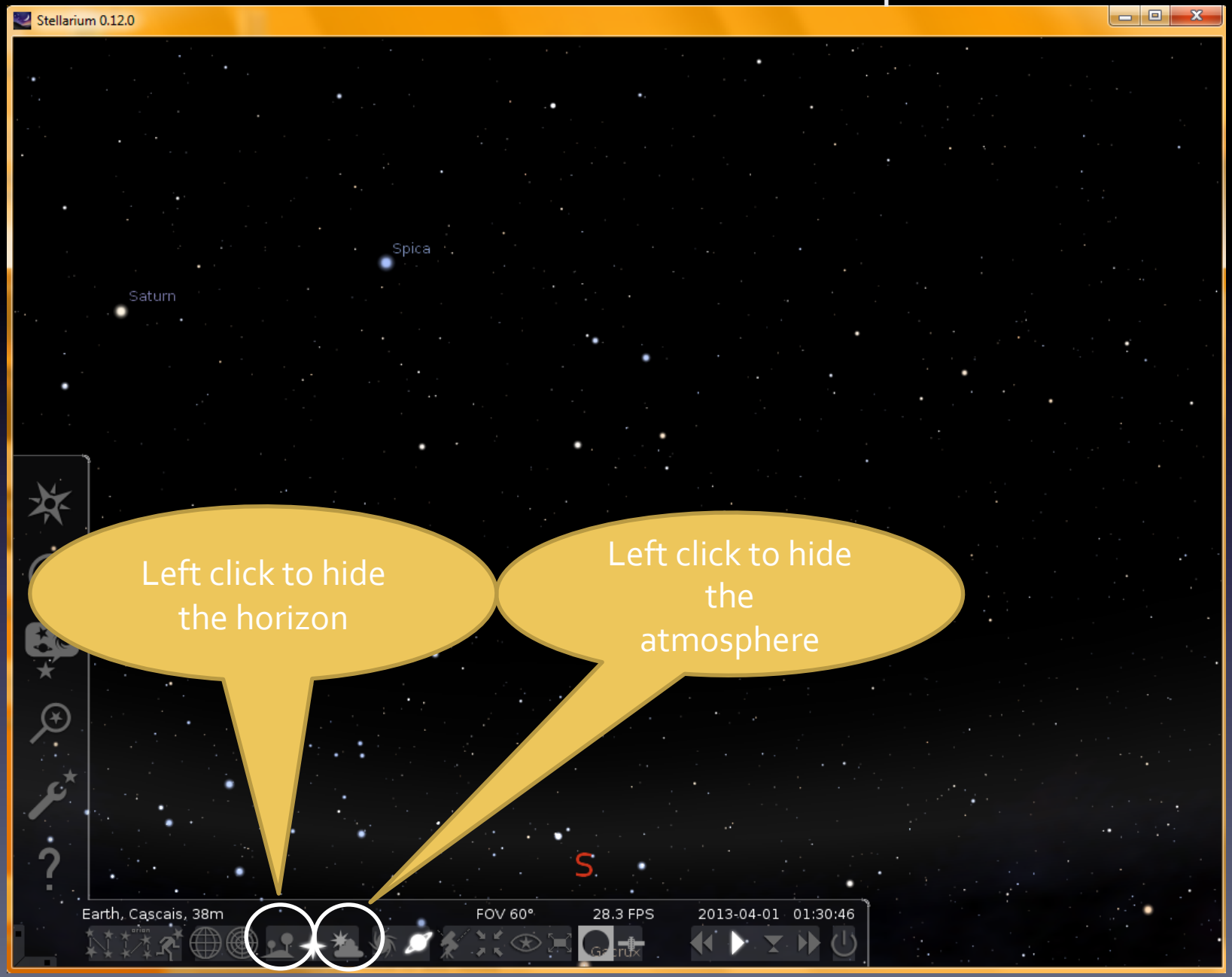
http://portal.discoverthecosmos.eu/en/node/192795

Moon phases

How to see the phases of the Moon with Stellarium

To lock the toolbars

Hide the horizon and the atmosphere



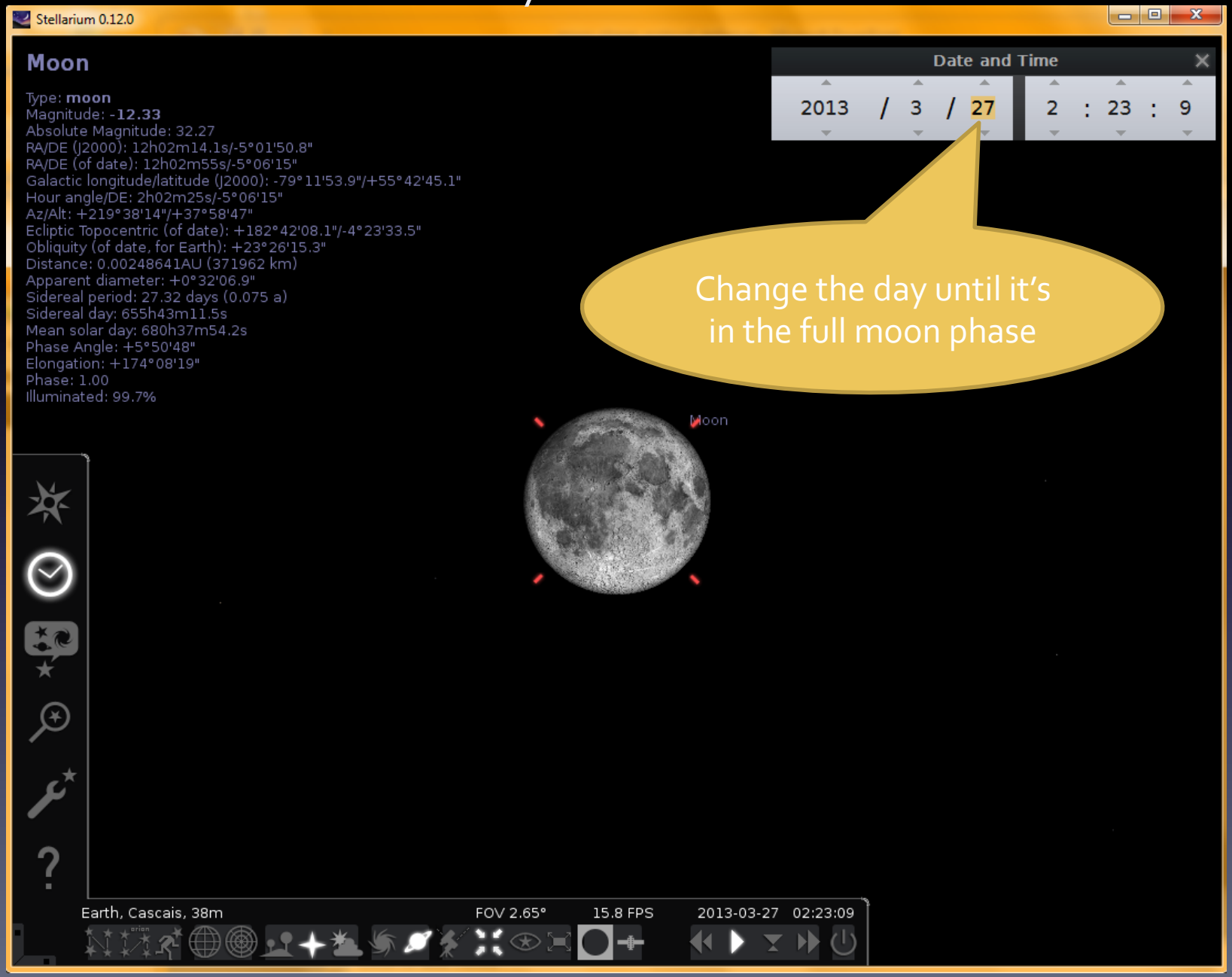
Open the date and time window

Find the Moon

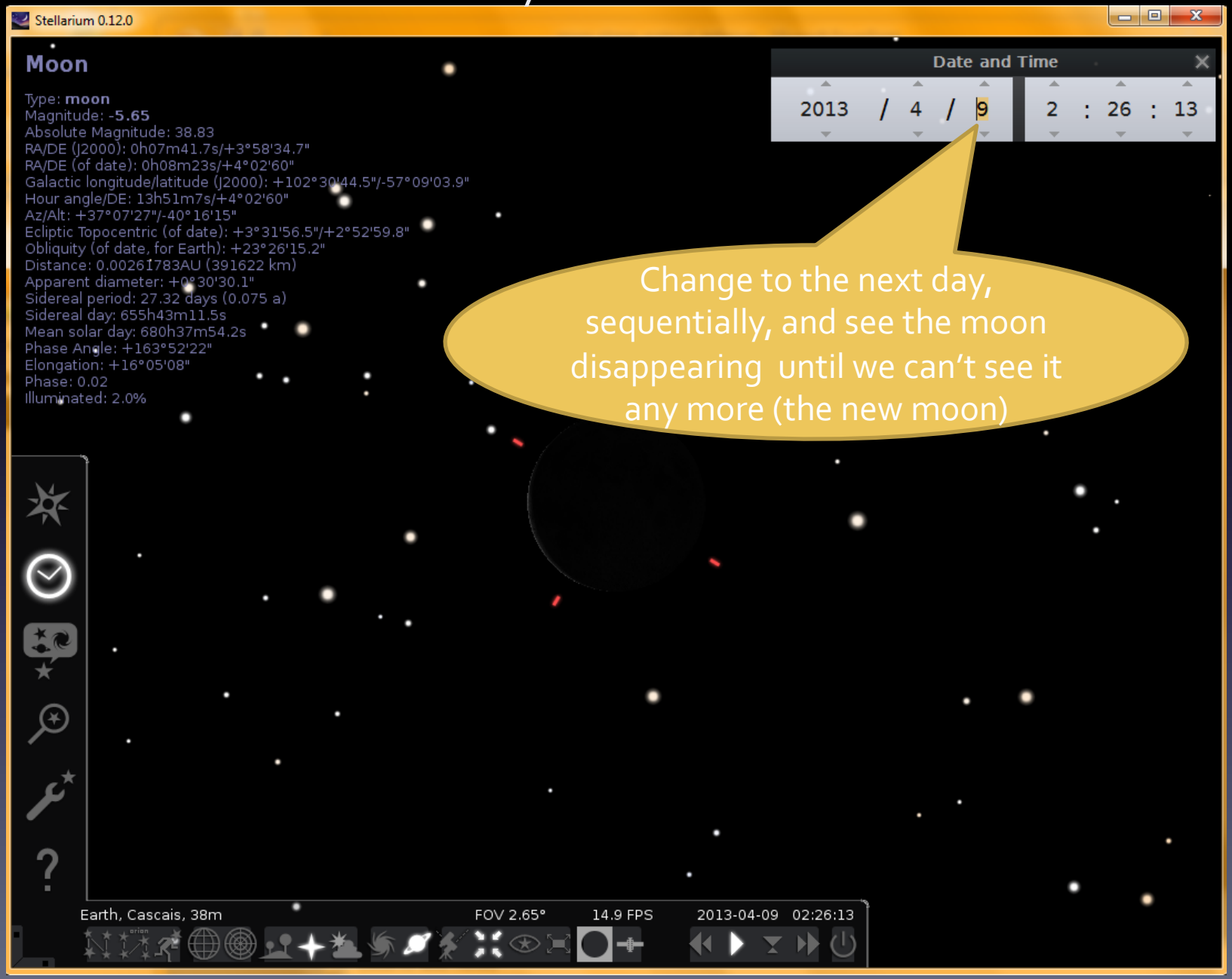
Hold and center the Moon

Enlarge the image of the Moon

Day transition

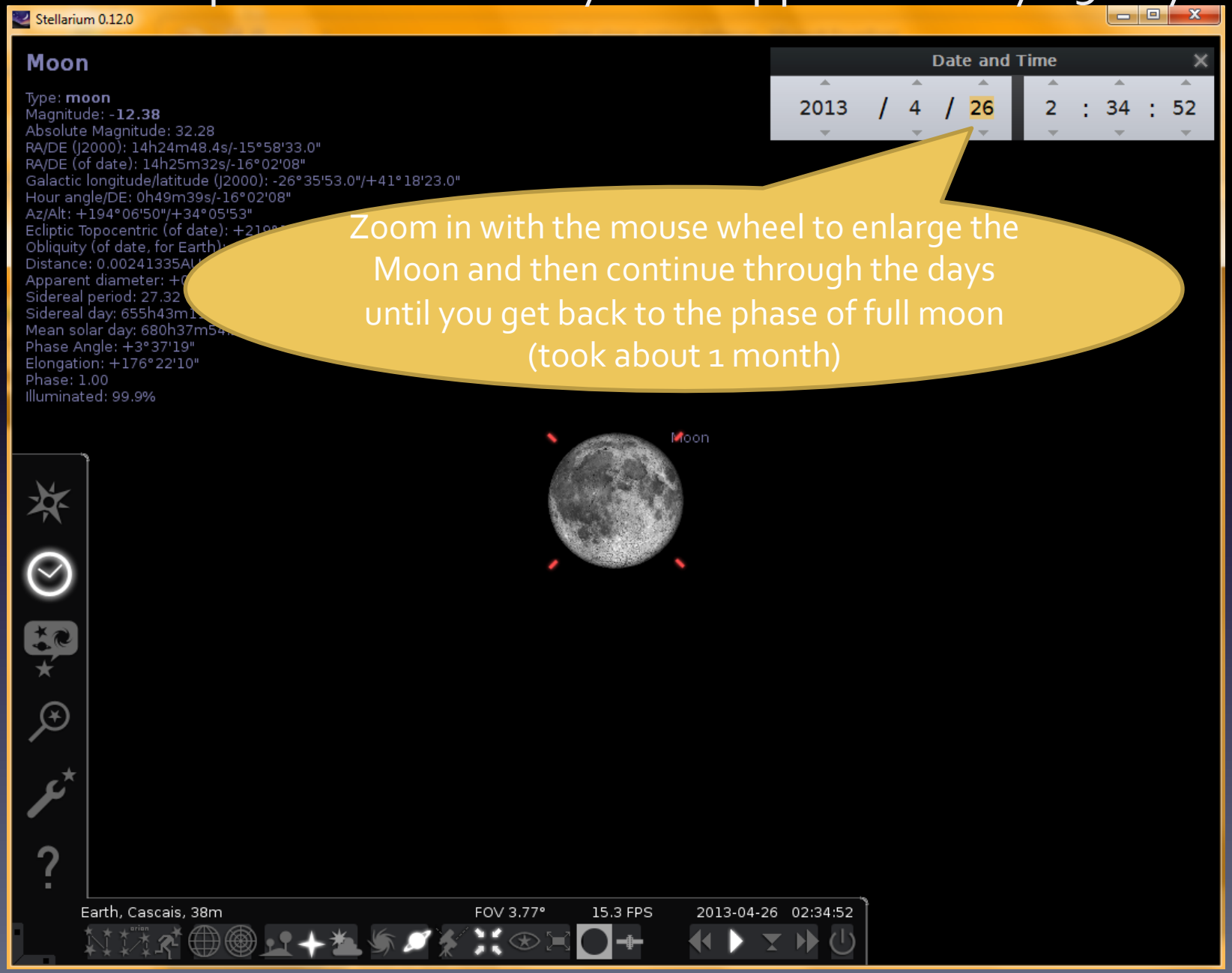


Day transition



See the relative position of Sun/Moon in the new moon phase

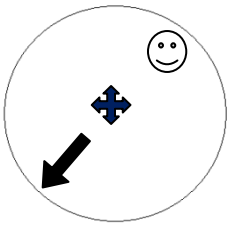
Has completed the lunar cycle in approximately 29 days

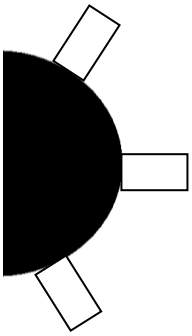


FASES DA LUA

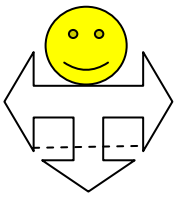
MODELOS A IMPRIMIR

Lua

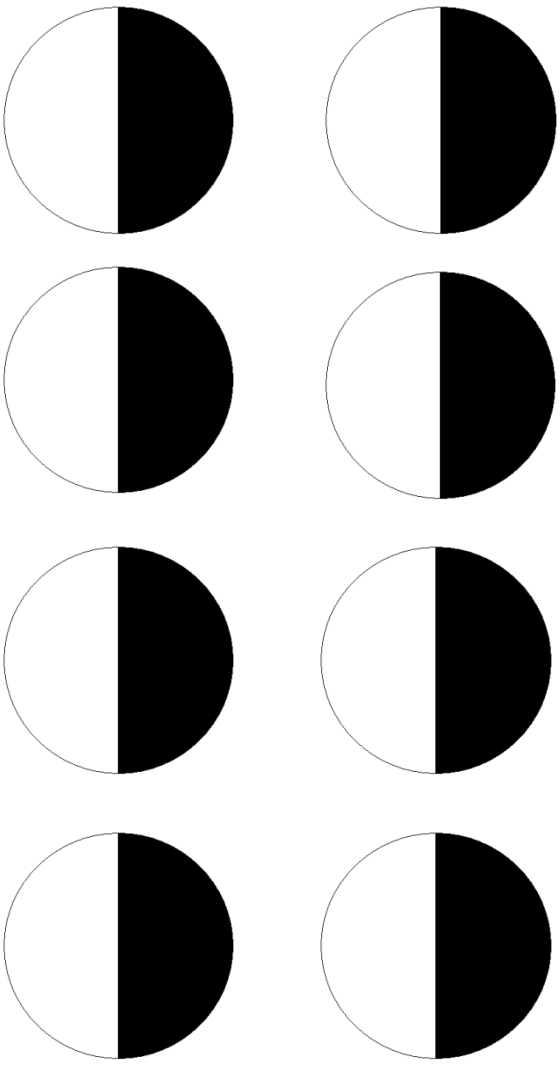


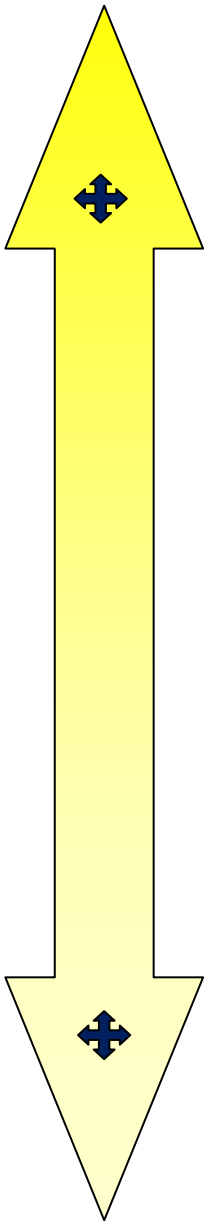


Observador na Terra



A Lua para um observador fora da Terra



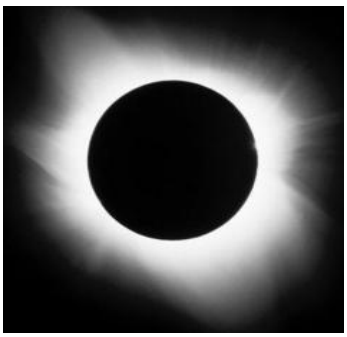


BASE para a LUA

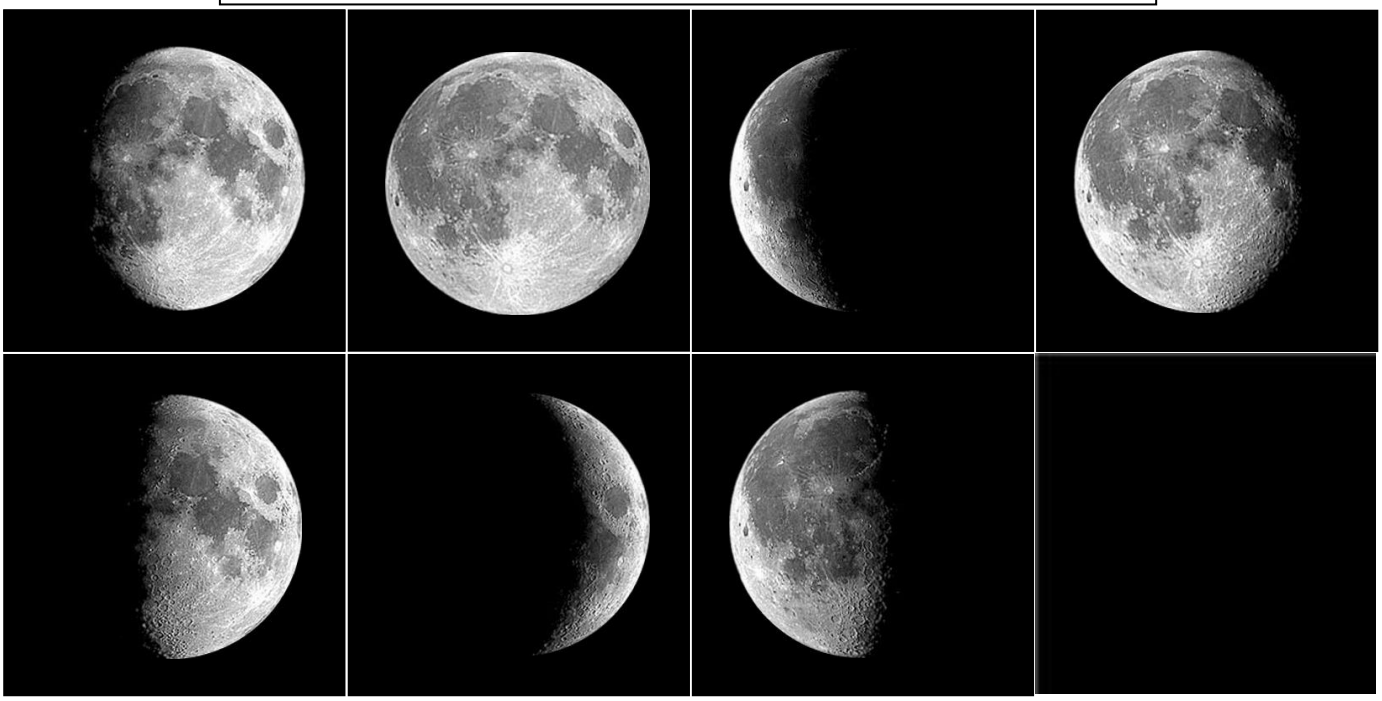
SOL

TERRA

Quando a Lua e o Sol se alinham



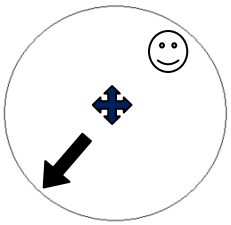
Fases da Lua

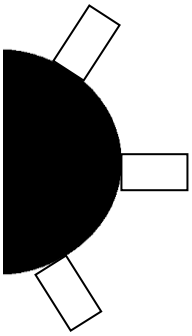


MOON PHASES

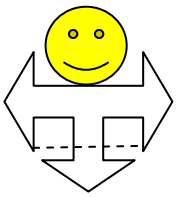
MODEL TO PRINT

Moon

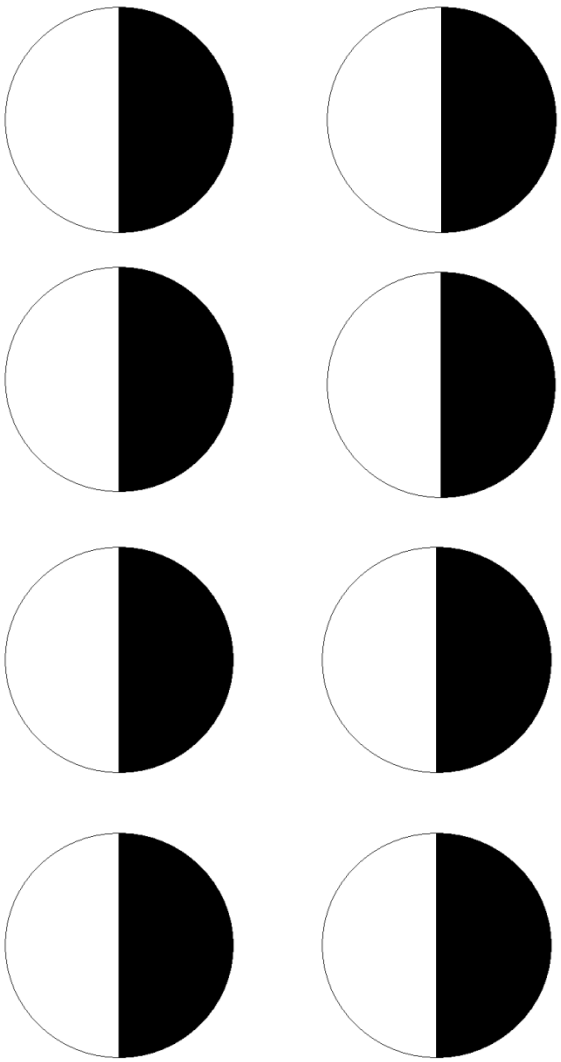


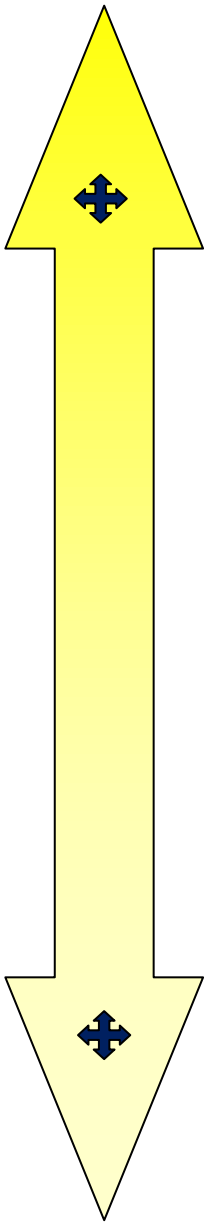


Observer on Earth



The Moon to an observer outside the Earth



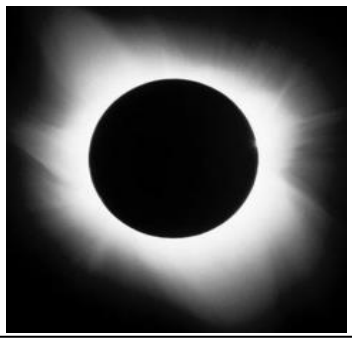


MOON BASE

SUN

EARTH

When the Moon aligns with the Sun



Moon Phases