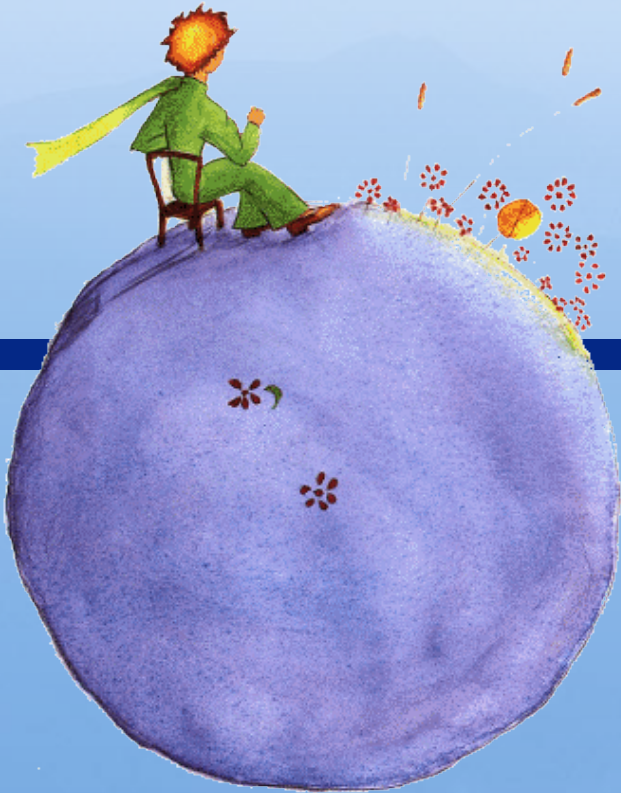


# Χαρτογραφώντας τον ουρανό

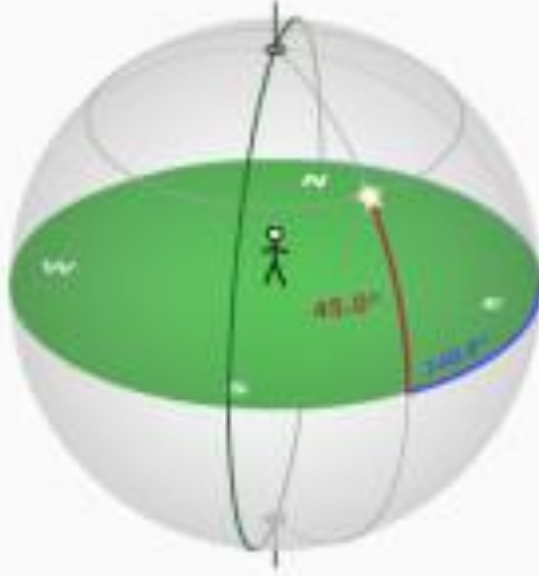


Όμιλος Αστρονομίας 2014-15  
4<sup>η</sup> συνάντηση

# Οριζόντιες συντεταγμένες

Azimuth/Altitude Demonstrator reset about

The Horizon Diagram



Star Position

az: 140.0 °

alt: 45.0 °

you can also change the star's position by dragging it

Labels

Individual label visibilities:

- Zenith
- Horizon Plane
- Nadir
- Meridian

Οριζόντιες συντεταγμένες

# Οριζόντιες συντεταγμένες αστέρα

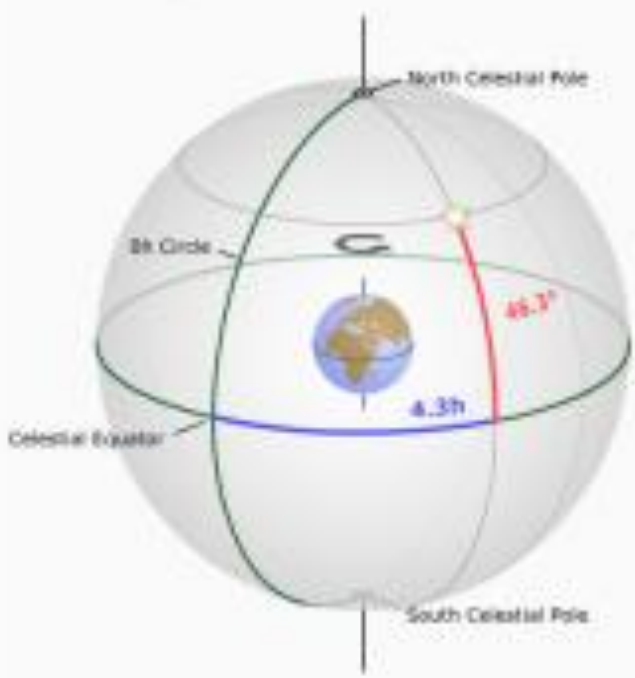
The screenshot shows a software interface for simulating star observations. The main window is titled "Οριζόντιες συντεταγμένες αστέρα" (Horizontal coordinates of stars). It features a dark sky with a green horizon. A star is circled in red and labeled "4". A clock shows the time as 12:00 πμ. The word "Βόρεια" (North) is written below the horizon. On the right, there are control panels: "Βοήθεια" (Help) with a question mark icon, "Παράμετροι στόχευσης" (Aiming parameters) with a dropdown menu set to "Πολύ μικρή" (Very small), a person icon with a red arrow, and two "Γωνία:" (Angle) input fields, both set to 0°. A compass rose is also visible. At the bottom left, there are two buttons: "Αστερισμοί" (Constellations) and "Σημείο εστίασης" (Focus point). The URL "eduportal.gr" is at the bottom right.

Οριζόντιες συντεταγμένες αστέρα

# Ουρανογραφικές συντεταγμένες

Celestial-Equatorial (RA/Dec) Demonstrator reset about

The Celestial Sphere



North Celestial Pole

0h Circle

Celestial Equator

South Celestial Pole

4.3h

46.3°

Star Position

RA:  h

Dec:  °

you can also change the star's position by dragging it

Labels

Individual label visibilities:

- North and South Poles
- Equator
- North and South Celestial Poles
- Celestial Equator
- 0h Circle
- East Arrow
- Ecliptic

Ουρανογραφικές συντεταγμένες

# Οι τροχιές των αστεριών

- Ο ουράνιος θόλος περιστρέφεται σε ένα 24-ωρο.
- Οι αστέρες αλλάζουν θέση όχι μόνο από μέρα σε μέρα αλλά και από εποχή σε εποχή. Διακρίνονται σε:
  - Αειφανείς αστέρες
  - Αφανείς αστέρες
  - Αμφιφανείς αστέρες

# Συγκρίνοντας τα δύο συστήματα

The screenshot displays the 'Rotating Sky Explorer' software interface. It is divided into two main viewing areas: 'celestial sphere view' on the left and 'horizon diagram view' on the right. Below these views are control panels for 'Observer's Location', 'Animation Controls', 'Appearance Settings', and 'Star Controls'.

**celestial sphere view:** Shows a 3D model of the Earth at the center of a celestial sphere. A star is positioned at right ascension 5.8h and declination -9.7°. The Earth's surface is visible, showing continents.

**horizon diagram view:** Shows the same celestial sphere from a perspective where the horizon is a green plane. A stick figure represents the observer. The star's position is defined by its azimuth (156.2°) and altitude (37.0°). The horizon is a green disk with a white circle representing the celestial equator.

**Observer's Location:** latitude: 40.8° N, longitude: 96.7° W. Includes a world map showing the location.

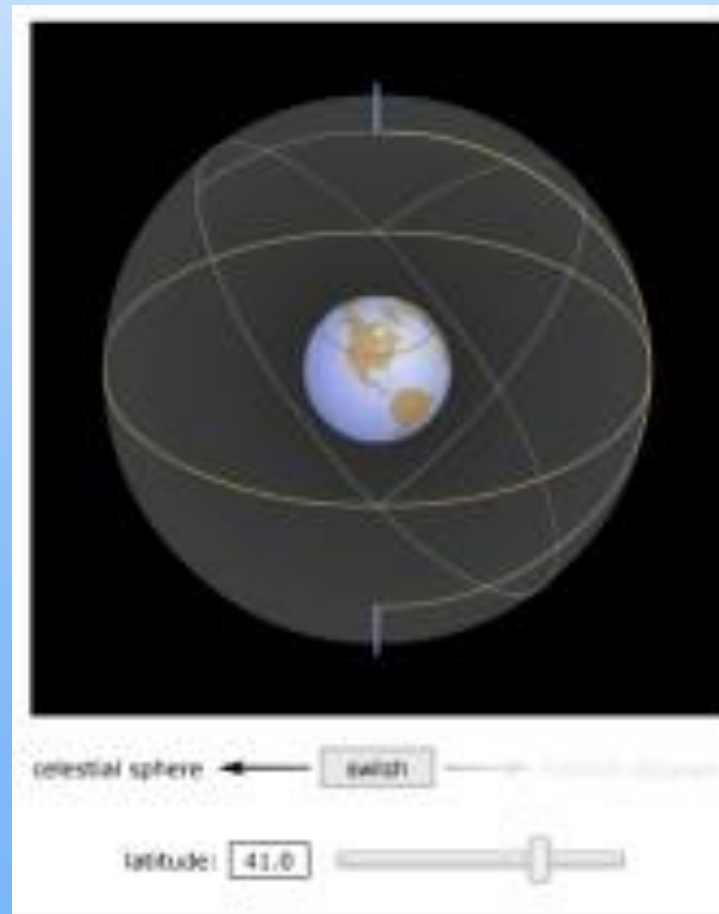
**Animation Controls:** start animation button, animate: continuously, animation rate slider (slow to fast).

**Appearance Settings:** checkboxes for show labels, show Dh circle, show celestial equator, show underside of horizon diagram, show never rise region, show rise and set region, show circumpolar region, show the angle between the celestial equator and horizon.

**Star Controls:** star patterns... button, add star randomly button, remove all stars button, radio buttons for no star trails, short star trails, long star trails, reset star trails button.

Συγκρίνοντας τα δύο συστήματα

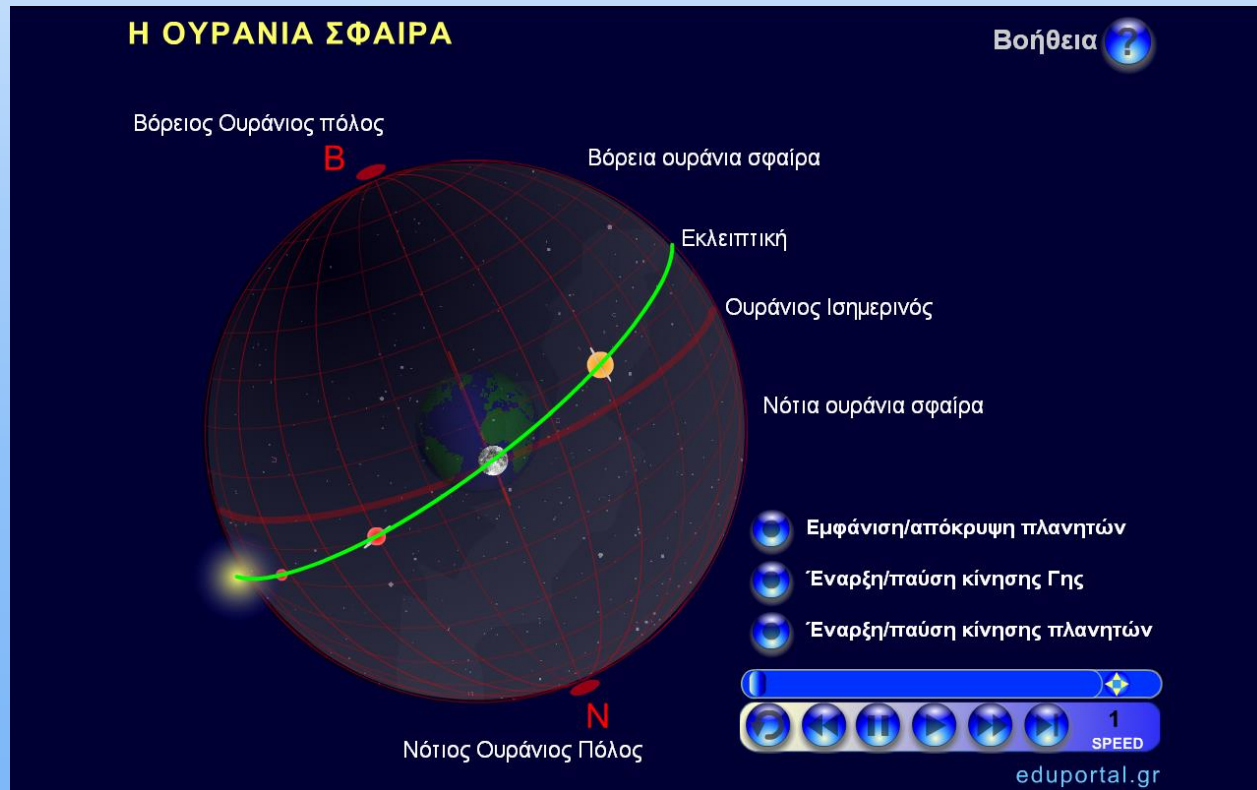
# Συγκρίνοντας τα δύο συστήματα



Συγκρίνοντας τα δύο συστήματα



# Η εκλειπτική

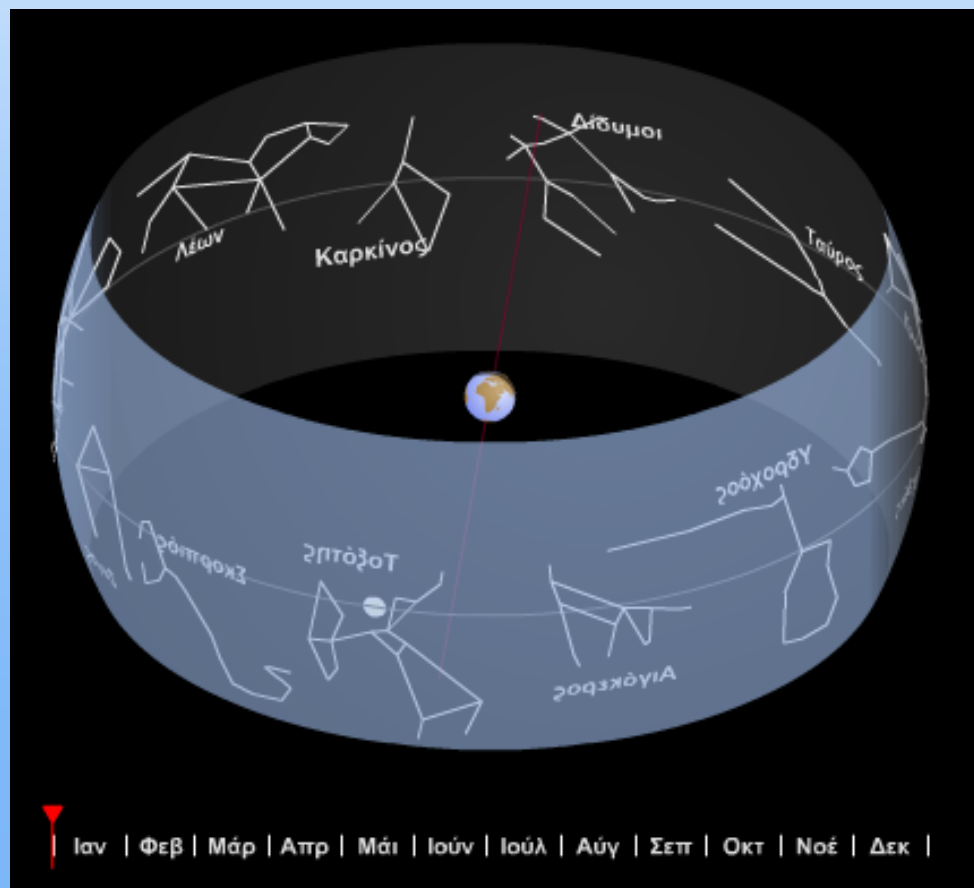


## Η εκλειπτική

Η θέση του Ήλιου στην ουράνια σφαίρα

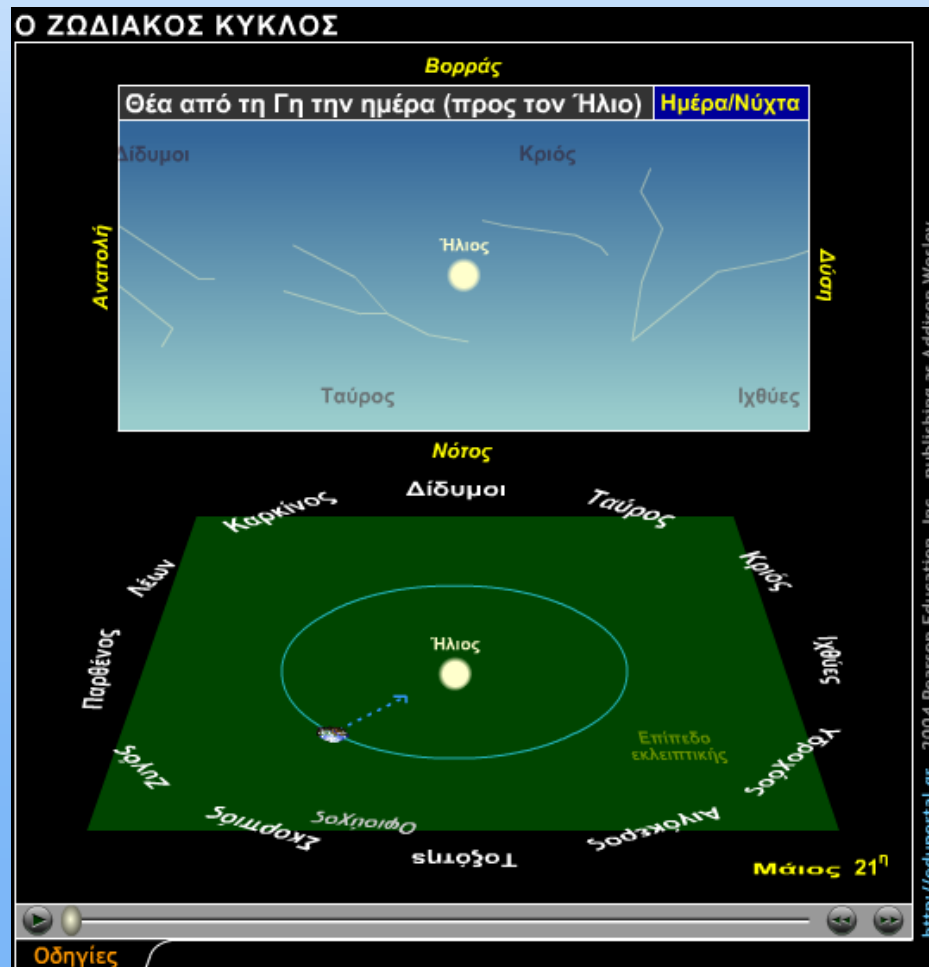


# Ο ζωδιακός κύκλος



Ο ζωδιακός κύκλος

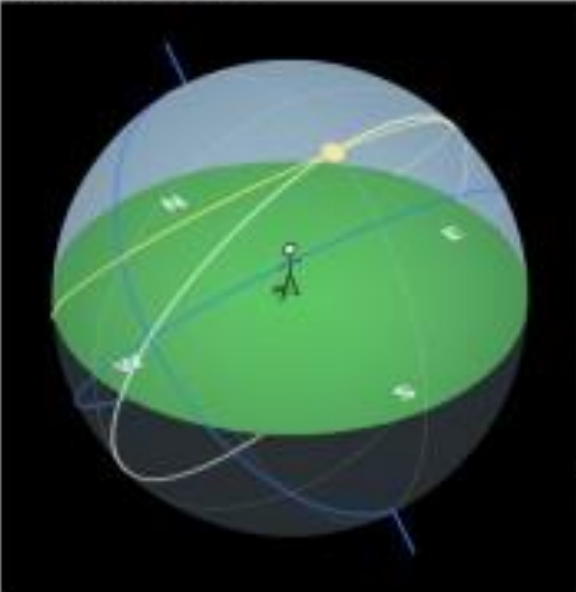
# Ο ζωδιακός κύκλος



Ο ζωδιακός κύκλος

# Οι κινήσεις του Ήλιου

Motions of the Sun Simulator reset help about




**Time and Location Controls**

the day of year: 27 May

Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

the time of day: 12:00

the observer's latitude: 40.8° N



**Information**

The horizon diagram is shown for an observer at latitude 40.8° N on 27 May at 12:00 (12:00 PM).

sun's hour angle: 0h 2m	sun's altitude: 70.6°
sidereal time: 4h 21m	sun's azimuth: 162.0°
equation of time: 2:49	sun's right ascension: 4h 19m
<input type="checkbox"/> show analemma	sun's declination: 21.4°

**Animation Controls**

start animation

animation mode:  
 continuous  loop day  
 step by day

animation speed: 3.0 hrs/sec

slow fast

use lower quality graphics when animating to improve performance

**General Settings**

- show the sun's declination circle
- show the ecliptic
- show month labels
- show underside of celestial sphere
- show stickfigure and its shadow

dragging the sun's disk changes the ...

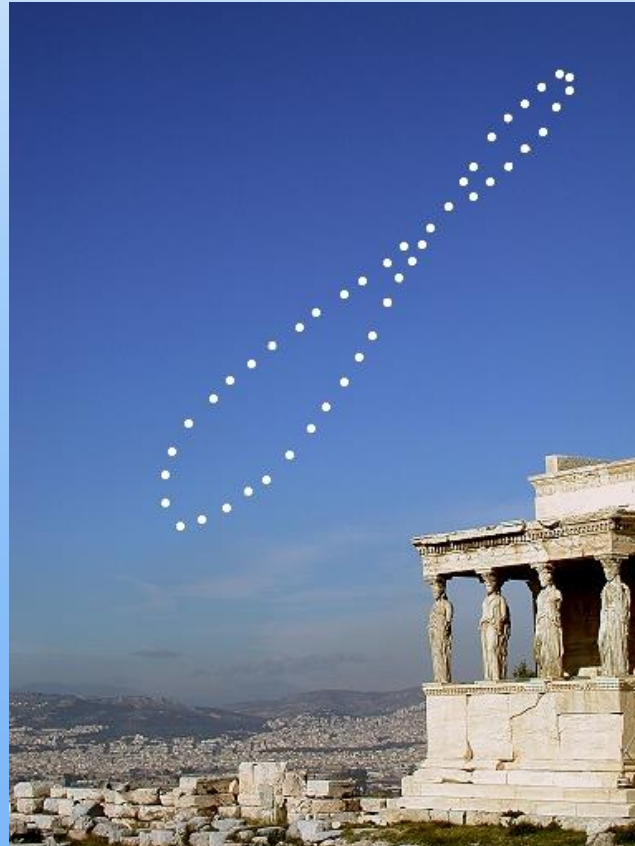
- time of day
- day of year

Οι κινήσεις του Ήλιου

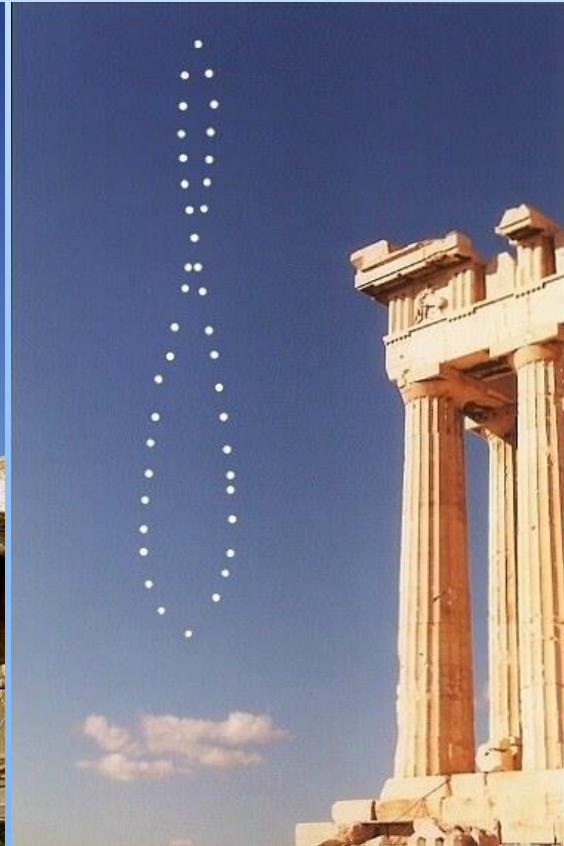
# Το ηλιακό ανάλημμα



Ηφαίστειο, Αθήνα



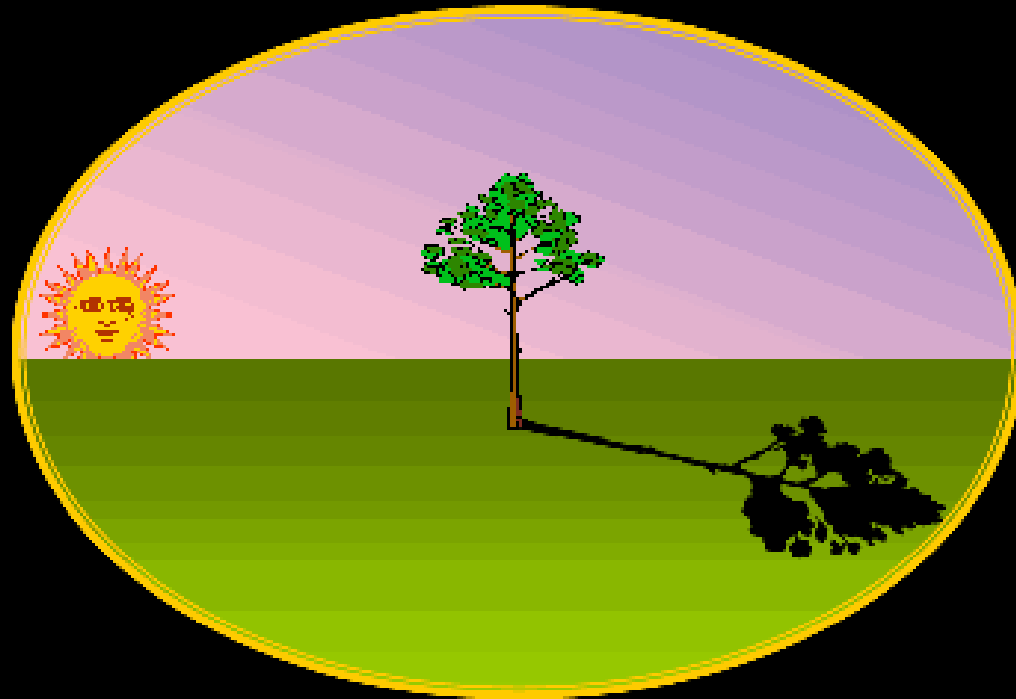
Ερέχθειο, Αθήνα



Παρθενώνας, Αθήνα

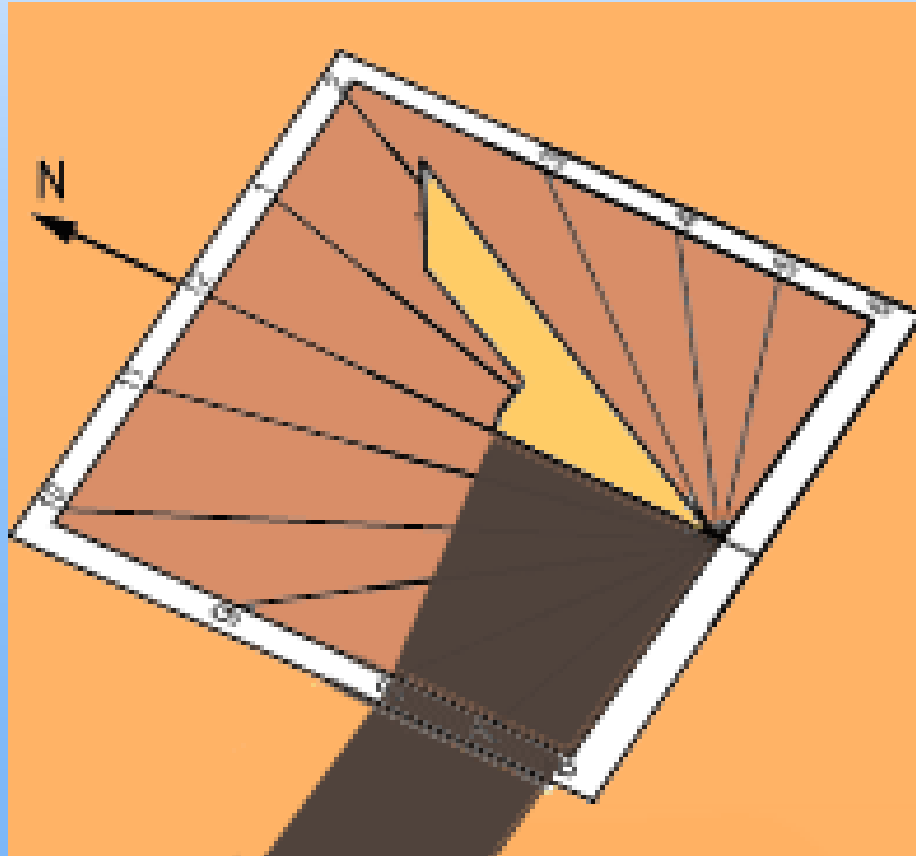
Το ηλιακό ανάλημμα

# Η σκιά στο έδαφος



Τίς γίγας γεννᾶται, ἀνδροῦται δ' εἰς νάνον  
καί πάλιν γηράσκει εἰς γίγαντ' αὐξάνων;

# Ηλιακά ρολόγια



Γραμμή μάθησης για τα ηλιακά ρολόγια

Ιστολόγιο για το ηλιακό ρολόι του ΠΠΓΕΛ Ηρακλείου