



# NORTH STAR, ORION, PLEIADES AND PLANETS

Explorer Class, Area8 Curriculum Camp 2021

# WHERE IS ORION?

Procyon

Mars

Betelgeuse

Aldebaran

Sirius

Rigel

SW

WSW

W

WNW

# WHERE IS ORION?



SW

WSW

W

WNW



# WHERE IS ORION?



SW

WSW

W

WNW



# ORION

- Named after 'Orion' the hunter in Greek mythology
- In UK, visible in autumn (east sky), winter (south sky) and spring (west sky)
- "He made the Pleiades and Orion" Amos 3:8
- "He made the Bear, Orion and the Pleiades" Job 9:9
- "Can you bind the clusters of Pleiades, Or loose the belt of Orion?" Job 38:31



# HOW TO LOCATE PLEIADES



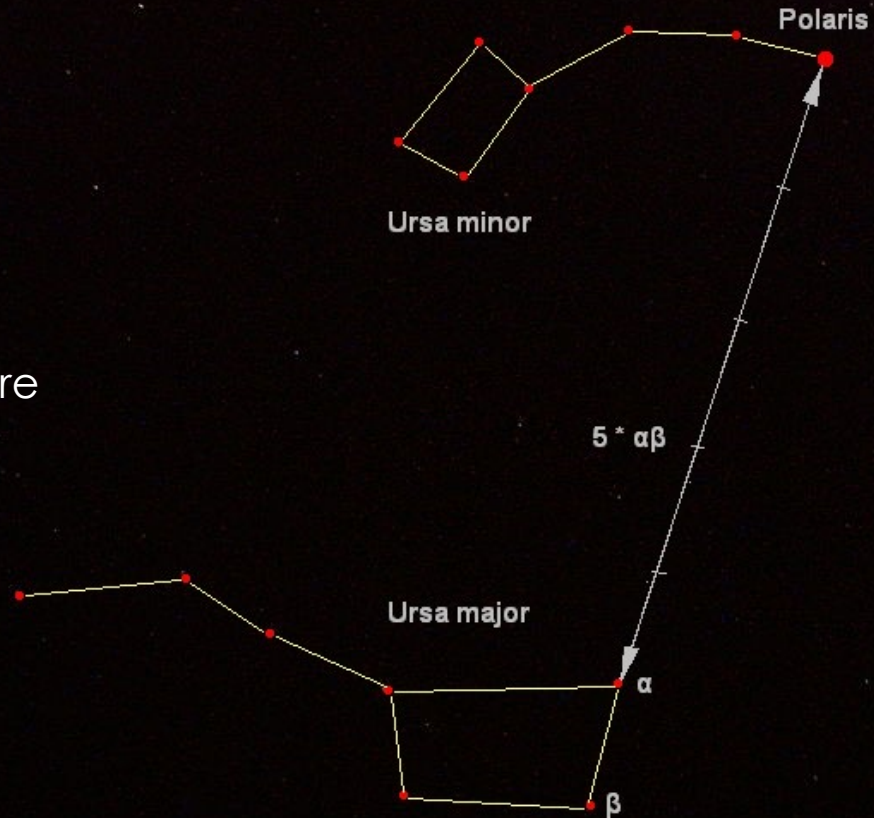
Image: [www.Wikipedia.org](http://www.Wikipedia.org)



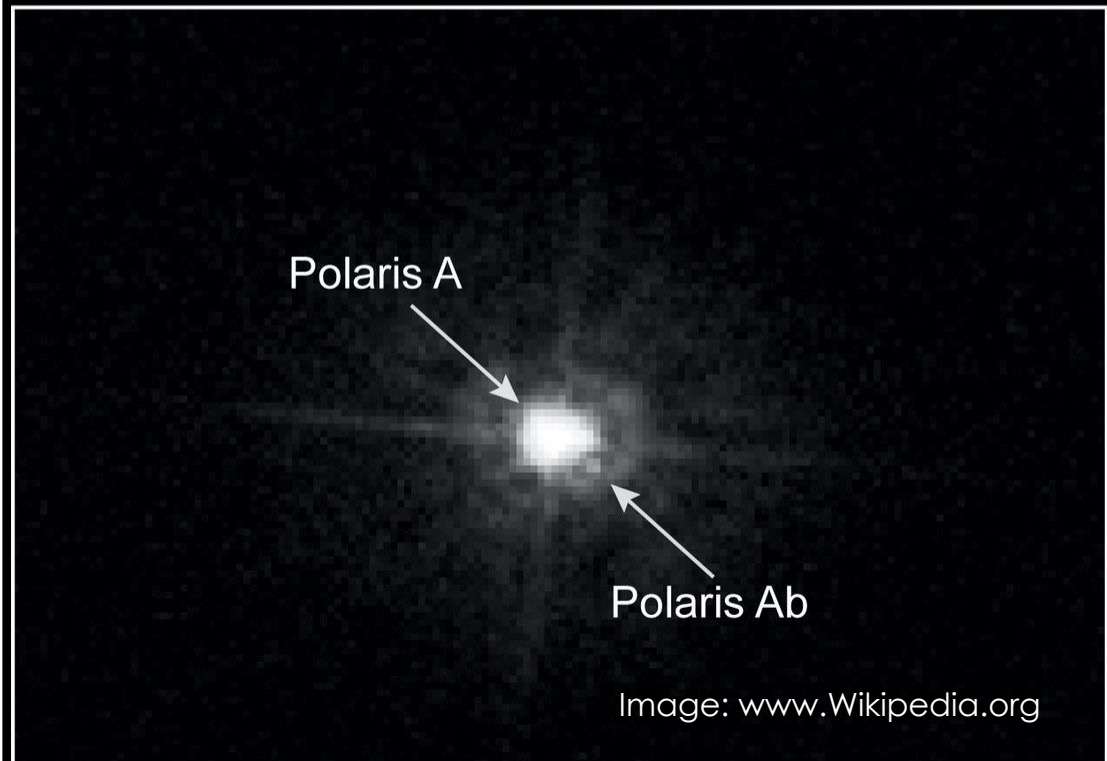
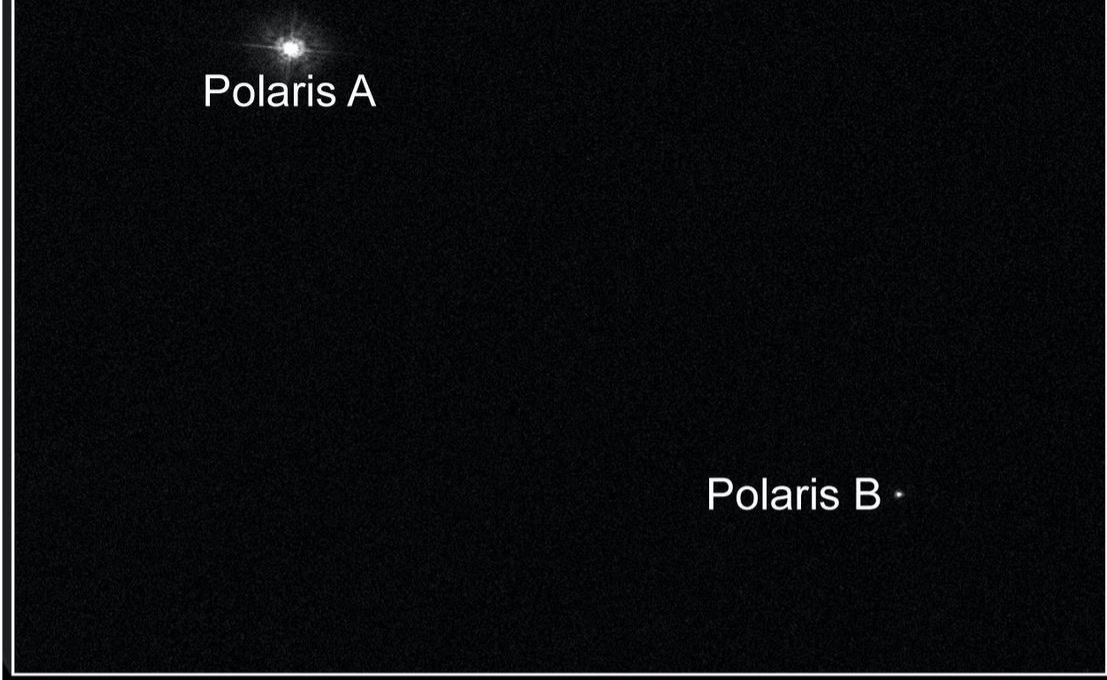
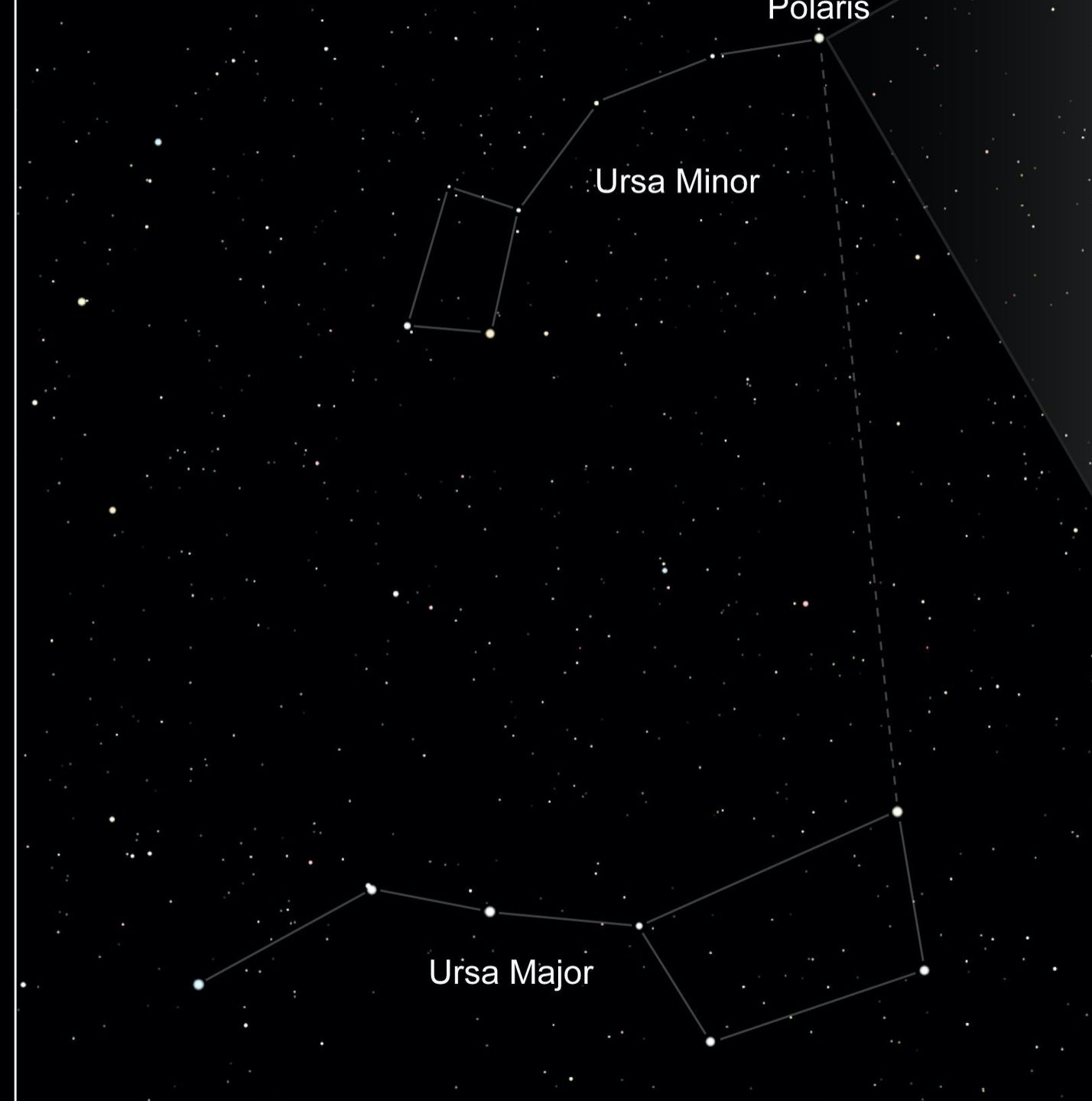
Image: [www.earthsky.org](http://www.earthsky.org)

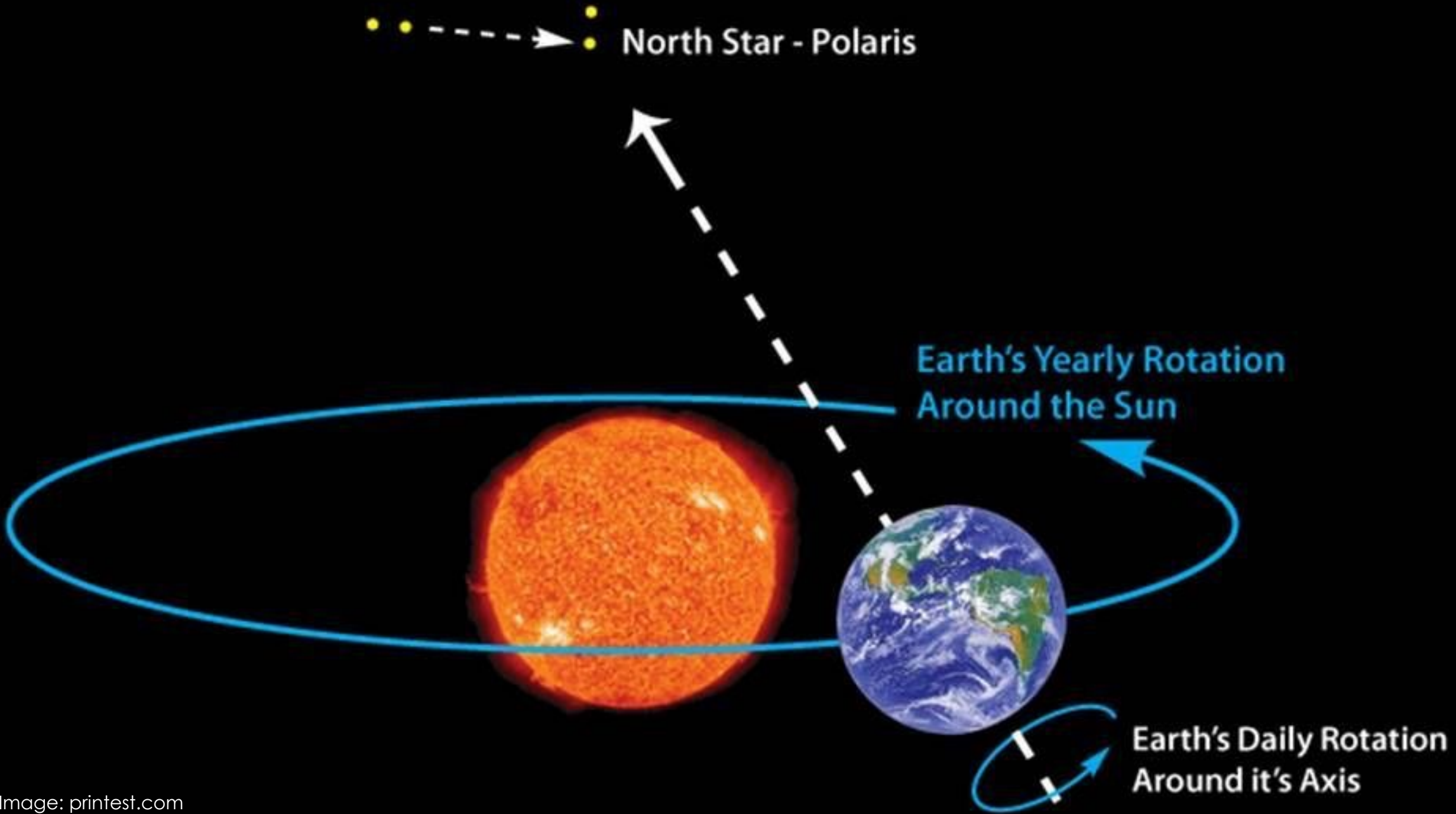
# NORTH STAR

- Also known as Polaris or the Pole Star
- Located on top of North Pole
- Is a triple star system
- Visible all year around in Northern hemisphere









# MOVEMENT OF SKY AROUND THE NORTH STAR

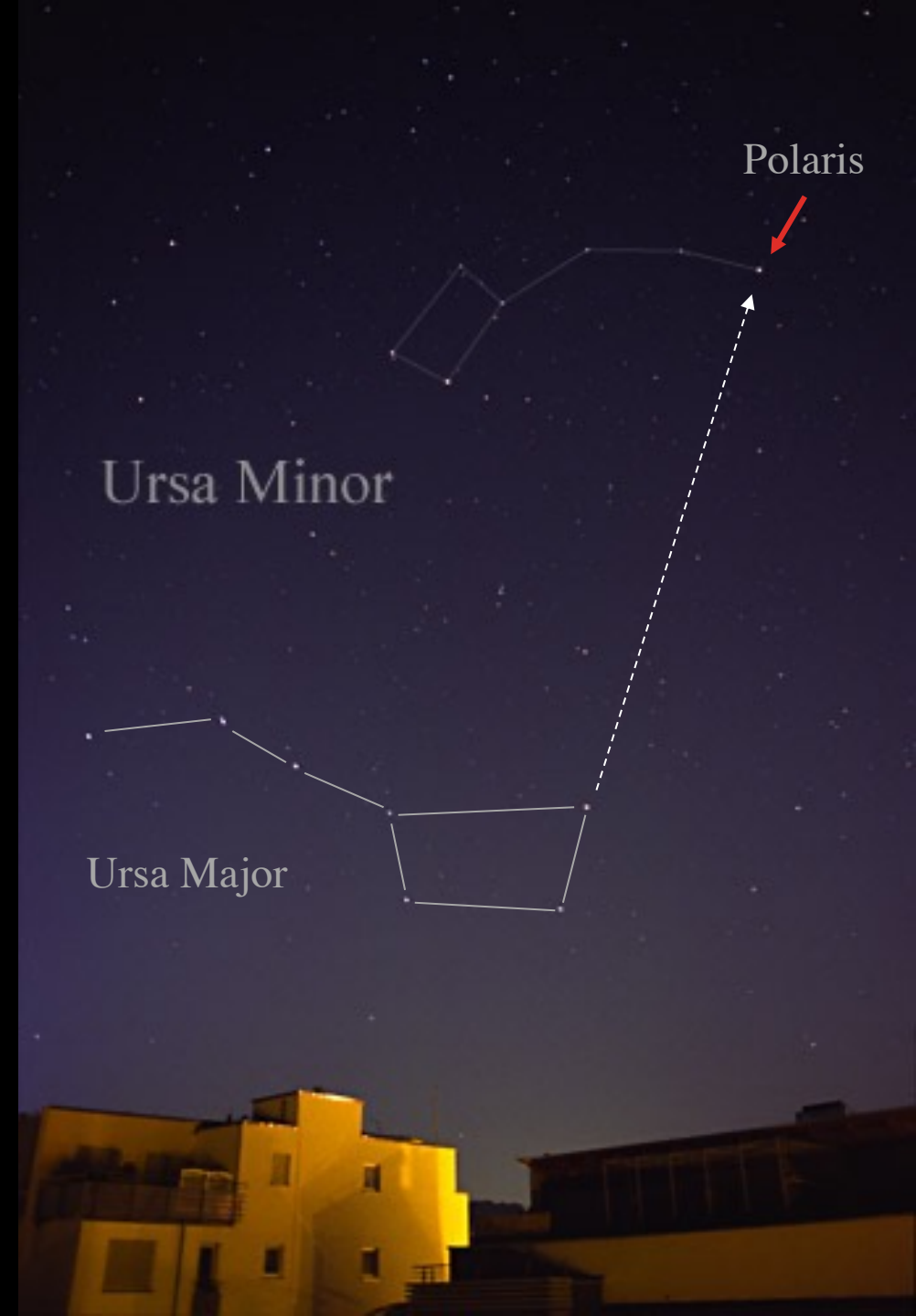


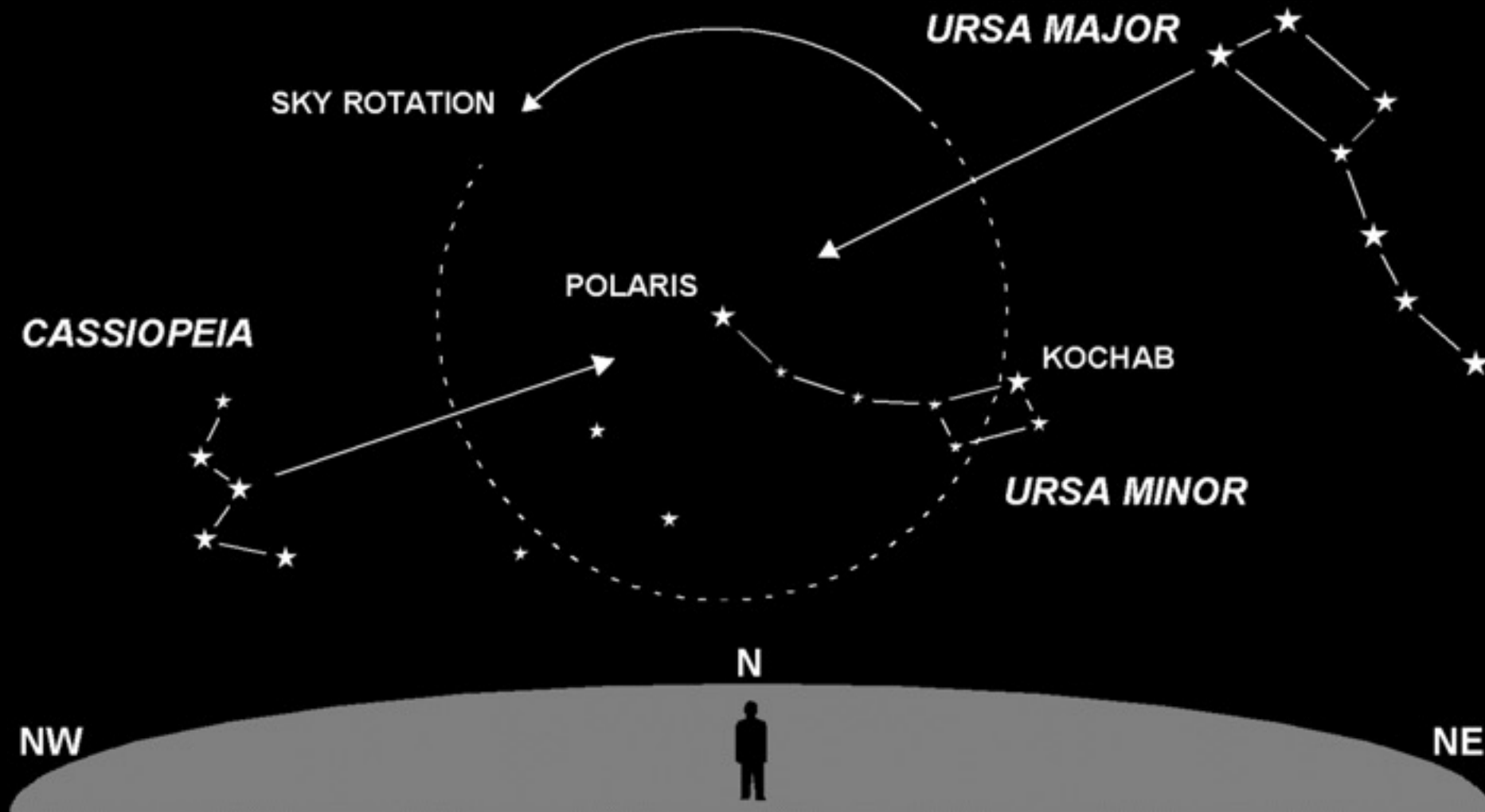


# HOW TO FIND THE NORTH STAR?

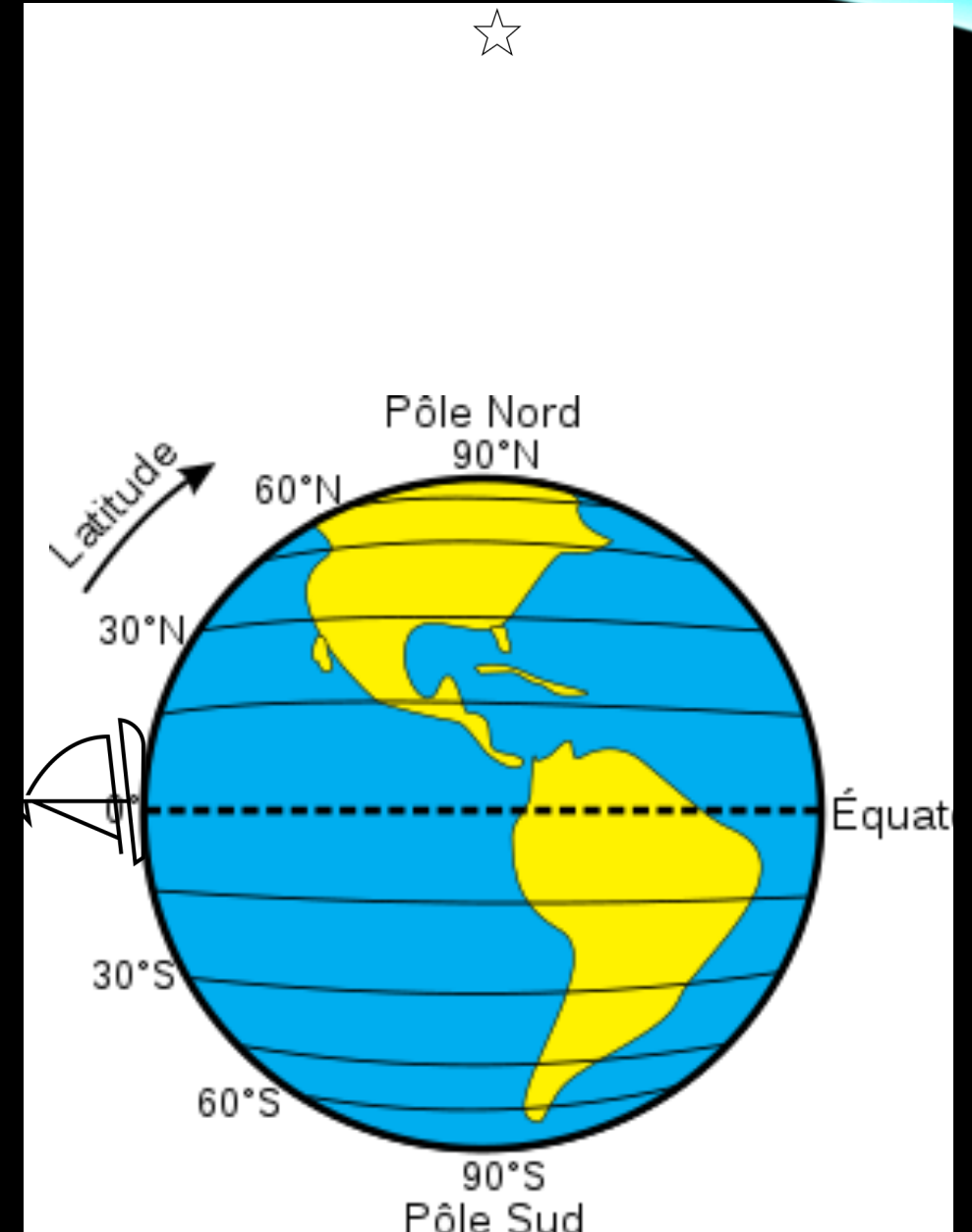
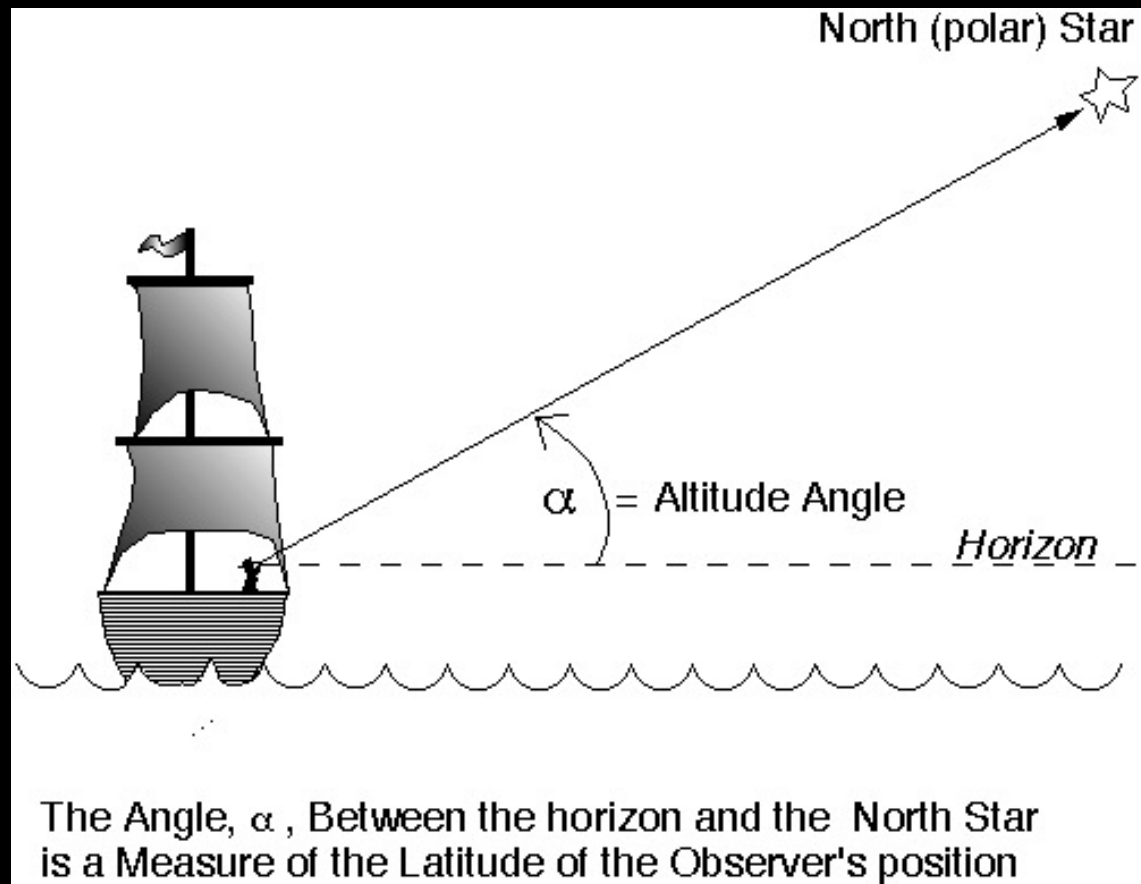
- Use help of following constellations
  - Big Bear (The Plough, Big Dipper, Ursa Major)
  - Small Bear (Ursa Minor)
  - Cassiopeia

NB! Big Bear, Small Bear and Cassiopeia are in change location in time and season





# NORTH STAR IN CELESTIAL NAVIGATION





# PLANETS IN SOLAR SYSTEM

Mercury

Venus

Earth

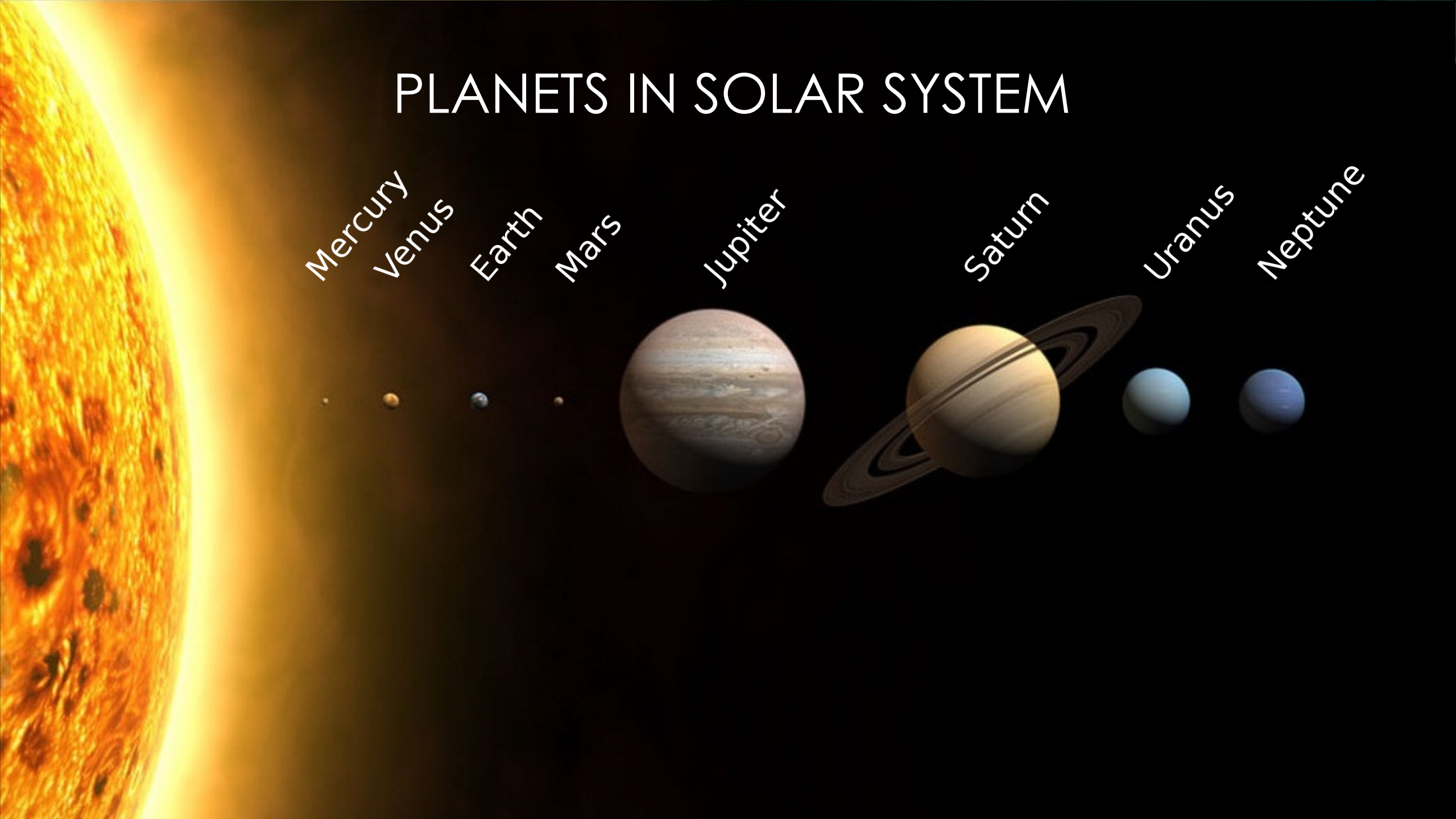
Mars

Jupiter

Saturn

Uranus

Neptune



# HOW TO FIND PLANETS IN THE NIGHT SKY

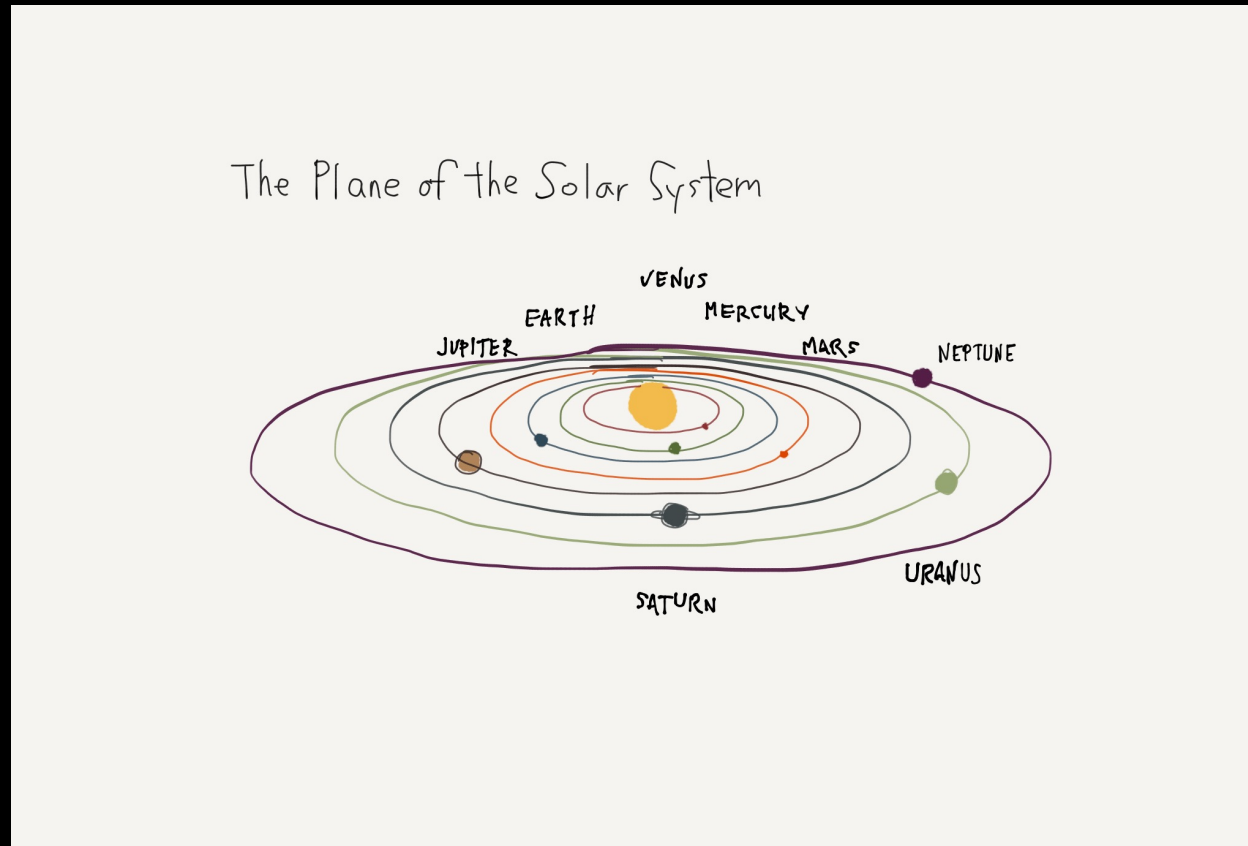
- Planetos in old Greek means 'who wonders around, a wonderer'
- Planets move differently than stars, their moving patterns are more complex
- Planets are usually much brighter than stars and may look more like disks rather than dots
- Planets appear on the path of the Sun, known as ecliptic
- Mercury, Venus, Mars, Jupiter and Saturn can be seen by a naked eye
- Visibility of planets can be checked from special websites like
  - <https://www.timeanddate.com/astronomy/night/>
  - <https://stellarium-web.org/>
  - <https://in-the-sky.org/>

# RULES OF PLANET FINDING

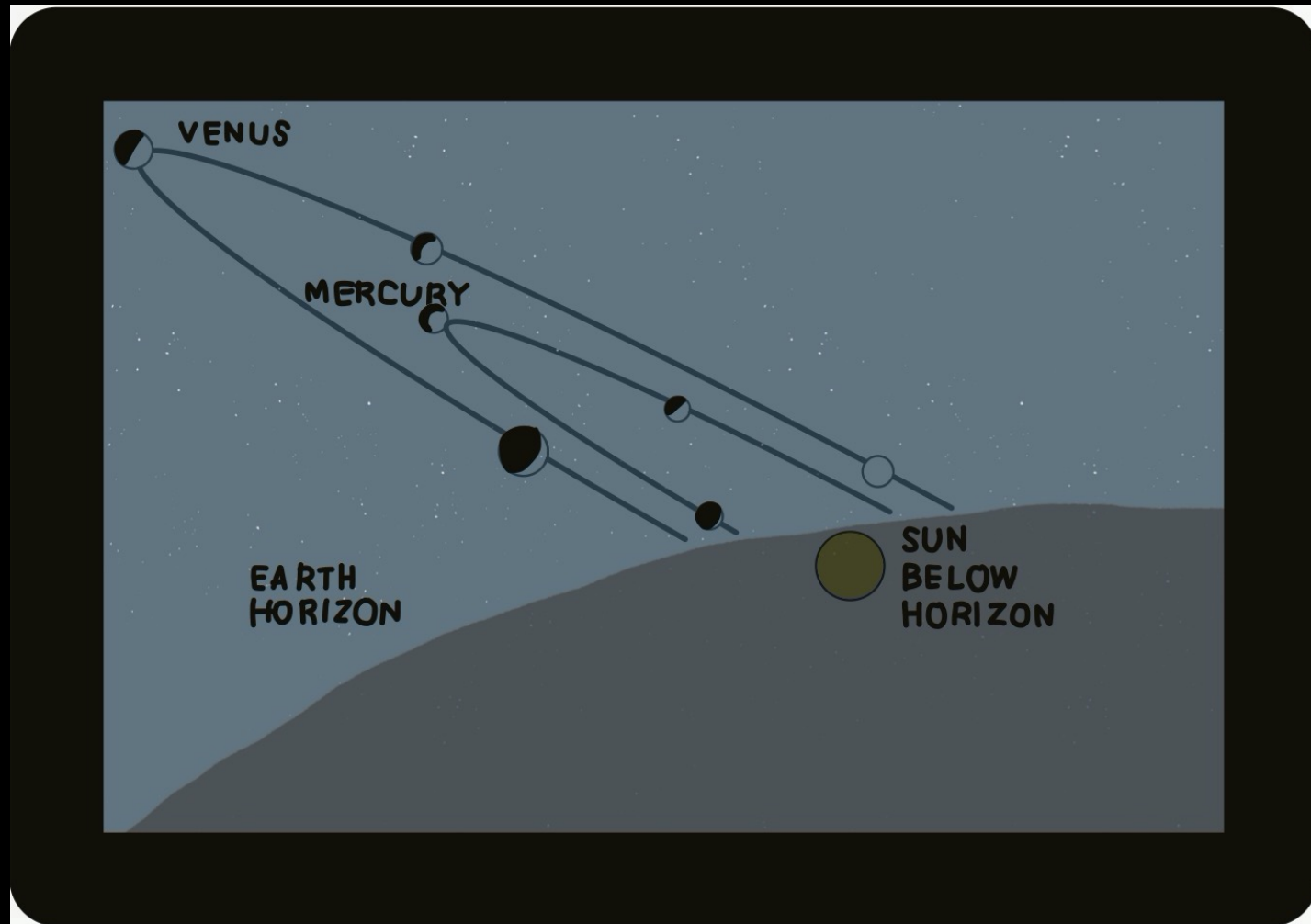
- **WHAT** - Know what to look for. Big and bright
- **WHERE** - Know to look in the right part of the sky. Planets move on ecliptic.
- **WHICH** - Look for the right planets, look for the bright ones (Mercury, Venus, Mars, Jupiter, Saturn)
- **COLOUR** - Know what colour you are looking for.
- **TIME** - Look at the right time. Not all planets are visible at all times. Sometimes they may disappear for many month.



# PLANE OF THE SOLAR SYSTEM

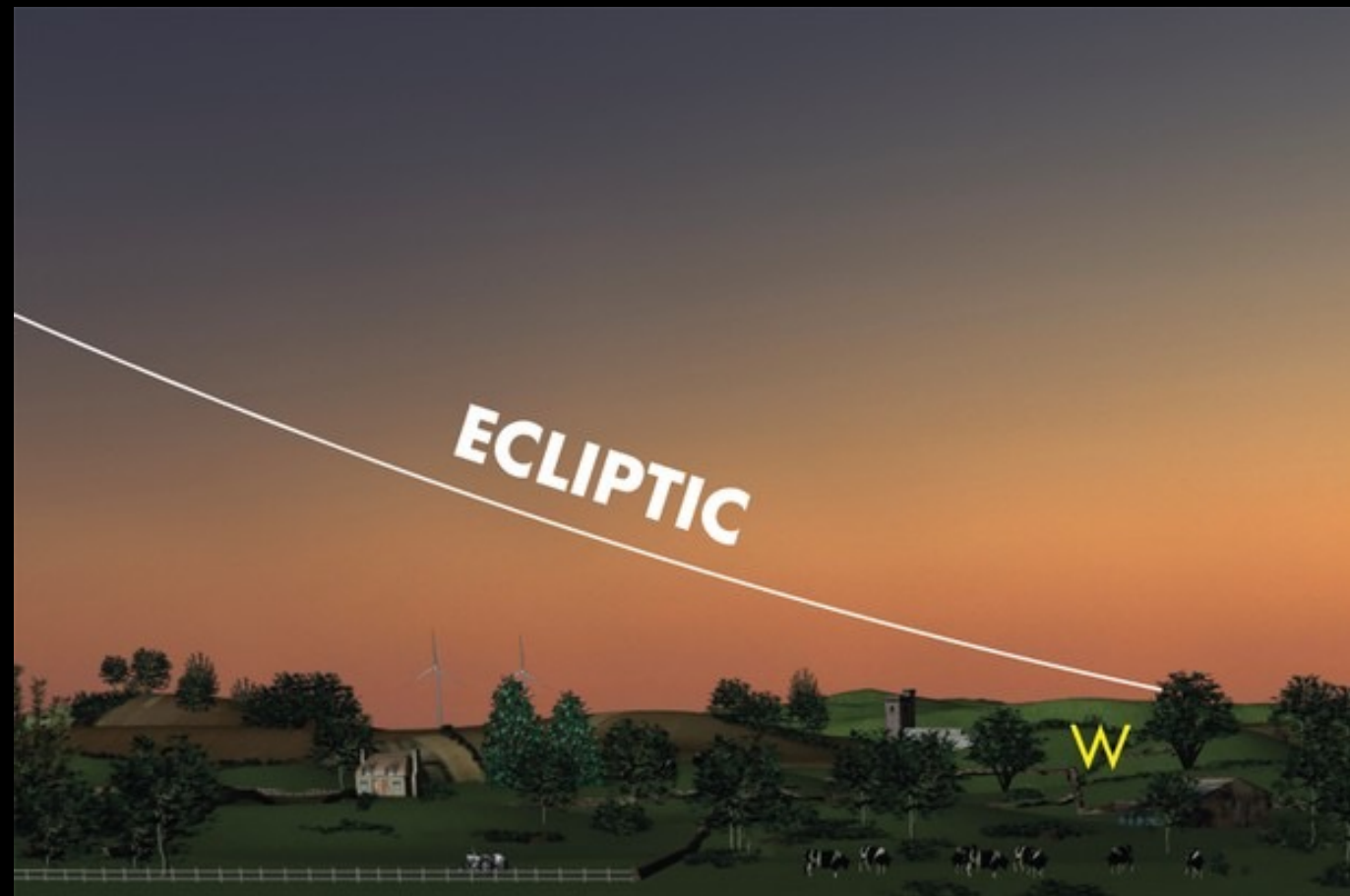


# PLANE OF THE SOLAR SYSTEM OBSERVED FROM EARTH



# WHERE TO LOOK FOR THE PLANETS

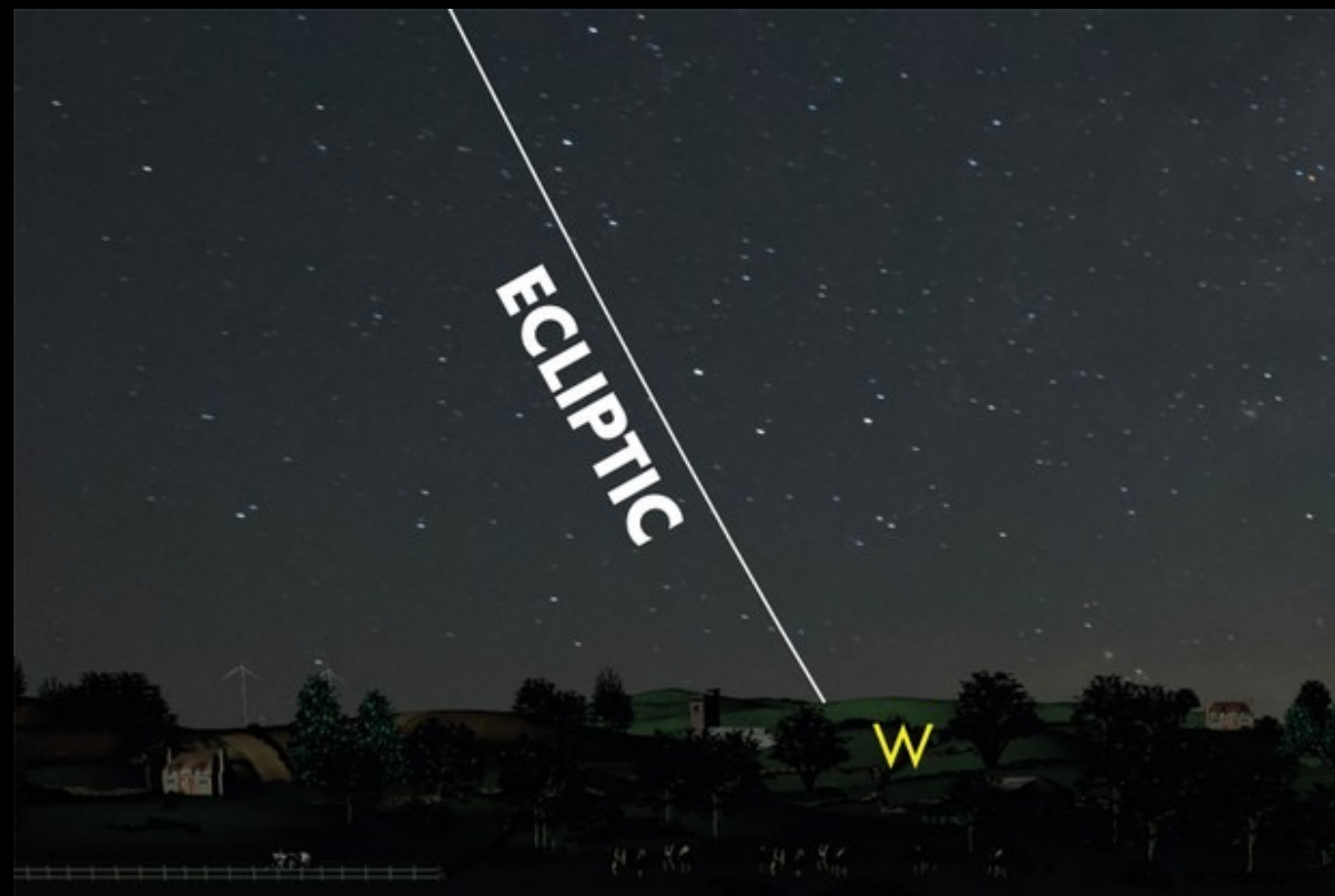
- Planets are found and move on the same path/line as Sun, ecliptic.
- Ecliptic varies depending on season
- Planets rise and set like sun, moon and stars



UK summer at 10pm: the ecliptic is low, at a shallow angle to the horizon

# WHERE TO LOOK FOR THE PLANETS

- Planets are found and move on the same path/line as Sun, ecliptic.
- Ecliptic is different depending season
- Planets rise and set like sun, moon and stars



UK winter at 10pm: the angle of the ecliptic is radically different – high and steep



# PLANETS FOLLOWING ECLIPTIC

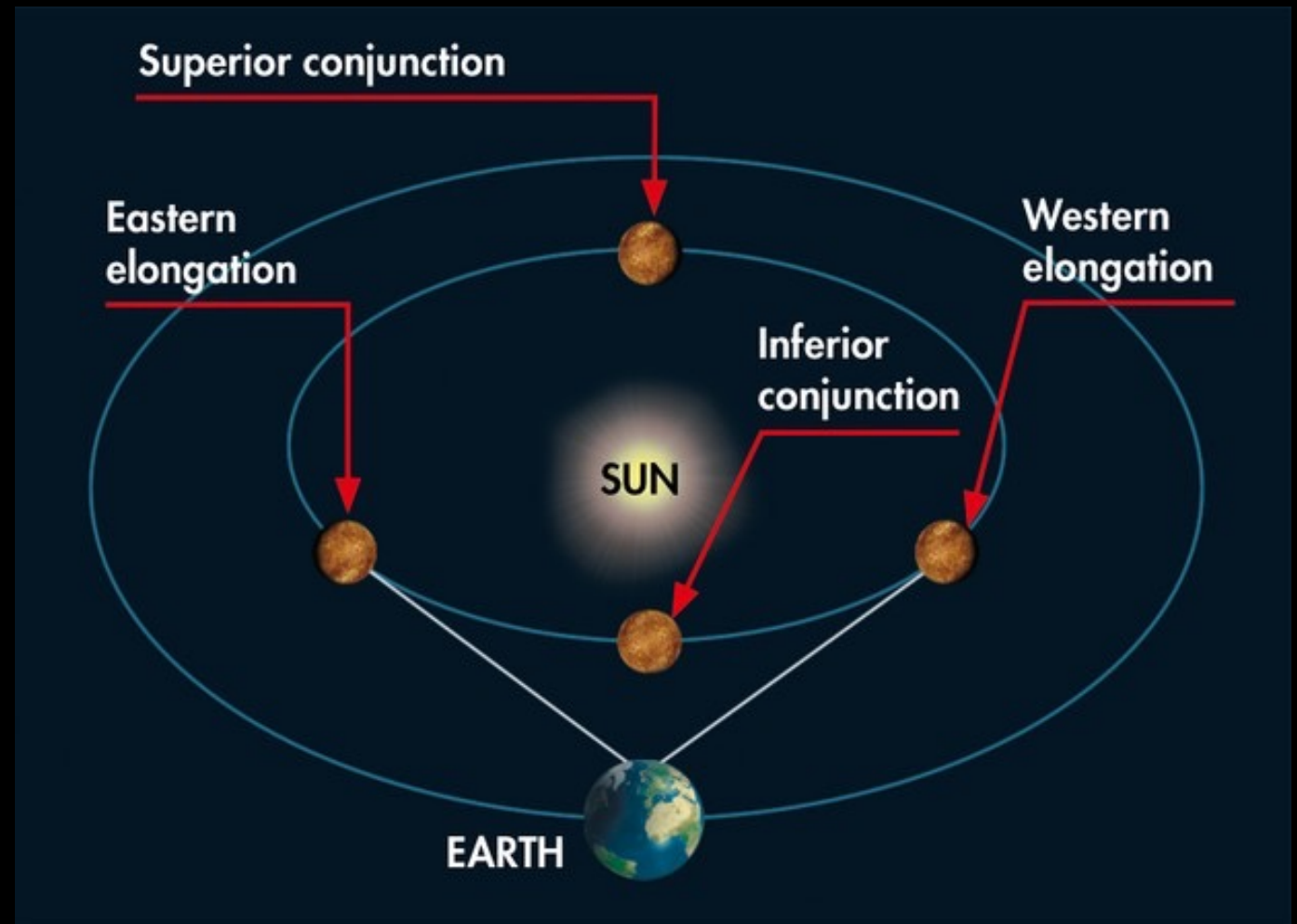


# VENUS

- Known both as the “Morning Star” and as the “Evening Star”
- Not visible all year around
- Visible either couple of hours before the sunrise (east sky) or after sunset (west sky)
- First bright object appearing in the sky at dusk or last one to disappear at dawn
- Bright white in colour
- May be sometimes seen even in daytime

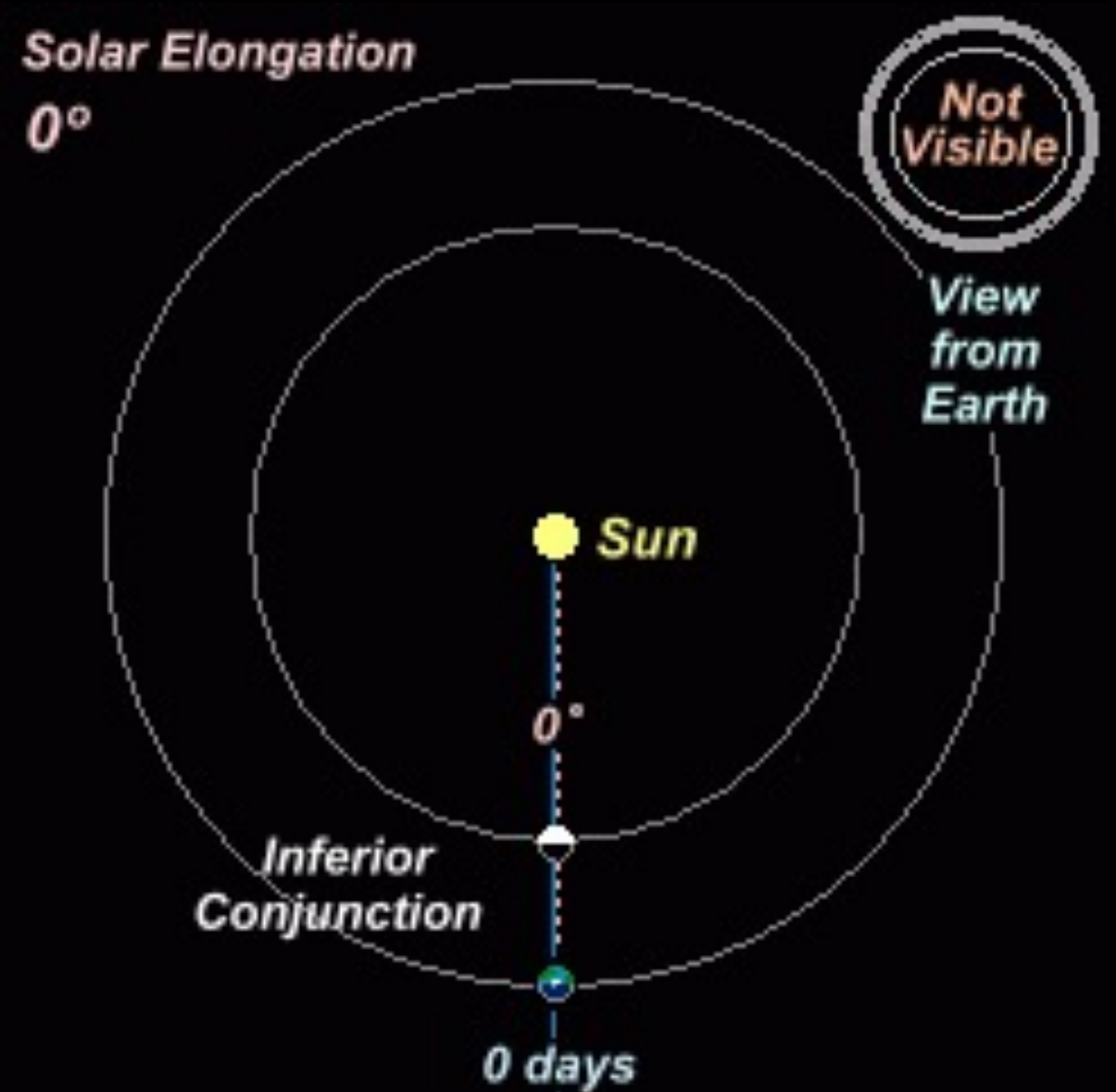


# WHEN ARE MERCURY AND VENUS VISIBLE



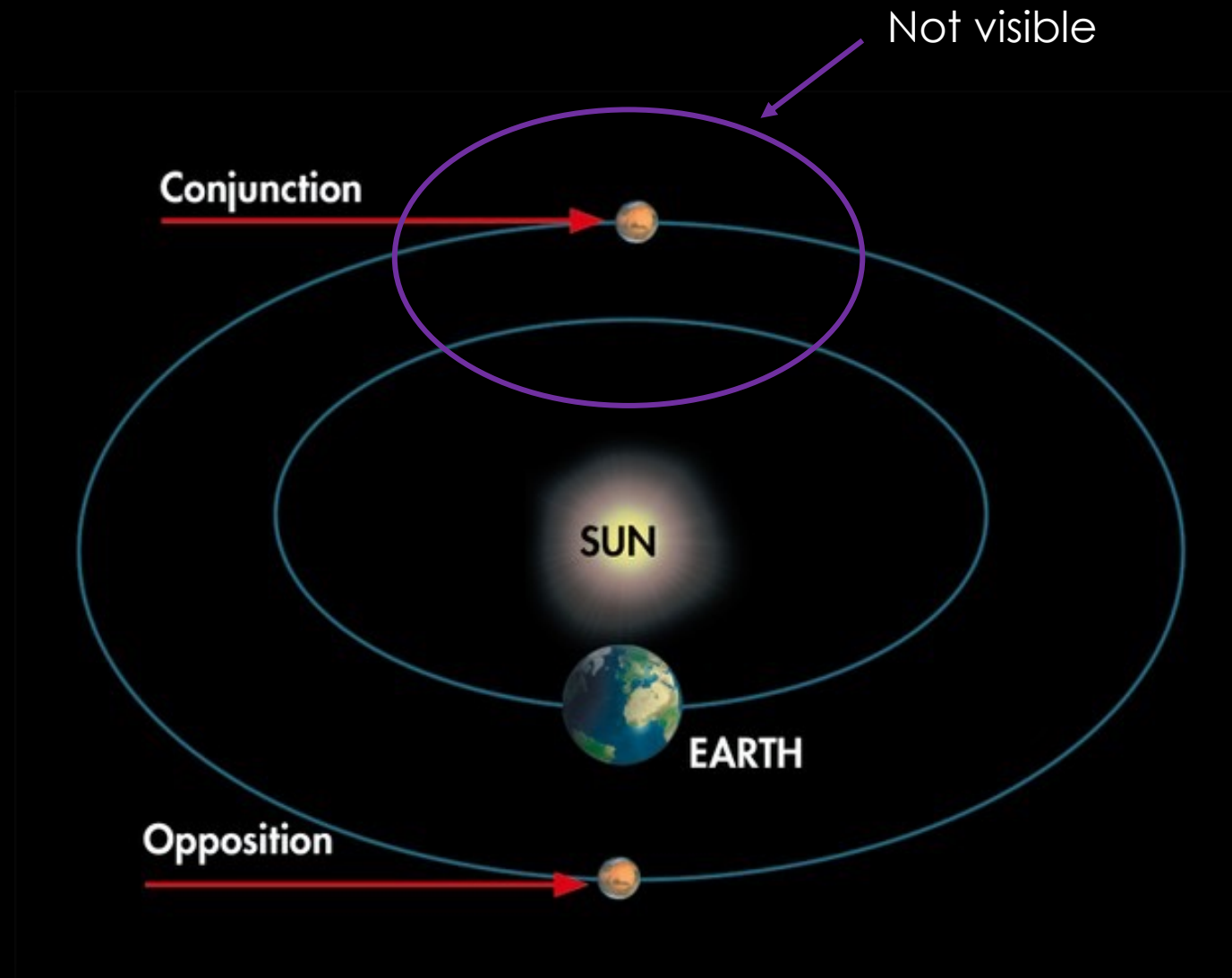
The major orbital points of the inferior planets

# WHEN ARE MERCURY AND VENUS VISIBLE





# WHEN ARE MARS, JUPITER AND SATURN VISIBLE



The major orbital points of the superior planets

# MARS, JUPITER AND SATURN

- Mercury: this planet twinkles, flashing a bright yellow color.
- Venus: Venus is often mistaken for a UFO because it is large and bright.
- Mars: this planet is orange or even reddish in color.
- Jupiter: Jupiter glows white throughout the night. It is the second brightest point of light in the night sky.
- Saturn: a smaller planet that is yellowish-white in color.



## EXAMPLE: LOCATE MARS

- Use <http://www.dateandtime.com>
- Enter the location and time

### Night Time

10 hours, 50 minutes

Sat, 3 Apr, 19:37 - Sun, 4 Apr, 06:27

### Visible night of 3 Apr – 4 Apr 2021

<b>Mercury:</b>	From Sun 06:19
<b>Venus:</b>	Until Sat 19:43
<b>Mars:</b>	Until Sun 01:45
<b>Jupiter:</b>	From Sun 05:06
<b>Saturn:</b>	From Sun 04:39
<b>Uranus:</b>	Until Sat 21:57
<b>Neptune:</b>	From Sun 05:57

The image shows a night sky map with constellations labeled: Auriga, Persei, Orion, and Taurus. Mars is highlighted with a red star and a white label 'Mars' with a magnifying glass icon. A search bar on the left contains 'Mars'. A data popup for Mars is visible.

#### Mars

Best: 21:30  
Set: 01:45\*  
Rise: 08:48\*

---

Altitude: 23.70°  
Direction: 279.82° (W)  
Visibility: Excellent

W

◀ ▶ ⏪ ⏩ ● LIVE

📅 03/04/2021 🕒 22:46:53

# QUIZ

- What colour does mars appear in the sky?

1. Yellow

2. Red or orange < - CORRECT

3. Silver



# QUIZ

- Which constellation did new Jerusalem come from in the vision given to E.G. White?
1. Big Bear
  2. Cassiopeia
  3. Orion < - CORRECT

# QUIZ

- Pleiades are easiest to locate by extending a line from
  1. Orion belt < - CORRECT
  2. Big Bear
  3. Cassiopeia

# QUIZ

- Which part of the sky are planets not found in UK

1. North < - CORRECT
2. South
3. East
4. West
5. Top



# QUIZ

- Which of the following heavenly bodies always appears in the same place?
  1. Jupiter
  2. Pleiades
  3. Polaris < - CORRECT

# QUIZ

- “Morning Star” is one of the names of
  1. Saturn
  2. Evening Star < - CORRECT
  3. Polar star

# CAN YOU NOW LOCATE THE PLEIADES?

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2															
3															
4															
5															
6															
7															
8															

Image: <https://scottastronomy.wordpress.com/2021/03/03/mars-and-the-pleiades/>



Looking southwest  
Mid-evening  
Early March 2021

# CAN YOU NOW LOCATE THE PLEIADES?

