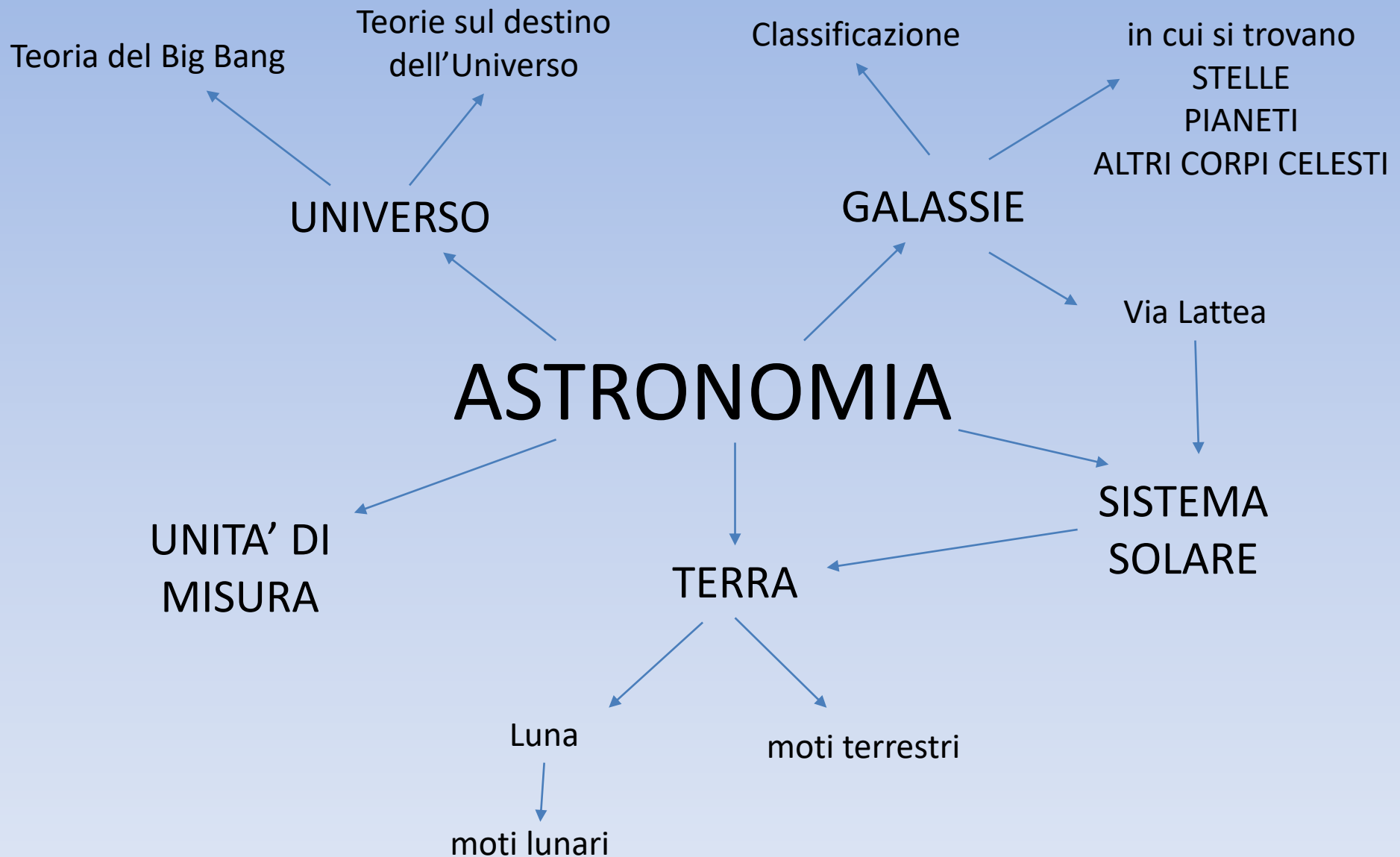


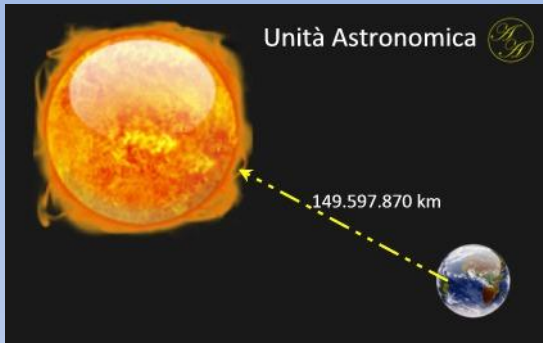
ASTRONOMIA

[Video](#)

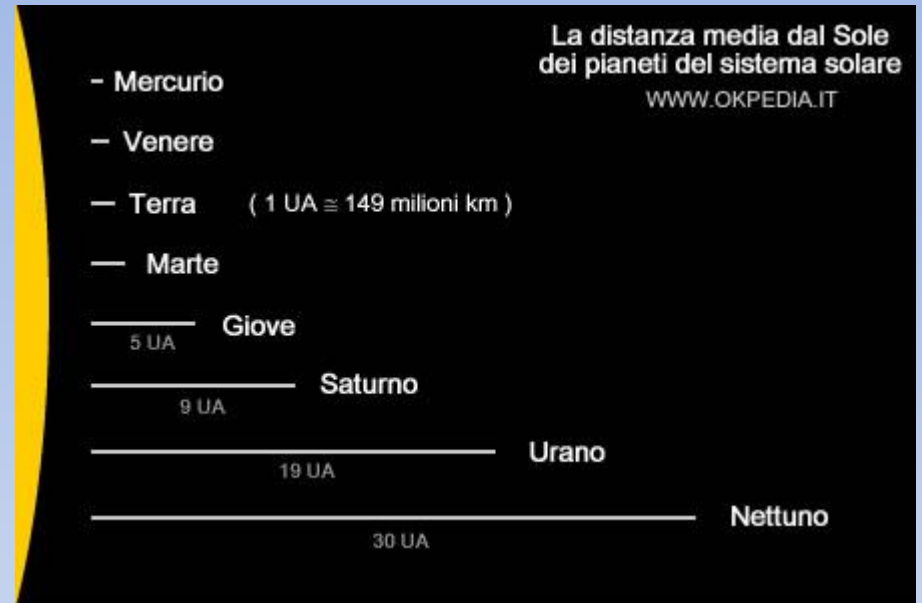
[Video](#)



UNITA' DI MISURA

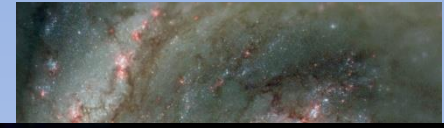


UNITA' ASTRONOMICA (U.A.):
è la distanza media tra la Terra ed il Sole
→ 150 milioni di km



ANNO LUCE:
è la distanza che percorre la luce in un anno
→ 9500 miliardi di km

GALASSIE

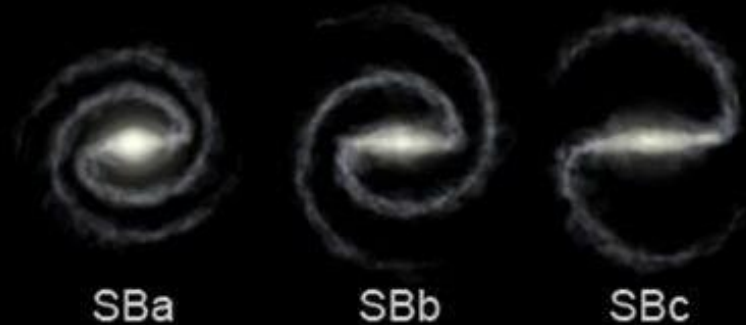


ELLITTICHE

barrata



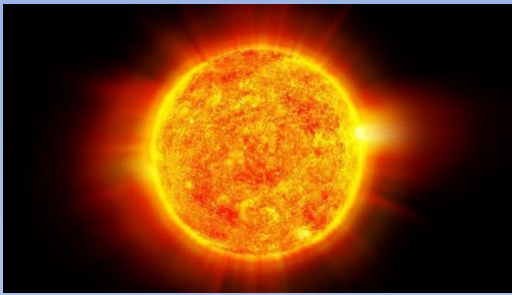
A SPIRALE



A SPIRALE BARRATA

Di forma
irregolare

Una **galassia** è un grande insieme di stelle, sistemi, ammassi ed associazioni stellari, gas e polveri (che formano il mezzo interstellare), legati dalla reciproca forza di gravità.



STELLE

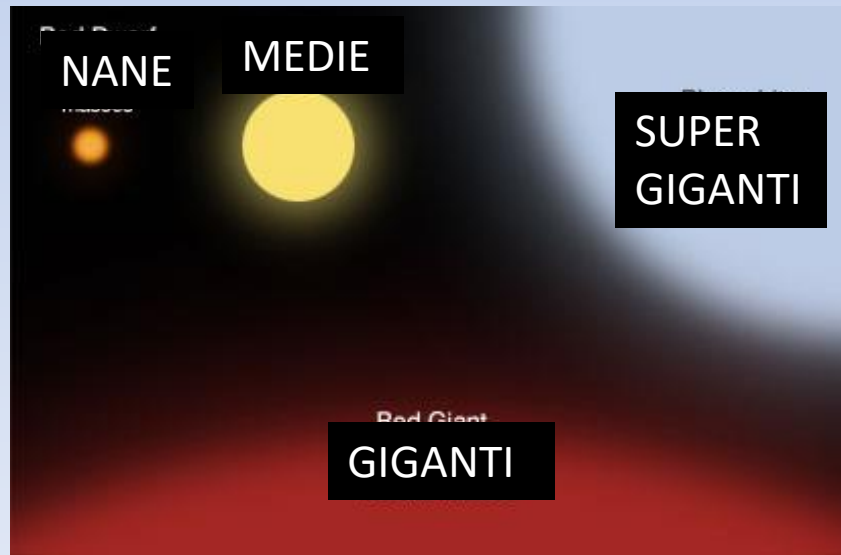


Una **stella** è un corpo celeste che brilla di luce propria.

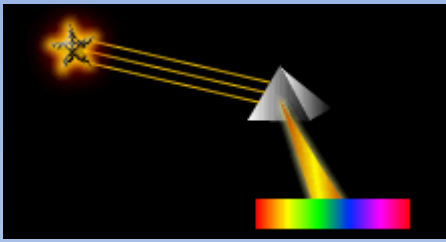
Formate principalmente da:

- IDROGENO (H) → 70%
- ELIO (He) → 28%
- altri elementi più pesanti (Carbonio, Azoto, Ossigeno, Ferro, ...) → 2%

Classificate in base alle dimensioni:

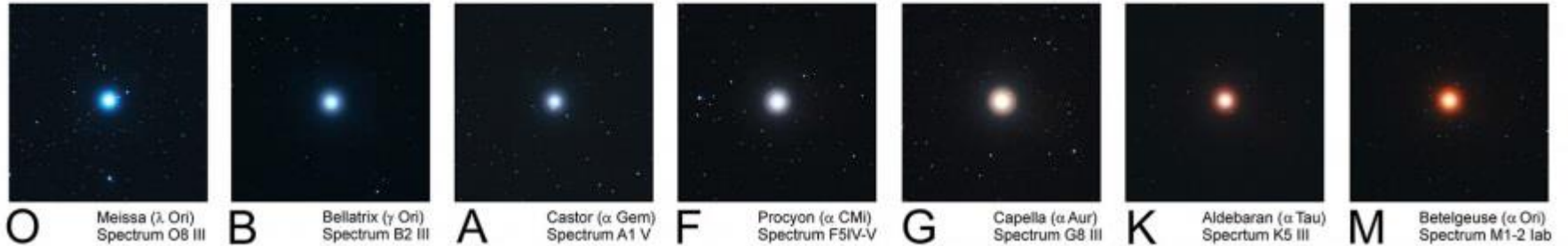


STELLE



Classificate in base al colore:

COLORS OF THE STARS - SPECTRAL CLASSIFICATION



azzurre

bianche

gialle

arancioni

rosse

Classe	Temperatura (K)	Colore	Massa (M_{\odot})	Raggio (R_{\odot})	Luminosità (L_{\odot})	Linee di assorbimento	Esempio
O	28 000 - 50 000	Blu-azzurro	16 - 150	15	fino a 1 400 000	N, C, He e O	10 Lacertae
B	9 600 - 28 000	Bianco-azzurro	3,1 - 16	7	20 000	He, H	Regolo
A	7 100 - 9 600	Bianco	1,7 - 3,1	2,1	80	H	Altair
F	5 700 - 7 100	Bianco-giallastro	1,2 - 1,7	1,3	6	Metalli: Fe, Ti, Ca, Sr e Mg	Procione
G	4 600 - 5 700	Giallo	0,9 - 1,2	1,1	1,2	Ca, He, H ed altri	Sole
K	3 200 - 4 600	Arancione	0,4 - 0,8	0,9	0,4	Metalli + TiO ₂	α Centauri B
M	1 700 - 3 200	Rosso	0,08 - 0,4	0,4	0,04	Come sopra	Stella di Barnard

STELLE



Guardando il cielo, posso capire quali sono le stelle più luminose?

STELLE

LUMINOSITA' APPARENTE: dipende dalla distanza, dalle dimensioni e dalla temperatura della stella.



Le dieci stelle più vicine

Stella	Magnitudine apparente	Magnitudine assoluta	Distanza (parsec)
1. Proxima Centauri	11,05	15,45	1,31
2. α Cen A	-0,01	4,35	1,34
B	1,33	5,69	
3. Stella di Barnard	9,54	13,25	1,81
4. Wolf 359	13,53	16,68	2,33
5. HD 95735	7,50	10,49	2,49
6. Sirio A	-1,45	1,42	2,65
B	0,68	1,56	
7. UV Cet A	12,45	15,27	2,72
B	12,95	15,77	
8. Ross 154	10,6	13,3	2,90
9. Ross 248	12,29	14,80	3,15
10. ϵ Eri	3,73	6,13	3,30

LUMINOSITA' ASSOLUTA:
NON dipende dalla distanza, dalle dimensioni o dalla temperatura della stella.

Aldebaran

Gigante rossa (K5)
m=0,8 - d=68 a.l.
37 R_s



Betelgeuse

Supergigante rossa (M2)
m=0,8 - d=650 s.l.
800 R_s



Capella

Gialla (G5)
m=0,1 - d=43 a.l.



Deneb

Ipergigante bianca (A2)
m=1,2-1,3 - d=8300 a.l.



Mintaka

Azzurra (B0)
m=2,1-2,3 - d=900 a.l.



Procione

Gialla (F5)
m=0,4 - d=11 a.l.

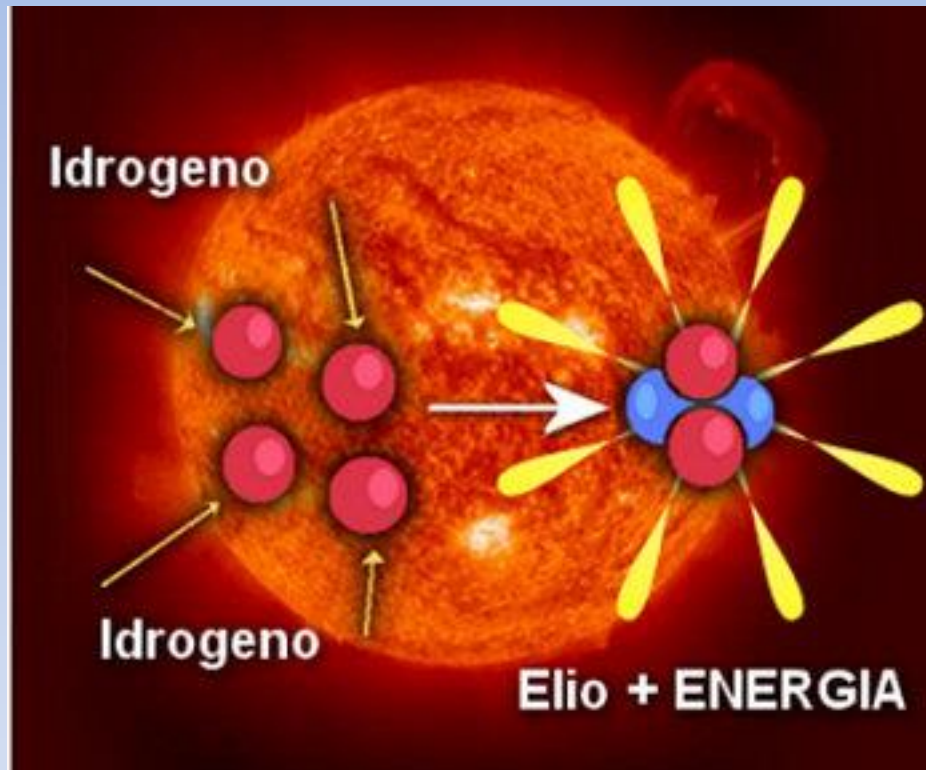


Rigel

Azzurra (B8)
m=0,1 - d=900 a.l.

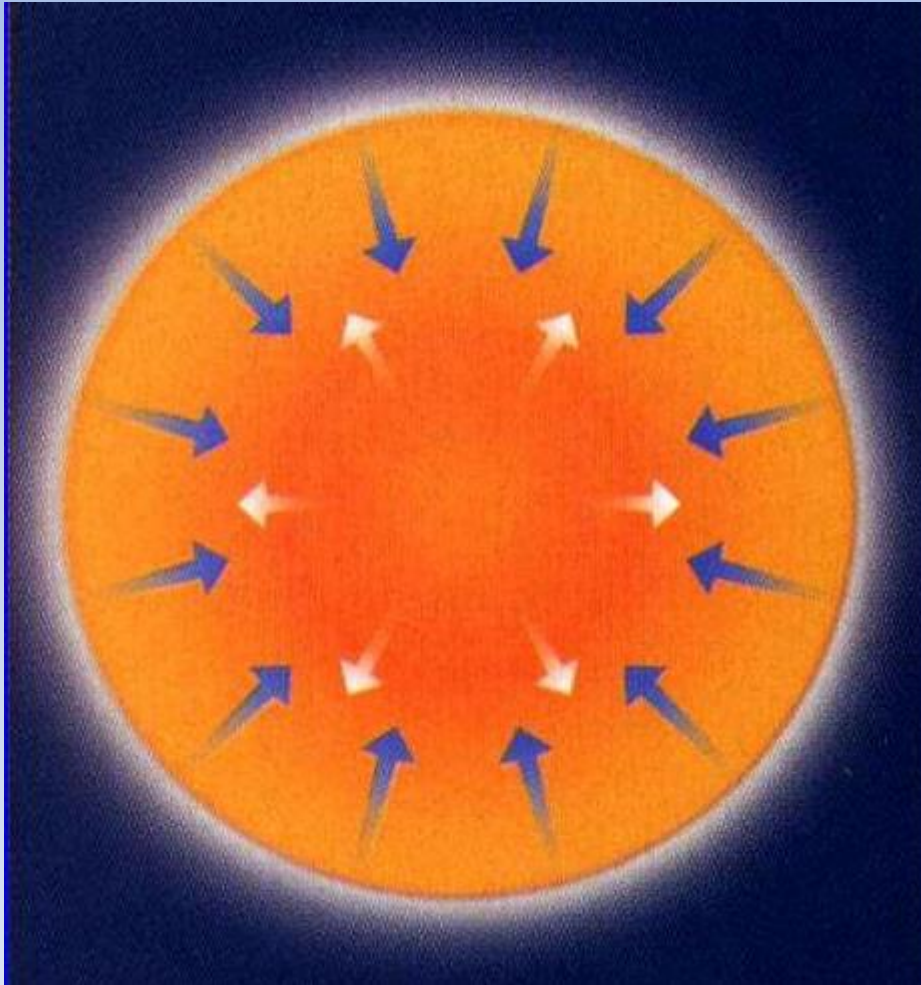


STELLE



Le stelle brillano producendo LUCE e CALORE tramite REAZIONI TERMONUCLEARI.

STELLE

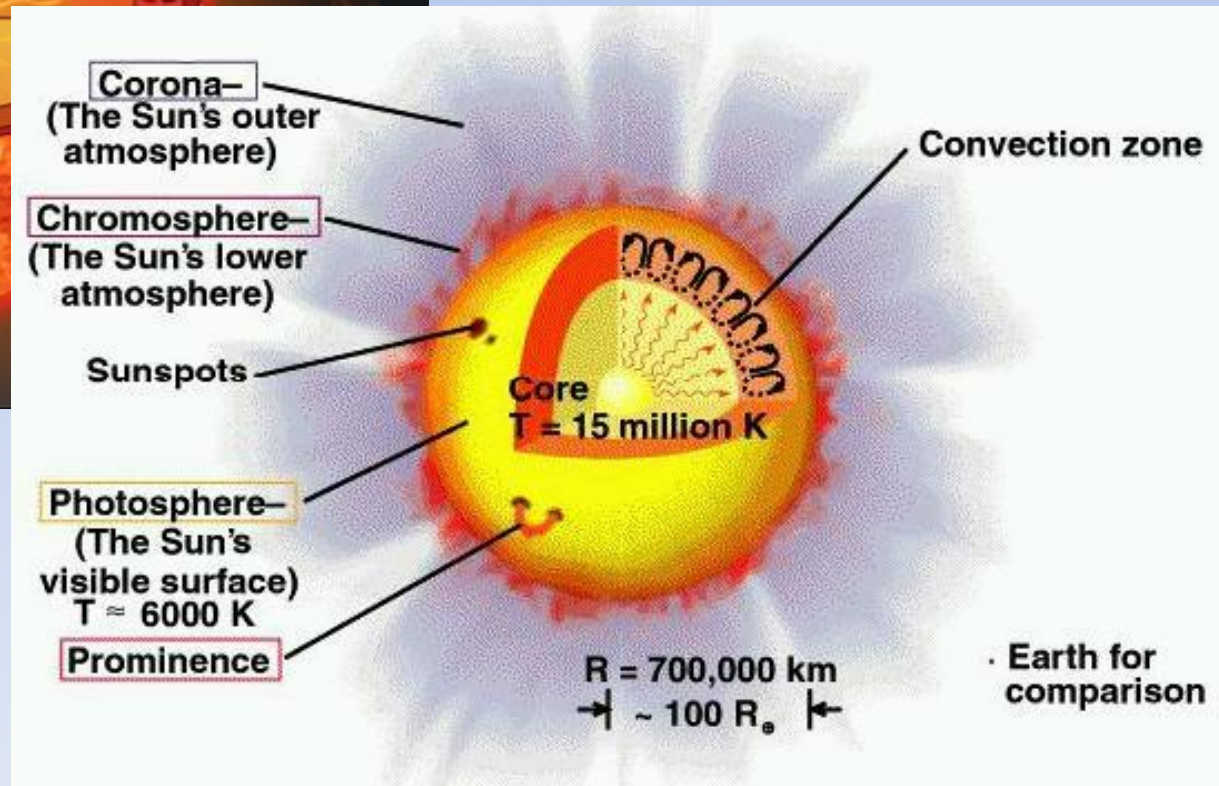
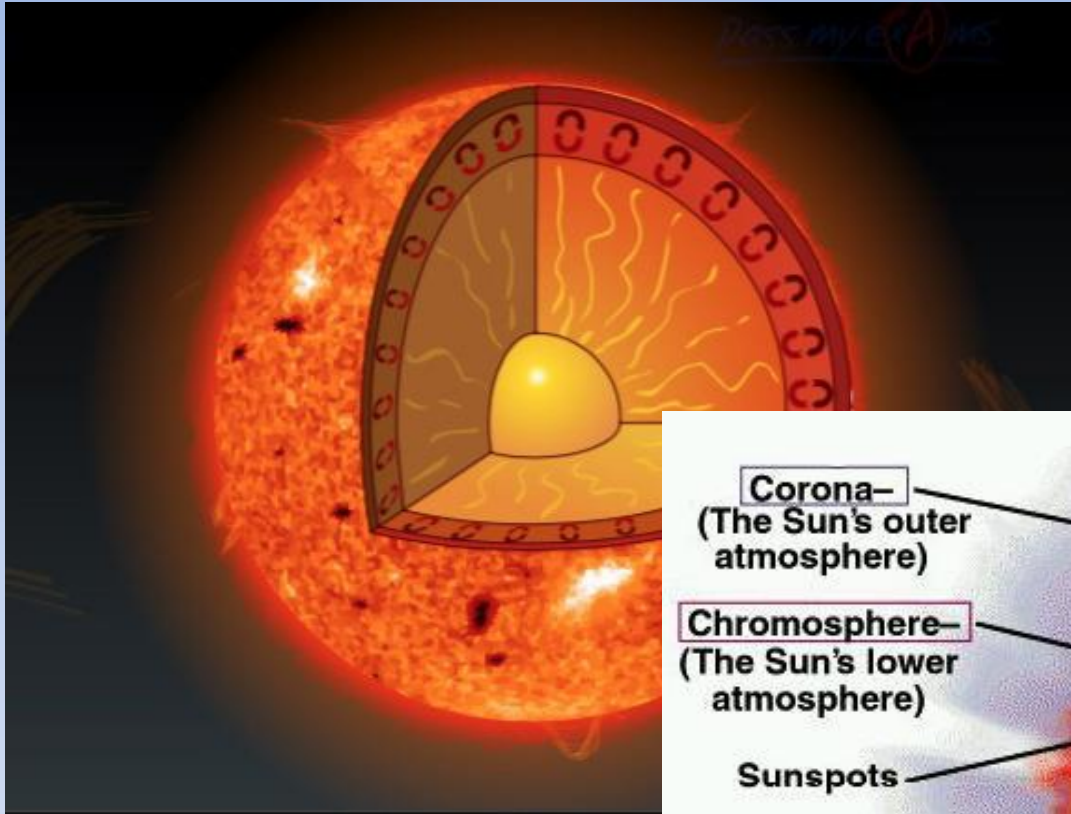


Le reazioni di FUSIONE NUCLEARE liberano energia che tende a far espandere la stella

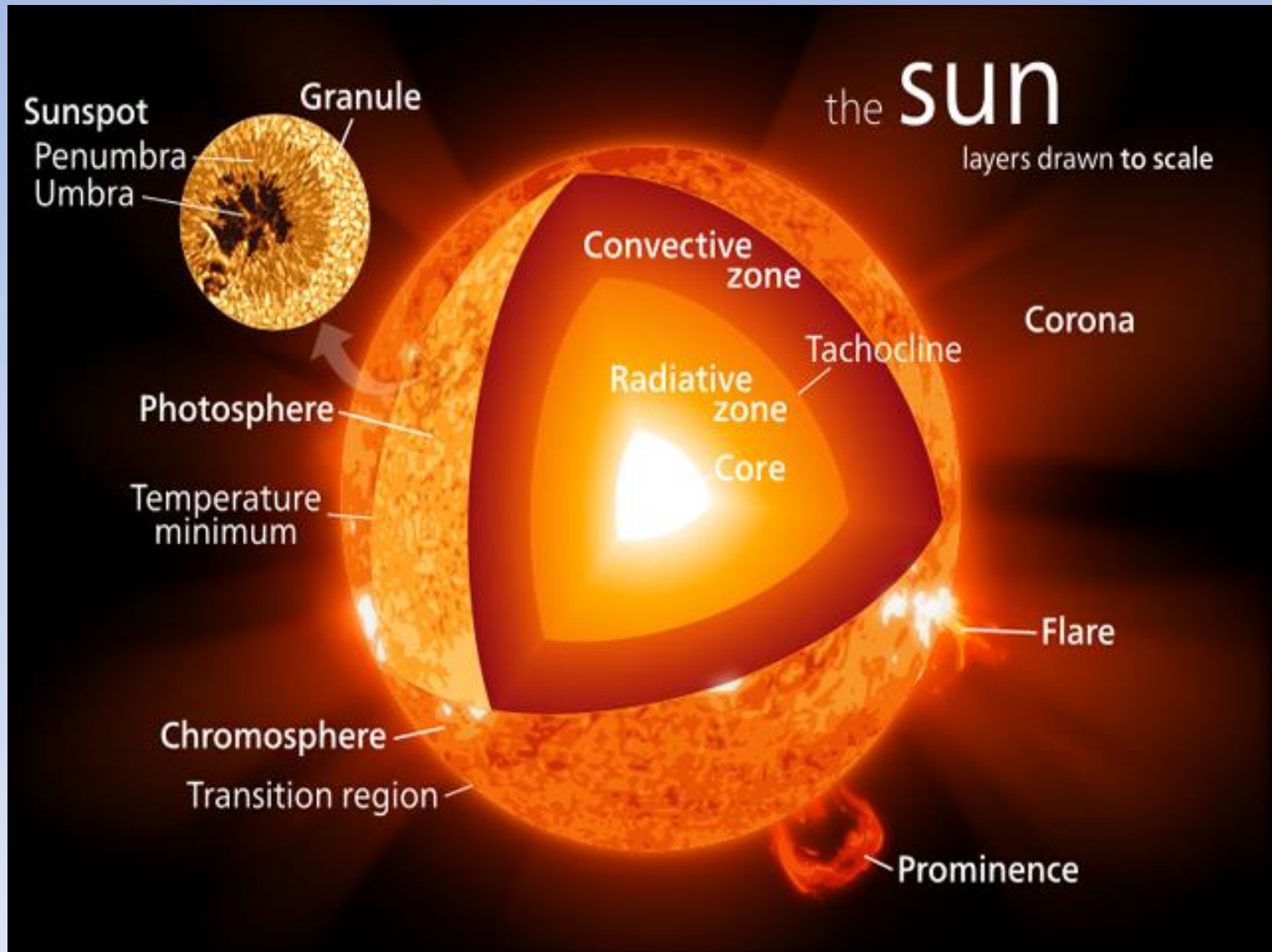
La FORZA DI GRAVITA' tende a far comprimere la stella

L'EQUILIBRIO tra queste due forze determina la dimensione della stella

IL SOLE



IL SOLE



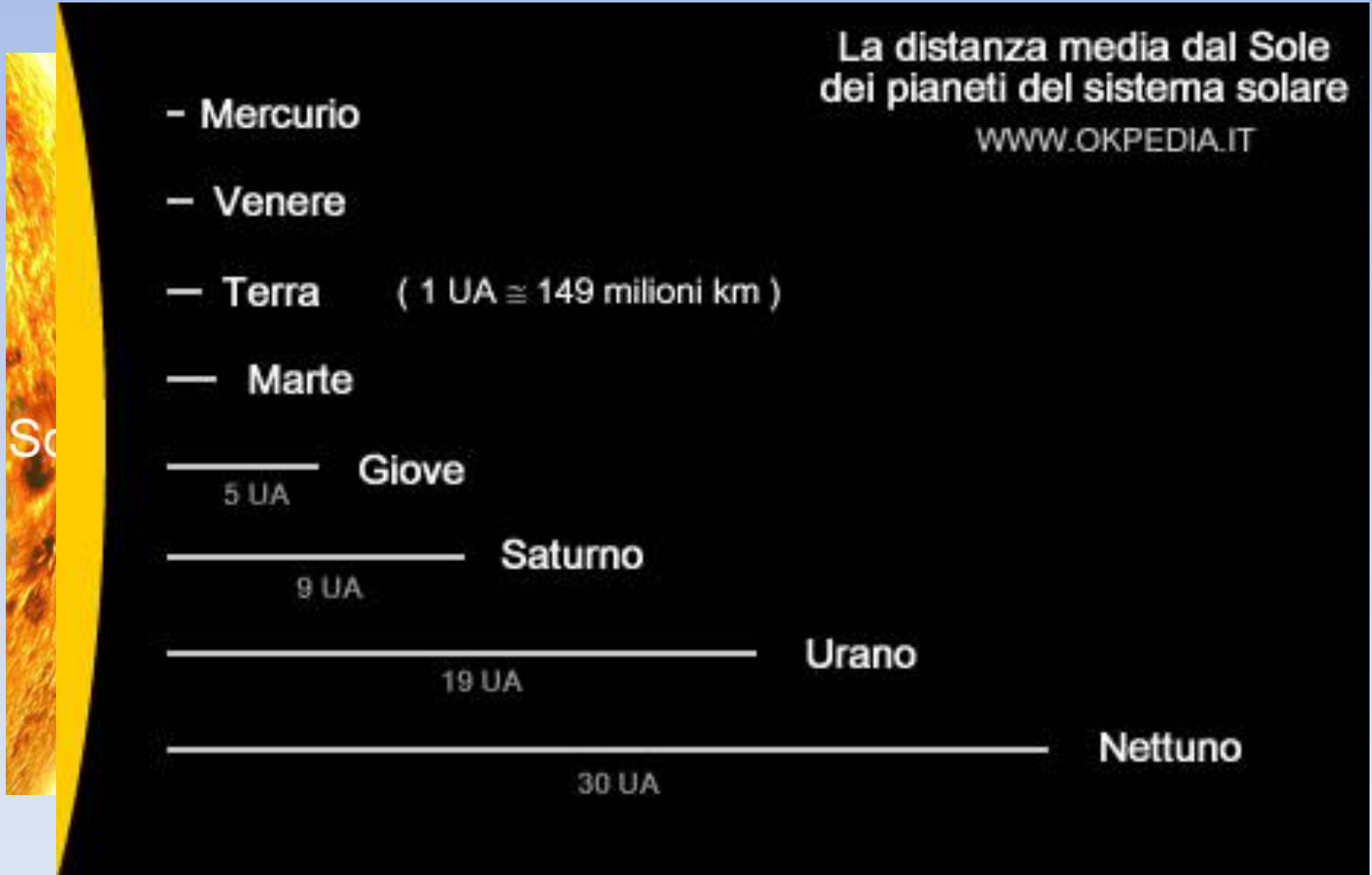
I PIANETI DEL SISTEMA SOLARE



Suddivisi in

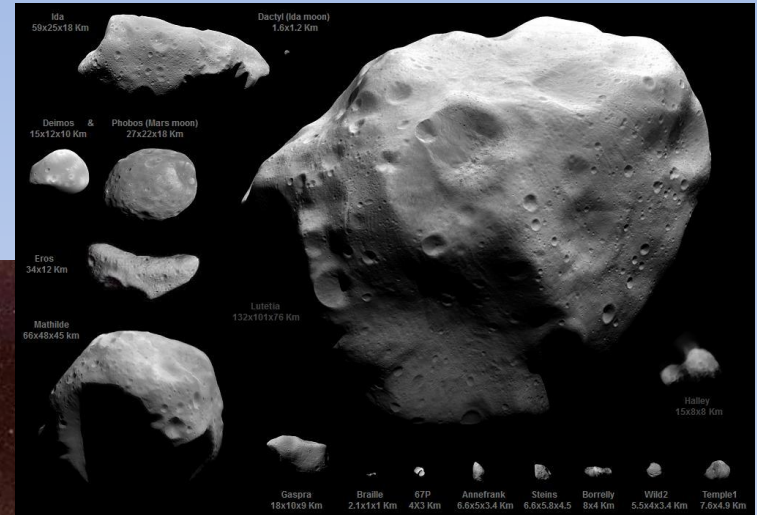
- INTERNI (o ROCCIOSI): Mercurio, Venere, Terra, Marte
- ESTERNI (o GASSOSI): Giove, Saturno, Urano, Nettuno

I PIANETI DEL SISTEMA SOLARE



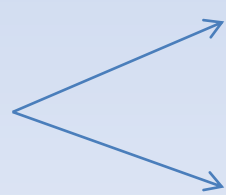
ALTRI CORPI CELESTI DEL SISTEMA SOLARE

ASTEROIDI



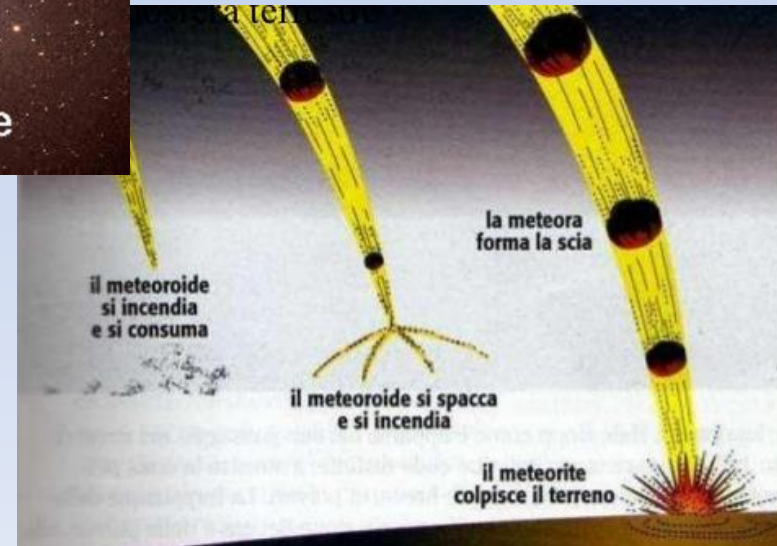
COMETE

METEOROIDI



METEORE

METEORITI



LA VITA DI UNA STELLA

THE LIFE CYCLES OF STARS

MAIN SEQUENCE

Composed of 70% hydrogen, it will stay in space for billions of years.

- ☑️ Multiple colors
- 🕒 100 years
- + Main Sequence

GIANT/SUPERGIANT

Massive stars with 10x of a star's weight, they radiate heat through fusion.

- ☑️ 100x size of sun
- 🕒 100,000 years
- + Main Sequence

SUPERNOVA

Massive stars explode and release energy, creating new molecules in space.

- ☑️ 100x size of sun
- 🕒 100 years
- + Main Sequence

BLACK HOLE

It starts as a black hole, growing into a black hole. From light, it creates a powerful gravitational pull.

- ☑️ 100x size of sun
- 🕒 100 years
- + Main Sequence

OR

NEUTRON STAR

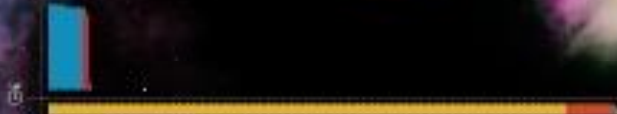
It can form neutron stars, which are made of neutrons.

- ☑️ 100x size of sun
- 🕒 100 years
- + Main Sequence

HIGH MASS STARS

SCORPIO NEBULA
A massive nebula with
many stars and
gas clouds.

LOW MASS STARS



High mass stars live for a short time, while low mass stars live for a long time.

WE TURN TO THE SOLAR
SYSTEM, which is a
typical example of a
main sequence star.

MAIN SEQUENCE

Composed of 70% hydrogen, it will stay in space for billions of years.

- ☑️ Multiple colors
- 🕒 100 years
- + Main Sequence

RED GIANT

It starts as a red giant, which is a star that has expanded and cooled.

- ☑️ 100x size of sun
- 🕒 100,000 years
- + Main Sequence

PLANETARY NEBULA

It starts as a planetary nebula, which is a cloud of gas and dust.

- ☑️ 100x size of sun
- 🕒 100 years
- + Main Sequence

WHITE DWARF

It starts as a white dwarf, which is a small, hot star.

- ☑️ 100x size of sun
- 🕒 100 years
- + Main Sequence

BLACK DWARF

It starts as a black dwarf, which is a dark, cold star.

- ☑️ 100x size of sun
- 🕒 100 years
- + Main Sequence