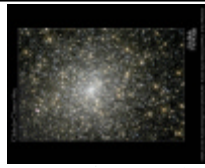
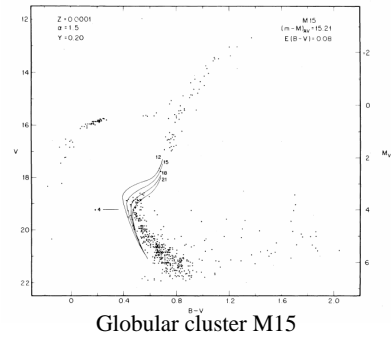


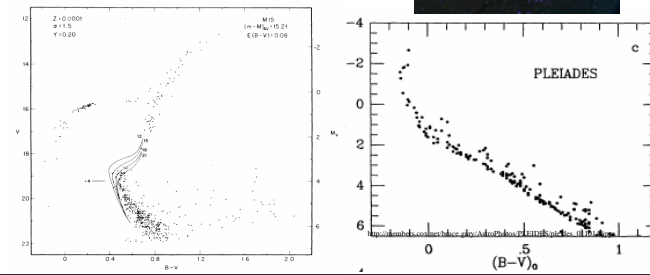
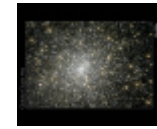
Lifetime of Stars—7 Oct



- How are giants and dwarfs related?
- Does the sun have a finite life or does it last forever?
- Clues
 - H-R diagram
 - Fuel consumption rate



Pleiades & M15



Lifetime of Stars

- Lifetime = Amount of fuel/Rate of consumption
 - Lifetime of a tank of gas for a car
 - For a star
 - Amount of fuel = mass
 - Rate of consumption = luminosity

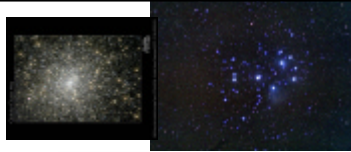
Spectral Class	Abs Mag	Luminosity [Lsun]	Mass [Msun]	Lifetime [Tsun]
O3	-6	25000	40	
G2 (sun)	5	1	1	1
M0	10	1/100	0.3	

Lifetime of Stars

- Lifetime = Amount of fuel/Rate of consumption
 - Lifetime of a tank of gas for a car
 - For a star
 - Amount of fuel = mass
 - Rate of consumption = luminosity
- Stars have a finite life. The sun will not live forever!

Spectral Class	Abs Mag	Luminosity [Lsun]	Mass [Msun]	Lifetime [Tsun]
O3	-6	25000	40	1/600
G2 (sun)	5	1	1	1
M0	10	1/100	0.3	30

Pleiades & M15



3. Why does M15 not have any bluer main sequence stars? Were they born in the Pleiades and not born in M15?
4. Why are there so few giants in the Pleiades?
5. Sketch the H-R diagram of a cluster that is older than Pleiades and younger than M15.

