



The Life Cycles of Stars

Distribute colored balloons (red, yellow, white, and blue). Have each student make a spitball of paper to represent the stellar core. Put one spitball-core in each balloon.

Time Step	0.4 Solar Mass Red Star	1 Solar Mass Yellow Star	3 Solar Mass White Star	9 Solar Mass Blue Star
Beginning	Blow up the star to about 3 inches in diameter	Blow up the star to about 3 inches in diameter	Blow up the star to about 3 inches in diameter	Blow up the star to about 3 inches in diameter
5 Million Years	Wait. Your Star is slowly burning its Hydrogen.	Wait. Your Star is slowly burning its Hydrogen.	Wait. Your Star is slowly burning its Hydrogen.	Wait. Your Star is slowly burning its Hydrogen.
10 Million Years	Wait	Wait	Blow up a little.	Blow up as fast as you can. Pop the balloon with a pin—Supernova!
500 Million Years	Wait	Wait. Watch as planets form.	Slowly blow up a little more. Star turns yellow/orange as its surface cools.	Star has exploded. Throw supernova remnants about the room. Core is a black hole.
1 Billion Years	Wait	Blow up a little	Blow up fast. Pop the balloon with a pin—Supernova Explosion!	
8 Billion Years	Wait	Blow up more. Color star red, the stars is now a Red Supergiant	Star has exploded. Throw supernova remnants about the room. Core is a neutron star.	
10 Billion Years	Wait	Let air out and cut the balloon into pieces—a planetary nebula. Place them in a circle around the spitball core—a white dwarf		
11 Billion Years	Blow up a little.	Move pieces (planetary nebula) a little further away as it expands.		
13 Billion Years	Let the air out. Star has just slowly shrunk and died. Color core black.	Throw the pieces away, the nebula has dispersed. Color the spitball black, it has become a black dwarf.		

