

A Ten Step Program for Star and Planet Formation

Steps to the formation of stars and planets:

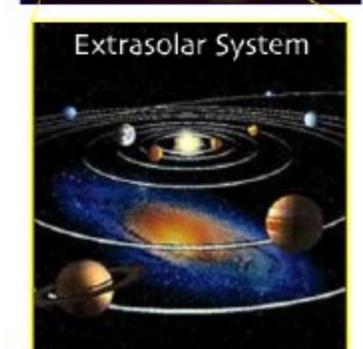
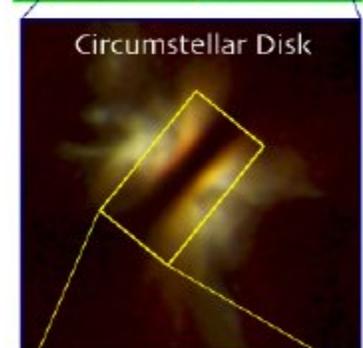
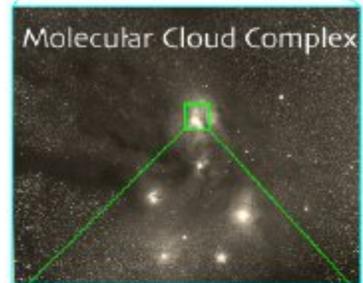
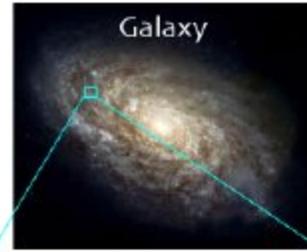
1. [Clouds of gas](#) form within galaxies.
2. Formation of [structure within the gas clouds](#), due to "turbulence" and activity of new stars.
3. Random turbulent processes lead to [regions dense enough to collapse under their own weight](#), in spite of a hostile environment.
4. As blob collapses, [a disk forms](#), with growing "protostar" at the center.
5. At the same time, [bipolar outflows](#) from forming star/disk system begin.
6. Material is processed, moving in from the blob to the disk. What is not lost in the outflow builds up on the [protostar](#).
7. When the protostar begins to undergo [fusion](#), it becomes a real star.
8. Once the outflow ceases and the "accretion" phase that lead to the buildup of the star ends, a [disk of "leftover" material](#) is left around the star.
9. At or near the end of the star-formation process, the remaining material in the "circumstellar disk" (a.k.a. "protoplanetary disk") forms a variety of [planets](#).
10. Eventually, all that is left behind is a new star, perhaps some planets, and a disk of left-over ground-up solids, visible as a ["Debris Disk"](#) around stars other than the Sun, and known as the "Zodaical Dust Disk" around the Sun.

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Animations showing a simulation of much of steps 2-10 can be found [here](#)

Note: This site was developed by [Alyssa](#)



[Goodman](#) and her colleagues to support three efforts.

1. Public outreach for the [Spitzer Space Telescope](#) mission, in conjunction with a [NASA Space Science Update](#) on March 25, 2003.
2. A whitepaper describing a planned "Research Briefing" by the National Academy's [Committee on Astronomy And Astrophysics](#) on Star and Planet formation.
3. Public outreach in support of the [COMPLETE Survey](#) of Star-Forming Regions.

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Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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