**Interstellar Clouds are SWEET!!**

There are over 150 molecules detected in space. These include antifreeze, ethanol, laughing gas and glycolaldehyde – a simple sugar.

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**What are we learning?**

- **Dense Cloud**: The mass of an interstellar cloud becomes sufficient to cause compression and self-gravitation, leading to the formation of protostellar systems. In this phase, complex organic molecules form that can be detected by the IRAS.
- **Diffuse Cloud**: The material becomes cold as many stars accumulate to form an interstellar cloud of cold dust at very low density. In such clouds, simpler molecules form that can be detected with the IRAS.
- **Accretion Disk**: A protostellar system further condenses, forming a central protostar and a rotating disk of gas and dust that accretes more material. More molecules form. Planets and comets eventually will form from the material in the outer disk.
- **Stellar System**: The existing temperature and density increase, igniting thermonuclear reactions. Matter continues to accrete. Transition from the protostellar stage to the early main sequence is marked by the appearance of first stars, and interstellar material remains in orbit around the star.
- **Zoom to Planet**: The protostellar molecules are scattered by planets to passing comet, interplanetary dust particles, and other mechanisms.

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**It takes a BIG Telescope to do the job!**

Using a telescope the size of 2 football fields is necessary to detect the very weak signals of molecules coming from space!

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**The chemistry of space is COMPLICATED!**

The molecules that are formed in space could have found their way to early planets (like the Earth) in comets!

The atoms and molecules that make up YOU could have formed in space!