Galaxies and Stars

What does our galaxy look like and what types of stars exist inside?
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- **Galaxy** - a collection of billions of stars and various amounts of gas held together by gravity
  - Average galaxies have around 100 billion stars
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- Galaxies have been classified by the following shapes:
  - Irregular
  - Elliptical
  - Spiral
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- **Milky Way Galaxy** - our solar system is part of a spiral shaped galaxy with 200 billion stars
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- **Star** - large ball of gas held together by gravity that produces tremendous amounts of energy and shines
  - Make up the majority of known matter in the galaxy
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- **Nuclear Fusion** - the combining of smaller elements to form the nuclei of larger elements
- The Sun converts hydrogen nuclei into helium nuclei
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- **Luminosity** - a measure on how bright a star is compared to our Sun
  - Luminosity and temperature are used in classifying the different types of stars on a H-R Diagram
Earth Science Reference Tables

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(Name in italics refers to star represented by a ◆.)
(Stages indicate the general sequence of star development.)
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- Stars have a life cycle and undergo stellar evolution
  - Stars originate from a cloud of dust and gases
  - Gravity causes them to clump together and form larger balls of dust and gases
  - When gravitational contraction creates enough heat they ignite and start nuclear fusion
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- **Main Sequence Star** - average size, temperature, and luminosity stars
  - 90% of the known stars spend their life on the main sequence
  - The Sun is apart of the main sequence
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- Red Giant Stars - a luminous easily seen star that is in a late phase of stellar evolution
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- **Super Giant Stars** - star with an extremely high temperatures in the late stages of its stellar evolution
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- **White Dwarf Stars** - Earth sized star with a low luminosity and a hot surface
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