Moons, Planets, Solar System, Stars, Galaxies, in our Universe - An introduction by

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HIERARCHY: one within another

- Moons ORBIT Planets
- Planets ORBIT Stars (Suns)
- Stars orbited by Planets are Solar Systems (all Stars?)
- Solar Systems form from Nebulas and recyle back into Nebulas (dust & gas)
- Nebulas and Solar Systems ORBIT within Galaxies (huge Star Cities)
- Many Galaxies fill our Universe
Moons
Our Solar System’s Planets
Our Star (the Sun)
Our Galaxy (Milky Way) edge-on from within the pancake (STAR CITY)
Stars: distant Suns –
Birth, Life, Death (Nebulas, Clusters)
Solar System Formation
Recycling Stars
Heavy Duty Recycling:
SUPERNova – elements galore
DRAWING of our Milky Way Galaxy
Looking toward Cygnus and toward galactic center
Reality Check:

- Visualize SOLAR SYSTEM vs. GALAXY
Reality Check:

- Visualize **SOLAR SYSTEM** vs. **GALAXY**

- A **Solar System** is a VERY TINY DOT within a **GALAXY**...microscopic!

- A ¼” paper punchout vs. a huge disk about 150 MILES WIDE (Coast to Bend or Portland to Roseburg!)
Our Sister Galaxy, Andromeda, M31
Other **Galaxies** in Deep Space
The HUBBLE ULTRA-DEEP FIELD
a tiny swatch of sky-galaxies galore
Hundreds of Billions of GALAXIES in our UNIVERSE

- We don’t have enough data to figure out where we are within the UNIVERSE nor how big our Universe might be...evidence is it’s expanding!

- We are a member of a cluster and a supercluster of galaxies. How do we know that?

- If you leave from a place, how far could you travel in a given amount of time? How old is our Universe, how would that relate to its size?