

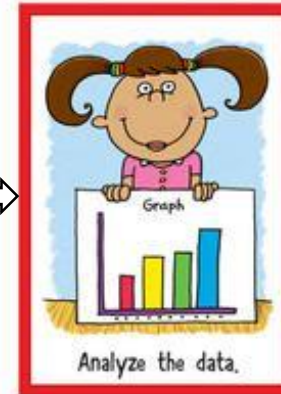
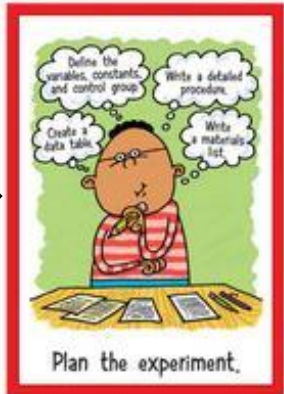
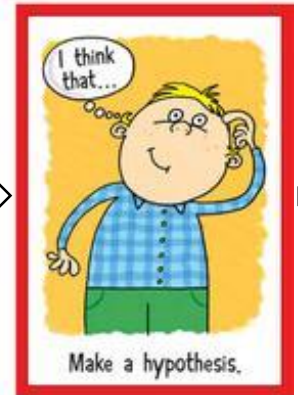
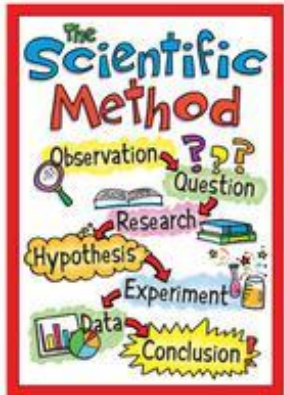
INITIAL OBSERVATION



WONDER

RESEARCH

HYPOTHESIZE

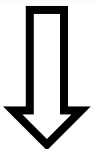


PLAN

EXPERIMENT
ADDITIONAL
OBSERVATIONS

DATA

ANALYSIS



CONCLUSION!

Observation



- Observation is describing an object or event using your five senses (*what you see, hear, smell, taste, touch*) or measurement (*numbers*).
- Information gathered during an observation is called **data** (sing. *datum*).

Observation **does not include opinion**
(how you *feel* or what you *think*)!

Qualitative vs Quantitative Data

Qualitative (letters)

- **Descriptions** using **words**.
- Data which can be **observed** but **not measured**.
- What the object is *like*: texture, smell, taste, appearance, etc.
- ***Subjective, relative***

Quantitative (numbers)

- Specific **numbers**.
- Data which can be **measured**.
- Length, height, area, volume, weight, speed, time, temperature, humidity, sound levels, cost, age, etc.
- ***Objective, specific***

Where is Earth?

the Local Supercluster

the Local Group

the Milky Way Galaxy

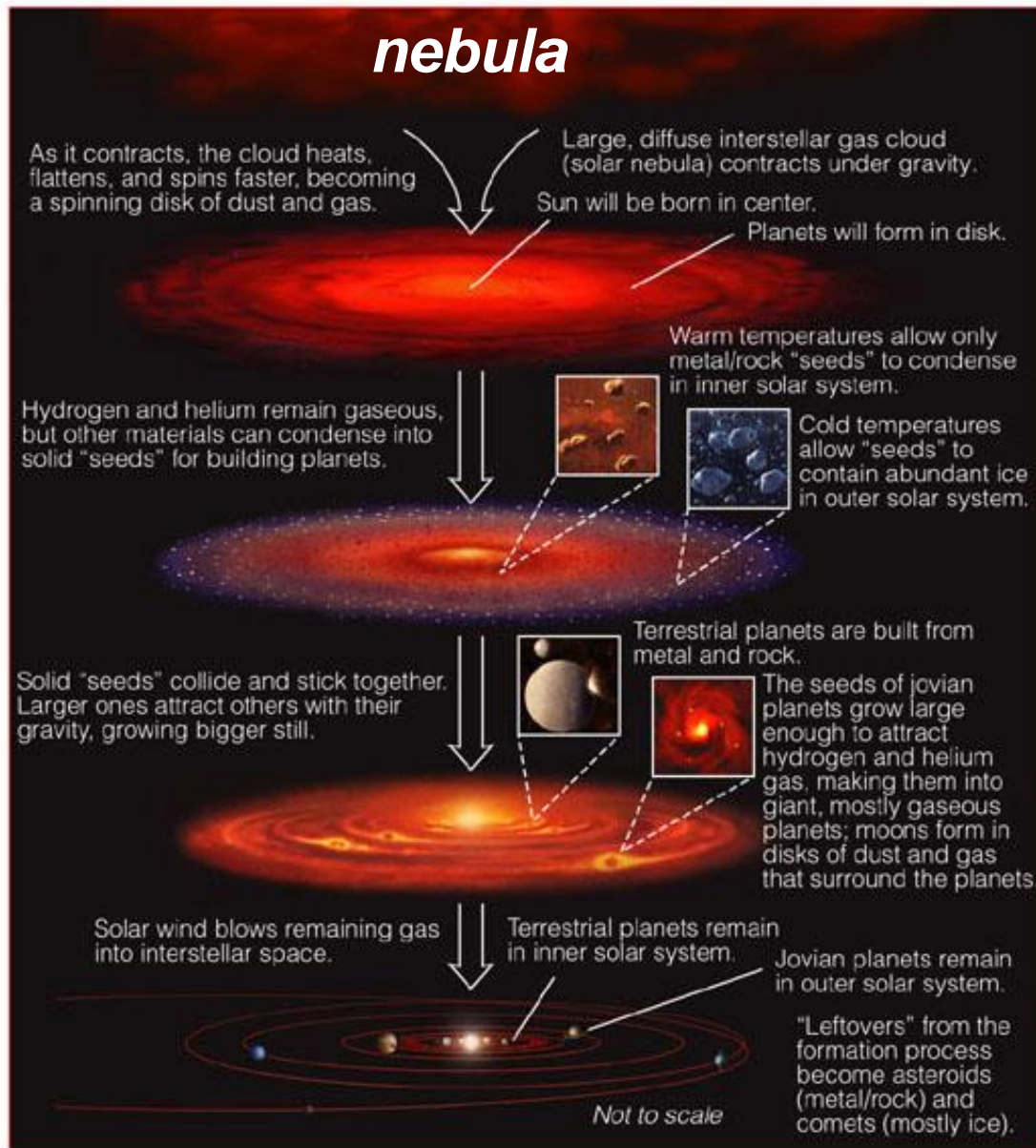
the Universe

Earth

the Solar System
(not to scale)



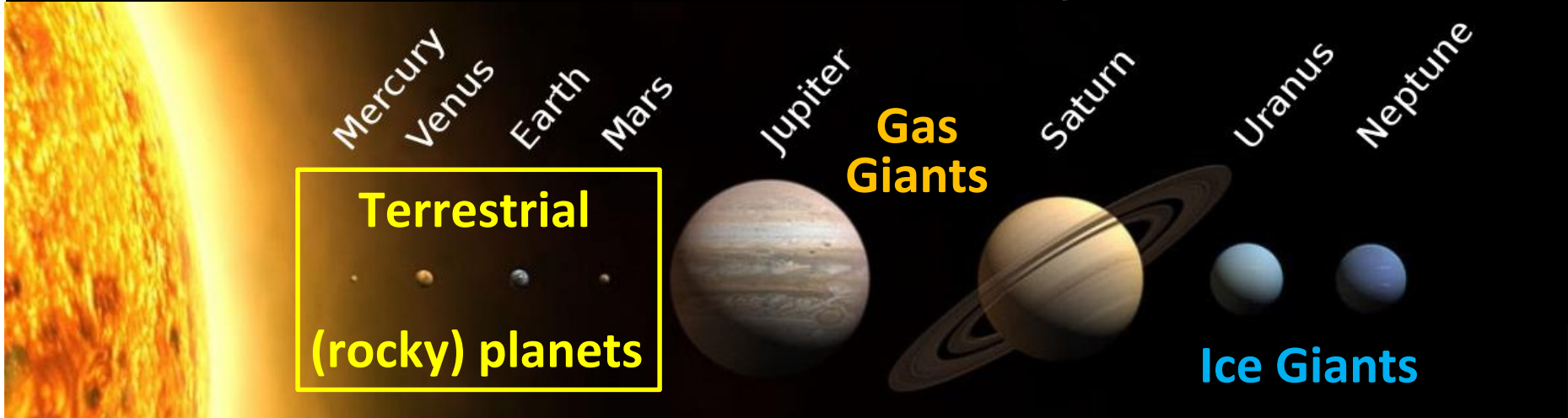
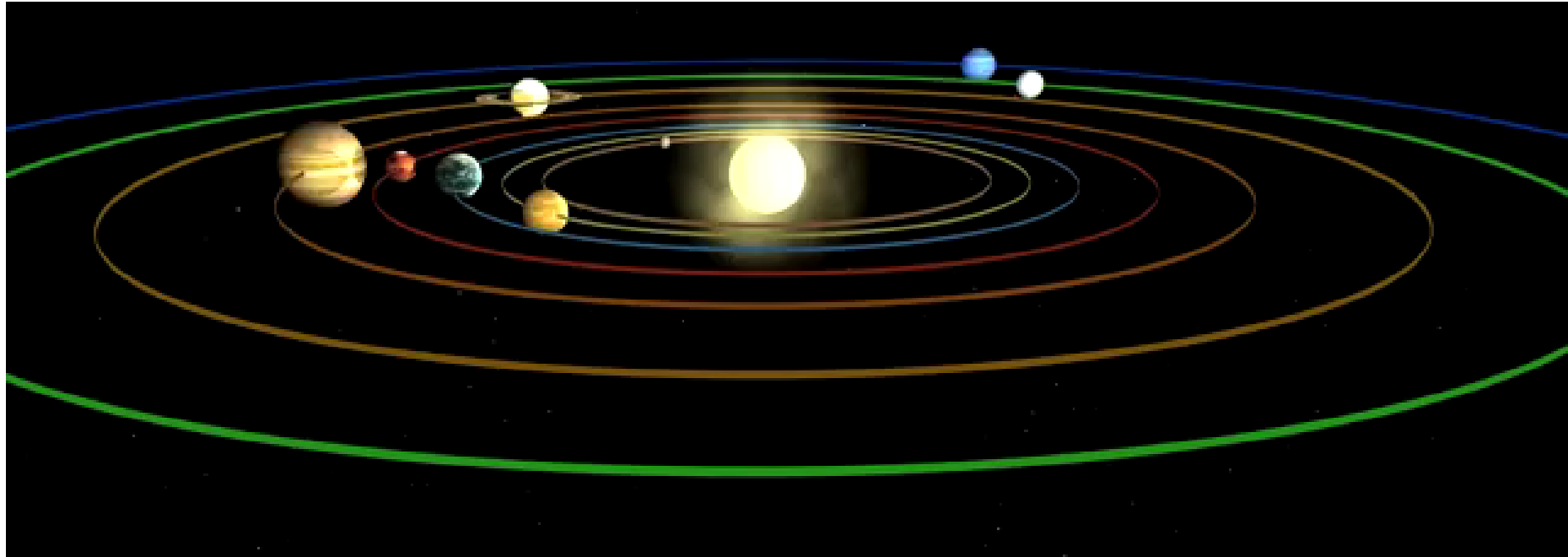
The Formation of the Solar System



Solar System
formed about **4.6 billion years ago**,
when gravity pulled
together low-
density **cloud**
of interstellar gas
and dust (called
a **nebula**).

The Sun, planets,
moons, comets,
asteroids are
believed to form
within ~100 million
years.

Solar System



Mercury
Venus
Earth
Mars

Terrestrial

(rocky) planets

Jupiter

**Gas
Giants**

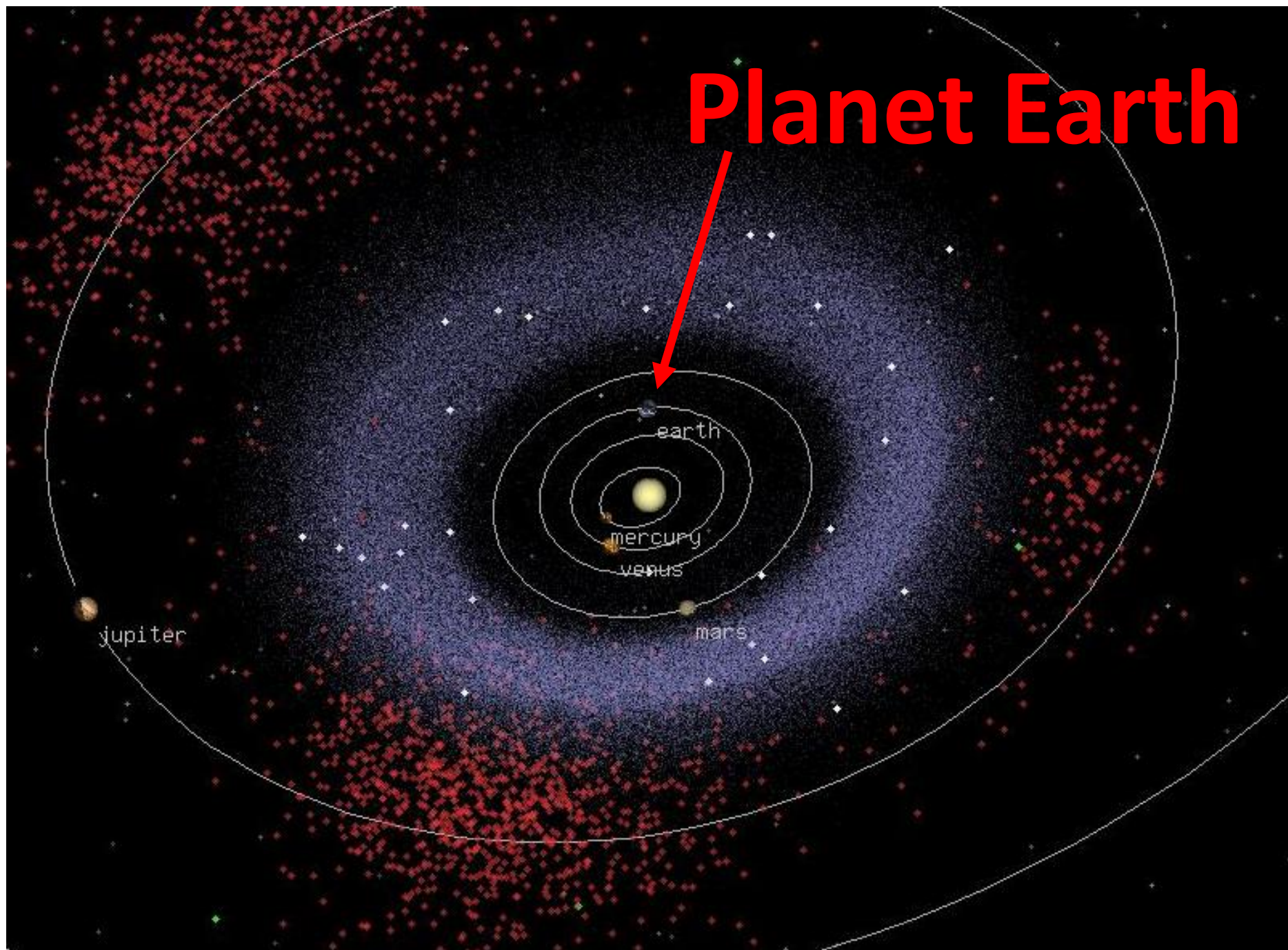
Saturn

Uranus

Neptune

Ice Giants

Planet Earth



Earth Facts

- Earth is a **terrestrial (rocky) planet**, third from the Sun.
- Earth has a *single natural satellite*, the **Moon**.
- Earth has **LIFE!**
- Of the four terrestrial planets in the Solar System:
 - Earth is the largest both in size and mass.
 - Earth has the highest density, the strongest magnetic field, and the fastest rotation.
 - Earth has the highest surface gravity equal to 9.798 m/s.



Fun Fact: from the Earth's surface, the apparent sizes of the Sun and the Moon are approximately the same!