# THE HEAVENS

A. "**The heavens declare the glory of God, and the firmament shows His handiwork**" (Psa. 19:1).

B. **The Three Heavens**

1. The atmospheric heavens or firmament (Gen. 1:6-8).

2. The stellar heavens (Psa. 19:1-6).

3. The "third heaven" or paradise (2 Cor. 12:2-4).

C. **Relationship Between Earth and Sun** (Gen. 1:14)

1. Days: 24 hours, day and night, how defined and computed? why 24 hours? God's purpose.

2. Years: 365 d, 6 h, 9 m, 9.5 s (Sidereal Year) or 365 d, 5 h, 48 m, 46 s (Tropical Year), how defined and computed? why 365 days? why does the earth revolve? God's purpose.

   a. Leap years: every 4 years, except 1700, 1800, 1900, 2100, 2200, 2300, 2500, etc.

3. Seasons: 4 seasons, how determined? God's purpose.

   a. Lengths of seasons: Spring 92 d, 18 h, 19 m
   Summer 93 d, 15 h, 22 m
   Autumn 89 d, 20 h, 4 m
   Winter 89 d, 0 h, 24 m
   Total 365 d, 6 h, 9 m

   b. Spring + summer: 186 d, 9 h, 41 m
   Fall + winter: 178 d, 20 h, 28 m
   God's purpose.

4. What about the Southern Hemisphere?

D. **Relationships Among the Earth, the Sun, and the Moon**

1. Rotation of moon on axis: 27.32 days.

2. Revolution of moon about the earth: 27.32 days. Why are these two periods identical? What are the results of these two periods being identical?

3. Tides.

4. Harvest moon

E. **Signs**

1. Eclipse of the moon.

2. Eclipse of the sun: only when full moon. Is this what happened when Jesus was crucified? (Matt. 27:45; Lev. 23:5).

3. Joshua's long day (Josh. 10:12-14).

4. Sun going backward (Isa. 38:7,8).

5. The Star of Bethlehem (Matt. 2:1-10).

6. The rainbow (Gen. 9:11-17).

F. **Source of Light on Day 1** (Gen. 1:3; 14-19)

G. **Selected Scripture References to the Sun, Moon, and Stars**

1. Joseph's dream of the sun, moon, and 11 stars (Gen. 37:9).

2. Worship of sun, moon, and stars and astrology forbidden (Deut. 4:19; 17:3; 2 Ki. 23:5; see Isa. 47:13).

3. Darkening of the sun, moon, and stars in God's judgment (Isa. 13:10; Ezek. 32:7; Joel 2:10,31; 3:15; Amos 8:9; Matt. 24:29; Acts 2:20; Rev. 6:12; 8:12).

4. Brightening of the sun and moon in day of God's blessing of His people (Isa. 30:26).

5. No more need of the sun and moon when the Lord's light shines (Isa. 60:19,20; Rev. 21:23; 22:5; compare Gen. 1:3).

6. The Messiah called the "Sun of righteousness,""Star out of Jacob," "Day Star," "Dayspring" (or "Sunrise," NIV), and "Morning Star" (Mal. 4:2; Num. 24:17; 2 Pet. 1:19; Luke 1:78,79; Rev. 22:16).

7. Abraham's, Isaac's, and Jacob's descendants compared to the number of the stars (Gen. 15:15; 22:17; 26:4; Exod. 32:13; Deut. 1:10; 10:22; Heb. 11:12; compare Kepler's count of 1,005 stars in the 17$^{th}$ century).

8. The morning stars sang when the earth was created (Job 38:7).

9. Christ's face bright like the sun at the transfiguration (Matt. 17:2; also Rev. 1:16).

10. Saul of Tarsus saw light brighter than the sun (Acts 26:13).

11. God has numbered the stars and calls them all by their names (Psa. 147:4).

12. Constellations and stars named in Scripture: Arcturus, Pleiades (seven daughters), and Orion (Job 9:9; 38:31; Amos 5:8).

13. Planets ("wandering stars") in Scripture (Jude 13).

H. **Fine Tuning of the Universe for Planet Formation and Life**

1. Strong nuclear force constant: if *larger*, no hydrogen, no life; if *smaller*, no elements other than hydrogen.
2. Weak nuclear force constant: if *larger*, too much helium and heavy element material; if *smaller*, too little helium and heavy element material.
3. Gravitational force constant: if *larger*, stars would burn up too quickly; if *smaller*, stars would remain too cool for heavy element production.
4. Electromagnetic force constant: if *larger* or if *smaller*, insufficient chemical bonding.
5. Ratio of electromagnetic force constant to gravitational force constant: if *larger*, short stellar life spans; if *smaller*, no heavy element production.
6. Ratio of protons to electrons: if *larger* or if *smaller*, no galaxy, star, and planet formation.
7. Mass density of the universe: if *larger*, stars burn too rapidly; if *smaller*, too few heavy elements.
8. Average distance between stars: if *larger*, heavy element density too thin for rocky planets to form; if *smaller*, planetary orbits would become destabilized.
9. Decay rate of the proton: if *larger*, life would be exterminated by the release of radiation; if *smaller*, insufficient matter in the universe for life.
10. $^{12}C$ to $^{16}O$ energy level ratio: if *larger*, insufficient oxygen; if *smaller*, insufficient carbon.
11. Decay rate of $^{8}Be$: if *slower*, heavy element fusion would generate catastrophic explosions in all the stars; if *faster*, no element production beyond beryllium and hence no life possible.
12. Mass excess of the neutron over the proton: if *larger*, neutron decay would leave too few neutrons to form the elements essential for life; if *smaller*, proton decay would cause all stars to collapse rapidly into neutron stars or black holes.

I. **Fine Tuning of our Galaxy and Solar System for Man**

1. Galaxy type: if *too elliptical*, star formation would cease before sufficient heavy element build-up for life chemistry; if *too irregular*, radiation exposure on occasion would be too severe and heavy elements for life chemistry would not be available.
2. White dwarf binaries: if *too few*, insufficient fluorine would be produced for life; if *too many*, planetary orbits would be disrupted by stellar density and life on the planet would be exterminated.
3. Distance of sun from center of galaxy: if *farther*, quantity of heavy elements would be insufficient to make rocky planets; if *closer*, galactic radiation would be too great; stellar density would disturb planetary orbits out of life support zones.
4. Number of stars in the planetary system: if *more than one*, tidal interactions would disrupt planetary orbits; if *less than one*, heat produced would be insufficient for life.

5. Mass of sun: if *greater*, sun would burn too rapidly; if *less*, range of distances appropriate for life would be too narrow; tidal forces would disrupt the rotational period for a planet of the right distance; UV radiation would be inadequate for plants to make sugars and oxygen.
6. Color of sun: if *redder* or if *bluer*, photosynthetic response would be insufficient.
7. Distance of earth from sun: if *farther*, earth would be too cool for a stable water cycle; if *closer*, earth would be too warm for a stable water cycle.
8. Inclination of orbit: if *too great*, temperature differences on the planet would be too extreme.
9. Eccentricity of orbit: if *too great*, seasonal temperature differences would be too extreme.
10. Period of rotation: if *longer*, diurnal temperature differences would be too great; if *shorter*, atmospheric wind velocities would be too great.
11. Thickness of crust: if *thicker*, too much oxygen would be transferred from the atmosphere to the crust; if *thinner*, volcanic and tectonic activity would be too great.
12. Collision rate with asteroids and comets: if *greater*, too many species would become extinct; if *less*, crust would be too depleted of materials essential for life.
13. Carbon dioxide level in atmosphere: if *greater*, runaway greenhouse effect would develop; if *less*, plants would be unable to maintain efficient photosynthesis.
14. Water vapor level in atmosphere: if *greater*, runaway greenhouse effect would develop; if *less*, rainfall would be too meager for advanced life on the land.
15. Ozone level in atmosphere: if *greater*, surface temperatures would be too low; if *less*, surface temperatures would be too high and there would be too much UV radiation at the surface.
16. Oxygen quantity in atmosphere: if *greater*, plants and hydrocarbons would burn up too easily; if *less*, advanced animals would have too little to breathe.
17. Global distribution of continents: if *too much in the southern hemisphere*, seasonal temperature differences would be too severe for advanced life.
18. Gravitational interaction with moon: if *greater*, tidal effects on the oceans, atmosphere, and rotational period would be too severe; if *less*, climatic instabilities, movement of nutrients and life from the oceans to the continents and continents to the oceans would be insufficient.

## J. References

1. Sidney Collett, *All About the Bible*, Fleming H. Revell Co., New York, NY.
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3. Hugh Ross, *The Fingerprint of God*, Promise Publishing Co., Orange, CA, 1991.
4. Hugh Ross, *The Creator and the Cosmos*, NavPress, Colorado Springs, CO,1993.