

# Is the Universe Created?

## The Evidence from Astronomy

Introduction: The \_\_\_\_\_ wisdom of our day, conventional at least to most of the "educated" people of our world, is that the Earth is an \_\_\_\_\_ planet that revolves around an average star in a very \_\_\_\_\_ type of galaxy. It hangs in the midst of a phenomenally huge universe filled with an inestimable number of such planets around such stars in such galaxies. This has led to the very common belief not only that \_\_\_\_\_ exists elsewhere in the universe, but \_\_\_\_\_ life exists, probably in many, many places.

But the conventional wisdom is not \_\_\_\_\_. It often still appears in basic textbooks on astronomy, but any astronomer in the know will tell you that the facts discovered in the last \_\_\_\_\_ years show us that the Earth, our solar system, and our galaxy are very \_\_\_\_\_ indeed. The qualities surrounding our planet evidence a high degree of \_\_\_\_\_. Our home is not identical to billions of others. It may even be completely \_\_\_\_\_.

We will make use of interviews conducted by Lee Strobel recorded in The Case For a Creator. Today we will look at what we learn from the field of \_\_\_\_\_ that provides evidence that the \_\_\_\_\_ and its surroundings were designed for \_\_\_\_\_ habitation.

Even scientists committed to naturalistic thinking are making this kind of observation. Two professors from the University of Washington in Seattle published a book entitled Rare Earth. In it they accumulate evidence from a wide range of scientific disciplines to support their conclusion that "not only intelligent life, but even the simplest of animal life, is exceedingly \_\_\_\_\_ in our galaxy and in the universe."

"Rather than being one planet among billions, Earth now appears to be the \_\_\_\_\_ Earth," said science educators Jimmy H. Davis and Harry L. Poe. "The data imply that Earth may be the \_\_\_\_\_ planet 'in the right place at the right time.'"

What observations and discoveries are causing even atheistic scientists to conclude that the Earth is unique in the universe and even point out strong evidence for intelligent design? We will examine three major areas: Earth's place in its \_\_\_\_\_, Earth's place in its \_\_\_\_\_ system, and the condition of the Earth and its \_\_\_\_\_.

### I. EARTH'S PLACE IN ITS GALAXY

#### A. The right galaxy

1. Astronomers have found three types of galaxies in the universe: \_\_\_\_\_, elliptical, and \_\_\_\_\_.
  - a. Elliptical galaxies are generally \_\_\_\_\_ shaped.
  - b. Irregular galaxies appear disorganized without a unifying shape.
  - c. The Milky Way, the Earth's galaxy, is a spiral galaxy. Spiral galaxies have a spherical bulge in the midst of a disc with spiral \_\_\_\_\_ extending outward. They often look like a celestial pinwheel.
2. Elliptical galaxies
  - a. Stars, with their solar systems, if they have a system, orbit \_\_\_\_\_ their galaxy.
  - b. The center of any galaxy is a very \_\_\_\_\_ place as far as life is concerned. It is often the location of black holes and supernovae. Both of these produce vast amounts of \_\_\_\_\_ that is catastrophic for life.
  - c. The \_\_\_\_\_ in an elliptical galaxy for a planet that might otherwise be capable of supporting life is that its \_\_\_\_\_ in this type of galaxy will almost inevitably bring it close to the disastrous and \_\_\_\_\_ middle of the galaxy.
  - d. One very interesting and important observation is that \_\_\_\_\_ of the galaxies in our universe are elliptical galaxies.
3. Irregular galaxies
  - a. The dangers of supernovae and black holes are \_\_\_\_\_ throughout an irregular galaxy.
  - b. There is simply \_\_\_\_\_ place in the galaxy that is not constantly in threat of life destroying radiation.
4. Spiral galaxies
  - a. Spiral galaxies offer the \_\_\_\_\_ place conducive to supporting life once it has begun.
  - b. The \_\_\_\_\_ of spiral galaxies also contain black holes and supernovae, as do elliptical and irregular galaxies. Spiral galaxies also have these life destroying elements in the spiral \_\_\_\_\_.
  - c. The reason spiral galaxies can support planets with life is that there are places within the spiral galaxy in which a star with its solar system can

orbit \_\_\_\_\_ passing through the regions in which overwhelming radiation is an everyday possibility. This potential \_\_\_\_\_ exists in spiral galaxies.

### B. The safe place

1. Only spiral galaxies offer a good home for a planet to host intelligent life, but as we have seen, only certain portions of even a spiral galaxy are \_\_\_\_\_.
2. The band of safe areas in such a galaxy as ours is very \_\_\_\_\_.
3. \_\_\_\_\_ solar system makes a circular orbit within the safe \_\_\_\_\_ of the Milky Way galaxy.
4. The \_\_\_\_\_ of the galaxy also matters, with bigger being \_\_\_\_\_. The Milky Way is in the top one or \_\_\_\_\_ percent of the most massive of the galaxies.
5. Guillermo Gonzalez, summa cum laude graduate from the University of Arizona, with master's and doctorate degrees in astronomy from the University of Washington says, "In terms of habitability, I think we are in the \_\_\_\_\_ possible place. ... I really can't come up with an example of another place in the galaxy that is as friendly to \_\_\_\_\_ as our location."

## II. EARTH'S \_\_\_\_\_ IN ITS SOLAR SYSTEM

### A. Our special \_\_\_\_\_

1. 80% of stars are \_\_\_\_\_ dwarfs. Red dwarf stars \_\_\_\_\_ support planets with life because
  - a. They do not emit light in both the red and blue spectrum, which is \_\_\_\_\_ to sustain life.
  - b. If a planet were positioned close enough to be heated adequately by a red dwarf, it would also be subjected to sufficient \_\_\_\_\_ to destroy its atmosphere.
  - c. It would also then be close enough for the gravity of the star to \_\_\_\_\_ the rotation of the planet, causing only one side to face the star, leaving half of the planet too hot for life, the other half too cold.
2. Our sun is in the top \_\_\_\_\_% of stars in its mass, which strengthens its luminosity.

- a. Increased luminosity means the planet can be further from the star and still be adequately warmed to keep \_\_\_\_\_ water on the face of the planet, an important ingredient for sustaining life.
  - b. The resulting increase in distance from the star, means that the planet will not be frozen in its \_\_\_\_\_ by the gravity of the star and can thus maintain a more even temperature.
  - c. This distance also \_\_\_\_\_ the radiation effect upon the planet caused by solar flares.
3. Our sun is highly \_\_\_\_\_, far more so than comparable stars. Its luminosity only varies by 1/10 of 1% over the full sunspot cycle of eleven years. Our sun is a \_\_\_\_\_ dwarf, giving light in the G2 spectrum. Its balance of red and blue light is \_\_\_\_\_ for the support of life.
  4. Stars like our sun, of the right mass, the right luminosity, the right spectrum, orbiting only in the safe place of a spiral galaxy, are \_\_\_\_\_ rare, even given the size of the entire universe.

## B. Our special spot

1. Earth is the right \_\_\_\_\_ from the sun to maintain water in liquid form, a necessity for life. Move it much closer, the water boils away. Move it further, and the Earth becomes an ice covered ball. The allowable variation either way is less than \_\_\_\_%. This means that for intelligent life to be supported, the planet must occupy a band that is less than \_\_\_\_% of the total allowable distances from the sun within the solar system.
2. Earth's orbit is \_\_\_\_\_ rather than elliptical. This means that our planet does not experience major temperature \_\_\_\_\_ during our annual journey around the sun.
3. The stable \_\_\_\_\_ of the Earth on its axis at an angle of 23.5 degrees gives us \_\_\_\_\_ seasons and a stable climate. Not many planets are so blessed. Mercury, Venus, and Mars all vary \_\_\_\_\_ in their tilt upon their axis, resulting in \_\_\_\_\_ heating of the surface of the planets.

## C. Our sister planets

1. Even the other \_\_\_\_\_ around us help make the Earth habitable.
2. \_\_\_\_\_ has a circular orbit, which means that it does not interfere with the critical circular orbit of the Earth around the sun. The recent discovery of gas giant planets like Jupiter around other stars surprised astronomers in that most of those planets have \_\_\_\_\_ elliptical orbits. Such an orbit would absolutely prevent a smaller terrestrial planet in the same

solar system from maintaining a circular orbit, necessary for the sustaining of life.

3. Jupiter is our friend as well because its huge mass, more than \_\_\_\_\_ times the mass of Earth, helps to deflect \_\_\_\_\_ from coming to the interior of the solar system where they could be a threat to life on Earth. \_\_\_\_\_ and Uranus assist us in the same way.
4. Mars and \_\_\_\_\_ both provide protection for the Earth from \_\_\_\_\_, taking many hits that otherwise might have hit the Earth.

**D. Earth is located in just the right \_\_\_\_\_ within a very \_\_\_\_\_, and possibly absolutely unique solar system, around a very exclusive type of \_\_\_\_\_, and benefited by other planets within the system in such a way so as to sustain \_\_\_\_\_ on Earth.**

### III. THE CONDITION OF THE EARTH AND ITS MOON

#### A. The \_\_\_\_\_ of the Earth

1. Perhaps many of us who inhabit the Earth have to work hard to be just the right size, but the Earth itself has no such problem. Its size is \_\_\_\_\_.
2. To support life, a planet must be of sufficient \_\_\_\_\_ to retain an atmosphere and to keep the \_\_\_\_\_ from its interior from being radiated too quickly into space.
3. However, if a planet is too \_\_\_\_\_, its increased gravity causes its surface features to level out. For a planet with a great deal of water, this is disastrous for life because a water world is a \_\_\_\_\_ world. The interplay of the oceans and the continents prevents the saltiness of the oceans from increasing to a level which would not support life. If there were no \_\_\_\_\_, the oceans would be too salty for life to exist.

#### B. The composition of the Earth

1. Even simple bacteria need sixteen essential \_\_\_\_\_ in order to form. Humans require twenty-six. The Earth has them \_\_\_\_\_. There are good theoretical reasons to believe that many of the planets in other solar systems would \_\_\_\_\_ have all of the necessary elements.
2. The \_\_\_\_\_ of the Earth is perfect for life, \_\_\_\_\_% oxygen. Many planets have no atmosphere at all. \_\_\_\_\_ have yet been discovered with an atmosphere even close to one that will support life.

3. Even the creation of ores near the \_\_\_\_\_ of the Earth is highly \_\_\_\_\_. Only a precise series of physical and chemical events in exactly the right sequence could cause this phenomenon which is important for the sustaining of human life across the ages.

### C. The \_\_\_\_\_ engine of the Earth

1. The Earth is no mere hunk of rock floating in space. Inside its core is a controlled \_\_\_\_\_ reaction producing enough heat to keep molten iron moving about the core, creating the Earth's \_\_\_\_\_ field and allowing for moveable plates that make up the surface of the Earth for human habitation.
2. In turn, the magnetic field shields the Earth from deadly \_\_\_\_\_ rays. Without this protection there would be no life.
3. Plate tectonics (the movement of the plates \_\_\_\_\_ on the mantle beneath the crust of the Earth) provides for the formation of continents and mountains, preventing the deadly \_\_\_\_\_ world effect discussed above. This same phenomenon also fuels the Earth's carbon dioxide - rock cycle which helps to regulate the \_\_\_\_\_ gases in the atmosphere, keeping the temperature in the range required for life.

### D. The much more than romantic moon

1. Even our moon, which itself is parched, airless and dead, makes a \_\_\_\_\_ to life on Earth.
2. In 1993 scientists discovered that the \_\_\_\_\_ size of the moon in comparison to the moons around other planets stabilizes the \_\_\_\_\_ of the Earth on its axis. We discussed above the contribution of this stable tilt to the support of life. Mercury and Venus have no moons, and Mars has two tiny moons; therefore, they do not benefit from this stabilization and they \_\_\_\_\_ widely in their tilt upon their axis.
3. The moon also contributes significantly to the rise and fall of the \_\_\_\_\_ of the oceans on Earth. This also is significant because tidal flow provides for moving \_\_\_\_\_ off of the land and into the seas. The tides also contribute heavily to the circulation in the oceans that help to distribute \_\_\_\_\_ around the Earth and stabilize our weather systems.
4. On the other hand, if the moon were significantly \_\_\_\_\_ than it is, the effects would be devastating. The resulting \_\_\_\_\_ tides would be disastrous.
5. Also, scientists have determined by actual measurements that the moon is \_\_\_\_\_ the rotation of the Earth even as the Earth is changing the orbit of the moon, both by tiny amounts each year. But if the moon were

much larger, this effect would also be enlarged, causing the length of daylight and darkness to increase, thus increasing the temperature \_\_\_\_\_ between day and night, and in turn destabilizing the weather patterns on the planet.

6. James Kasting, professor of geosciences and meteorology at Penn State says, "Earth's climatic \_\_\_\_\_ is dependent to a large extent on the existence of the moon."

Conclusion: All of this evidence, and there is much, much more available, gives us a very clear picture that the planet upon which we live is not \_\_\_\_\_. It is a very unique body, with very incredible properties, suspended in just the right place around an equally unique star and in the company of other planets that seem to have no purpose but to serve the good of the Earth. That very special solar system itself is in the most perfect place \_\_\_\_\_ in the whole universe to provide for a habitation for intelligent life.

And how did it get there? How did all of these precise conditions merge to provide a place that could harbor life? Some would say by sheer \_\_\_\_\_, but the probabilities of such make believing that conclusion extremely difficult. Everything we discover about our planet and its place in the universe points to \_\_\_\_\_, planning, and \_\_\_\_\_. The observations point to intelligent design.

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