

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