

**FAITH &  
SCIENCE**  
**July 30, 2011**



## Session 1 Creation

### Genesis 1

**1** In the beginning God created the heavens and the earth. **2** The earth was formless and void, and darkness was over the surface of the deep, and the Spirit of God was moving over the surface of the waters.

**3** Then God said, "Let there be light"; and there was light. **4** God saw that the light was good; and God separated the light from the darkness. **5** God called the light day, and the darkness He called night. And there was evening and there was morning, one day.

**6** Then God said, "Let there be an expanse in the midst of the waters, and let it separate the waters from the waters." **7** God made the expanse, and separated the waters which were below the expanse from the waters which were above the expanse; and it was so. **8** God called the expanse heaven. And there was evening and there was morning, a second day.

**9** Then God said, "Let the waters below the heavens be gathered into one place, and let the dry land appear"; and it was so. **10** God called the dry land earth, and the gathering of the waters He called seas; and God saw that it was good. **11** Then God said, "Let the earth sprout vegetation, plants yielding seed, and fruit trees on the earth bearing fruit after their kind with seed in them"; and it was so. **12** The earth brought forth vegetation, plants yielding seed after their kind, and trees bearing fruit with seed in them, after their kind; and God saw that it was good. **13** There was evening and there was morning, a third day.

**14** Then God said, "Let there be lights in the expanse of the heavens to separate the day from the night, and let them be for signs and for seasons and for days and years; **15** and let them be for lights in the expanse of the heavens to give light on the earth"; and it was so. **16** God made the two great lights, the greater light to govern the day, and the lesser light to govern the night; *He made* the stars also. **17** God placed them in the expanse of the heavens to give light on the earth, **18** and to govern the day and the night, and to separate the light from the darkness; and God saw that it was good. **19** There was evening and there was morning, a fourth day.

**20** Then God said, "Let the waters teem with swarms of living creatures, and let birds fly above the earth in the open expanse of the heavens." **21** God created the great sea monsters and every living creature that moves, with which the waters swarmed after their kind, and every winged bird after its kind; and God saw that it was good. **22** God blessed them, saying, "Be fruitful and multiply, and fill the waters in the seas, and let birds multiply on the earth." **23** There was evening and there was morning, a fifth day.

**24** Then God said, "Let the earth bring forth living creatures after their kind: cattle and creeping things and beasts of the earth after their kind"; and it was so. **25** God made the beasts of the earth after their kind, and the cattle after their kind, and everything that creeps on the ground after its kind; and God saw that it was good.

**26** Then God said, "Let Us make man in Our image, according to Our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth." **27** God created man in His own image, in the image of God He created him; male and female He created them. **28** God blessed



them; and God said to them, "Be fruitful and multiply, and fill the earth, and subdue it; and rule over the fish of the sea and over the birds of the sky and over every living thing that moves on the earth." **29** Then God said, "Behold, I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; **30** and to every beast of the earth and to every bird of the sky and to every thing that moves on the earth which has life, *I have given* every green plant for food"; and it was so. **31** God saw all that He had made, and behold, it was very good. And there was evening and there was morning, the sixth day.

## **Genesis 2**

**1** Thus the heavens and the earth were completed, and all their hosts. **2** By the seventh day God completed His work which He had done, and He rested on the seventh day from all His work which He had done. **3** Then God blessed the seventh day and sanctified it, because in it He rested from all His work which God had created and made.

**4** This is the account of the heavens and the earth when they were created, in the day that the LORD God made earth and heaven. **5** Now no shrub of the field was yet in the earth, and no plant of the field had yet sprouted, for the LORD God had not sent rain upon the earth, and there was no man to cultivate the ground. **6** But a mist used to rise from the earth and water the whole surface of the ground. **7** Then the LORD God formed man of dust from the ground, and breathed into his nostrils the breath of life; and man became a living being. **8** The LORD God planted a garden toward the east, in Eden; and there He placed the man whom He had formed. **9** Out of the ground the LORD God caused to grow every tree that is pleasing to the sight and good for food; the tree of life also in the midst of the garden, and the tree of the knowledge of good and evil.

**10** Now a river flowed out of Eden to water the garden; and from there it divided and became four rivers. **11** The name of the first is Pishon; it flows around the whole land of Havilah, where there is gold. **12** The gold of that land is good; the bdellium and the onyx stone are there. **13** The name of the second river is Gihon; it flows around the whole land of Cush. **14** The name of the third river is Tigris; it flows east of Assyria. And the fourth river is the Euphrates.

**15** Then the LORD God took the man and put him into the garden of Eden to cultivate it and keep it. **16** The LORD God commanded the man, saying, "From any tree of the garden you may eat freely; **17** but from the tree of the knowledge of good and evil you shall not eat, for in the day that you eat from it you will surely die."

**18** Then the LORD God said, "It is not good for the man to be alone; I will make him a helper suitable for him." **19** Out of the ground the LORD God formed every beast of the field and every bird of the sky, and brought *them* to the man to see what he would call them; and whatever the man called a living creature, that was its name. **20** The man gave names to all the cattle, and to the birds of the sky, and to every beast of the field, but for Adam there was not found a helper suitable for him. **21** So the LORD God caused a deep sleep to fall upon the man, and he slept; then He took one of his ribs and closed up the flesh at that place. **22** The LORD God fashioned into a woman the rib which He had taken from the man, and brought her to the man. **23** The man said,

"This is now bone of my bones, And flesh of my flesh; She shall be called Woman, Because she was taken out of Man."

**24** For this reason a man shall leave his father and his mother, and be joined to his wife; and they shall become one flesh. **25** And the man and his wife were both naked and were not ashamed.



From this reading of Genesis 1-2 we can make two statements...

1. \_\_\_\_\_ can be interpreted as a period other than a 24-hour timespan.
  - no sun until day 4
  - use of word \_\_\_\_\_ for a period of time.
  - Day 5: \_\_\_\_\_.
  
2. The \_\_\_\_\_ of creation is not critical.
  - Two back to back accounts show different order
  - The structure of filling and forming

Days of Forming/ Separating	Days of Filling

What can we be certain about from Genesis 1-2?

1. There \_\_\_\_\_ a beginning.
2. God created \_\_\_\_\_ from \_\_\_\_\_.
3. There was a \_\_\_\_\_.

Could God have created the universe in 6 literal periods of 24 hours? \_\_\_\_\_

Is it compatible with scriptures to have a longer period of time? \_\_\_\_\_



**Session 2**  
**Science**

Psalms 19:1

The heavens are telling of the glory of God; And their expanse is declaring the work of His hands.

“The most incomprehensible thing about the universe is that it is comprehensible”  
- Albert Einstein

**Scientific Method**

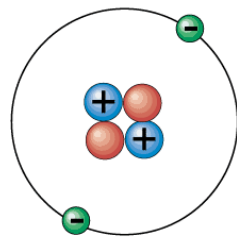
- Propose Hypothesis
- Design repeatable experiment
- Validate or re-write hypothesis

“In the end there will be no final conflict between \_\_\_\_\_ and \_\_\_\_\_.”  
-Wayne Grudem

**Scientific Dating Methods**

**Radiometric Dating**

Definition of an atom....



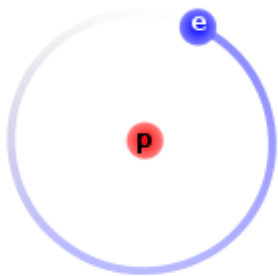
Helium atom

- electron
- proton
- neutron

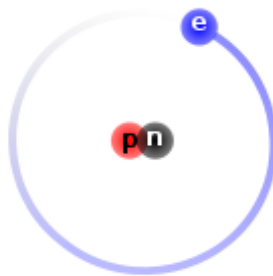
Atomic # = 2 (number of protons)

Definition of an isotopes...

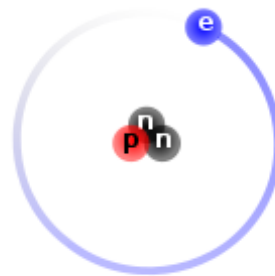
Same numbers of protons and electrons, but number of neutrons vary.



$^1_1\text{H}$



$^2_1\text{H}$



$^3_1\text{H}$



## Radioactive Decay

The process of radioactive decay is a spontaneous (random) process in which energy is released from the nucleus due to its unstable condition. Although this is a random process, statistical predictions can be developed over time to develop decay rates of isotopes.

## Half-Life

The half-life of an isotope is defined as the time it takes for half of the parent isotope to decay into the daughter element.

$^{238}\text{U}$	->	$^{206}\text{Pb}$	4.5 Billion Years
$^{235}\text{U}$	->	$^{207}\text{Pb}$	704 Million Years
$^{232}\text{Th}$	->	$^{208}\text{Pb}$	14 Billion Years
$^{87}\text{Rb}$	->	$^{87}\text{Sr}$	48.8 Billion Years
$^{40}\text{K}$	->	$^{40}\text{Ar}$	1.25 Billion Years
$^{14}\text{C}$	->	$^{14}\text{N}$	5717 Years

Age equation:  $t = (1/\lambda) \ln [1 + (D/P)]$

D = number of atoms of a daughter product

P = number of atoms of a parent product

\*determined by a mass spectrometer

$\lambda$  = decay constant

## Assumptions

1. Closed System
2. Clock has not been set to zero
  - a. Elemental formation
  - b. Solidification
  - c. Heating
  - d. Remelting
  - e. Shock
  - f. Mixing w/ other minerals
  - g. Exposure to water
  - h. High energy radiation

## Examples of bad dating...

1901 – Hualalei, Hawaii volcanic eruption – (K-Ar) dating 1.1 billions years

1912 – Katmai, Alaska volcanic eruption – (K-Ar) dating 4 million years

Mt. Rongitoto (Auckland, New Zealand) – (K-Ar) dating 485,000 years;

$^{14}\text{C}$  < 300 years

## Geological Erosion

A less accurate dating method than radiometric. Based on taking current erosion rates and extrapolating back in time. Typically gives timespans of several million years to form large canyons.

## Examples of bad dating...

### Mt. St. Helens

May 18<sup>th</sup> eruption. Within five days gullies and rills formed that matched the size of canyons usually assumed to take hundreds of years to form. 100-foot deep canyons were present within four years of eruption.



## Imperial Valley, CA

Unrestricted flooding of the CO River in 1905 lead the river to divert. Within 9 months the CO River created 43 miles of cannels with an average widths of 1000 ft. and depth of 50ft. removing 450 million cubic yards of earth (4x panama canal). The deposited sediment formed a large delta on the south shore of what of now the Salton Sean.

### Conclusions:

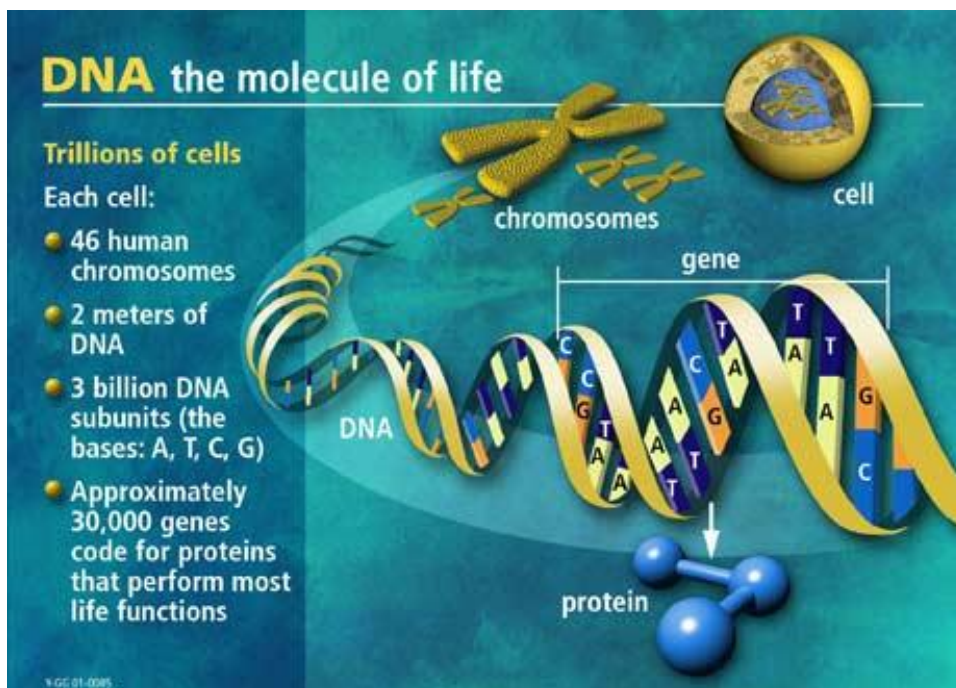
1. Is radiometric dating and erosion dating wrong?  
\_\_\_\_\_, but their results require careful \_\_\_\_\_.
2. What do these methods say about the age of the earth?  
Ur -> Pb, K -> Ar, and St -> Rb dating all give and age of the earth of \_\_\_\_\_ years
3. So either the earth is \_\_\_\_\_ or it was created with \_\_\_\_\_.

### Evolutionary Theory / Modern Genetics

Quote from the international press conference announcing the completion of the human genome project.

"Without a doubt, this is the most important, most wondrous map ever produced by mankind. Today we are learning the language in which God created life. We are gaining ever more awe for the complexity, the beauty, and the wonder of God's most divine and sacred gift."

- \_\_\_\_\_



Fun Facts: If you read the human genome aloud at a rate of three letters per second, it would take 31 years to complete working non-stop day and night.

At a 12-point font, the human genome would fill up a stack of standard size papers taller than the Washington Monument.

"There is grandeur in this view of life, with its several powers, having been originally breathed by the creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning, endless forms most beautiful and most wonderful have been, and are being evolved."

- \_\_\_\_\_

Our study of modern genetics is \_\_\_\_\_ to the theory of natural selection. However the evolution of life from chemicals is a significant jump to make.

Per calculations by the British Astronomer Sir Frederick Hoyle (truenews.org)...

-the smallest conceivable free-living life form needed at least 2,000 independent functional proteins in order to accomplish cellular metabolism and reproduction.

-Starting with the hypothetical primordial soup he calculated the probability of the spontaneous generation of just the proteins of a single amoebae.

-He determined that the probability of such an event is one chance in ten to the 40 thousandth power, i.e., 1 in  $10^{40,000}$ .

Prior to this project, Hoyle was a believer in the spontaneous generation of life. This project, however, changed his opinion 180 degrees. Hoyle stated: "The likelihood of the formation of life from inanimate matter is one to a number with 40 thousand naughts [zeros] after it. It is enough to bury Darwin and the whole theory of evolution. There was no primeval soup, neither on this planet nor on any other, and if the beginnings of life were not random they must therefore have been the product of purposeful intelligence."

Hoyle also concluded that the probability of the spontaneous generation of a single bacteria, "is about the same as the probability that a tornado sweeping through a junk yard could assemble a 747 from the contents therein."

"Seven Daughters of Eve" – Bryan Sykes

Based on DNA sequencing, all humans can trace their ancestry back to seven women who lived approximately 10,000 years ago.

What does this say about the events we find recorded in Genesis?

### Big Bang Theory

Prior to the Big Bang Theory of the creation of the universe, the common scientific through was that we lived in a \_\_\_\_\_ universe.

Positives: Big Bang Theory requires a \_\_\_\_\_ for creation.

Creation comes from " \_\_\_\_\_ "

Sets out a \_\_\_\_\_ of \_\_\_\_\_ then \_\_\_\_\_.

Negatives: \_\_\_\_\_.



### Session 3 Anthropic Principle

The principle that the universe is fine tuned for life to exist.

1. The existence of stable nucleus' hinge on the ratio of the relative strengths of the Strong and Electromagnetic forces. Protons in the nucleus repel each other electromagnetically, while the strong force that acts among their quarks overcomes this repulsion to keep the protons in the nucleus.
2. The mass of the proton must be exactly 1840 times the mass of the electron in order for the building blocks of life, such as DNA, to exist and remain stable.
3. At 1ms of time the universe cooled enough for quarks and anti quarks to condense out. Any quark encountering an anti-quark would annihilate releasing a photon (light). For every billion quarks – antiquark pairs, there was one extra quark. All mass from the universe comes from this asymmetry.
4. Strong Nuclear Force (holds together protons and neutrons)
  - a. If slightly weaker, only Hydrogen could have been formed.
  - b. If slightly stronger, all Hydrogen would be Helium. We need a ratio of 25% H to fuel the stars generation of heavier elements.
  - c. Specifically fine tuned to Carbon. Slightly larger, all would be converted to oxygen.
5. Rate of expansion:
  - a. 1:100 thousand million million smaller; universe would collapse
    - i. Difference between 1 and 1.000000000000000001
  - b. 1:1,000,000 greater; stars and planets would not form.
6. The amount of matter and energy present at the creation of the universe had to be very finely balanced otherwise the universe would collapse because of the strength of gravity or expand quickly ripping everything apart. The ratio had to be correct within a factor of  $1:10^{60}$ .
7. In the universe disorder always increases. The universe must have been much more ordered when it began, than it is now. The chance that our universe would have this amount of order randomly is  $1:10^{123}$ . That number is so large that if you were to write zeros on every atom in the universe, you would run out of atoms before numbers.

“It would be very difficult to explain why the Universe should have begun this way, except as an act of God who intended to create beings like us.”

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“A Brief History of Time”

