
God’s Grand Design
Exploring Origins in Science and Scripture

Part 6

# What about radiometric and carbon-14 dating?

## Get on the class email list:

josh@trc.life

## God's Grand Design class

(these events are subject to change, check here for the latest)

| | | Topic | Passage | Teaching Notes | Powerpoint | Audio Recording |
|---|---|---|---|---|---|---|
| ~~10/4/23~~ | ~~Class 1~~ | Why does this topic matter? | Gen. 1:1, Jonah 1-2 | GGD Class 1 Notes.pdf | GGD Class 1 Slides.pdf | GGD Class 1 Recording.m4a |
| ~~10/11/23~~ | ~~No Meeting~~ | | | | | |
| ~~10/18/23~~ | ~~Class 2~~ | Where did life come from? | Gen. 1:1-2:3 | GGD Class 2 Notes.pdf | GGD Class 2 Slides.pdf | GGD Class 2 Recording.m4a |
| ~~10/25/23~~ | ~~No Meeting~~ | | | | | |
| ~~11/1/23~~ | ~~Class 3~~ | Is the earth a miracle? | Gen. 1:1-2:3 | GGD Class 3 Notes.pdf | GGD Class 3 Slides.pdf | GGD Class 3 Recording.m4a |
| ~~11/8/23~~ | ~~No Meeting~~ | | | | | |
| ~~11/15/23~~ | ~~Class 4~~ | Did humans evolve from primates? | Gen. 2:4-25 | GGD Class 4 Notes.pdf | GGD Class 4 Slides.pdf | GGD Class 4 Recording.m4a |
| ~~11/22/23~~ | ~~No Meeting (Thanksgiving)~~ | | | | | |
| ~~11/29/23~~ | ~~Class 5~~ | How old is the earth? | Gen. 5 & 11 | GGD Class 5 Notes.pdf | GGD Class 5 Slides.pdf | GGD Class 5 Recording.m4a |
| ~~12/6/23~~ | ~~No Meeting~~ | | | | | |
| 12/13/23 | Class 6 | What about radiometric & carbon-14 dating? | Gen. 5 & 11 | | | |
| 12/20/23 | No Meeting | | | | | |
| 12/27/23 | No Meeting (Christmas) | | | | | |
| 1/3/24 | No Meeting (New Year's) | | | | | |
| 1/10/24 | No Meeting | | | | | |
| 1/17/24 | Class 7 | | | | | |
| 1/24/24 | No Meeting | | | | | |
| 1/31/24 | Class 8 | | | | | |
| 2/7/24 | No Meeting | | | | | |
| 2/14/24 | Class 9 | | | | | |
| 2/21/24 | No Meeting | | | | | |
| 2/28/24 | Class 10 | | | | | |
| 3/6/24 | No Meeting | | | | | |
| 3/13/24 | Class 11 | | | | | |
| 3/20/24 | No Meeting | | | | | |
| 3/27/24 | Class 12 | | | | | |

## Possible questions to investigate:

~~What is science? What can science teach us about origins?~~
~~How old is the earth? What about radiocarbon/radiometric dating?~~
~~Did people evolve from primates?~~ What about shared DNA?
Who did Adam and Eve's children marry?
~~What does Genesis 1 actually teach?~~
Did the flood happen? Do we see any evidence of it?
How did the animals spread over the earth after the flood?
How does plate tectonics fit into all of this?
What about the ice age?
Where are the human fossils?
~~Aren't there examples of evolution happening around us?~~
~~What does the Bible teach about astronomy?~~ Does distant starlight present a problem?
How did we get the different races and languages?
How did Noah fit all the animals on the ark?
How do we get fossils? What happened to the dinosaurs?
How was the Grand Canyon formed? How do we explain the geological column?
Did Adam have a belly button?

# Two Theories of Origins

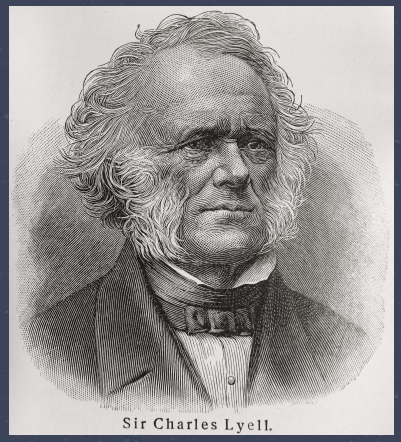
View #1 – God created the heavens and the earth. (in six days, thousands of years ago)

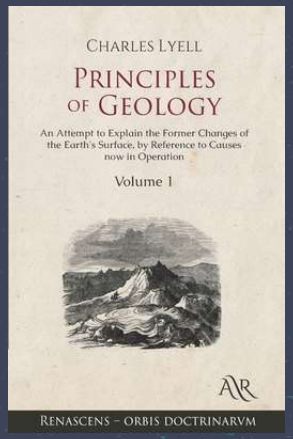
View #2 – The heavens and earth evolved without God. (millions and billions of years ago)

| | |
|---|---|
| The Big Bang occurred | 13,700,000,000 years ago |
| The Earth formed | 4,500,000,000 years ago |
| The first life arose on the earth | 3,700,000,000 years ago |
| The first early human/hominids appeared | 7,000,000 years ago |
| The first Homo Sapiens appeared | 250,000 years ago |

I am sure you may get into Quarterly Review what will free the science [of geology] from Moses. If we don't irritate, which I fear that we may, we shall carry all with us.

**Charles Lyell**

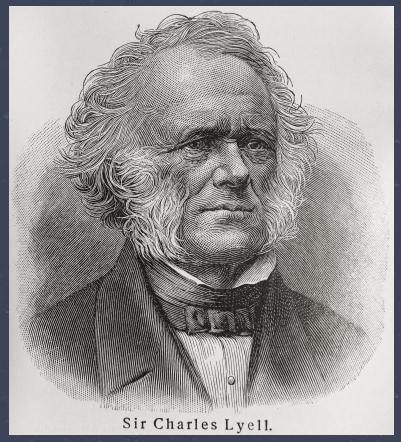

Sir Charles Lyell.

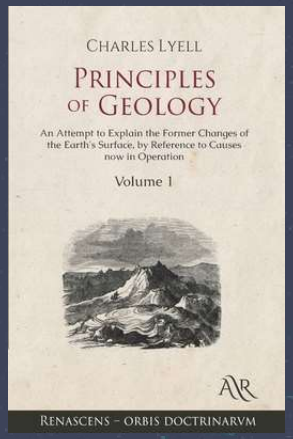



**1830s**

The Earth is a testament to millions of years of slow, relentless change.

**Charles Lyell**

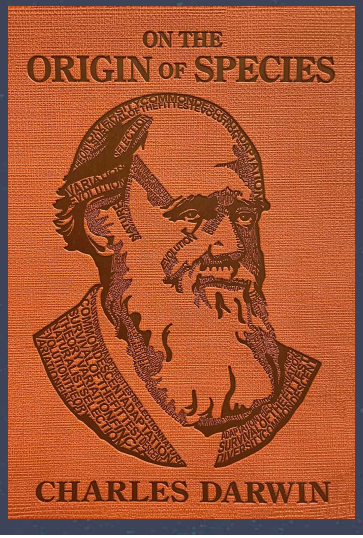



**1830s**

Spoke of evidence of ‘incomprehensibly vast’ periods of geological time.

**Charles Darwin**




**1859**

**Charles Lyell – 1830s**
**Charles Darwin – 1850s**
**Radiometric Dating - 1905**
**Carbon 14 Dating – 1946**

**The "old age" conclusions came before the science.**

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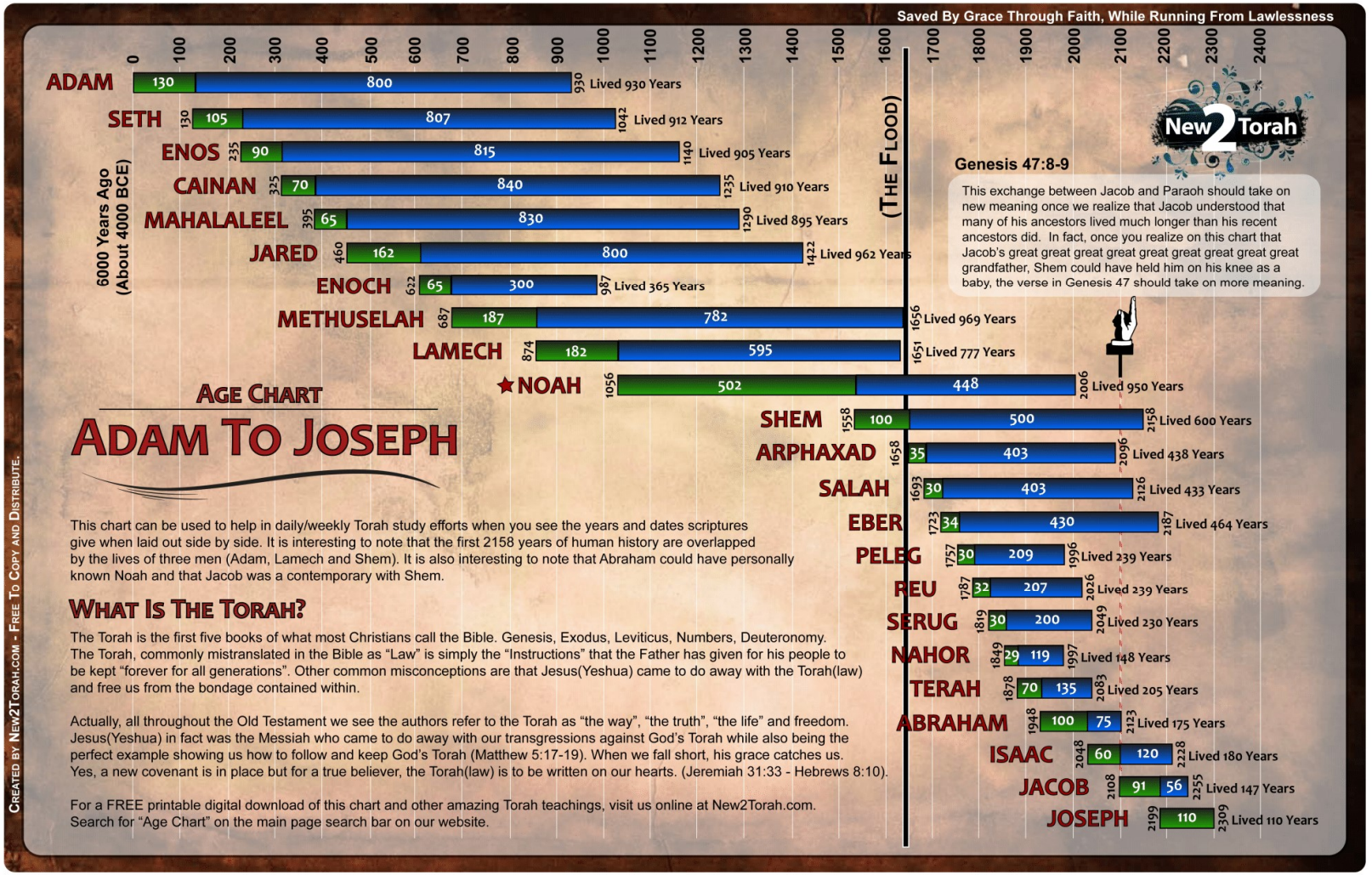



## Age Chart

# Adam To Joseph

This chart can be used to help in daily/weekly Torah study efforts when you see the years and dates scriptures give when laid out side by side. It is interesting to note that the first 2158 years of human history are overlapped by the lives of three men (Adam, Lamech and Shem). It is also interesting to note that Abraham could have personally known Noah and that Jacob was a contemporary with Shem.

## What Is The Torah?

The Torah is the first five books of what most Christians call the Bible. Genesis, Exodus, Leviticus, Numbers, Deuteronomy. The Torah, commonly mistranslated in the Bible as "Law" is simply the "Instructions" that the Father has given for his people to be kept "forever for all generations". Other common misconceptions are that Jesus(Yeshua) came to do away with the Torah(law) and free us from the bondage contained within.

Actually, all throughout the Old Testament we see the authors refer to the Torah as "the way", "the truth", "the life" and freedom. Jesus(Yeshua) in fact was the Messiah who came to do away with our transgressions against God's Torah while also being the perfect example showing us how to follow and keep God's Torah (Matthew 5:17-19). When we fall short, his grace catches us. Yes, a new covenant is in place but for a true believer, the Torah(law) is to be written on our hearts. (Jeremiah 31:33 - Hebrews 8:10).

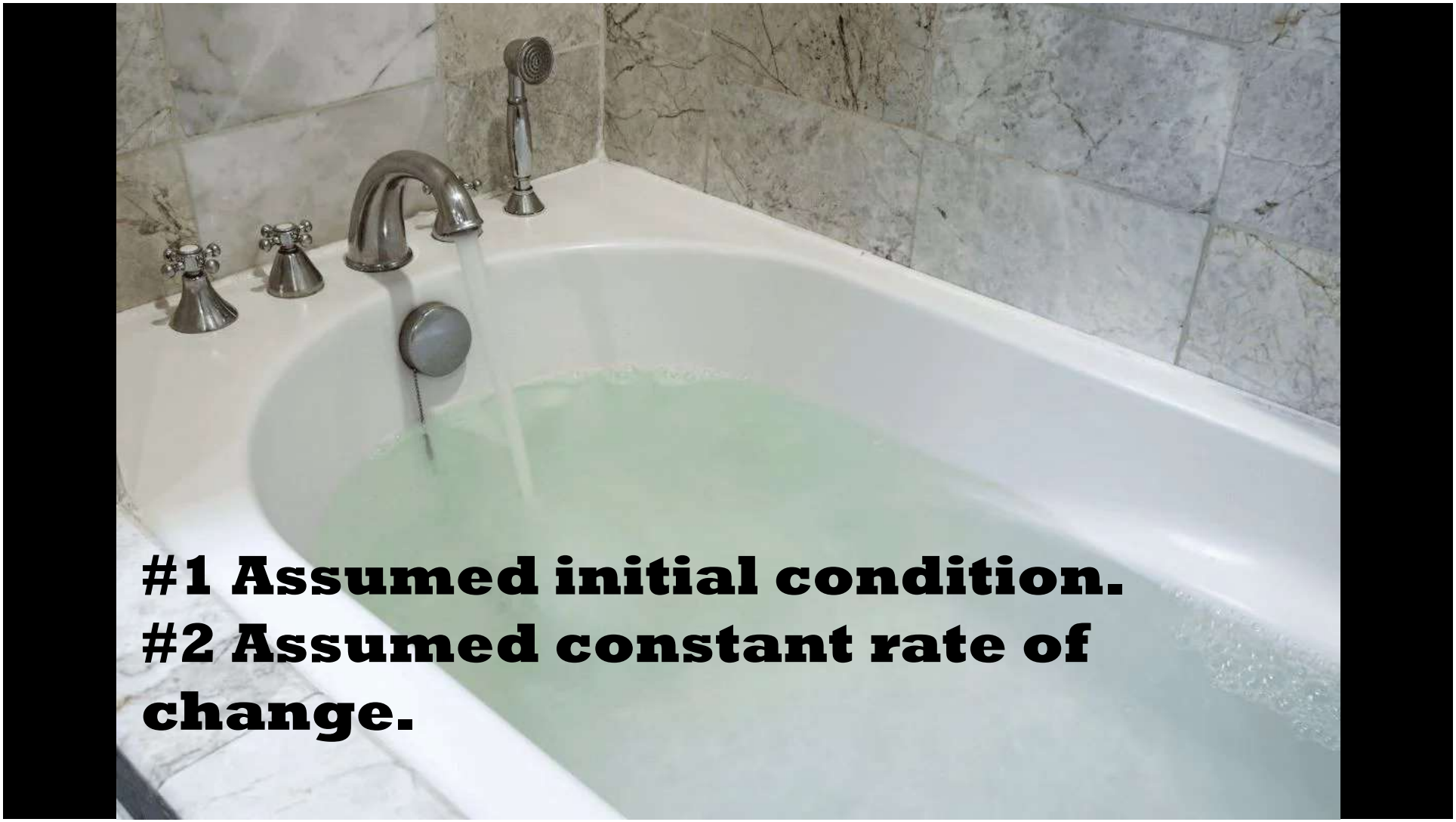
For a FREE printable digital download of this chart and other amazing Torah teachings, visit us online at New2Torah.com. Search for "Age Chart" on the main page search bar on our website.

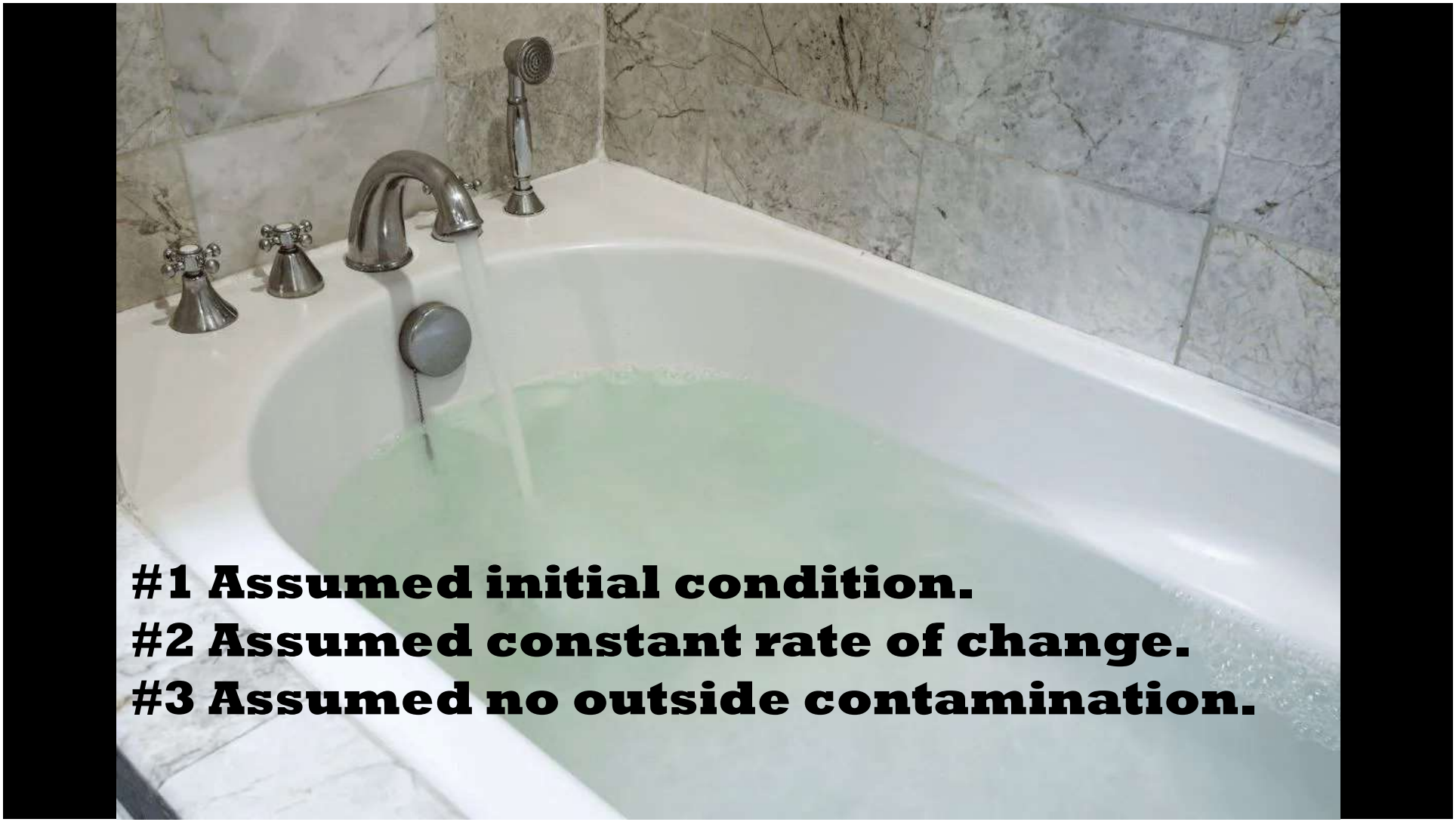
| | |
|---|---|
| Creation/Adam to Abraham | ~ 2,000 years |
| Abraham to Jesus | ~ 2,000 years |
| Jesus to You | ~ 2,000 years |
| Total | ~ 6,000 years |

| | Evolution Timeline | Creation Timeline |
|---|---|---|
| The Big Bang occurred / Universe Created | 13,700,000,000 years ago | 6,000 years ago |
| The Earth formed / Earth created | 4,500,000,000 years ago | 6,000 years ago |
| The first life arose on the earth / Life created | 3,700,000,000 years ago | 6,000 years ago |
| The first early human/hominids appeared / People Created | 7,000,000 years ago | 6,000 years ago |
| The first Homo Sapiens appeared / People created | 250,000 years ago | 6,000 years ago |

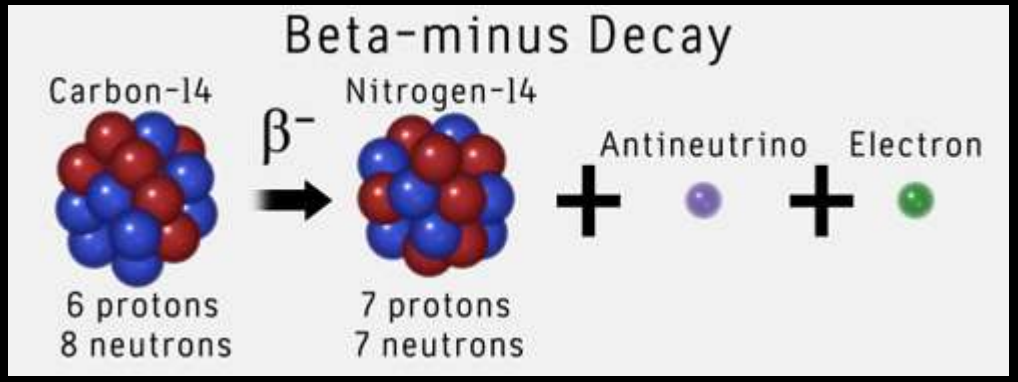

5 inches deep at 9:50 a.m.
6 inches deep at 10:00 a.m.
10 minutes to add 1 inch.
When did the tub start filling?

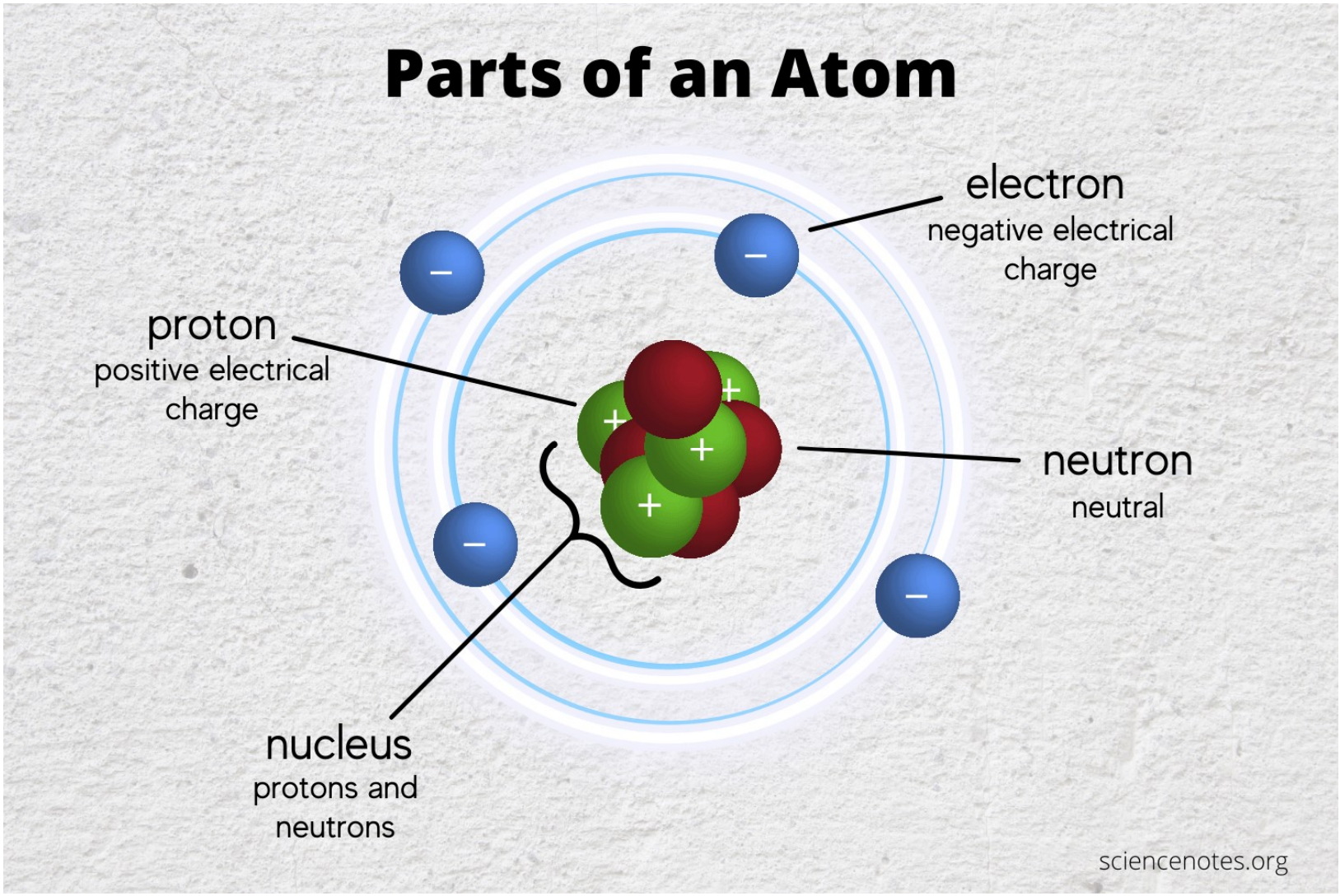

#1 Assumed initial condition.


#1 Assumed initial condition.
#2 Assumed constant rate of change.


#1 Assumed initial condition.
#2 Assumed constant rate of change.
#3 Assumed no outside contamination.

**#1 Assumed initial condition.**
**#2 Assumed constant rate of change.**
**#3 Assumed no outside contamination.**




Parts of an Atom
electron
negative electrical charge
proton
positive electrical charge
neutron
neutral
nucleus
protons and neutrons
sciencenotes.org

# Periodic Table of Elements

Cite Download

TABLE LIST W/PROPERTIES GAME

DISPLAY PROPERTY/TREND: Chemical Group Block

Atomic Number 17 | 35.45 Atomic Mass, u | Cl Symbol | Chlorine Name | Halogen Chemical Group Block

Plot Atomic Mass

| 1 | 2 | | | | | | | | | | | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 H 1.0080 Hydrogen Nonmetal | | | | | | | | | | | | | | | | | 2 He 4.00260 Helium Noble Gas |
| 3 Li 7.0 Lithium Alkali Metal | 4 Be 9.012183 Beryllium Alkaline Earth Metal | | | | | | | | | | | 5 B 10.81 Boron Metalloid | 6 C 12.011 Carbon Nonmetal | 7 N 14.007 Nitrogen Nonmetal | 8 O 15.999 Oxygen Nonmetal | 9 F 18.99840316 Fluorine Halogen | 10 Ne 20.180 Neon Noble Gas |
| 11 Na 22.9897693 Sodium Alkali Metal | 12 Mg 24.305 Magnesium Alkaline Earth Metal | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 Al 26.981538 Aluminum Post-Transition Metal | 14 Si 28.085 Silicon Metalloid | 15 P 30.97376200 Phosphorus Nonmetal | 16 S 32.07 Sulfur Nonmetal | 17 Cl 35.45 Chlorine Halogen | 18 Ar 39.9 Argon Noble Gas |
| 19 K 39.0983 Potassium Alkali Metal | 20 Ca 40.08 Calcium Alkaline Earth Metal | 21 Sc 44.95591 Scandium Transition Metal | 22 Ti 47.867 Titanium Transition Metal | 23 V 50.9415 Vanadium Transition Metal | 24 Cr 51.996 Chromium Transition Metal | 25 Mn 54.93804 Manganese Transition Metal | 26 Fe 55.84 Iron Transition Metal | 27 Co 58.93319 Cobalt Transition Metal | 28 Ni 58.693 Nickel Transition Metal | 29 Cu 63.55 Copper Transition Metal | 30 Zn 65.4 Zinc Transition Metal | 31 Ga 69.723 Gallium Post-Transition Metal | 32 Ge 72.63 Germanium Metalloid | 33 As 74.92159 Arsenic Metalloid | 34 Se 78.97 Selenium Nonmetal | 35 Br 79.90 Bromine Halogen | 36 Kr 83.80 Krypton Noble Gas |
| 37 Rb 85.468 Rubidium Alkali Metal | 38 Sr 87.62 Strontium Alkaline Earth Metal | 39 Y 88.90584 Yttrium Transition Metal | 40 Zr 91.22 Zirconium Transition Metal | 41 Nb 92.90637 Niobium Transition Metal | 42 Mo 95.95 Molybdenum Transition Metal | 43 Tc 96.90636 Technetium Transition Metal | 44 Ru 101.1 Ruthenium Transition Metal | 45 Rh 102.9055 Rhodium Transition Metal | 46 Pd 106.42 Palladium Transition Metal | 47 Ag 107.868 Silver Transition Metal | 48 Cd 112.41 Cadmium Transition Metal | 49 In 114.818 Indium Post-Transition Metal | 50 Sn 118.71 Tin Post-Transition Metal | 51 Sb 121.760 Antimony Metalloid | 52 Te 127.6 Tellurium Metalloid | 53 I 126.9045 Iodine Halogen | 54 Xe 131.29 Xenon Noble Gas |
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| 87 Fr 223.01973 Francium Alkali Metal | 88 Ra 226.02541 Radium Alkaline Earth Metal | | 104 Rf 267.122 Rutherfordium Transition Metal | 105 Db 268.126 Dubnium Transition Metal | 106 Sg 269.128 Seaborgium Transition Metal | 107 Bh 270.133 Bohrium Transition Metal | 108 Hs 269.1336 Hassium Transition Metal | 109 Mt 277.154 Meitnerium Transition Metal | 110 Ds 282.166 Darmstadtium Transition Metal | 111 Rg 282.169 Roentgenium Transition Metal | 112 Cn 286.179 Copernicium Transition Metal | 113 Nh 286.182 Nihonium Post-Transition Metal | 114 Fl 290.192 Flerovium Post-Transition Metal | 115 Mc 290.196 Moscovium Post-Transition Metal | 116 Lv 293.205 Livermorium Post-Transition Metal | 117 Ts 294.211 Tennessine Halogen | 118 Og 295.216 Oganesson Noble Gas |
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| | | | 89 Ac 227.02775 Actinium Actinide | 90 Th 232.038 Thorium Actinide | 91 Pa 231.03588 Protactinium Actinide | 92 U 238.0289 Uranium Actinide | 93 Np 237.048172 Neptunium Actinide | 94 Pu 244.06420 Plutonium Actinide | 95 Am 243.061380 Americium Actinide | 96 Cm 247.07035 Curium Actinide | 97 Bk 247.07031 Berkelium Actinide | 98 Cf 251.07959 Californium Actinide | 99 Es 252.0830 Einsteinium Actinide | 100 Fm 257.09511 Fermium Actinide | 101 Md 258.09843 Mendelevium Actinide | 102 No 259.10100 Nobelium Actinide | 103 Lr 266.120 Lawrencium Actinide |

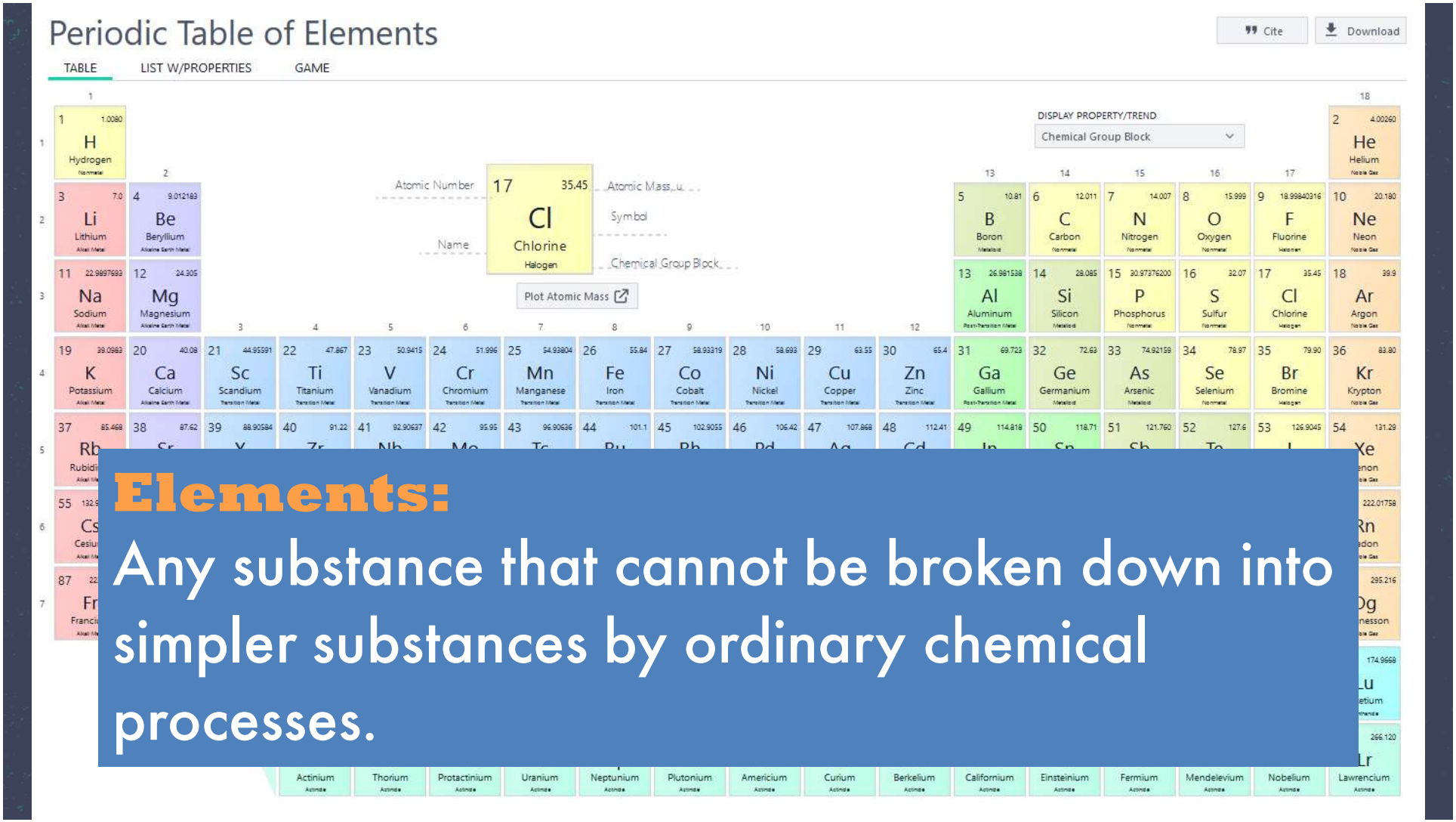
Periodic Table of Elements
Cite
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TABLE
LIST W/PROPERTIES
GAME
DISPLAY PROPERTY/TREND
Chemical Group Block
Atomic Number
17
35.45
Atomic Mass, u
Cl
Chlorine
Halogen
Symbol
Name
Chemical Group Block
Plot Atomic Mass
Elements:
Any substance that cannot be broken down into simpler substances by ordinary chemical processes.

# Periodic Table of Elements

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TABLE LIST W/PROPERTIES GAME

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Plot Atomic Mass

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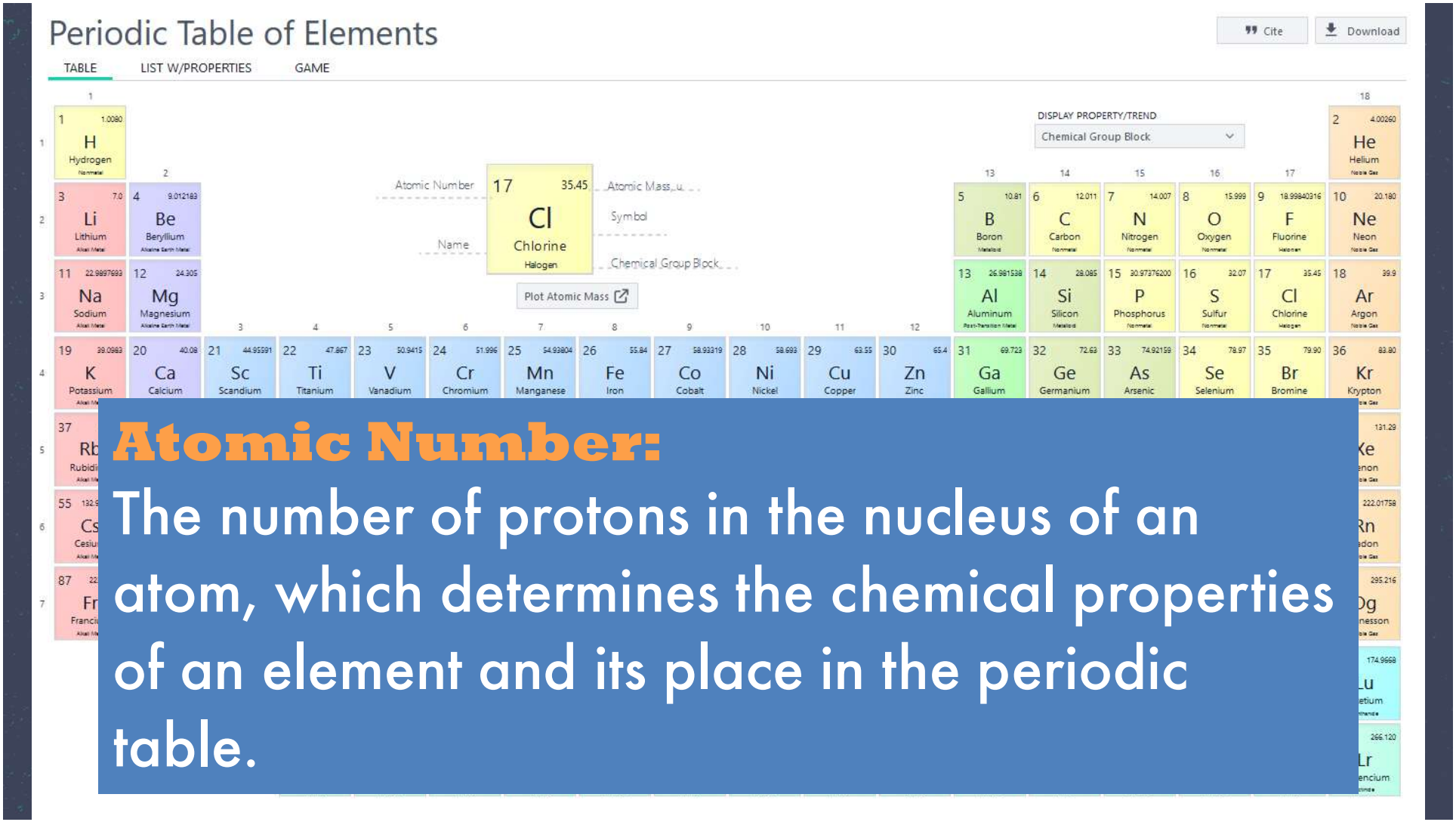


**Atomic Number:**

The number of protons in the nucleus of an atom, which determines the chemical properties of an element and its place in the periodic table.

# Periodic Table of Elements

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TABLE LIST W/PROPERTIES GAME

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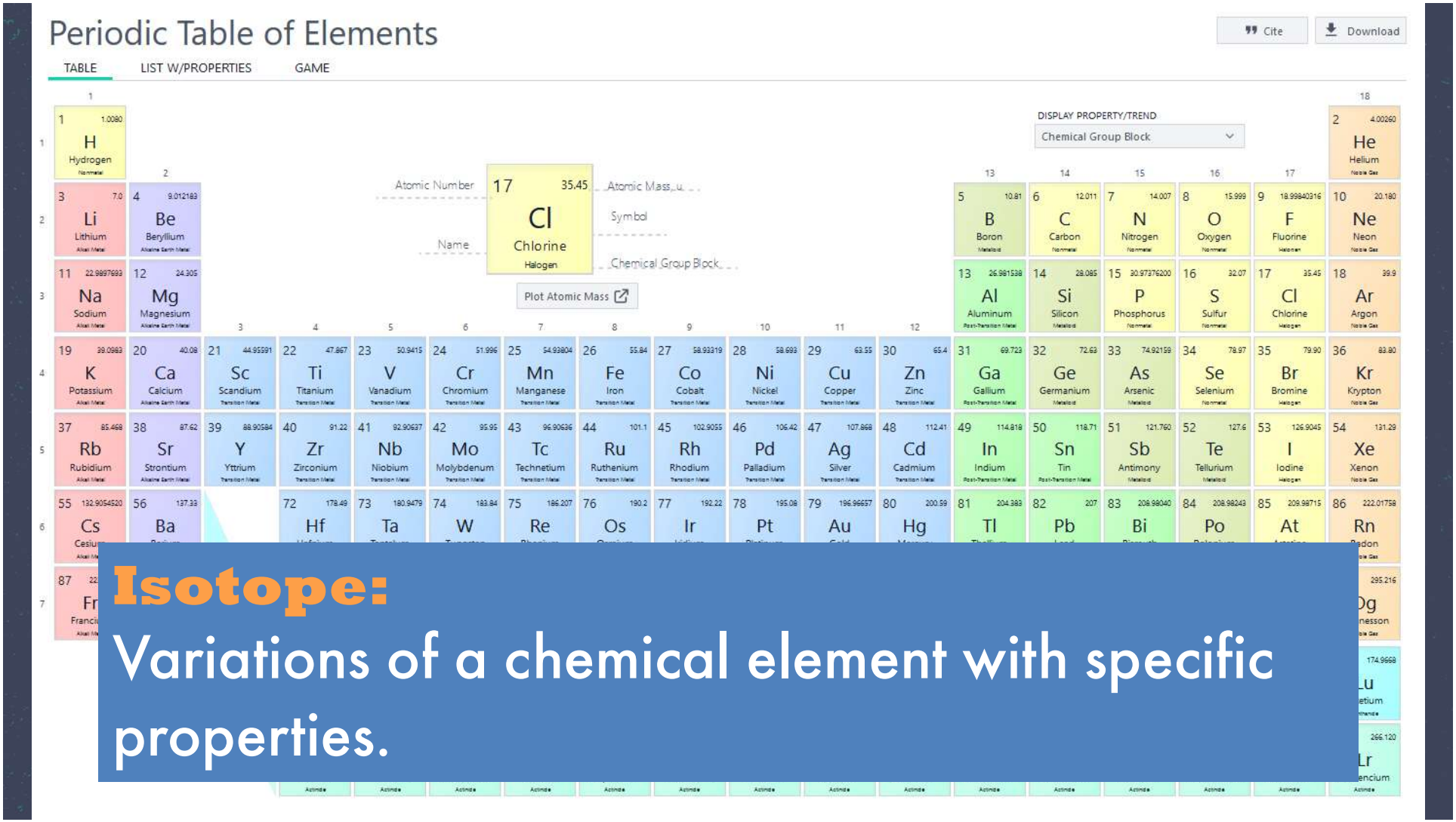
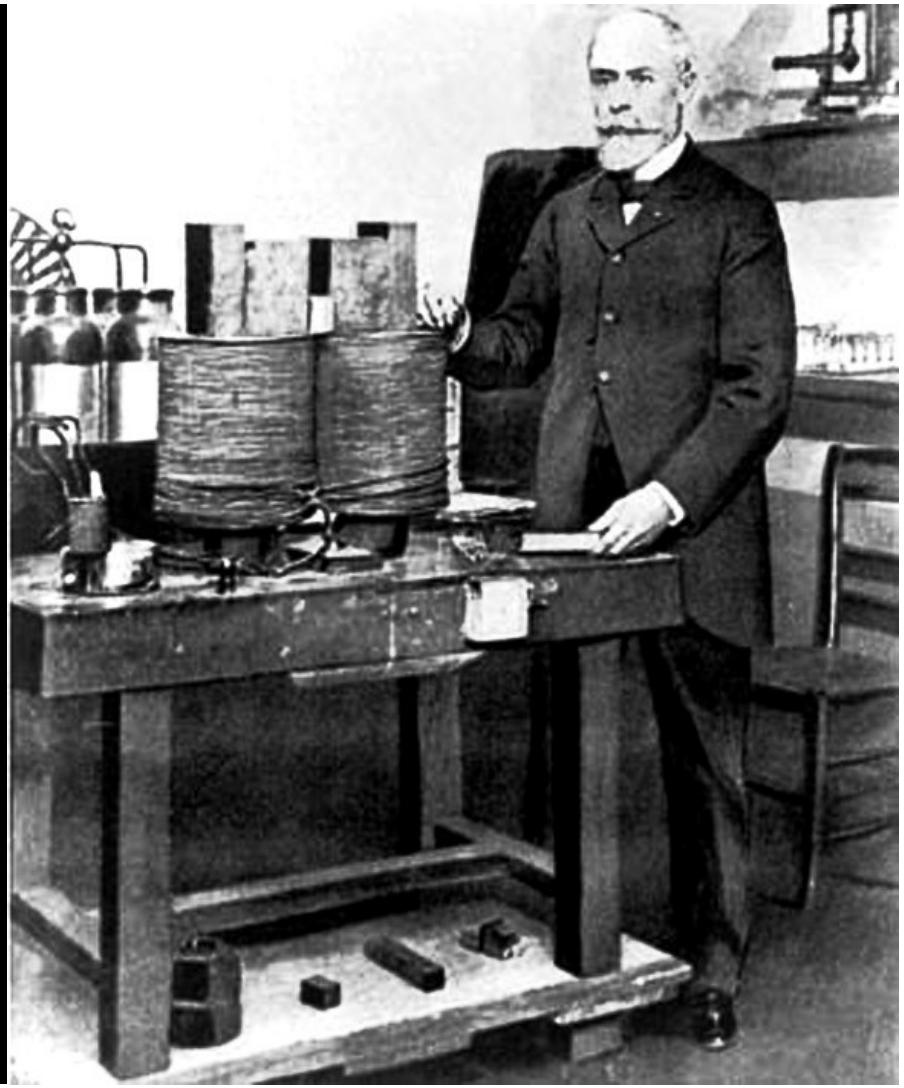
| 55 Cs 132.9054520 Cesium Alkali Metal | 56 Ba 137.33 Barium Alkaline Earth Metal | | 72 Hf 178.49 Hafnium Transition Metal | 73 Ta 180.9479 Tantalum Transition Metal | 74 W 183.84 Tungsten Transition Metal | 75 Re 186.207 Rhenium Transition Metal | 76 Os 190.2 Osmium Transition Metal | 77 Ir 192.22 Iridium Transition Metal | 78 Pt 195.08 Platinum Transition Metal | 79 Au 196.96657 Gold Transition Metal | 80 Hg 200.59 Mercury Transition Metal | 81 Tl 204.383 Thallium Post-Transition Metal | 82 Pb 207 Lead Post-Transition Metal | 83 Bi 208.98040 Bismuth Post-Transition Metal | 84 Po 208.98243 Polonium Metalloid | 85 At 209.98715 Astatine Halogen | 86 Rn 222.01758 Radon Noble Gas |
| 87 Fr 223.01973 Francium Alkali Metal | 88 Ra 226.02541 Radium Alkaline Earth Metal | | 104 Rf 267.122 Rutherfordium Transition Metal | 105 Db 268.126 Dubnium Transition Metal | 106 Sg 269.128 Seaborgium Transition Metal | 107 Bh 270.133 Bohrium Transition Metal | 108 Hs 269.1336 Hassium Transition Metal | 109 Mt 277.154 Meitnerium Transition Metal | 110 Ds 282.166 Darmstadtium Transition Metal | 111 Rg 282.169 Roentgenium Transition Metal | 112 Cn 286.179 Copernicium Transition Metal | 113 Nh 286.182 Nihonium Post-Transition Metal | 114 Fl 290.192 Flerovium Post-Transition Metal | 115 Mc 290.196 Moscovium Post-Transition Metal | 116 Lv 293.205 Livermorium Post-Transition Metal | 117 Ts 294.211 Tennessine Halogen | 118 Og 295.216 Oganesson Noble Gas |
| | | | 57 La 138.9055 Lanthanum Lanthanide | 58 Ce 140.116 Cerium Lanthanide | 59 Pr 140.90766 Praseodymium Lanthanide | 60 Nd 144.24 Neodymium Lanthanide | 61 Pm 144.91276 Promethium Lanthanide | 62 Sm 150.4 Samarium Lanthanide | 63 Eu 151.964 Europium Lanthanide | 64 Gd 157.2 Gadolinium Lanthanide | 65 Tb 158.92535 Terbium Lanthanide | 66 Dy 162.500 Dysprosium Lanthanide | 67 Ho 164.93033 Holmium Lanthanide | 68 Er 167.26 Erbium Lanthanide | 69 Tm 168.93422 Thulium Lanthanide | 70 Yb 173.05 Ytterbium Lanthanide | 71 Lu 174.9668 Lutetium Lanthanide |
| | | | 89 Ac 227.02775 Actinium Actinide | 90 Th 232.038 Thorium Actinide | 91 Pa 231.03588 Protactinium Actinide | 92 U 238.0289 Uranium Actinide | 93 Np 237.048172 Neptunium Actinide | 94 Pu 244.06420 Plutonium Actinide | 95 Am 243.061380 Americium Actinide | 96 Cm 247.07035 Curium Actinide | 97 Bk 247.07031 Berkelium Actinide | 98 Cf 251.07959 Californium Actinide | 99 Es 252.0830 Einsteinium Actinide | 100 Fm 257.09511 Fermium Actinide | 101 Md 258.09843 Mendelevium Actinide | 102 No 259.10100 Nobelium Actinide | 103 Lr 266.120 Lawrencium Actinide |

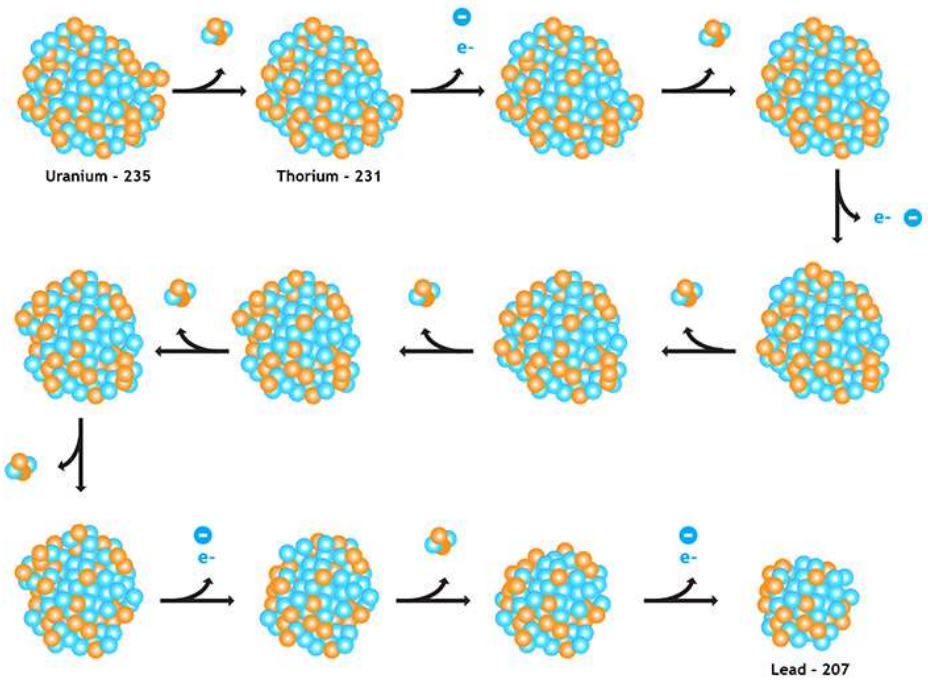

Periodic Table of Elements
Cite
Download
TABLE
LIST W/PROPERTIES
GAME
DISPLAY PROPERTY/TREND
Chemical Group Block
Atomic Number
17
35.45
Atomic Mass, u
Cl
Chlorine
Halogen
Symbol
Name
Chemical Group Block
Plot Atomic Mass
Isotope:
Variations of a chemical element with specific properties.

**Radiometric Dating:**

a method of dating geological or archeological specimens by determining the relative proportions of particular radioactive isotopes present in a sample.

Discovery of radioactivity in uranium by French physicist Henri Becquerel in 1896




Uranium - 235
Thorium - 231
e-
e-
e-
e-
Lead - 207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61.9

# Periodic Table of Elements

Cite Download

TABLE LIST W/PROPERTIES GAME

DISPLAY PROPERTY/TREND: Chemical Group Block

Atomic Number 17 | 35.45 Atomic Mass, u | Cl Symbol | Chlorine Name | Halogen Chemical Group Block

Plot Atomic Mass

| 1 | 2 | | | | | | | | | | | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 H 1.0080 Hydrogen Nonmetal | | | | | | | | | | | | | | | | | 2 He 4.00260 Helium Noble Gas |
| 3 Li 7.0 Lithium Alkali Metal | 4 Be 9.012183 Beryllium Alkaline Earth Metal | | | | | | | | | | | 5 B 10.81 Boron Metalloid | 6 C 12.011 Carbon Nonmetal | 7 N 14.007 Nitrogen Nonmetal | 8 O 15.999 Oxygen Nonmetal | 9 F 18.99840316 Fluorine Halogen | 10 Ne 20.180 Neon Noble Gas |
| 11 Na 22.9897693 Sodium Alkali Metal | 12 Mg 24.305 Magnesium Alkaline Earth Metal | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 Al 26.981538 Aluminum Post-Transition Metal | 14 Si 28.085 Silicon Metalloid | 15 P 30.97376200 Phosphorus Nonmetal | 16 S 32.07 Sulfur Nonmetal | 17 Cl 35.45 Chlorine Halogen | 18 Ar 39.9 Argon Noble Gas |
| 19 K 39.0983 Potassium Alkali Metal | 20 Ca 40.08 Calcium Alkaline Earth Metal | 21 Sc 44.95591 Scandium Transition Metal | 22 Ti 47.867 Titanium Transition Metal | 23 V 50.9415 Vanadium Transition Metal | 24 Cr 51.996 Chromium Transition Metal | 25 Mn 54.93804 Manganese Transition Metal | 26 Fe 55.84 Iron Transition Metal | 27 Co 58.93319 Cobalt Transition Metal | 28 Ni 58.693 Nickel Transition Metal | 29 Cu 63.55 Copper Transition Metal | 30 Zn 65.4 Zinc Transition Metal | 31 Ga 69.723 Gallium Post-Transition Metal | 32 Ge 72.63 Germanium Metalloid | 33 As 74.92159 Arsenic Metalloid | 34 Se 78.97 Selenium Nonmetal | 35 Br 79.90 Bromine Halogen | 36 Kr 83.80 Krypton Noble Gas |
| 37 Rb 85.468 Rubidium Alkali Metal | 38 Sr 87.62 Strontium Alkaline Earth Metal | 39 Y 88.90584 Yttrium Transition Metal | 40 Zr 91.22 Zirconium Transition Metal | 41 Nb 92.90637 Niobium Transition Metal | 42 Mo 95.95 Molybdenum Transition Metal | 43 Tc 96.90636 Technetium Transition Metal | 44 Ru 101.1 Ruthenium Transition Metal | 45 Rh 102.9055 Rhodium Transition Metal | 46 Pd 106.42 Palladium Transition Metal | 47 Ag 107.868 Silver Transition Metal | 48 Cd 112.41 Cadmium Transition Metal | 49 In 114.818 Indium Post-Transition Metal | 50 Sn 118.71 Tin Post-Transition Metal | 51 Sb 121.760 Antimony Metalloid | 52 Te 127.6 Tellurium Metalloid | 53 I 126.9045 Iodine Halogen | 54 Xe 131.29 Xenon Noble Gas |
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| 87 Fr 223.01973 Francium Alkali Metal | 88 Ra 226.02541 Radium Alkaline Earth Metal | | 104 Rf 267.122 Rutherfordium Transition Metal | 105 Db 268.126 Dubnium Transition Metal | 106 Sg 269.128 Seaborgium Transition Metal | 107 Bh 270.133 Bohrium Transition Metal | 108 Hs 269.1336 Hassium Transition Metal | 109 Mt 277.154 Meitnerium Transition Metal | 110 Ds 282.166 Darmstadtium Transition Metal | 111 Rg 282.169 Roentgenium Transition Metal | 112 Cn 286.179 Copernicium Transition Metal | 113 Nh 286.182 Nihonium Post-Transition Metal | 114 Fl 290.192 Flerovium Post-Transition Metal | 115 Mc 290.196 Moscovium Post-Transition Metal | 116 Lv 293.205 Livermorium Post-Transition Metal | 117 Ts 294.211 Tennessine Halogen | 118 Og 295.216 Oganesson Noble Gas |
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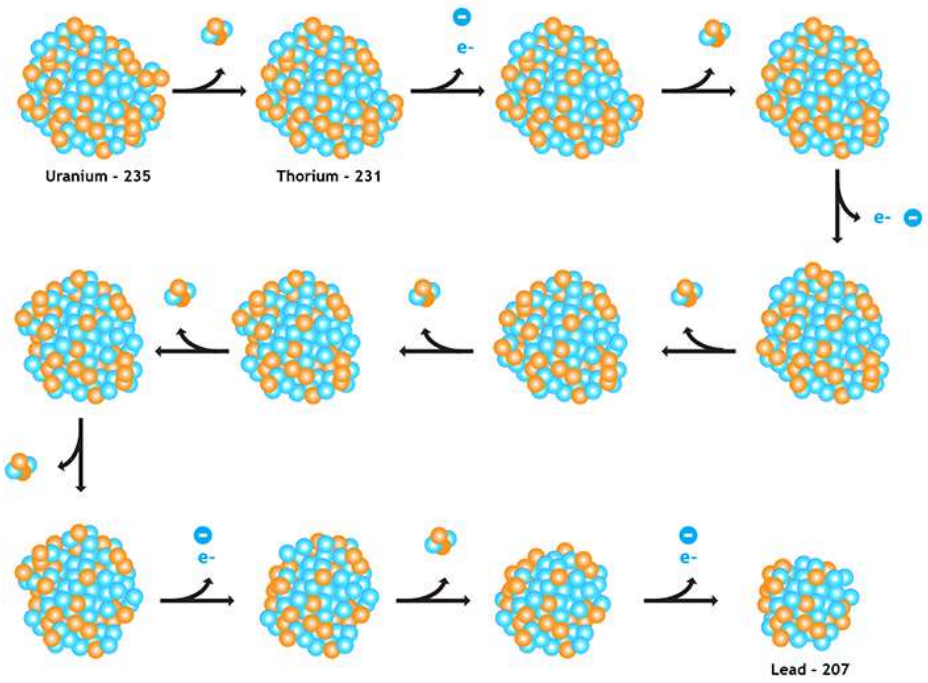
Uranium - 235
Thorium - 231
e-
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Lead - 207


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61.9

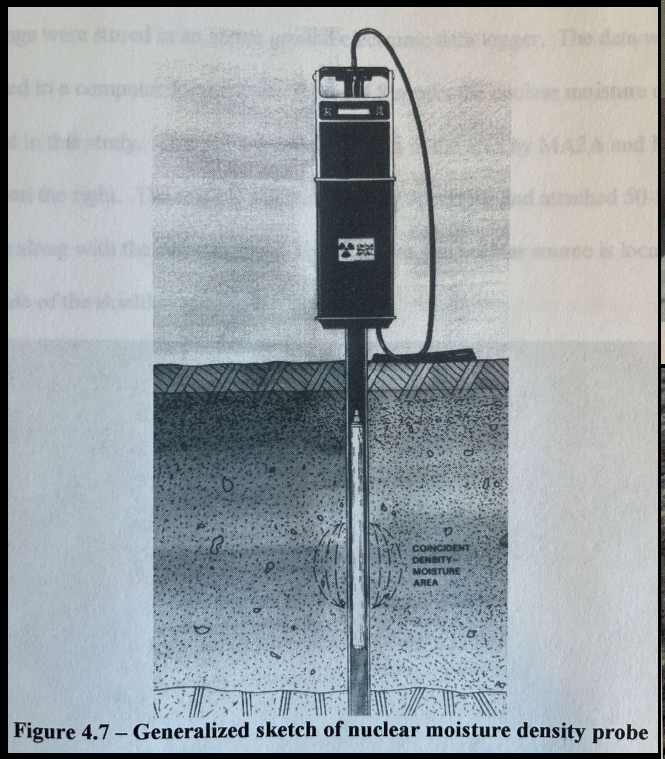



Figure 4.7 – Generalized sketch of nuclear moisture density probe

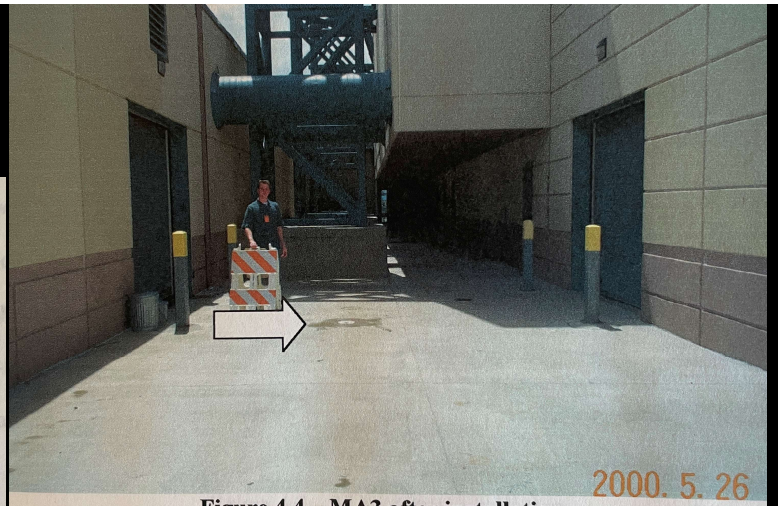



Figure 4.4 – MA3 after installation

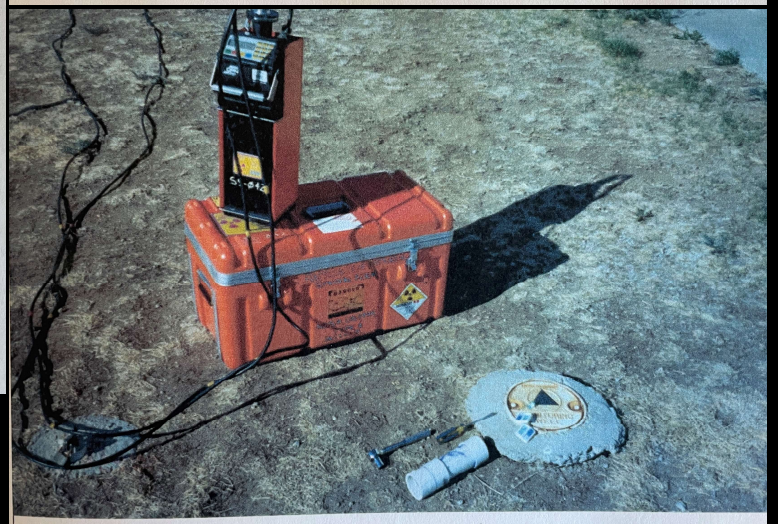
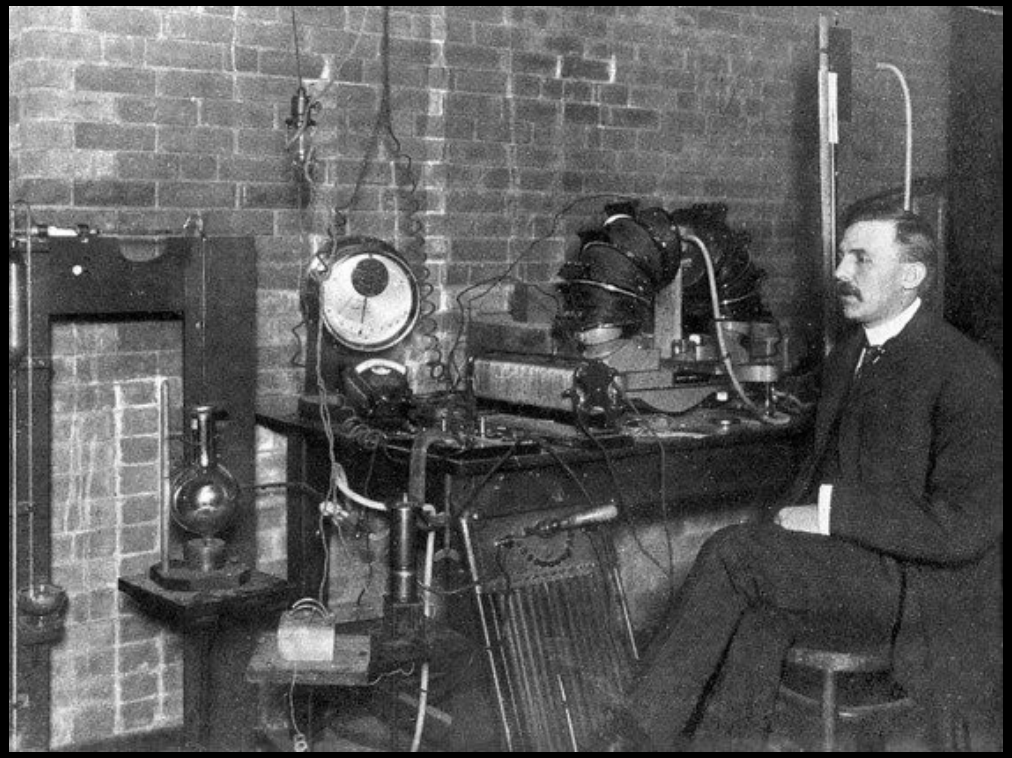
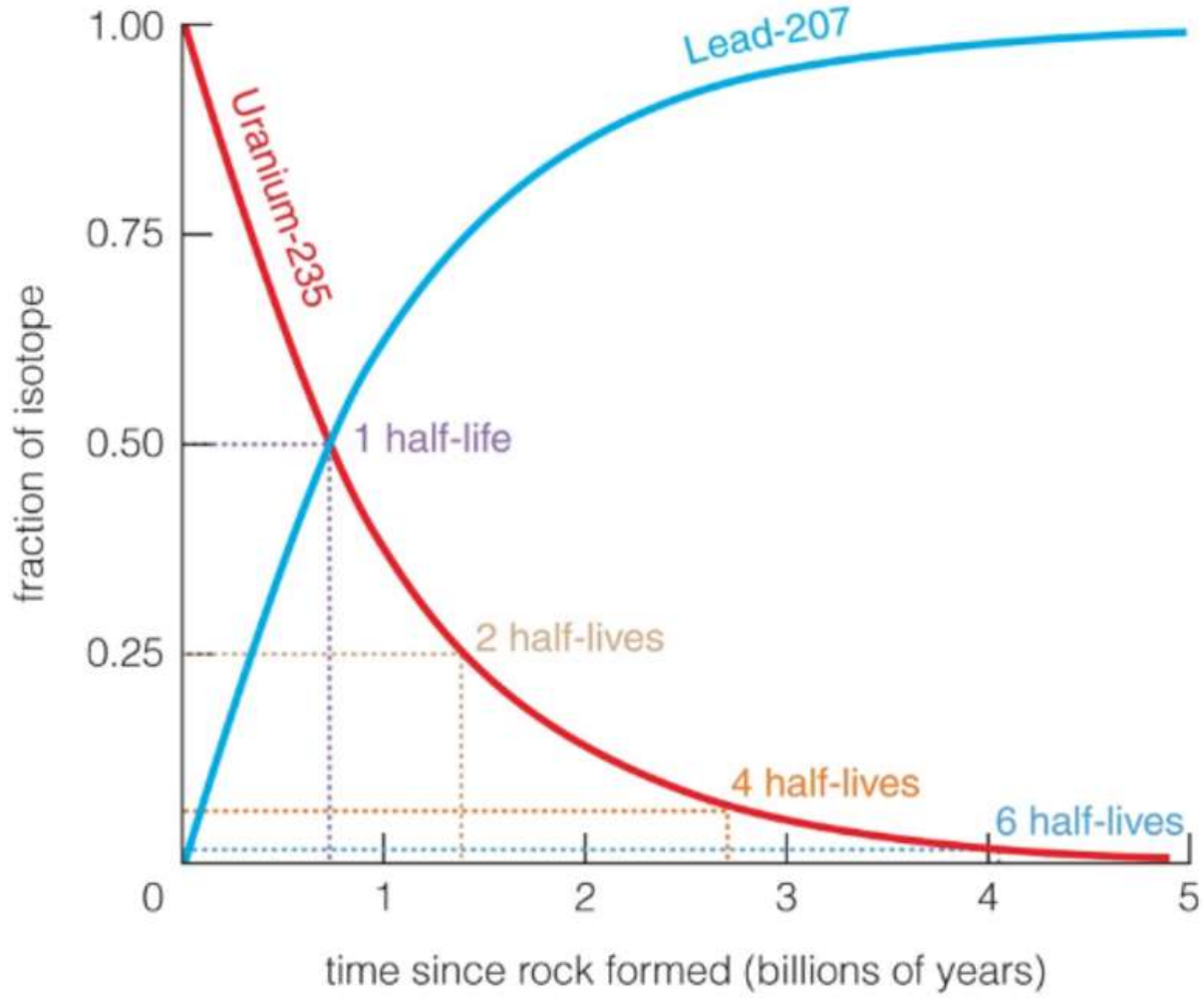


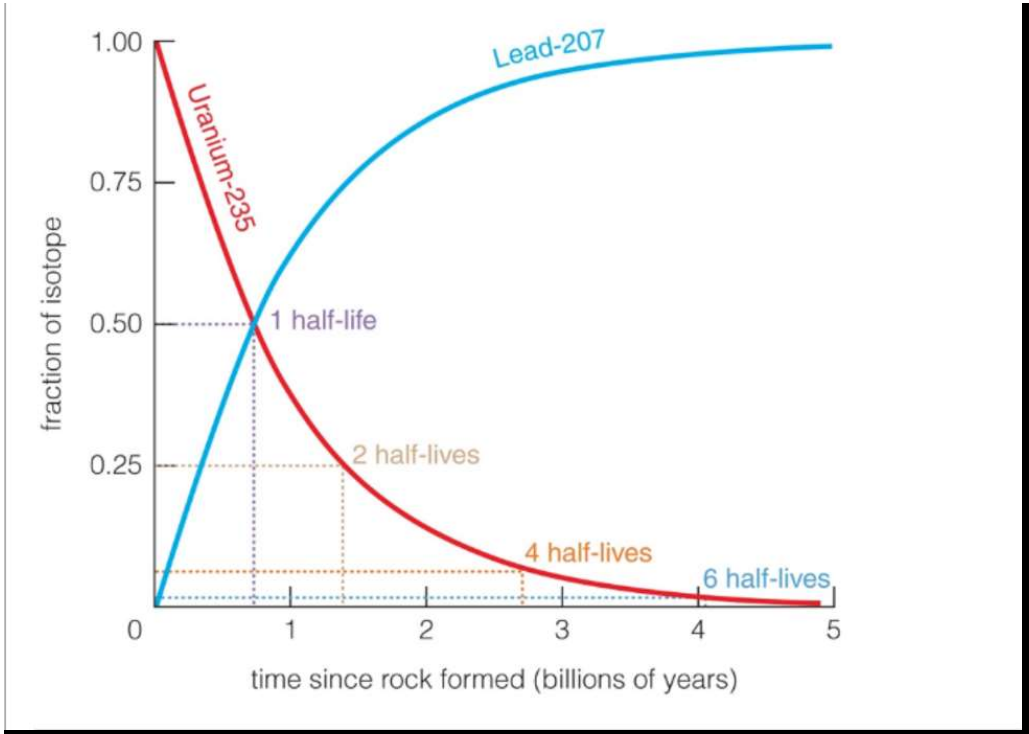
Figure 4.8 – Moisture density probe

# 1905 Ernest Rutherford
# Radiometric Dating



Old age conclusions came before the science.


1.00
0.75
0.50
0.25
0
fraction of isotope
Uranium-235
Lead-207
1 half-life
2 half-lives
4 half-lives
6 half-lives
1
2
3
4
5
time since rock formed (billions of years)




$$t = \frac{1}{\lambda} \ln\left(1 + \frac{D}{N}\right)$$

λ = Decay constant

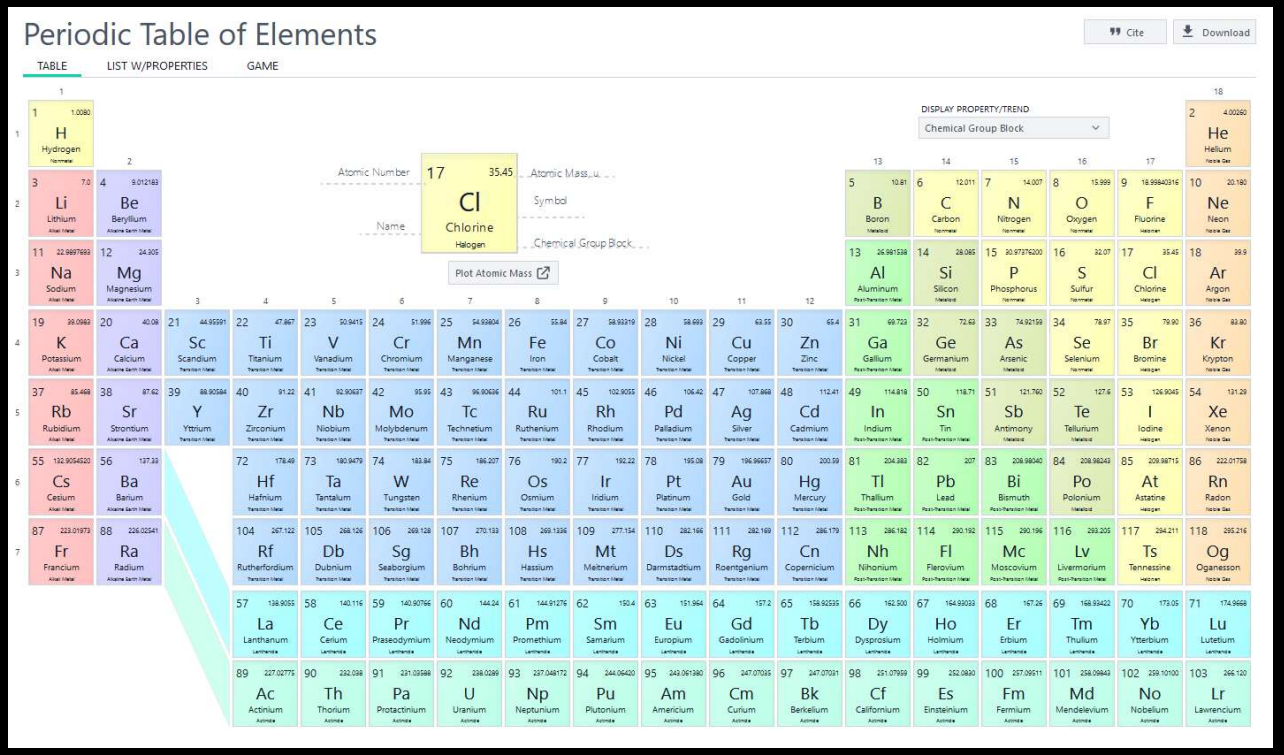
D = Daughter Product

N = Parent Remaining

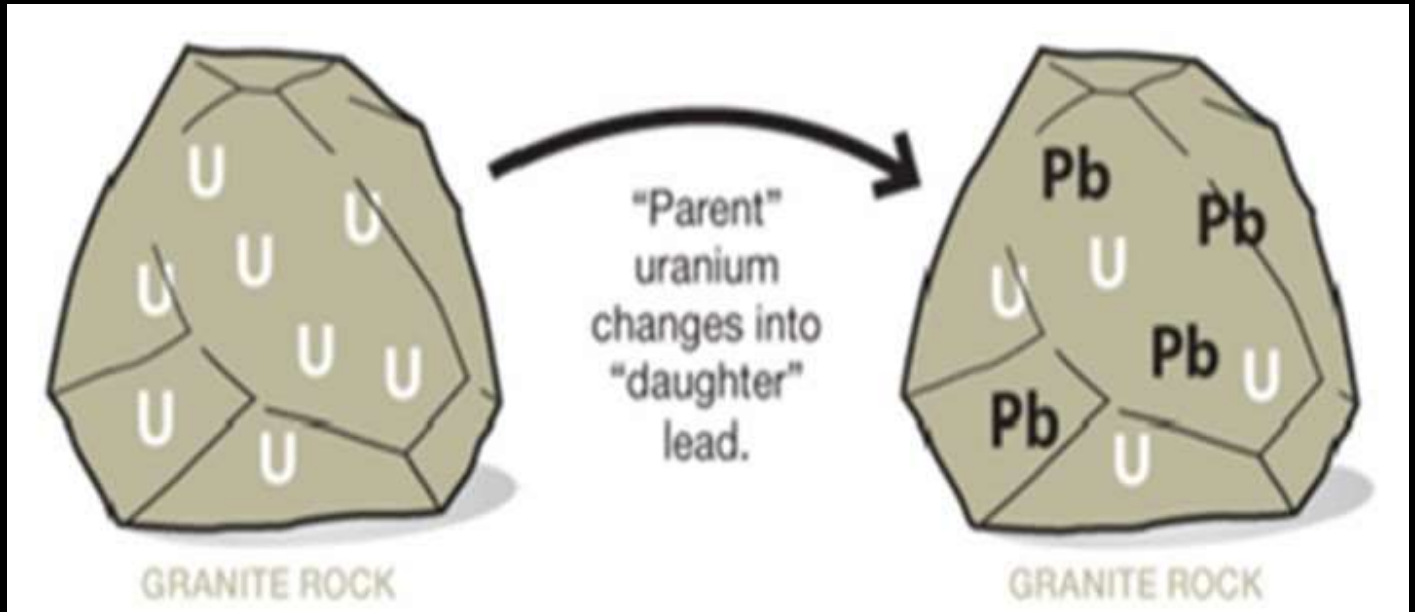
**#1 Assumed initial condition.**
**#2 Assumed constant rate of change.**
**#3 Assumed no outside contamination.**

**Examples of Radioactive Isotopes that Change into Stable Elements**

| Radioactive Parent Element | Stable Daughter Element | Half-Life |
|---|---|---|
| Carbon-14 ($^{14}C$) | Nitrogen-14 ($^{14}N$) | 5,730 Years |
| Potassium-40 ($^{40}K$) | Argon-40 ($^{40}Ar$) | 1.3 Billion Years |
| Uranium-238 ($^{238}U$) | Lead-206 ($^{206}Pb$) | 4.5 Billion Years |
| Rubidium-87 ($^{87}Rb$) | Strontium-87 ($^{87}Sr$) | 48.6 Billion Years |



**#1 Assumed initial condition.**
**#2 Assumed constant rate of change.**
**#3 Assumed no outside contamination.**



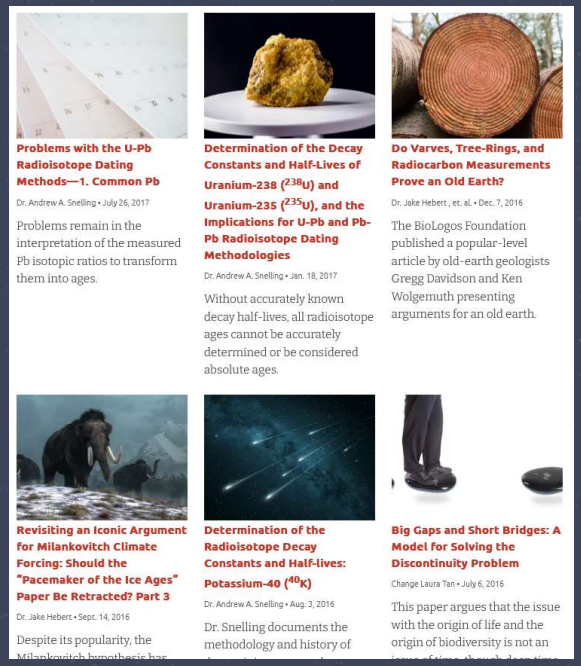
Dr. Andrew Snelling

# How Radiometric Dating Works: Relative not Absolute Ages

23:17 – 25:37

https://www.youtube.com/watch?v=z1lBdLVyzzo&t=1397s&ab_channel=IsGenesisHistory%3F

# https://answersresearchjournal.org/radiometric-dates/



**Problems with the U-Pb Radioisotope Dating Methods—1. Common Pb**

Dr. Andrew A. Snelling • July 26, 2017

Problems remain in the interpretation of the measured Pb isotopic ratios to transform them into ages.

**Determination of the Decay Constants and Half-Lives of Uranium-238 ($^{238}$U) and Uranium-235 ($^{235}$U), and the Implications for U-Pb and Pb-Pb Radioisotope Dating Methodologies**

Dr. Andrew A. Snelling • Jan. 18, 2017

Without accurately known decay half-lives, all radioisotope ages cannot be accurately determined or be considered absolute ages.

**Do Varves, Tree-Rings, and Radiocarbon Measurements Prove an Old Earth?**

Dr. Jake Hebert , et. al. • Dec. 7, 2016

The BioLogos Foundation published a popular-level article by old-earth geologists Gregg Davidson and Ken Wolgemuth presenting arguments for an old earth.

**Revisiting an Iconic Argument for Milankovitch Climate Forcing: Should the "Pacemaker of the Ice Ages" Paper Be Retracted? Part 3**

Dr. Jake Hebert • Sept. 14, 2016

Despite its popularity, the Milankovitch hypothesis has

**Determination of the Radioisotope Decay Constants and Half-lives: Potassium-40 ($^{40}$K)**

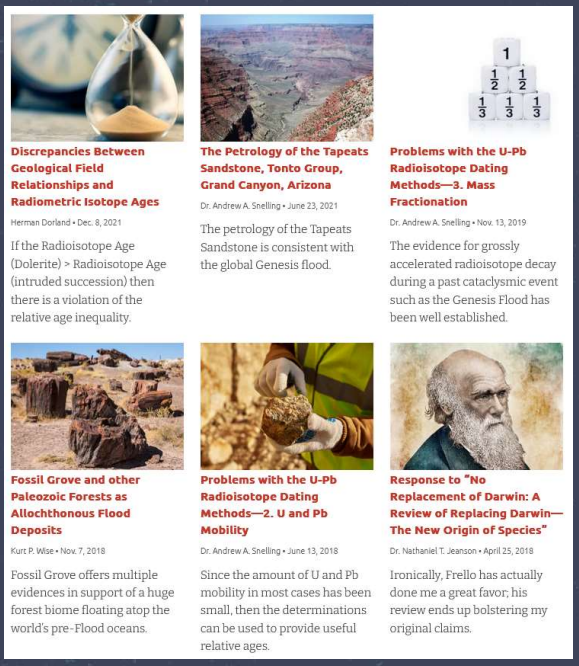
Dr. Andrew A. Snelling • Aug. 3, 2016

Dr. Snelling documents the methodology and history of

**Big Gaps and Short Bridges: A Model for Solving the Discontinuity Problem**

Change Laura Tan • July 6, 2016

This paper argues that the issue with the origin of life and the origin of biodiversity is not an



**Discrepancies Between Geological Field Relationships and Radiometric Isotope Ages**

Herman Dorland • Dec. 8, 2021

If the Radioisotope Age (Dolerite) > Radioisotope Age (intruded succession) then there is a violation of the relative age inequality.

**The Petrology of the Tapeats Sandstone, Tonto Group, Grand Canyon, Arizona**

Dr. Andrew A. Snelling • June 23, 2021

The petrology of the Tapeats Sandstone is consistent with the global Genesis flood.

**Problems with the U-Pb Radioisotope Dating Methods—3. Mass Fractionation**

Dr. Andrew A. Snelling • Nov. 13, 2019

The evidence for grossly accelerated radioisotope decay during a past cataclysmic event such as the Genesis Flood has been well established.

**Fossil Grove and other Paleozoic Forests as Allochthonous Flood Deposits**

Kurt P. Wise • Nov. 7, 2018

Fossil Grove offers multiple evidences in support of a huge forest biome floating atop the world's pre-Flood oceans.

**Problems with the U-Pb Radioisotope Dating Methods—2. U and Pb Mobility**

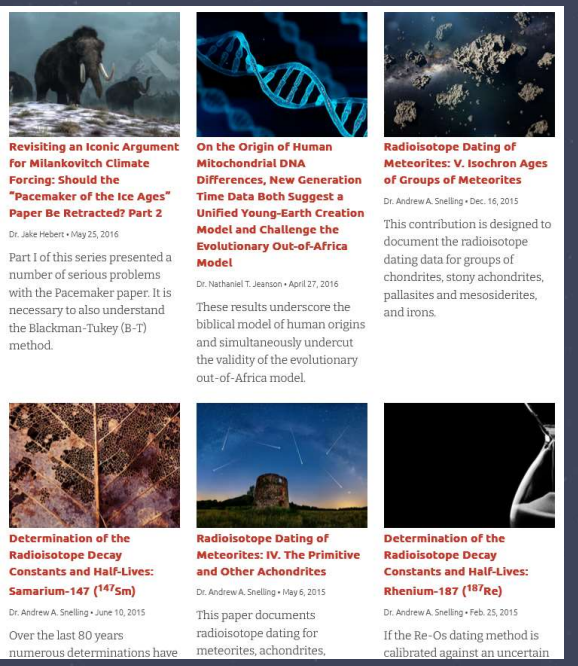
Dr. Andrew A. Snelling • June 13, 2018

Since the amount of U and Pb mobility in most cases has been small, then the determinations can be used to provide useful relative ages.

**Response to "No Replacement of Darwin: A Review of Replacing Darwin—The New Origin of Species"**

Dr. Nathaniel T. Jeanson • April 25, 2018

Ironically, Frello has actually done me a great favor; his review ends up bolstering my original claims.



**Revisiting an Iconic Argument for Milankovitch Climate Forcing: Should the "Pacemaker of the Ice Ages" Paper Be Retracted? Part 2**

Dr. Jake Hebert • May 25, 2016

Part I of this series presented a number of serious problems with the Pacemaker paper. It is necessary to also understand the Blackman-Tukey (B-T) method.

**On the Origin of Human Mitochondrial DNA Differences, New Generation Time Data Both Suggest a Unified Young-Earth Creation Model and Challenge the Evolutionary Out-of-Africa Model**

Dr. Nathaniel T. Jeanson • April 27, 2016

These results underscore the biblical model of human origins and simultaneously undercut the validity of the evolutionary out-of-Africa model.

**Radioisotope Dating of Meteorites: V. Isochron Ages of Groups of Meteorites**

Dr. Andrew A. Snelling • Dec. 16, 2015

This contribution is designed to document the radioisotope dating data for groups of chondrites, stony achondrites, pallasites and mesosiderites, and irons.

**Determination of the Radioisotope Decay Constants and Half-Lives: Samarium-147 ($^{147}$Sm)**

Dr. Andrew A. Snelling • June 10, 2015

Over the last 80 years numerous determinations have

**Radioisotope Dating of Meteorites: IV. The Primitive and Other Achondrites**

Dr. Andrew A. Snelling • May 6, 2015

This paper documents radioisotope dating for meteorites, achondrites,

**Determination of the Radioisotope Decay Constants and Half-Lives: Rhenium-187 ($^{187}$Re)**

Dr. Andrew A. Snelling • Feb. 25, 2015

If the Re-Os dating method is calibrated against an uncertain

# Is Genesis History on Youtube Search "radiometric dating"


What is Radioisotope Dating? And Can We Trust It? - Dr. Andrew Snelling

Is Genesis History? • 69K views • 3 years ago

Taken from "Beyond Is Genesis History? Vol 1 : Rocks & Fossils." Check it out on our website: http://bit.ly/BIGH-1 After you've watched the documentary film and want to learn more, this...

CC


How Radiometric Dating Works: Relative not Absolute Ages - Dr. Andrew Snelling (Conf Lecture)

Is Genesis History? • 71K views • 6 years ago

We're currently filming the sequel to *Is Genesis History?* Learn more and sign up for updates here - https://bit.ly/mountains-update This...


A Summary of Radiometric Dating - Dr. Andrew Snelling (Conf Lecture)

Is Genesis History? • 14K views • 3 years ago

This lecture is from our 2017 'Is Genesis History?' conference. We invited a number of scientists and scholars to teach in-depth on the Creation/Flood model. Here, Dr. Andrew Snelling introduces...

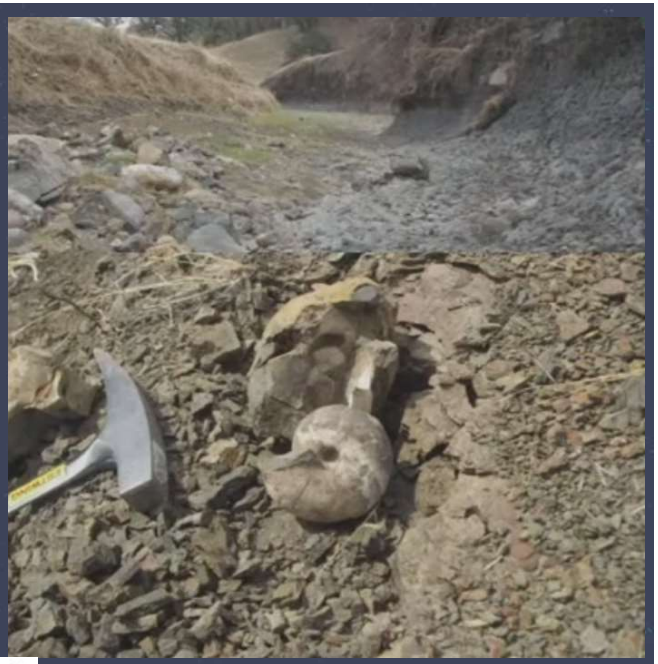
CC


What is Radiocarbon Dating and is it reliable? - Dr. Andrew Snelling (Conf Lecture)

Is Genesis History? • 29K views • 4 years ago

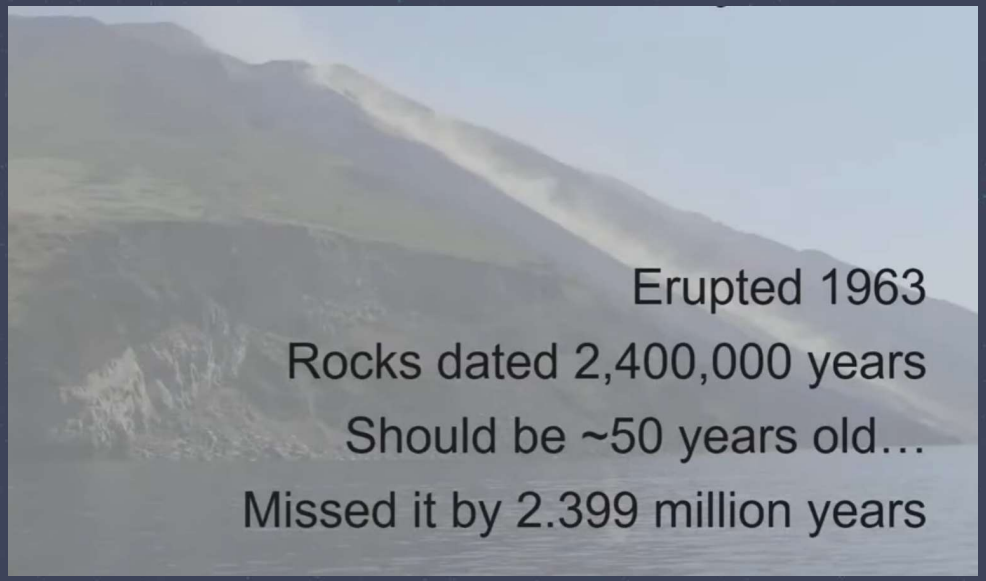
If you like this lecture from the 2017 IGH Conference, you can get it and over 70 more at: https://isgenesishistory.com/conference/ Dr. Snelling completed a BS in applied geology at the Universit...

# Redding, California #1 - Three different ages (mudstone)



| Dating Results from Ammonites and Wood Fossils in the Ono Formation (Snelling, 2008) | | | |
|---|---|---|---|
| **Specimen** | Rock layers | Ammonites | Wood |
| **Dating** | 112 to 120 Million (conventional age) | 36,400 to 48,710 carbon years | 32,780 to 42,390 carbon years |

# Mt. Stromboli, Italy
# #2 - different age than known age (basalt)



# Mt. Stromboli, Italy #2 - different age than known age (basalt)

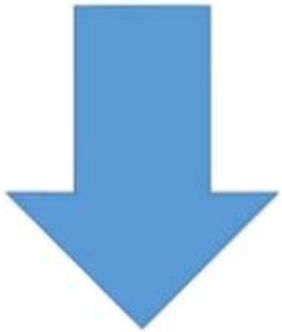
**Table 1.** Young rocks from recent eruptions (<1,000 years old) yield greatly exagerated apparent ages. The data used in this table was retrieved from mainstream scientific journals.[7,8,9,10,11,12]

| Location | When Lava Extruded | Measured Age |
|---|---|---|
| Hualalai basalt | 1800-1801 A.D. | 1.6 million years |
| Mount Etna basalt | 122 B.C. | 0.25 million years |
| Mount Etna basalt | 1792 A.D. | 0.35 million years |
| Mount Lassen basalt | 1915 A.D. | 0.11 million years |
| Sunset Crater basalt | 1064-1065 A.D. | 0.27 million year |
| Kilauea basalt | <200 years ago | 21 million years |
| Kilauea basalt | <1,000 years ago | 42.9 million years |
| Kilauea basalt | <1,000 years ago | 30.3 million years |
| Kilauea Iki basalt | 1959 A.D. | 8.5 million years |
| Mount Stromboli | 1963 A.D. | 2.4 million years |
| Hualalai basalt | 1800-1801 A.D. | 22.8 million years |
| Rangitoto basalt | <800 years ago | 0.15 million years |
| Mount Erebus | 1984 A.D. | 0.64 million years |
| Mount Etna basalt | 1964 A.D. | 0.7 million years |
| Medicine Lake obsidian | <500 years ago | 12.6 million years |

*Literature review and compilation of listed data credited to Dr. Andrew Snelling.[13]

Things to Consider about Radiometric Dating…

Samples of Known Age



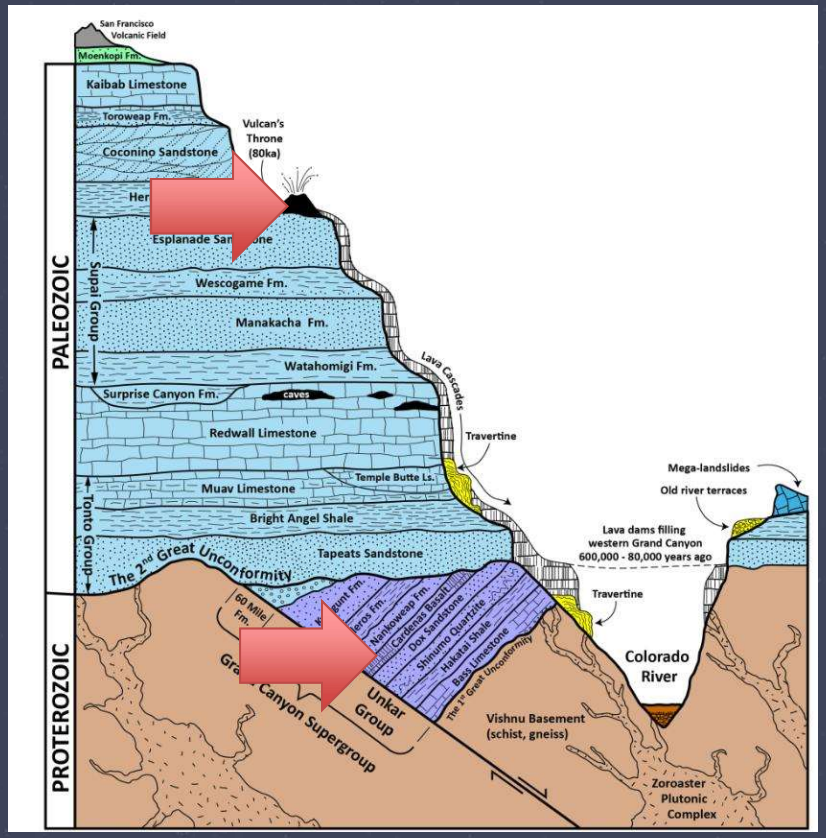
Radiometric Dating **DOESN'T WORK**

?

Samples of Unknown Age

Radiometric Dating **ASSUMED TO WORK**

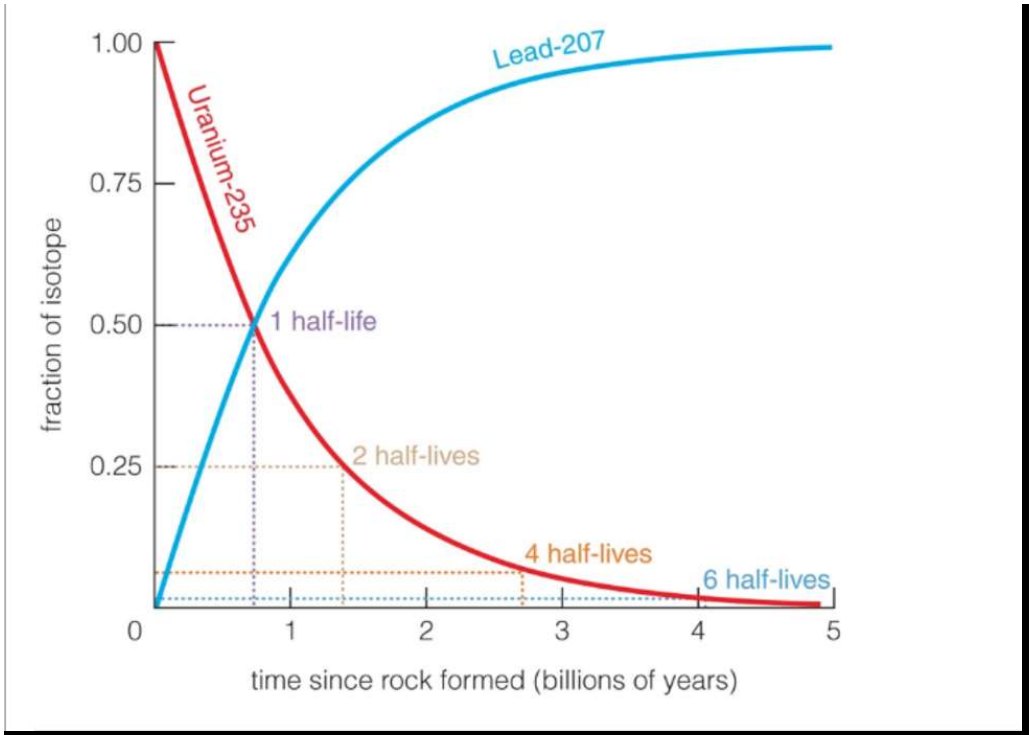
# Grand Canyon, Arizona #3 - Same age, should be different. (basalt)



# South African granitic rock #4 - Same sample yields different ages (granite)

## CONTAMINATION

- A granitic rock in South Africa yielded a **Pb-Pb and Sm-Nd** isochron "age" of **2,915 million years**
- But a **Rb-Sr** isochron for the minerals within the rock yielded an "age" of **2,023 million years**
- And an albite grain in the rock yielded **Rb-Sr** "ages" of **5,852 million years** at its outer edge and **3,067 million years** in its core




$$t = \frac{1}{\lambda} \ln\left(1 + \frac{D}{N}\right)$$

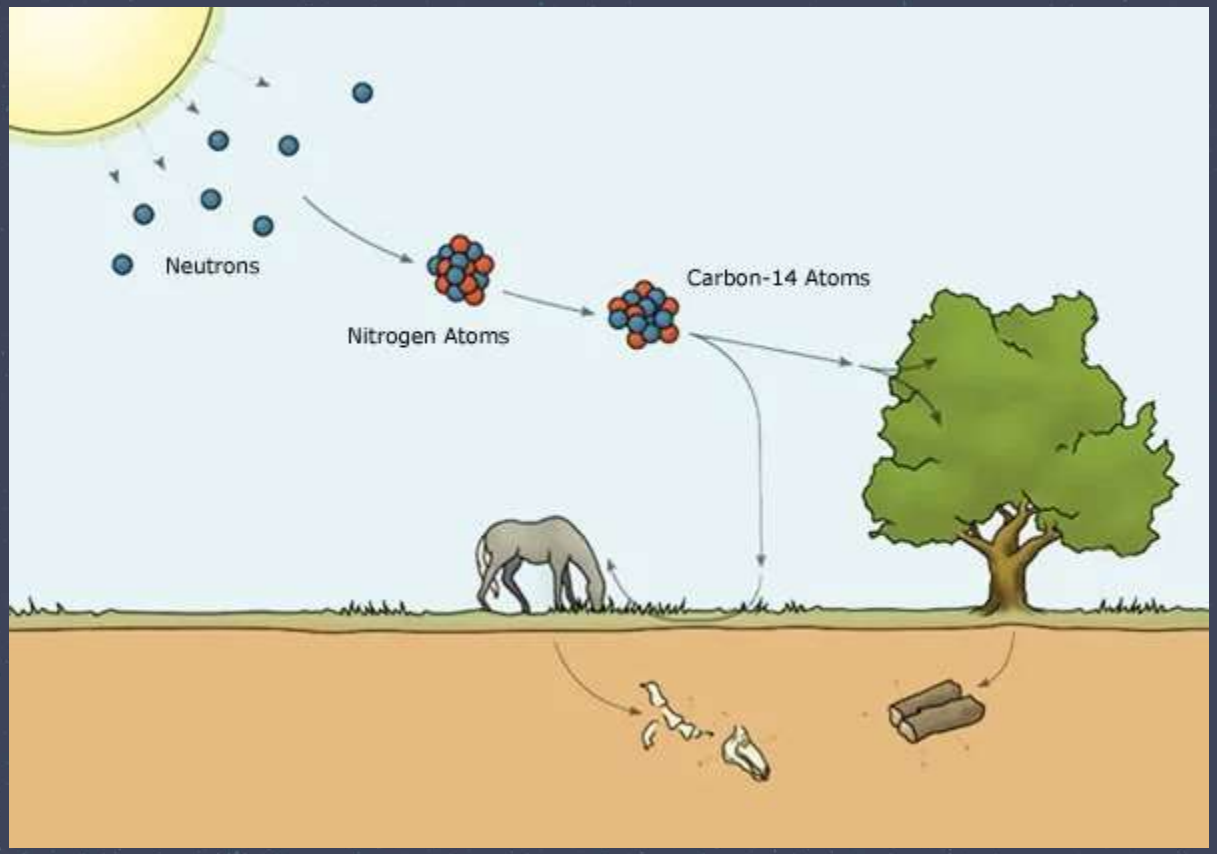
λ = Decay constant

D = Daughter Product

N = Parent Remaining

**#1 Assumed initial condition.**
**#2 Assumed constant rate of change.**
**#3 Assumed no outside contamination.**

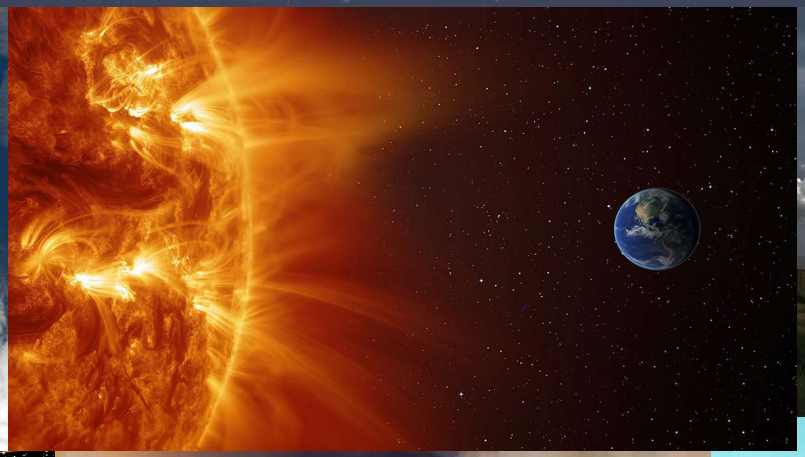
# Carbon-14 dating (Developed in 1946)

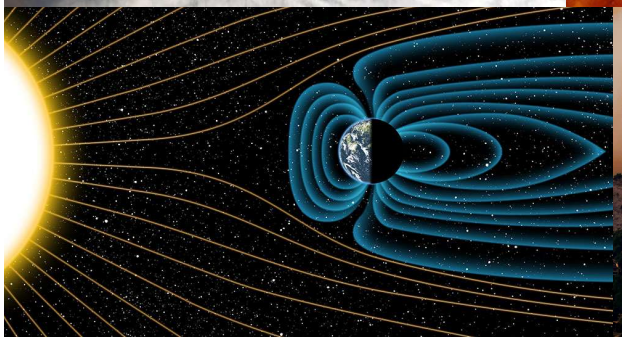


https://www.youtube.com/watch?v=phZeE7Att_s&ab_channel=ScientificAmerican

0:00- 2:00

# Carbon-14 dating – No Contamination?



# British Carbon-14 Validation Tests at 38 different labs.

**Examples of Radioactive Isotopes that Change into Stable Elements**

| Radioactive Parent Element | Stable Daughter Element | Half-Life |
|---|---|---|
| Carbon-14 ($^{14}C$) | Nitrogen-14 ($^{14}N$) | 5,730 Years |
| Potassium-40 ($^{40}K$) | Argon-40 ($^{40}Ar$) | 1.3 Billion Years |
| Uranium-238 ($^{238}U$) | Lead-206 ($^{206}Pb$) | 4.5 Billion Years |
| Rubidium-87 ($^{87}Rb$) | Strontium-87 ($^{87}Sr$) | 48.6 Billion Years |

| Half Life Cycles | Percentage of Remaining Carbon 14 | Years Ago |
|---|---|---|
| 0 | 100.0 | 0 |
| 1 | 50.0 | 5,730 |
| 2 | 25.0 | 11,460 |
| 3 | 12.5 | 17,190 |
| 4 | 6.3 | 22,920 |
| 5 | 3.1 | 28,650 |
| 6 | 1.6 | 34,380 |
| 7 | 0.8 | 40,110 |
| 8 | 0.4 | 45,840 |
| 9 | 0.2 | 51,570 |
| 10 | 0.1 | 57,300 |
| 11 | 0.05 | 63,030 |
| 12 | 0.02 | 68,760 |
| 13 | 0.01 | 74,490 |
| 14 | 0.01 | 80,220 |
| 15 | 0.003 | 85,950 |
| 16 | 0.002 | 91,680 |
| 17 | 0.001 | 97,410 |
| 18 | 0.0004 | 103,140 |
| 19 | 0.0002 | 108,870 |
| 20 | 0.0001 | 114,600 |

## Carbon-14 in Coal

Carbon 14 is found in coal layers in rock sequences dated to 34,000,000 to 318,000,000 years old.

## Carbon-14 in Diamonds

Carbon 14 is found in diamonds which are supposedly 1.0 – 3.5 billion years old.

## Carbon-14 in Dinosaur fossils

Carbon 14 is found in dinosaur fossils which are supposedly 66,000,000 to 245,000,000 years old.

# 12 evidences for a "young earth."

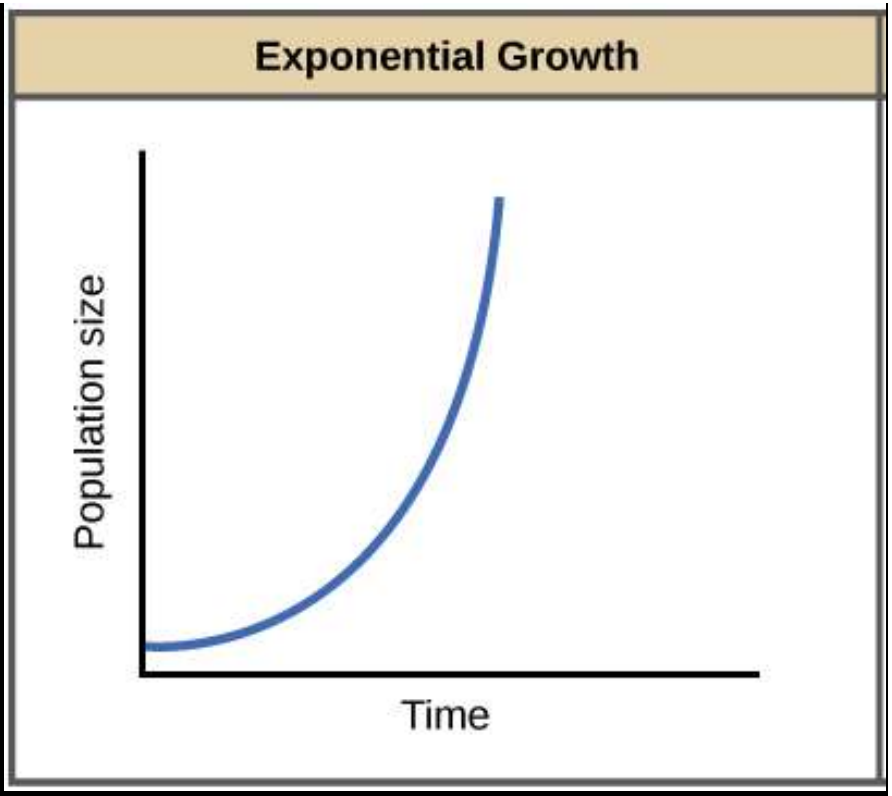
**#1 Assumed initial condition.**
**#2 Assumed constant rate of change.**
**#3 Assumed no outside contamination.**

## #1 – Human Population

### Exponential Growth Formula

$$x_t = x_0 \times (1 + r)^t$$

www.inchcalculator.com

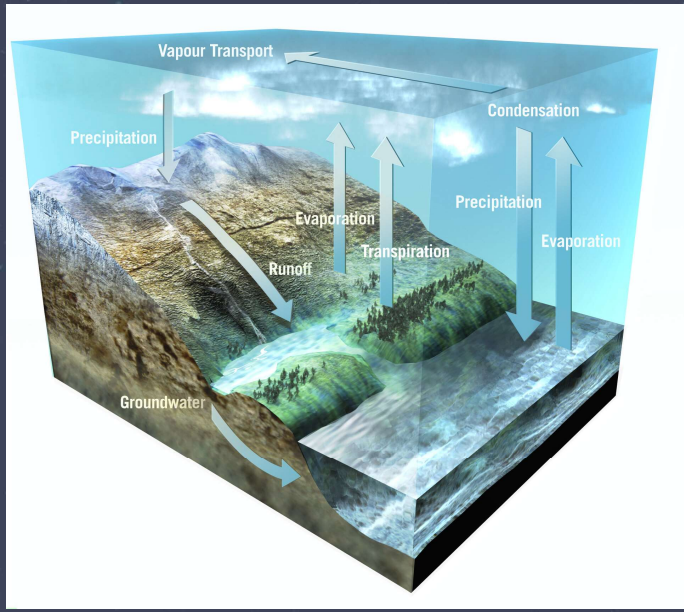



| | | |
|---|---|---|
| **t** | **250,000 years ago** | **4,500 years ago** |
| **Xo** | **2 people** | **6 people** |
| **r** | **0.468% growth rate** | **0.468% growth rate** |
| **Xt** | **Infinity people now** | **8 billion people now** |

## #2 The amount of salt in the oceans

The oceans are thought to be 3,800,000,000 years old.

But based on salt input the max age is 62,000,000 years old.



## #3 The continental erosion

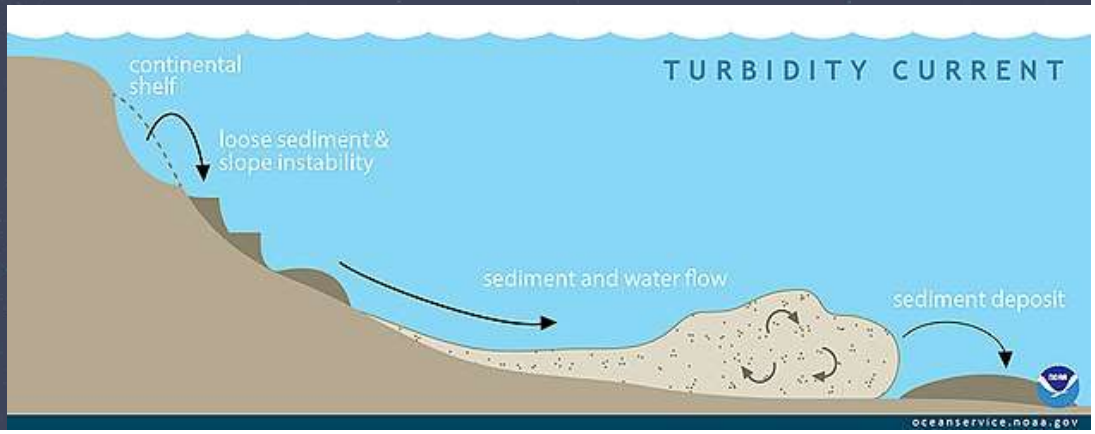
The continents are thought to be 2,500,000,000 years old.

But a number of geologists have calculated that North America should have been levelled in 10,000,000 years if erosion has continued at the current rate.

## #4 The ocean sediment

The ocean floor is thought to be 3,000,000,000 years old.

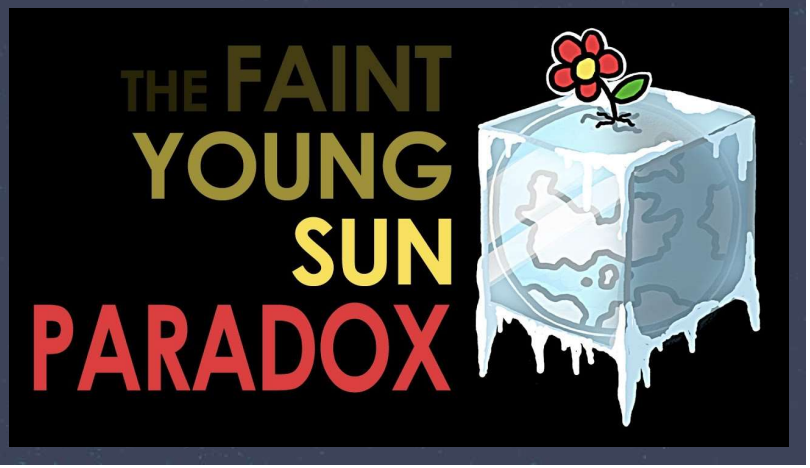
The amount of sediment on the sea floors at current rates of erosion would accumulate in just 12,000,000 years.



## #5 The faint young sun paradox

The sun is getting brighter.

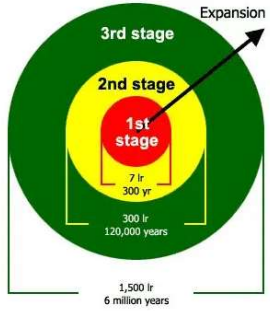
The current average temperature is 60 ºF, so the earth should have had a temperature below freezing (28 ºF) when life appeared.



# #6 Supernova remnants

The number of type I supernova remnants (SNRs) observable in our galaxy is consistent with an age of thousands of years, not millions or billions.

| Supernova Remnant Stage | Number of observable SNRs predicted if our galaxy were... | | Number of SNRs actually observed |
|---|---|---|---|
| | ... billions of years old | ... 7000 years old | |
| First | 2 | 2 | 5 |
| Second | 2260 | 125 | 200 |
| Third | 5000 | 0 | 0 |




The three predicted stages of supernova development

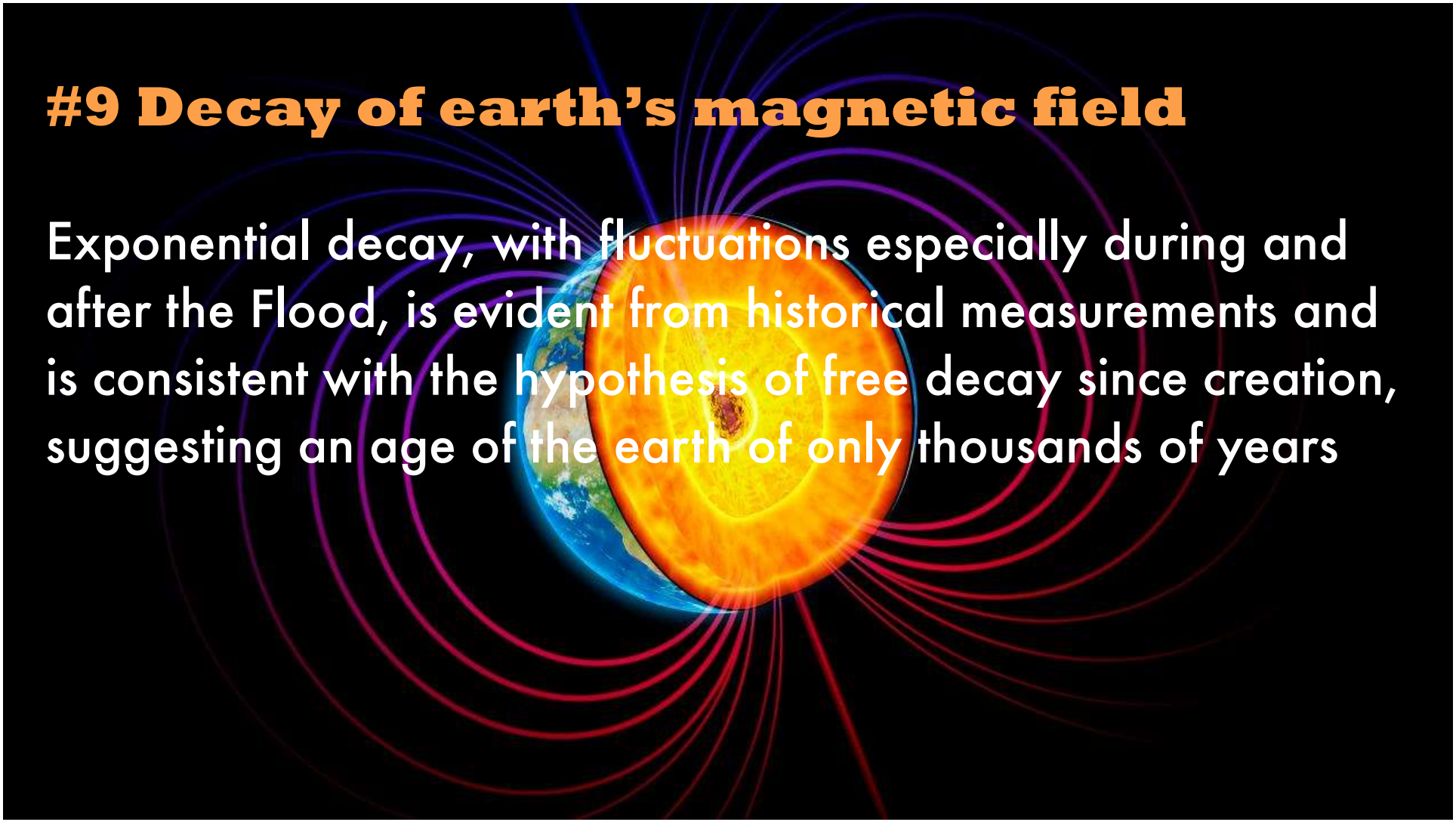
## #7 The recession of the moon from the earth

The moon and earth would have been in catastrophic proximity at less than a quarter of their supposed age.

# #8 Existence of long-period comets

Their existence is consistent with a young age for the solar system.

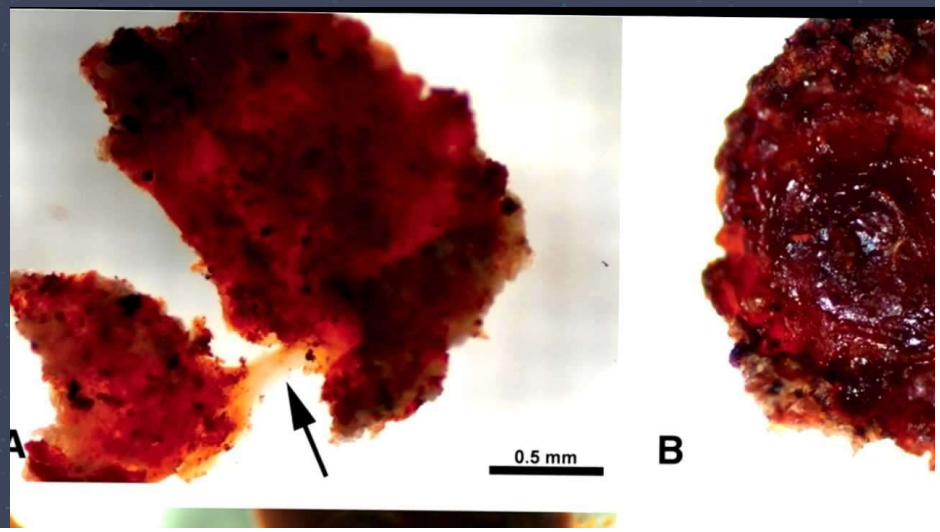
# #9 Decay of earth's magnetic field



Exponential decay, with fluctuations especially during and after the Flood, is evident from historical measurements and is consistent with the hypothesis of free decay since creation, suggesting an age of the earth of only thousands of years

# #10 Dinosaur soft tissue

Dinosaur blood cells, blood vessels, proteins and DNA are not consistent with their supposed more than 65,000,000 year age, but make more sense if the remains are thousands of years old.



# #11 Oldest tree on the planet

The ages of the world's oldest living organisms, trees, are consistent with an age of the earth of thousands of years. (Great Basin Bristlecone Pine – 5,000 years old)

# #12 Arches National Park

One collapse per year means that all would be gone in 2,000 years.

**#1 Assumed initial condition.**
**#2 Assumed constant rate of change.**
**#3 Assumed no outside contamination.**

## ISAIAH 40:28

Do you not know? Have you not heard? The LORD is the everlasting God, the Creator of the ends of the earth. He will not grow tired or weary, and his understanding no one can fathom.

**Maybe we should take the word of the One who was there?**

# Discussion Questions:

1. What did you learn tonight? Any observations on the ideas and thoughts presented?
2. Any comments on Charles Lyell's quote about wanting to remove the Bible from geology before the invention of modern radiometric dating methods?
3. Why would people continue to utilize dating methods with inconsistent results?
4. Which of the 12 evidences for a young earth did you find the most compelling and why?
5. Have a few people pray.


God’s Grand Design
Exploring Origins in Science and Scripture