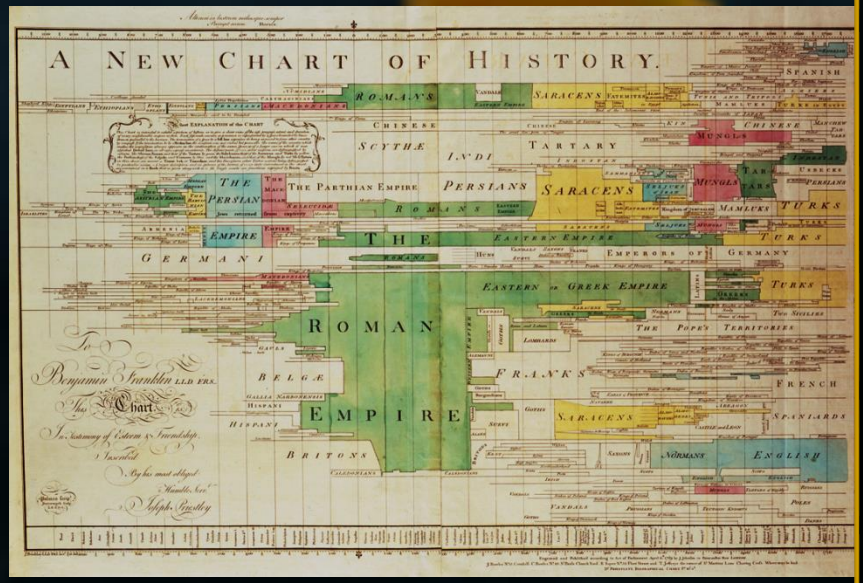
World Studies
Chronology & Periodization

CHRONOLOGY

The arrangement of events or dates in the order they occurred.

(It is tide to CAUSE & EFFECT)



PERIODIZATION

The categorizing of the past into distinct chunks of time that hold similar overarching characteristics.

(It is tide to MEANING & REFERENCE)

CHRONOLOGY: Shows us order, relations, & progression over time

PERIODIZATION: Helps us place ourselves in reference to events & their significance. BUT it can be controversial because it deals with what the periods of time mean and what their importance is.

EXAMPLES of controversies:

The Age of Enlightenment

Does this mean other periods of time and people were not enlightened or intelligent?

The Age of Discovery

Does this mean no one before this period of time ever discovered anything?

How do we
organize past time?

Measurements of Time

365 days = 1 year

10 years = a decade

100 years = a century

1,000 years = a millennium

Titles of Time

Epoch = Age = Era = Period

All meaning a particular historical period of time

Historical Time Periods

Ancient Era
4,500 B.C. – 500 A.D.

Medieval Era
500 A.D. – 1500 A.D.

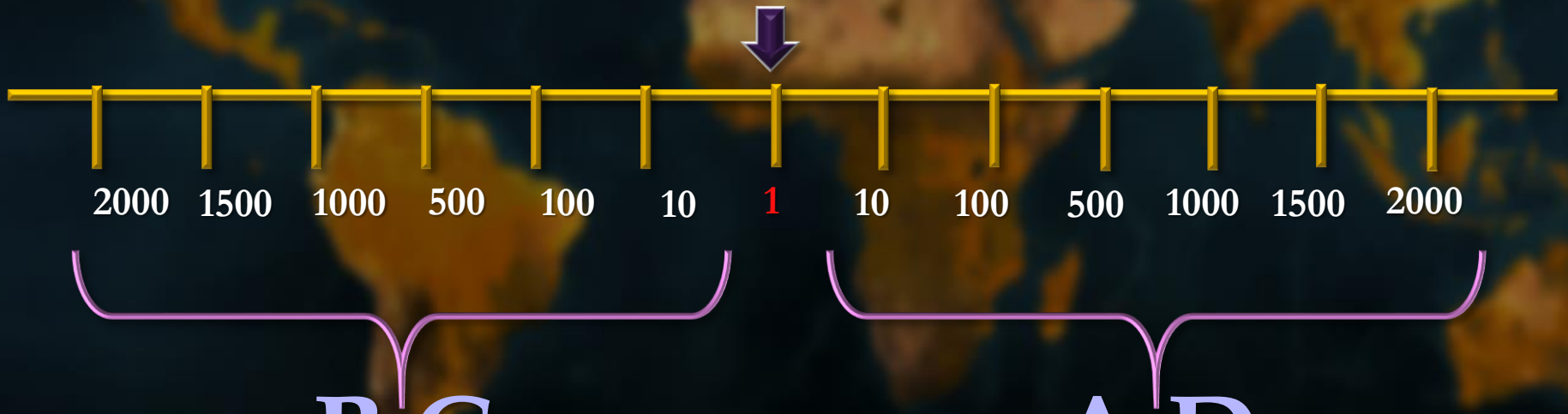
Modern Era
1500 A.D. - Today

- Pre-History Before 4,500 A.D.
- Early Ancient 4,500 B.C. – 700 A.D.
- Classical Age 700 B.C. – 600 A.D.
- Early Middle 500 – 1000
- High Middle 1000 – 1300
- Late Middle 1300 – 1500
- Early Modern 1500 – 1750
- Mid Modern 1750 – 1914
- Contemporary 1914 – Present
- Post-Modern Era ???

How do we *get the correct dates* for things?

Historical Dating

Jesus' Birth
circa 1 A.D.



B.C.

B.C. = *Before Christ*
B.C.E. = *Before the Common Era*

A.D.

A.D. = *Anno Domini*
"in the year of the Lord"
C.E. = *Common Era*

Getting A.D. & B.C. Dating Correct

REMEMBER

Whenever you have a specific year & need the century always add (+) 1 to the whole number of the year!

Same for A.D. or B.C.!

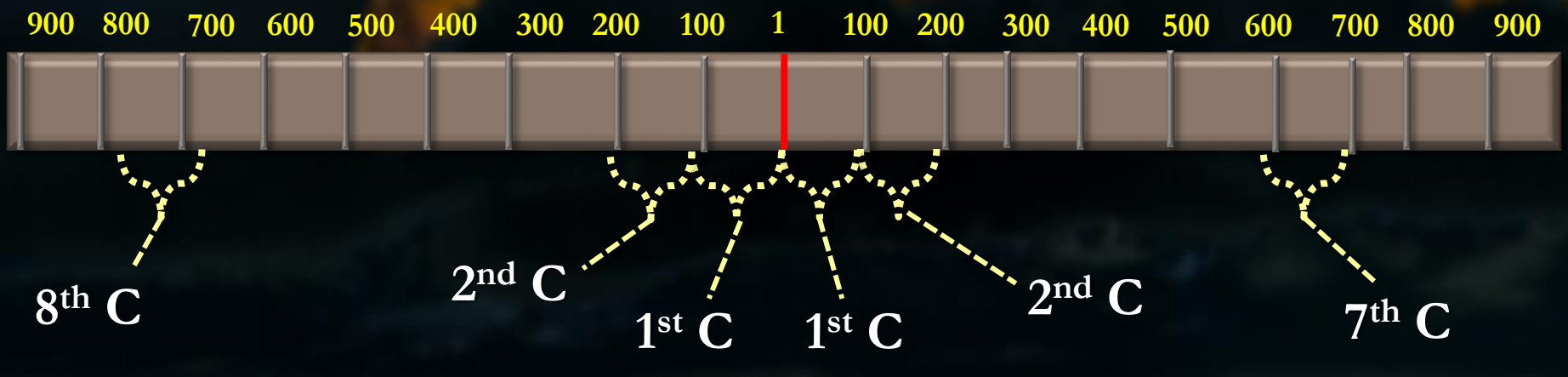
EXAMPLES

Year 1756 A.D. = 18th Century

Year 1366 B.C. = 14th Century

Year 825 A.D. = 9th Century

Year 1136 B.C. = 12th Century



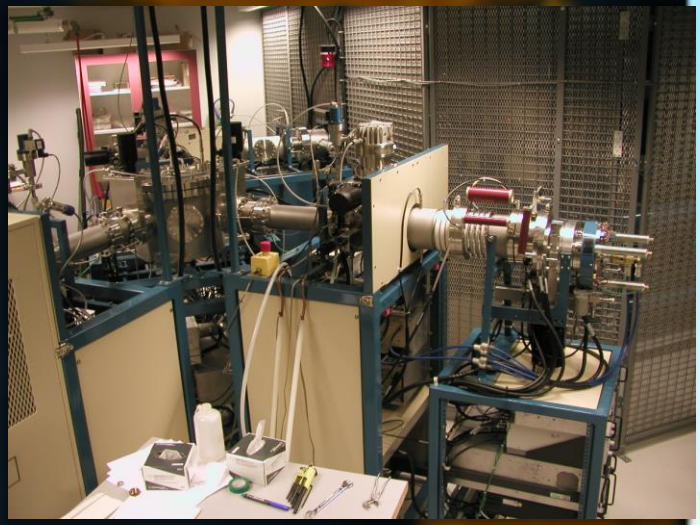
Getting A.D. & B.C. Dating Correct

When trying to determine how long ago something was OR the length of time something was REMEMBER THESE FORMULAS:

B.C. – B.C.	A.D. – A.D.	B.C. + A.D.
How long did the Achaemenid Empire exist if it lasted from 550 B.C. to 330 B.C.?	How long ago from today was Columbus' discovery of America in 1492?	How long ago was it from today since the founding of the Roman Republic in 509 B.C.?
550 – 330 = 220 yrs	2016 – 1492 = 524 yrs	2016 + 509 = 2525 yrs

How do we *actually* *date* historical things?

Carbon 14 Dating



Single Stage Accelerator Mass Spectrometer

Cosmic rays from the sun collides with atoms in the upper atmosphere producing energetic neutrons

neutron + Nitrogen-14 → Carbon-14 + proton

The energetic neutron collided with a Nitrogen-14 atom to produce a Carbon-14 atom and a proton

The Carbon-14 oxidises to Carbon-14 dioxide and is transported to the lower atmosphere

Plants absorb Carbon dioxide during photosynthesis and take in Carbon-14 in a ratio similar to that of Carbon-14 in the atmosphere

Carbon-14 is taken in by animals and humans through the food chain

The wood from felled trees used for construction or paper manufacture also undergo Carbon-14 decay

When plants and animals die, they stop taking in Carbon-14

Following death or burial, the unstable Carbon-14 in bones undergo beta decay to form Nitrogen-14

Carbon-14 → Beta Decay → Nitrogen-14 + $^{0}_{-1}\beta$

Neutron → Proton + electron (electron leaves the atom with high energy as a beta particle)

Carbon-14 undergoes beta decay to form Nitrogen-14. Over time the ratio of Carbon-14 to other Carbon atom decreases. Carbon-14 has a half life of 5,730 years. By measuring the amount of Carbon-14 in a sample and comparing it to a fresh sample, scientists can determine its age.

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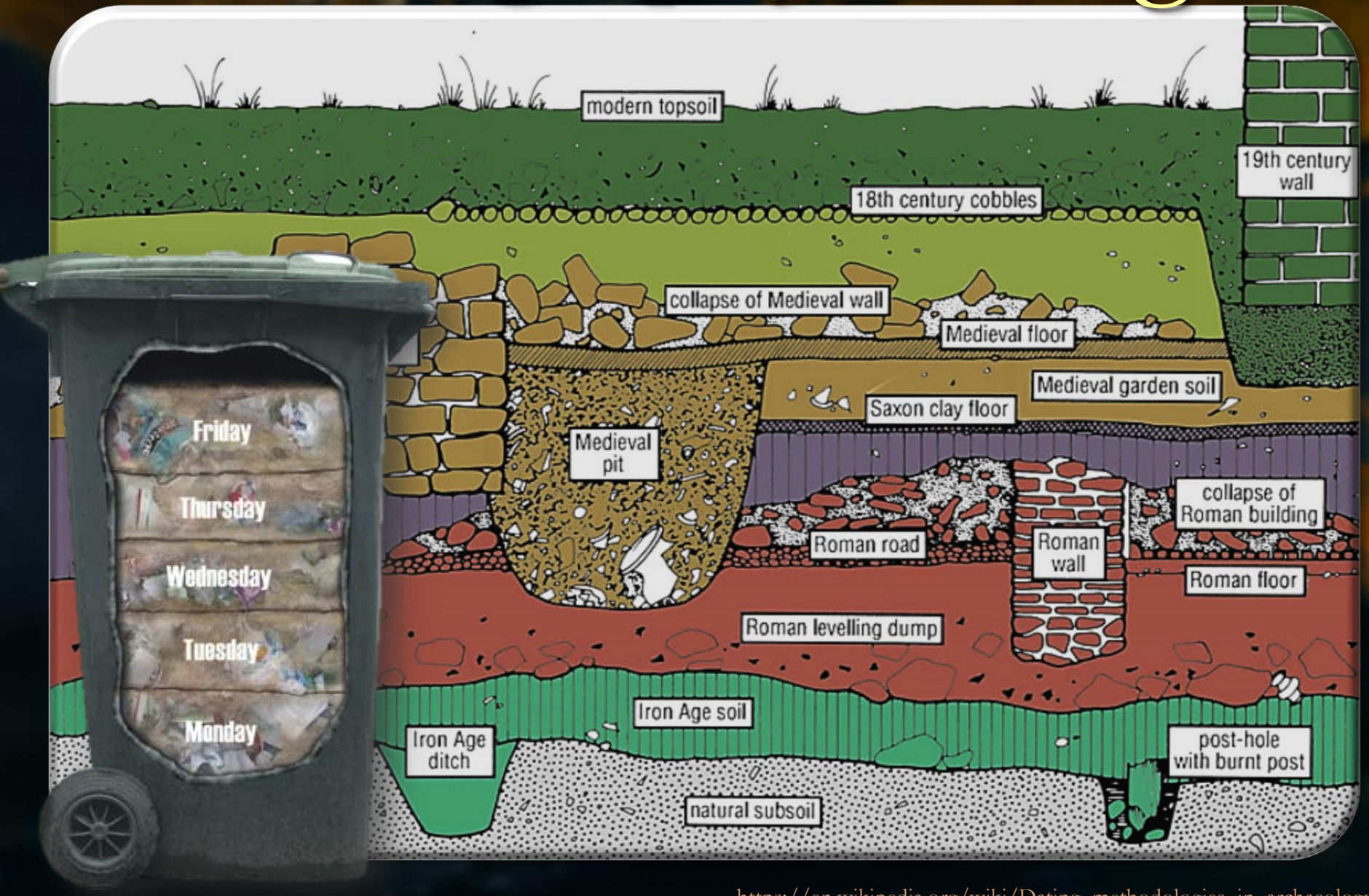
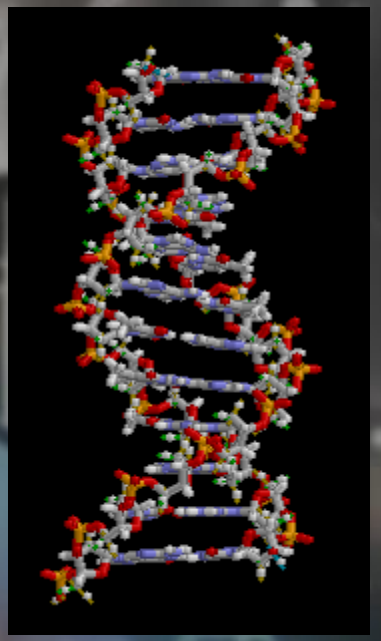
Stratigraphy Dating

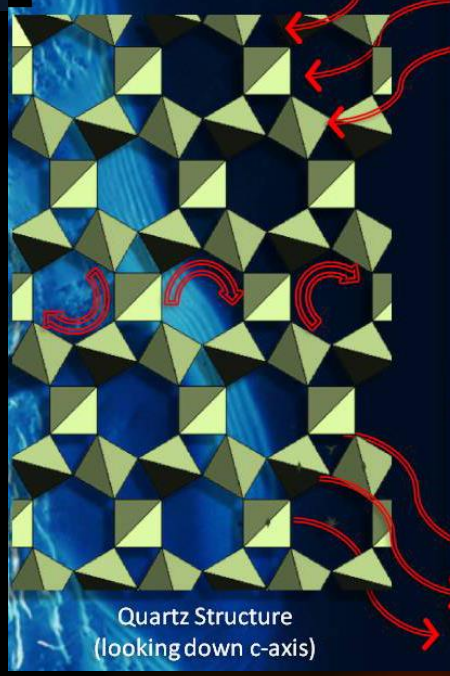


https://en.wikipedia.org/wiki/Dating_methodologies_in_archaeology

DNA Dating



Thermoluminescence



IRRADIATION

Local ionizing radiation introduces electrons to the crystal lattice, some of which are trapped at imperfections and 'stored'. Sources: ambient ^{40}K, ^{238}U, ^{232}Th...

STORAGE

Some electrons are 'trapped', as they lack sufficient energy to escape the lattice.

EVICTION

Electrons are provided the means to escape from an outside stimulus (eg. UV wavelengths or heat).

The amount of thermoluminescence from a heated sample is used to determine the number of trapped electrons resulting from the absorption of alpha radiation.

(Simplified from Aitken; 1985, 1998) Keizars, 2008

Thermoluminescence Dating

ARTIFACT DATING

Style of art, architecture, writing, language, pottery… ect

WELCOME TO

THE FINISH LINE