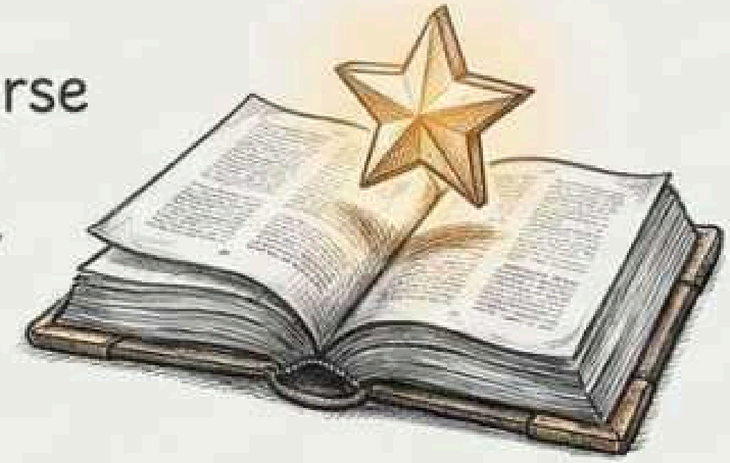
¶ 0.1

1. Take Course
(Free)



Full compensation
is paying it forward.

2. Serve
Humanity



3. Report
Back



garyanderson@mail.grokbot.com
@garyanderson

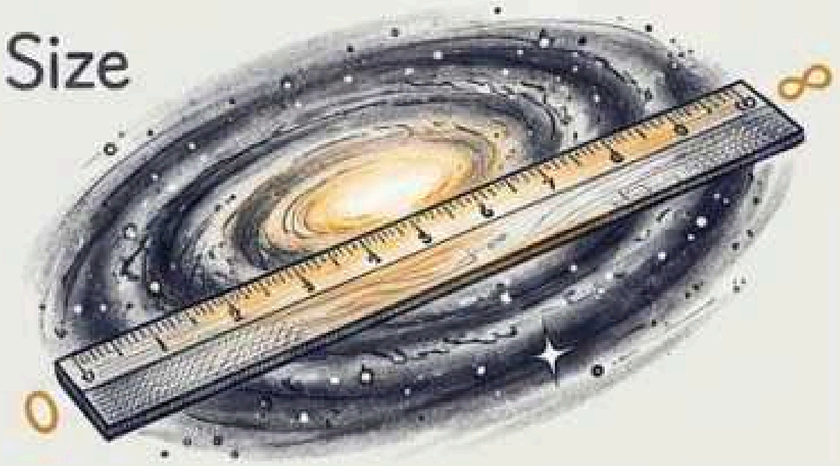
¶ 0.2

ASTR 210 B

B = Brief (1 Hour Total)

Cosmology = The study of the universe as a whole.

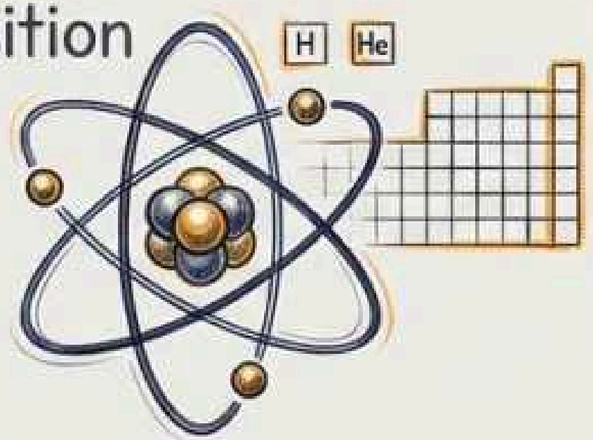
Size



History



Composition



Fate

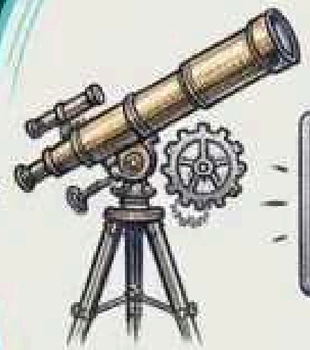


¶ 0.3

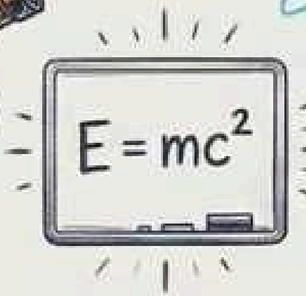
The Oldest Human Questions



The Last 100 Years



Measure Age



Weigh Contents



Read Faint Light from Earliest Moments

¶0.4

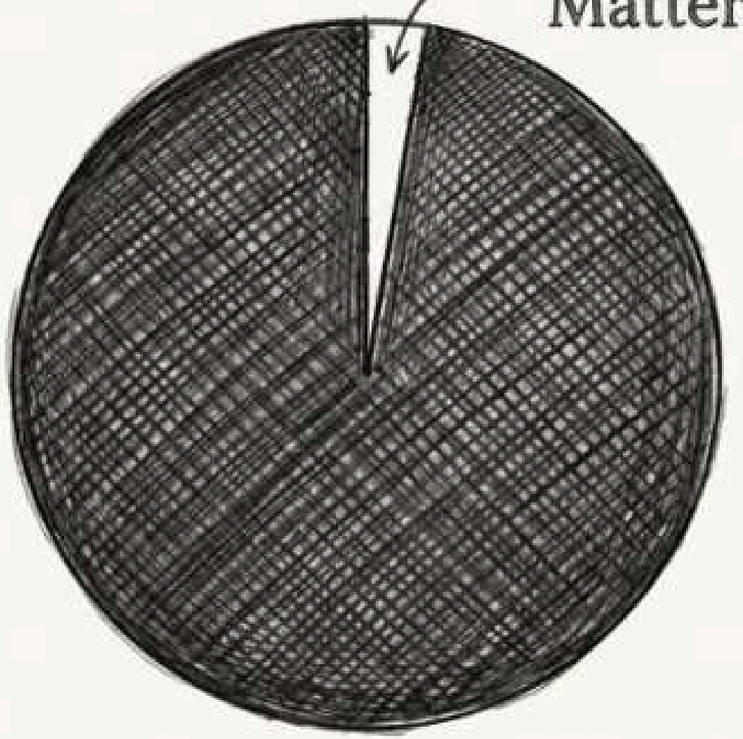
1



13.8 Billion Years

Hot, dense Big Bang

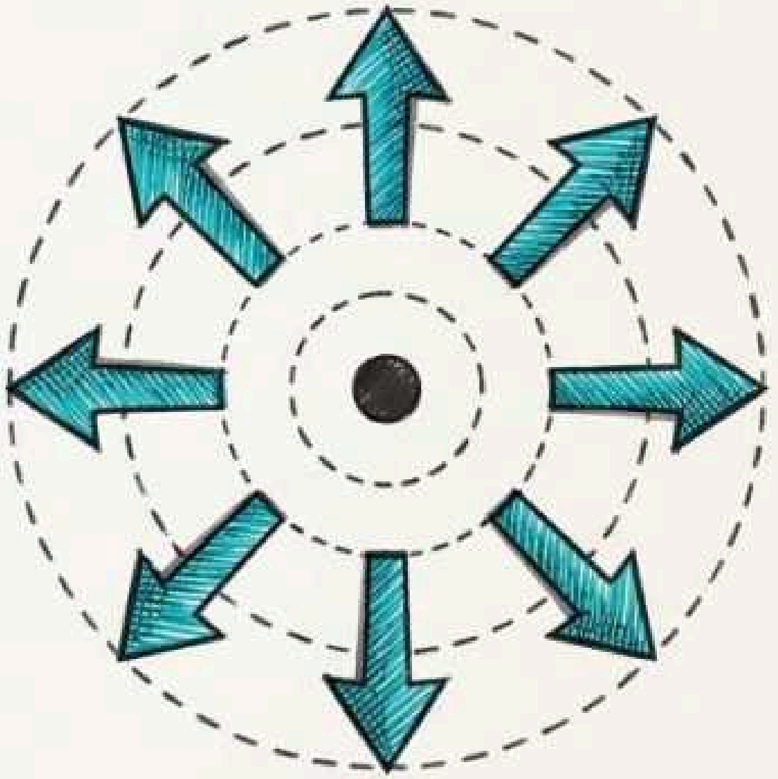
2



Dark Matter & Dark Energy

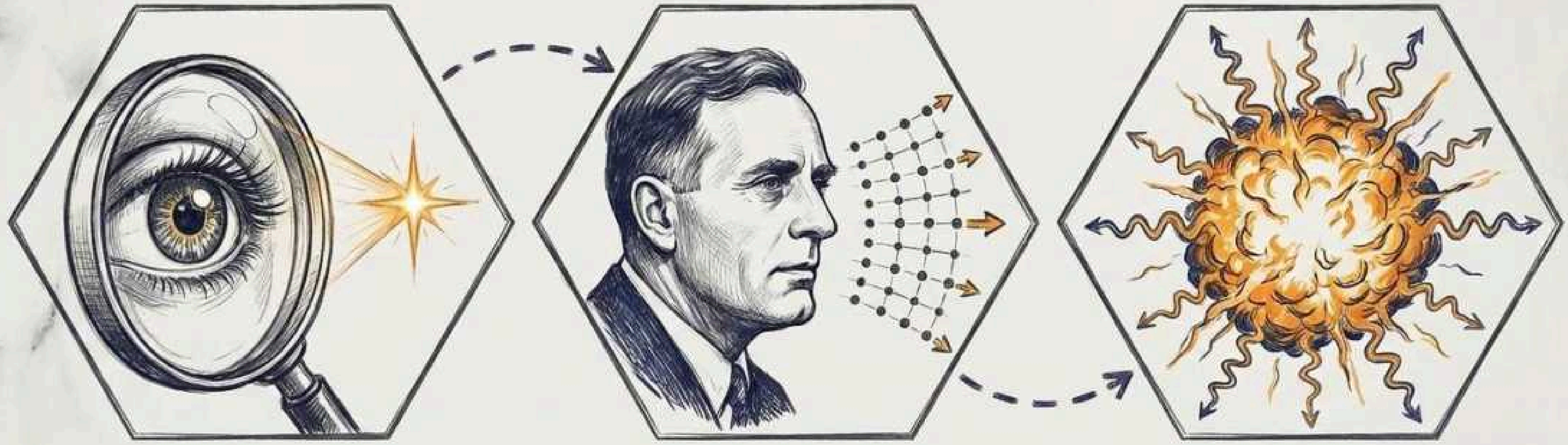
(Nature Unknown)

3



Speeding Expansion

¶ 0.5

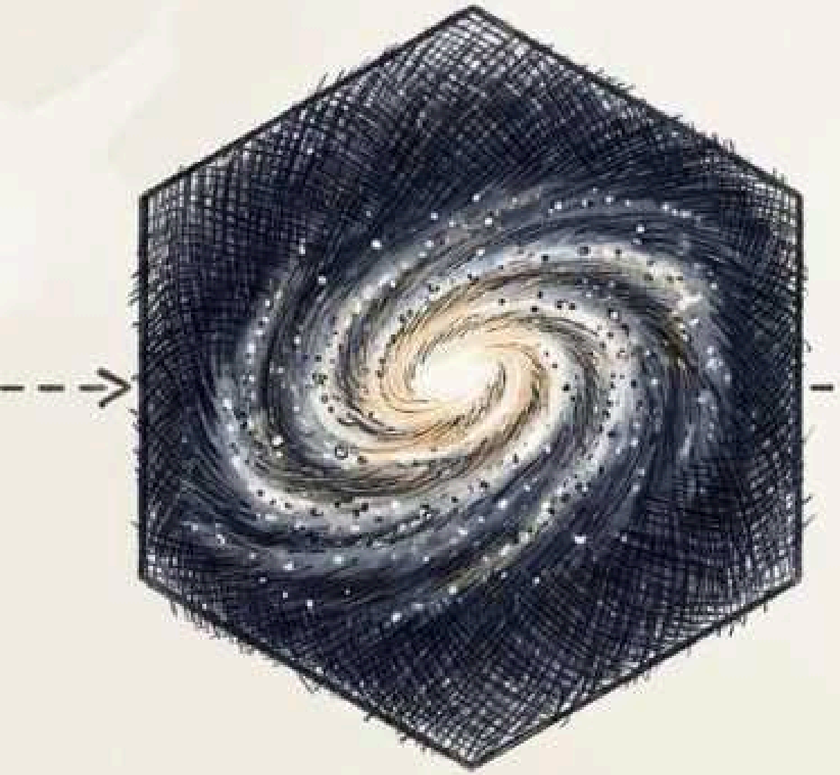


Lecture 1:
Scale & Distances

Lecture 2:
Hubble & The Expanding Universe

Lecture 3:
The Big Bang, First Elements & Cosmic Microwave Background

¶ 0.6



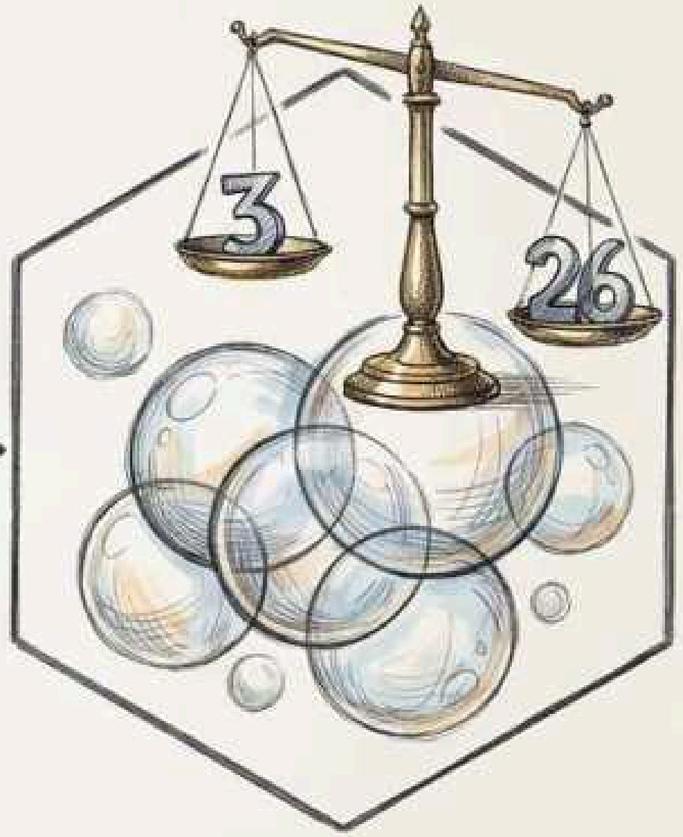
Lecture 4:

Galaxies, Large-Scale Structure & Dark Matter



Lecture 5:

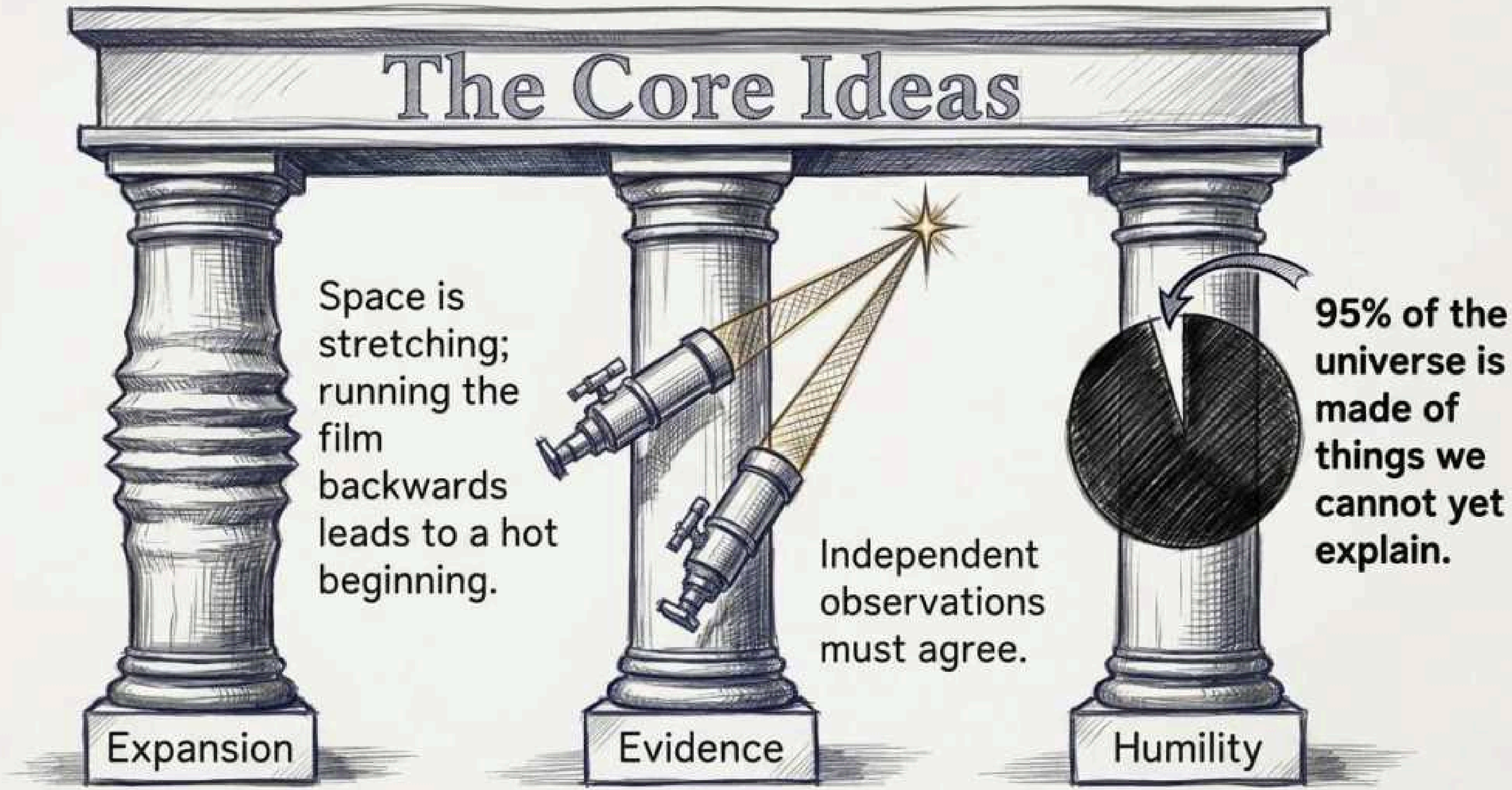
Dark Energy & Possible Fates of the Universe



Lecture 6:

Inflation, Multiverse & The Hubble Tension

The Core Ideas





Henrietta Leavitt



Edwin Hubble



Georges Lemaître

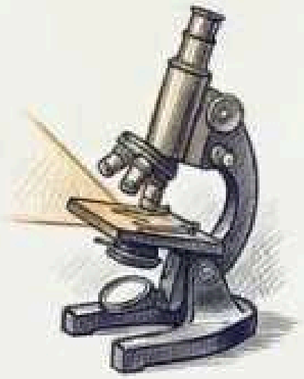


Vera Rubin

Discoveries made with limited equipment, careful patience, and a willingness to follow evidence to surprising conclusions.

The Prerequisites Toolbox

Background required:
High School Science



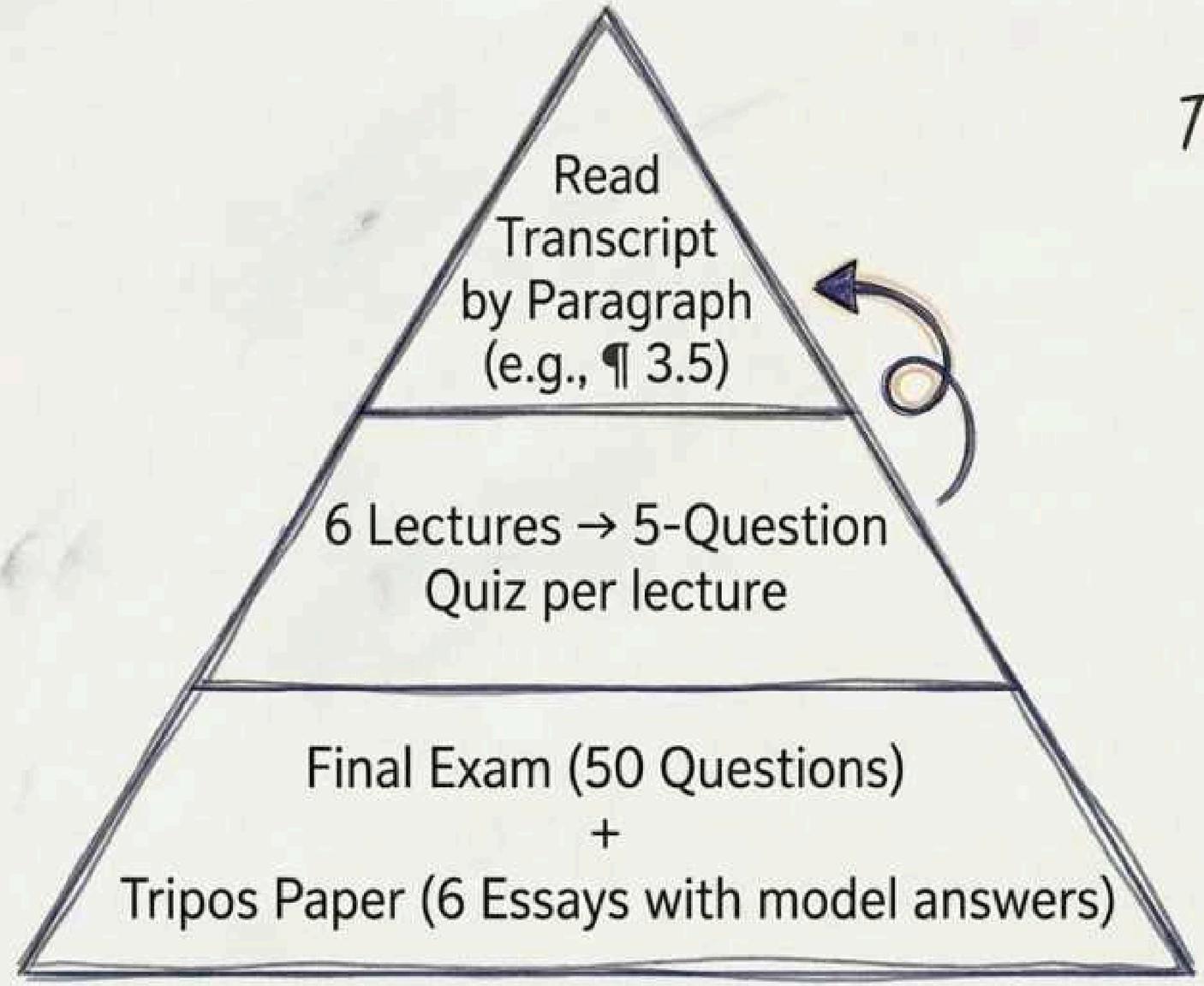
1 Billion = 1,000 Million = 10^9

Distance = Light Years (ly)

1 ly = c × 1 year

(A little algebra helps, but is not required)

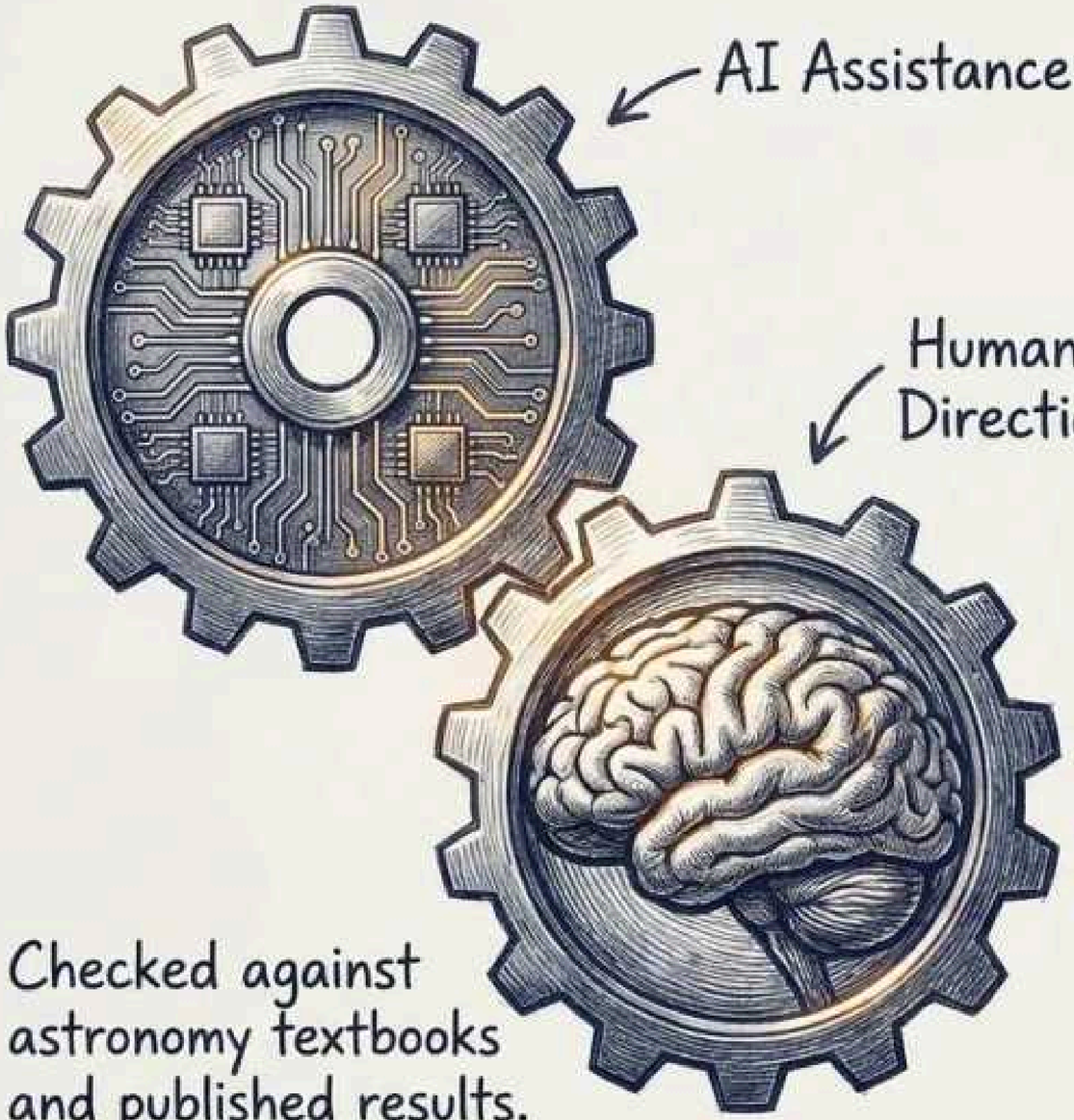
¶ 0.10



To study well, look up at the night sky when you can.



¶ 0.11



Checked against astronomy textbooks and published results.



¶ 0.12

How big is the universe, and how do we know?



Questions/Feedback:
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or @garyanderson