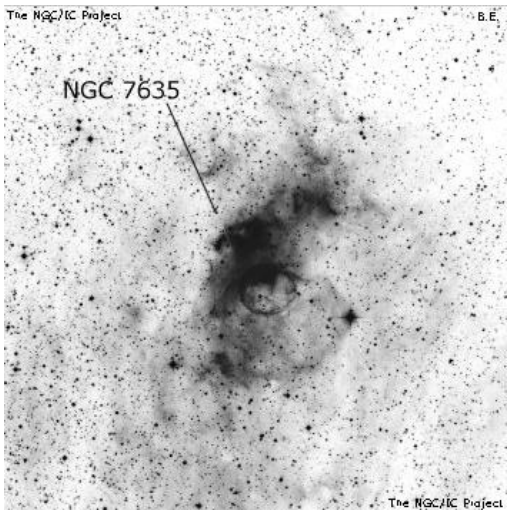
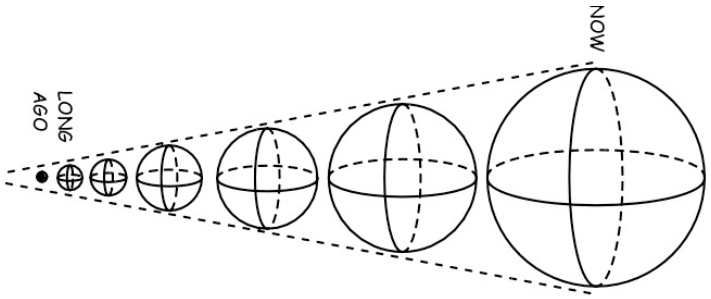
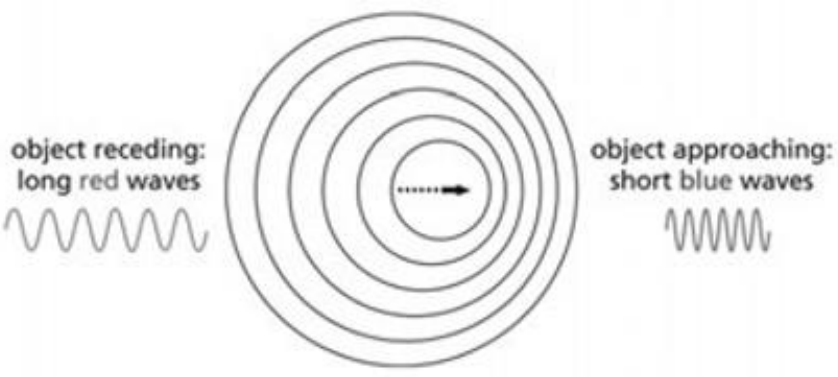
Section 3: Origin of the Universe and the Solar System







Section 3 Question: How can observations of celestial objects be used to describe the formation of the Universe and the Solar System?

What do you See?
(Video: https://youtu.be/a3RfULw7aAY)

What do you think?

Imagine our solar system is moving in the Milky Way toward a group of three stars. Star A is a blue star that is slightly closer to us than the other two. Star B is a red star that is farthest away from us. Star C is a yellow star that is halfway between Stars A and B.

a) Which of these three stars, if any, will give off light that appears to be blueshifted? Explain your reasoning.

What do you think now?

Focus Question A: How can the Doppler effect be used to determine the motion of distant stars and galaxies?
Predictions:
Observations:
Explanation:

Focus Question B: How do distances between galaxies change as the universe expands?

Predictions:

Data:

	B	C	D	E	F	G	H	I	J
Time 1									
Time 2									
Time 2 minus Time 1									
Rate of Expansion									
Distance after 24 yrs									
Distance after 32 yrs									

Explanation:

Focus Question C: What events lead to the formation of the Solar System?
Predictions:
Observations: (https://youtu.be/9R5P9Y9gRYY)
Claim:
Evidence:

RETURN TO WDYTN

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DIGGING DEEPER

Evidence for the Big Bang Theory

- Three main lines of evidence

1. Expansion of the Universe
2. Cosmic Background Radiation
3. Composition of the Universe

- Evidence suggests that the rate of expansion is increasing and is caused by an unseen force called dark energy.
- The lading theory suggests the universe will continue to expand forever.

Event and Time	Description
Big Bang/ The Beginning	

The Nebular theory	
• The conservation of angular momentum causes objects to rotate as they collapse inward. • The Sun contains 99.8% of the solar systems mass. • Planets form from the remaining matter after formation of the Sun. • Evidence for the Nebular Theory comes from comets, meteorites, and the planets themselves. • Extrasolar planets exist outside of our solar system and have been discovered throughout the galaxy.	List the steps for the Nebular Theory

Chapter 1, Section 3 E.B.C. Name:_____
Origin of the Universe and Solar System Period:_____

Question (2)		
Claim 1 (2)		
A. Supporting Evidence (3)	B. Supporting Evidence (3)	
Claim 2 (2)		
A. Supporting Evidence (3)	B. Supporting Evidence (3)	
Analysis (6)		

	Claim *A statement or conclusion that answers the original question/problem.*	**Evidence** *Scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim.*	**Analysis** *A justification that connects the evidence to the claims. It shows why the data counts as evidence by using appropriate and sufficient scientific principles and vocabulary*.
0	Does not make a claim, or makes an inaccurate claim.	Does not provide evidence, or only provides inaccurate or vague evidence.	Does not provide an analysis, or only provides an irrelevant analysis.
1	Makes an accurate but vague or incomplete claim.	Provides vague evidence and does not include specific data.	Repeats evidence and links it to claim, but does not include specific scientific principles.
2	Makes accurate and complete claim.	Provides correct evidence but does not include specific data.	Connects all evidence to the claims using scientific principles or vocabulary but not both.
3		Provides correct evidence and includes specific data.	Connects all evidence to both claims using scientific principles and vocabulary.

CHECKING UP: Page 40, 1 through 10 (2 points each)

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25

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Compare the inner and outer planets in terms of their size, density, composition, temperature, distances from each other, and orbits. (5 points)