

TSOKOS READING ACTIVITY

Option E-6

1. IB Assessment Statements for Option E-6, Galaxies and the Expanding Universe,

Galactic Motion

E.6.1. Describe the distribution of galaxies in the universe.

E.6.2. Explain the red-shift of light from distant galaxies.

E.6.3. Solve problems involving red-shift and the recession speed of galaxies.

Hubble's Law

E.6.4. State Hubble's Law.

E.6.5. Discuss the limitations of Hubble's Law.

E.6.6. Explain how the Hubble constant may be determined.

E.6.7. Explain how the Hubble constant may be used to estimate the age of the universe.

E.6.8. Solve problems involving Hubble's law.

E.6.9. Explain how the expansion of the universe made possible the formation of light nuclei and atoms.

2. Tsokos Objectives for Option E-6, Galaxies:

a. Understand the Hubble *classification scheme* of galaxies and describe the structure of the *Milky Way galaxy*

b. State the *Hubble law* and solve problems using this law, $v = Hd$

c. State the meaning of the *Hubble constant*

d. Identify *significant epochs* in the life of the universe

e. Understand the term *inflationary universe*

3. Read Option E-6 in your textbook.

4. Take notes on the section using the Cornell Notetaking system. You must cover all the terms and concepts listed below.

a. Hubble classification scheme

i. spiral galaxies

ii. elliptical galaxies

iii. irregular galaxies

b. redshift

c. velocity of recession

d. Hubble's Law

- e. Hubble's Constant
 - f. steps in the evolution of the universe
 - g. matter and antimatter
5. When using this form, remember the **Five R's of Notetaking**:
- a. **Record** – the most important or emphasized information
 - b. **Reduce** – and synthesize information wherever possible, making it as concise as you can
 - c. **Recite** – read your notes out loud
 - d. **Reflect** – and consider how this information is connected to your personal experiences and what you already know
 - e. **Review** – look over your notes more than once
6. *Note: The following computer skills should be practiced:*
- a. *Use Microsoft Equation to type any equations.*
 - b. *Drawings may be freehand, but try to make use of the 'Shapes', 'Insert Picture' or 'Insert Clipart' functions of MS Word.*
 - c. *A reading assignment may contain drawings that would be useful in your notes. If you have scanning capability, you should practice scanning pictures and inserting them into documents. As you prepare for college, you should consider investing in a desktop printer-scanner-copier. Just remember that for formal reports you have to cite any images that you insert into your document. You don't have to cite scanned images for this exercise unless you use a source other than the textbook.*
7. This assignment may be typed or neatly printed. Drawings may be freehand, but try to make use of the 'Shapes' or 'Insert Clipart' functions of MS Word. If you submit this assignment electronically, the filename must be in the following format, "LastnameFirstinitialPerXReadActX-X". You **do not** need include a copy of these instructions with the assignment you hand in.

CORNELL NOTES and the 5 R's

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Name:

Date:

Topic:

Questions/Key Points	Notes
SUMMARY:	