

**Resource Based Unit  
The Origin of the Universe  
Earth Science 11**

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## Collaborative Program Planning and Teaching Planning Guide

**Subject / Grade:** Earth Science 11

**Planning Date:** Sunday, February 3, 2008

Background	Assignment Strategy / Type
Teachers: R. Keskinen & Heidi Dreger	Individual <input checked="" type="checkbox"/> Partners <input type="checkbox"/> Group <input type="checkbox"/>
# of Students: 16 Number of Classes: 1	Written Report <input checked="" type="checkbox"/> Essay <input type="checkbox"/> Poetry <input type="checkbox"/>
Start Date: Thursday, February 7, 2008 Due Date: Thursday, February 14, 2008	Oral Speech <input type="checkbox"/> Debate <input type="checkbox"/> Presentation <input type="checkbox"/>
# of Library Periods: 4 Booking Time: Periods 3 & 4	Other: Poster <input type="checkbox"/> Web Page <input type="checkbox"/> _____ <input type="checkbox"/>
<b>Topic:</b> The Origins of the Universe - assignment attached.	
<p><b>Learning Outcome from IRP:</b> Demonstrate knowledge about the origins of the universe and about astronomical entities</p> <ul style="list-style-type: none"> <li>• Critique a theory that explains the origin of the universe (e.g. Big Bang, Oscillating Universe)</li> </ul>	
<p><b>Information Literacy Learning Outcomes:</b></p> <p><u>Locate and Select:</u></p> <ul style="list-style-type: none"> <li>• Survey an information topic by defining the problem and identifying information needed</li> <li>• Use the electronic library catalogue (OPAC)</li> <li>• Locate and select information from a variety of print, non-print and electronic sources</li> </ul> <p><u>Analyze, Evaluate, and Interpret information</u></p> <ul style="list-style-type: none"> <li>• Identify main idea and supporting detail</li> <li>• Analyze and interpret information (check for consistency in information gathered from different sources)</li> </ul> <p><u>Record, Classify and Organize Information</u></p> <ul style="list-style-type: none"> <li>• Record information (use efficient note-taking strategies)</li> <li>• Record sources as facts are gathered</li> <li>• Organize information and shape ideas</li> </ul> <p><u>Communicate and Present Information</u></p> <ul style="list-style-type: none"> <li>• Plan, prepare and revise presentation (use word processing, editing, dictionary and thesaurus tools to produce a polished, original product that clearly communicates research results)</li> <li>• Document sources in a standardized format</li> <li>• Communicate and present information (submit written assignment)</li> </ul> <p><b>Information Technology Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>• Identify search strategies, including unique key words and phrases, to locate information using Internet search tools</li> <li>• Use a full-text electronic periodical resource (EBSCO)</li> </ul>	

**Resources:**Print:

(see attached bibliography)

Electronic / Non-print:

EBSCO database (EBSCOhost interface)

Website(s):

Students choice \*No Wikipedia.

**Resources for Unit will:**Circulate normally On reserve Overnight loan Weekend loan 

<b>Roles and Responsibilities</b>	<b>Teacher</b>	<b>Teacher-Librarian</b>
Pre-research /preparation	✓	✓
Unit plan / project	✓	✓
Student stations / worksheets		✓
List of school resources		✓
Evaluation criteria	✓	✓
Teaching tasks: e.g. webbing, note-taking, works consulted / cited, graphic organizers, etc.	<ul style="list-style-type: none"> <li>• Introduction and purpose of assignment</li> <li>• Venn diagram instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Strategies for surveying print sources for usefulness.</li> <li>• Note taking - sheets</li> <li>• Plagiarism</li> <li>• EBSCO database</li> <li>• Citing sources</li> <li>• Bibliography</li> </ul>
Evaluation	✓ (note-taking and Venn diagram completion)	✓ (research assignment)

## **Learning Resources - Annotated**

### ***Print resources:***

All print resources were chosen for content. Each resource covered the Big Bang Theory and the Steady State Theory. Others also mentioned the "Inflation Universe" and "Plasma Cosmology." Part of the purpose of the project was to become familiar with print resources and how to find information in them (ie. Index, table of contents, etc.). Another goal was to "reintroduce" students to the novelty of books.

Abell, George O., and David Morrison. *Exploration of the Universe*. 6th ed. Orlando, Florida: Saunders College Publishing, 1991.

Dickinson, Terence. *The Universe and Beyond*. 3rd ed. Buffalo, NY: Firefly Books Inc., 1999.

Fraser, Gordon, and Egil Lillestol. *The Search for Infinity*. 2nd ed. New York, NY: Reed International Books Ltd., 1995.

Germadnik, Mary Lynn. *How Do We Know the Age of the Universe*. 1st ed. New York, NY: The Rosen Publishing Group, 2001.

Hathaway, Nancy. *The Friendly Guide to the Universe*. 1st ed. New York, NY: Viking Penguin, 1994.

Kerrod, Robin (Editor). "Evolution of the Universe." *The Heavens: The World Book Encyclopedia of Science*. 3rd ed. 1989.

McEvoy, J.P., and Oscar Zarate. *Stephen Hawking For Beginners*. 1st ed. Cambridge, Great Britain: Icon Books Ltd., 1995.

Rowan-Robinson, Michael. *Our Universe: An Armchair Guide*. 1st ed. New York, NY: W.H. Freeman and Company, 1990.

Silk, Joseph. *A Short History of the Universe*. 2nd ed. New York, NY: Scientific American Library, 1994.

### ***Non-print resource:***

EBSCOhost Research Database (Canadian Reference Centre and Library, Information Science & Technology Database).

EBSCOhost was the only non-print resource (besides Internet) required as part of the project. The sole purpose for using this resource was to introduce students to using databases and accessing more current information. The students were directed to use a journal article for this resource.

**The Origin of the Universe**

How did the Universe begin? This is one question humans want an answer to. How did it all start? This is an age-old question that has been addressed through different theories related to Science or other beliefs.

**Purpose:**

- Students will develop a scientific report that will describe theories on the origin and state of the Universe.
- Students will look at two theories critically and develop an opinion about what theory seems possible.

**Some theories or ideas are:**

1. The Big Bang Theory
2. The Oscillating Universe Theory
3. The Steady State Theory
4. Divine Creation - Creationism
5. Inflation Universe Theory
6. Plasma Cosmology

**Your Task:**

Choose two theories to critique. Outline each theory, discuss the positives and negatives, compare/contrast them with each other, and finally choose one to endorse (you agree with and why).

The report should be well organized with headings, good grammar, pictures, and it should have overall visual appeal. The report should also show understanding of what the Universe is composed of.

<b>Criteria:</b>	<b>Su</b>	<b>btotal</b>	<b>Total</b>
Content: Two theories outlined with at least five main points	/10		<b>/30</b>
Positives and negatives examined and discussed	/8		
Two theories compared / contrasted	/8		
Conclusion – choosing one to endorse and why	/4		
Quality: Grammar	/5		<b>/20</b>
Layout	/5		
Headings	/5		
Pictures	/5		
Bibliography: At least three sources (one book, one news article [EBSCO database], and one Internet source – NOT WIKIPEDIA!)	/5		<b>/10</b>
Proper format (M.L.A.)	/5		
Rough work, etc: Research recording sheets for at least three sources	/10		<b>/20</b>
Venn Diagram	/10		
<b>GRAND TOTAL</b>			<b>/80</b>

## **Lesson: Highlighting**

### ***Description:***

The purpose of this lesson is to teach students how to find and record the relevant information that answers their research question.

### ***Materials:***

Two copies of the same article for each student  
Transparency of article  
Overhead projector

***Time allotment:*** 30 minutes

### ***Learning Outcomes***

- Students will be able to identify key phrases in a short article that answer their questions.
- Students will be able to discriminate between information that answers their research questions and information that is interesting.
- Students will be able to record key phrases in their article that answer their questions.

### ***Lesson Sequence:***

1. Give each student a simple photocopied article on a topic with a question that needs to be answered written across the top.
2. Read the article out loud and have students follow along.
3. Ask students to highlight or underline the information that they think answers this question on the article.
4. Tell students that there are 3 or 4 important pieces of information that really answer the question. (The actual number of important pieces of information is pre-determined and based upon the article selected for the class.)
5. Give students a new sheet and ask them to find the pieces of information that they think answers the question and underline that information with a pencil.
6. Discuss as a class which four pieces of information they think answer the question, arguing and negotiating back and forth, until agreement is reached.
7. Tell students that they will need to highlight or underline this information but that they will need to highlight phrases (parts of a sentence) instead of the entire sentence.
8. Tell students that they will be highlighting or underlining phrases, instead of entire sentences because they will be transferring the information onto note-taking outlines.
9. Tell students to leave out the little words like "the" and "a" to keep the thought as short as possible, but that the phrase they underline should make sense to them.
10. Finally, have students go back and highlight or underline the four pieces of information that answer the question.
11. Tell students they are going to learn to transfer the information they have highlighted in their research articles onto note-taking outlines (in the next class)

### ***Assessment***

Give the students a different one-page article with a research question written across the top. As a homework assignment, have students highlight those pieces of information they think answer the research question. Remind students that they are to highlight phrases, not entire sentences.

## **Lesson: Plagiarism, Citing Sources and Preparing a Bibliography**

### ***Description:***

The purpose of this lesson is to teach students that they must cite the sources of their information. Students need to understand that they have a responsibility to respect intellectual property rights. They need to understand that they must say what they want to say using their own words, not copying the words of others, and they include with their work a list of all the information sources used. They also need to understand the difference between direct quotes, paraphrasing, and common knowledge when citing sources.

### ***Materials:***

- The note outlines completed in previous block. (See attached for format of note sheets).
- All sources used
- Bibliographic form used in library
- Access to computers with Internet access

***Time allotment:*** 40 minutes

### ***Learning Outcomes***

- students will understand that they need to use their own ideas and words.
- students will know to list their information sources and record all bibliographic information

### ***Lesson Sequence***

1. Ask students how they would feel if they worked hard on a paper or a project and someone else used their work without asking permission and giving them credit. Get them to record their answers on a piece of paper.
2. Ask students why they think it is important to keep track of their information sources and to include them in their final work. Students record this answer.
3. Ask them to consider the words honesty and dishonesty, fairness and unfairness. Students record their thoughts.
4. Have students chart what information they think should be included in a bibliographic citation.
5. Compare students chart to an established bibliographic form such as Modern Language Association (MLA) or American Psychological Association (APA) or whatever form the teacher requires for a class.
6. Have them record their source information on their note outlines completed in previous class.
7. Have students move to computers and complete the tutorial at the following Web site:  
<http://library.acadiou.ca/tutorials/plagiarism/> (You Quote It, You Note It!).
8. Once the tutorial is completed, have students choose a quote, that supports their research, from each of their sources. They will write it as a paraphrase with proper citation and as a quote with proper citation.
9. Have the students write a “common knowledge” phrase from their source to practice identifying the difference between information that should be quoted or not..
10. To complete the lesson, have the students transfer their source information from note sheets into a proper bibliography using the form sheet from the library .Pass out the bibliography sheet that shows students how to cite different sources. Have students put this in their notebooks for future reference.

### ***Assessment***

Using the form required by the teacher, have students prepare bibliographic citations for all sources used in the project. Upon marking the final project, check for citations completed properly (paraphrased or direct quotes. Monitor citations and bibliography as students are working on their final projects.

**Research Recording Sheet**

**Name:** \_\_\_\_\_

**Source Type:** \_\_\_\_\_

**Title of Source:** \_\_\_\_\_

**Title of Article (if applicable):** \_\_\_\_\_

**Author:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Publisher:** \_\_\_\_\_

**Place of Publication:** \_\_\_\_\_

**Edition:** \_\_\_\_\_

**Pages:** \_\_\_\_\_

**Extra Information for Internet Sources:**

**URL:**

**Title of web page:**

**Title of web site:**

**Date web site was accessed:**

**Main points from source:**

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