

Cosmic Times 2019

Suggested Grade Level(s): All Grade levels from 7-12

Estimated class time: 5-10 class periods (1-2 weeks); This project can be done in a week or can be carried out for two weeks depending on how much time the teacher would like students to put into it.

Summary

Students will use the 2006 edition of the *Cosmic Times* articles as well as their knowledge of the universe to write a future 2019 edition of *Cosmic Times*. This edition will mark the 100th anniversary of *Cosmic Times* because the first edition was released for the year 1919. Students should create a newspaper that represents our knowledge of the universe in the year 2019. They should create original, unique ideas that occurred up to and including the year 2019 to show what new theories and ideas scientists and the universe have brought us.

Objectives

- Students will use the data, technology, and information from the 2006 edition of *Cosmic Times* to show how we have come to the current knowledge we have of the universe.
- Students will write articles to describe their predictions of what the state of our understanding of the Universe in 2019. These will become the 2019 edition of *Cosmic Times*.

National Standards

National Science Standards

- NS.5-8.5 SCIENCE AND TECHNOLOGY
As a result of activities in grades 5-8, all students should develop—
 - Abilities of technological design
 - Understandings about science and technology
- NS.5-8.7 HISTORY AND NATURE OF SCIENCE
As a result of activities in grades 5-8, all students should develop understanding of
 - Science as a human endeavor
 - Nature of science
 - History of science
- NS.9-12.5 SCIENCE AND TECHNOLOGY
As a result of activities in grades 9-12, all students should develop
 - Abilities of technological design
 - Understandings about science and technology

- **NS.9-12.7 HISTORY AND NATURE OF SCIENCE**
As a result of activities in grades 9-12, all students should develop understanding of
 - Science as a human endeavor
 - Nature of scientific knowledge
 - Historical perspectives

National Language Arts Standards

(From the National Counsel of Teachers of English)

- **NL-ENG.K-12.3 EVALUATION STRATEGIES**
Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- **NL-ENG.K-12.5 COMMUNICATION STRATEGIES**
Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- **NL-ENG.K-12.6 APPLYING KNOWLEDGE**
Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and nonprint texts.
- **NL-ENG.K-12.7 EVALUATING DATA**
Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- **NL-ENG.K-12.8 DEVELOPING RESEARCH SKILLS**
Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Knowledge Prerequisite

The students should have read the 2006 Cosmic Times and be able to interpret information from that poster (or newsletter). Students should also be familiar with general, universal concepts from space science.

Teacher Background

The teacher should have knowledge of the different concepts of cosmology, specifically those covered in the 2006 edition of the Cosmic Times.

Materials

- 2006 Cosmic Times poster and/or newsletters
- Resources for researching cosmological concepts such as the Internet, magazines, etc.
- Microsoft Publisher (or some other publishing software) for creating a newspaper. Otherwise, a simple word processing program, such as Microsoft Word, can also be used and students can cut out articles to create their newspaper layout by hand.

Procedure:

I. Engagement

Break students up into groups. Provide them with the 2006 edition of the Cosmic Times. Have them peruse the articles and come up with a list of the biggest breakthroughs, theories, and concepts discovered by scientists and cosmologists as described in the 2006 Cosmic Times. Students should also be encouraged to use any Earth/space science textbooks or other resources to help make a complete list of items. Students will use this list of universal concepts and theories as a basis or starting point for what they will be writing about in their own 2019 edition of the Cosmic Times.

Once the students have compiled a master list of these important ideas and concepts, break them up into new groups. You can assign the students to specific articles to work on, or you can break the groups up according to interest level. For example, some students may have a great interest in dark energy and they can be involved in creating that article; whereas, another group of students may have interest in the Big Bang and want to be involved in creating that article for the newspaper.

II. Exploration

Students should thoroughly research the cosmological idea/concepts that they have chosen. It might be helpful to look at previous editions of Cosmic Times to familiarize themselves with the progression of knowledge about that particular idea. They can then use the internet or magazines such as *Scientific American* to help extend that research.

III. Explanation

Once the students have successfully researched their topic, they should come up with a creative idea for their article that will be placed in their 2019 issue of the Cosmic Times. The article should include an appropriate title for their topic. The students should also include any pictures, graphs, charts, or illustrations that will help them create their newspaper.

IV. Evaluation

The students will be graded on their written newspaper article for the Cosmic Times 2019 edition and how well they worked together in the group to create this final product. Teachers can use the rubric provided.

In addition, when grading the projects, note that in 2019 we may still not have concrete answers and facts such as exactly what dark matter and energy really are. Therefore, the students do not necessarily have to give answers or solutions to questions like this in their article, but may write about more of their topic's properties being discovered, for example.

Name _____

Date _____

Cosmic Times 2019

Scenario: It's the year 2019! This marks the 100th Anniversary of the *Cosmic Times* newspaper. You are going to create newspaper articles for the 100th Anniversary Edition of the *Cosmic Times*.

Directions: Over the next few class periods, you will be working with a group to create the next edition of the *Cosmic Times*. You will use previous editions of the *Cosmic Times*, the internet, textbooks, and journals/magazines to research the major topics and ideas that NASA and scientists have identified about the universe over the past century. You will then choose a topic to research with your group in order to write a newspaper article on that topic. Your article should also include any visuals, such as pictures, charts, or graphs that help to illustrate your topic. This will be put together with the rest of the newspaper articles in your class to create a future edition of the *Cosmic Times* for the year 2019. Your article should be **a minimum of 200 words and maximum of 500 words**. Be sure to include some type of visual (picture, chart, graph, etc...) to help illustrate your newspaper article.

Some of the topics you can choose from include but are not limited to: Big Bang, dark energy, dark matter, inflation theory, quasars, universal expansion, gravitational waves or other effects from Einstein's theory of gravity.

Some of the important technology that has helped to make advances in cosmology and has provided valuable information about the universe can also be the basis for your article. These items include: COBE and cosmic microwave background; Constellation-X; and the JDEM (Joint Dark Energy Missions) Missions (from *CT 2006* edition).

Brainstorming Ideas: First fill in the list with as many universal concepts as you can using your resources, including the 2006 edition of the *Cosmic Times* and other resources.

List of possible universal ideas and concepts:

Now, answer these questions using the help of the list that you created, and your resources. Once you are done brainstorming, you can pick a universal concept/theory for the 2019 newspaper article that you will create.

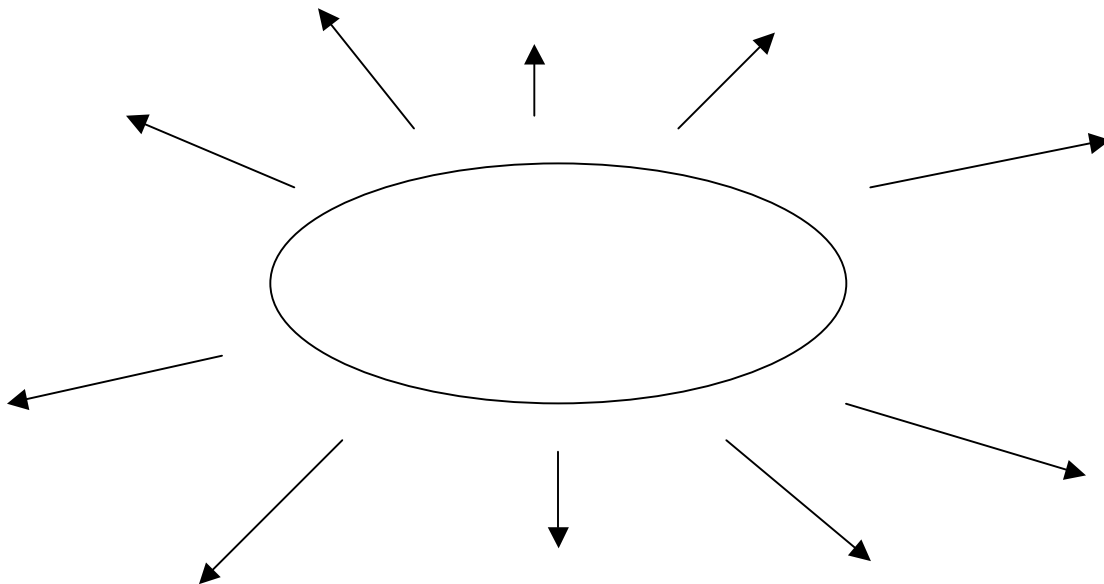
1. What will our knowledge of the universe be in 2019?

2. What will be the important discoveries by the year 2019, and how will they be made?

3. What will we know about dark matter?

4. What will we know about dark energy?

Now fill in this graphic organizer. Place your chosen topic in the middle, then write down any related ideas that you will use in the article at each arrow.



Check with your teacher to see if you have chosen a good topic.

What is your chosen topic? _____

Teacher approval _____ Yes _____ No, pick another topic.

Now you can begin your newspaper article!

Grading Rubric for Writing Project:

Name: _____

Date: _____

Project Title: _____

Teacher(s): _____

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Process	Below Avg.	Satisfactory	Excellent
1. Has clear vision of final product	1, 2, 3	4, 5, 6	7, 8, 9
2. Properly organized to complete project	1, 2, 3	4, 5, 6	7, 8, 9
3. Managed time wisely	1, 2, 3	4, 5, 6	7, 8, 9
4. Acquired needed knowledge base	1, 2, 3	4, 5, 6	7, 8, 9
5. Communicated efforts with teacher	1, 2, 3	4, 5, 6	7, 8, 9
Product (Project)	Below Avg.	Satisfactory	Excellent
1. Format	1, 2, 3	4, 5, 6	7, 8, 9
2. Mechanics of speaking/writing	1, 2, 3	4, 5, 6	7, 8, 9
3. Organization and structure	1, 2, 3	4, 5, 6	7, 8, 9
4. Creativity	1, 2, 3	4, 5, 6	7, 8, 9
5. Demonstrates knowledge	1, 2, 3	4, 5, 6	7, 8, 9, 10
6. Other:	1, 2, 3	4, 5, 6	7, 8, 9

Total Score: _____

Teacher(s) Comments: