

Cosmic Poetry: Words and Ideas Bring the Cosmos to Life

Goals:

- To have fun!
- To provide a unique means for tapping into the ideas, thoughts and feelings that students have about the universe and their place within it.
- To put a “human face” on the possibly distant and intangible ideas inherent in cosmology and astronomy
- To create a venue in which students can “safely” ask questions and discuss ideas about some of the most difficult topics in astronomy and cosmology
- To convey the following general concepts - that not all questions have nor need answers, that cosmology is interesting and relevant, that cosmology and astronomy can be appreciated by everyone, and that these subjects can inspire art, literature and music, as well as scientific discovery.

Materials:

Note: All you really need is paper, something to write with, and your imagination. But we have created a number of tools to help elicit ideas and thoughts, to facilitate discussion, and to better structure your explorations with Cosmic Poetry.

- Paper
- Writing instruments
- Optional: Magnetic Cosmic Poetry Set (requires Magnetic “Paper” available from Staples). Use the Cosmic Poetry list (attached or download from NNN) and print it onto the magnetic paper according to the directions on the package. Cut out the words and place them in a *safe* location, such as a metal door or the side of a metal filing cabinet. **Safety Note – Do not use any magnetic poetry set on a refrigerator, or near any food preparation area. Words can accidentally fall off and be ingested. Not for use with or around small children, who may eat or choke on them.**
- OR Optional: Print out the Cosmic Poetry list onto regular paper, cut out, and move the words around on a flat surface. Optional: Original poems about astronomy that students have created, either before they arrived, or using the Cosmic Poetry Set for inspiration.
- Optional: Copies of poems about astronomy that students have read in books, magazines, etc.

Background:

Since humans first walked the Earth, they have mused about their origins, the universe, and their place within it. They observed the world around them, asked questions, and explored the mysteries of the cosmos through music, stories, poetry, art, and dance. These are still the methods that tap into the emotions and motivation for human exploration, our hunger to learn more. Some of the questions scientists are asking now, (What came before the Big Bang? Are

there an infinite number of universes? What happens inside a Black Hole?) are new ways of asking the old questions of where do we come from, and where do we fit in. . Using poetry we can express the mysteries and human desire to reach out, understand, and explore our planet, solar system, and universe.

In this activity, students explore the biggest mysteries of the cosmos through poetry. This is a very flexible activity, and can be structured around various environments, learners and time available. Here are procedures and suggestions to help facilitate poetry explorations with your students.

Suggestions for Introducing the Activity:

Depending on how you want to facilitate your poetry experience, you may ask students ahead of time to:

- Write an original astronomy poem
- Hand out copies of the Cosmic Poetry Set for students to use at home. Tell them to record some of the poems that they, their families or friends create.
- Read astronomy related poetry, and bring in copies of poems that speak to them.

If you meet regularly in the same space, and can keep some of the Cosmic Poetry Sets up for a period of time, you may want to do this. Then you can occasionally record the poems that get composed in that space to share with the whole group later.

Students may require some guidance in understanding some general concepts in astronomy, such as the contents of the universe, size and scale, time, light, etc. Activities such as “Cosmic Survey” and “Modeling the Universe” might be good introductions for students to begin thinking about the universe, and give them a jumping off point to identifying their own questions and reactions.

Procedure:

Part 1: Solicit Ideas, Feelings and Questions

Gather student’s ideas, feelings, and questions about astronomy. This discussion is intended to help inspire writing by getting them to think about what they know, how they feel, and what they remember in their lives about astronomy. How do they feel looking up at the night sky? What makes astronomy interesting to them? What came before the Big Bang? Do they feel it is exciting to see a robotic probe explore the solar system, or do people have to go? What are their questions about how the planets and the universe formed? Will there (or where is there) an end to time? What are their strongest memories about astronomy; was it going to a museum, seeing a comet, watching shooting stars, meeting a scientist, getting a telescope for a gift, etc.? Facilitate a short discussion about two or three of these issues and questions that seem of most interest to the group.

Part 2: Creating and Considering Poetry

If you have limited time, or have not been able to have students bring or work on poems before the session, then this is the point when students have a chance to create something original. Give students some time to work alone or in groups with the Cosmic Poetry Sets, or to write a few original lines.

If they need inspiration beyond the Cosmic Poetry Sets, remind them about the discussion they just had, and ask them to pick a particular memory, planet or feeling to express in a few lines. Younger students may profit from your asking them to think about unusual questions like, “What does Mars taste like?”, “What would you feel if you were the night sky?, or ”What music do stars make?” can help unlock expression.

When students have some original poems, have them separate into groups of three to five students. Have them read two or three of their original poems to each other (or if they are uncomfortable reading their own work, have them present poems they have brought from other authors). Circulate amongst the students and encourage them to discuss with the reader what emotions they were trying to convey, why they chose the words they did, and what concepts about the universe are contained in their work. Be certain that the students realize they are free to alter their writing in response to the discussion, if they wish.

Part 3: Discussion

Bring the students back into a larger group, and if time allows, have each student pick one of their poems and read it to the group. If possible, follow up by reading a few poems from other authors from the references in the attached article. Also, read the poems you have collected, if any, from the Cosmic Poetry Set that has been in the room.

Facilitate a discussion about how these poems address some of the mysteries of the cosmos, the unanswered questions that really make us all wonder, and want to push the boundaries of what we know.

- Did writing and reading the poems help to express the wonder, the questions?
- Can you think of other ways to express these ideas and emotions?
- Do you think peoples in other times and places wrote poems like these? How might their poetry have been different?

Variations:

- If you have at two or more separate sessions to spend with the students in poetry explorations, you can spend some of **Part 1** asking for all the words students would use to

describe the universe. Gather these words and add them to the Cosmic Poetry List, and make up magnetic poetry sets using all of them.

- The first session can also be used to read poems from other authors, to conduct a related activity, such as “Cosmic Survey” for background, and for extended discussion of Ideas, Feelings and Questions.
- Collect one poem from each student, and have the poems collated into a small anthology book of astronomy poetry, a copy of which can be given to each student.
- Younger students, and even some older ones, might enjoy doing a “Cosmic Music” activity instead of or in addition to the Cosmic Poetry. Students can write or sing songs they know about astronomy, stars, planets or spaceflight.

Astronomy and Poetry: A Resource Guide

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Abstract

The ideas and discoveries of astronomy have been celebrated in poetry for thousands of years. I have found that adding an occasional poem to my lectures and discussions can help illuminate the human response to some of the topics we are discussing in class, and can show that astronomy is very much a part of our cultural heritage. Below are some selected sources for poems and explanations.

1. Anthologies of Astronomy or Science Poems

Brown, Kurt, ed. *Verse and Universe: Poems about Science and Mathematics*. 1998. Milkweed Editions. Includes a nice variety of 20th century poems inspired by astronomical research.

Davidson, Norman *Sky Phenomena*. 1993, Lindisfarne Press. This guide to naked-eye observing includes a 42-page chapter of astronomical poetry.

Digby, Joan & Brier, Bob, eds. *Permutations: Readings in Science and Literature*. 1985, Morrow/Quill. Juxtaposes excerpts from scientific writings with poems and other literature inspired by them.

Gordon, Bonnie, ed. *Songs from Unsung Worlds*. 1985, Birkhauser and the American Association for the Advancement of Science. A collection of poems about science, with several about astronomy.

Knuijt, Jerome, ed. *Poetry of the Heavens*. 1989, Mira Publishing (Route 1, Box 201, Hortonville, WI 54944). Eclectic collection, with major and minor poets included.

Levy, David *Starry Night: Astronomers and Poets Read the Night Sky*. 2001, Prometheus Press. Appealing book by a comet hunter and astronomy popularizer, who was an English major, with both poems and astronomical background.

Plotz, Helen, ed. *Imagination's Other Place: Poems of Science and Mathematics*. 1955, Crowell. This long-out-of-print book has a section of poems called "Watchers of the Skies."

Vas Dias, Robert *Inside Outer Space: New Poems of the Space Age*. 1970, Anchor/Doubleday. Inspired by the Apollo landings on the Moon, this anthology focuses particularly on poems of space exploration, but includes astronomy as well.

2. Some Collections of Astronomy Poetry by One Author

Ackerman, Diane Jaguar of Sweet Laughter. 1991, Random House. Evocative poems from an American poet who took astronomy from Carl Sagan at Cornell. (See also her *The Planets: A Cosmic Pastoral*, parts of which are collected in *Jaguar*.)

Bradley, George *Terms to be Met*. 1986, Yale University Press. Includes such poems as "M-31 in Andromeda" and "The Life of Stars."

Elson, Rebecca *A Responsibility to Awe*. 2001, Carcanet Press. Poems, many about astronomy and science, by an astronomer who published poetry while she continued to do her research.

Jeffers, Robinson *Selected Poetry of Robinson Jeffers*. (Edited by Tim Hunt) 2001, Stanford University Press. Jeffers' brother was an astronomer at the Lick Observatory and a number of his poems treat astronomical and cosmological themes.

Levi, Primo *Collected Poems*. 1988, Faber & Faber. Poems by a chemist and Holocaust survivor, a few of which have astronomical themes.

Oles, Carol *Night Watches: Inventions on the Life of Maria Mitchell*. 1985, Alice James. Poems based on the journals and letters of the 17th century American astronomer.

Pack, Robert *Before It Vanishes: A Packet for Professor Pagels*. 1989, Godine. Poetry responding to some of the popular science books by the late Heinz Pagels, with many poems on physics and astronomy themes.

Updike, John *Facing Nature*. Includes "Moons of Jupiter" and "Ode to Entropy," among other science poems.

3. A Few Books Analyzing the Interaction of Astronomy and Poetry

Meadows, A. J. *The High Firmament*. 1969, Leicester U. Press. A scholarly analysis of British poetry inspired by astronomy from the medieval period to the Victorians.

Nicolson, Marjorie *Newton Demands His Muse: Newton's "Opticks" and the 18th Century Poets*. 1963, Archon.

Nicolson, Marjorie *Science and Imagination*. 1956, Cornell U. Press. Essays on science and literature, especially about the effect of the telescope on the imagination of poets.

4. Articles

Ackerman, D. "The Poetry of Diane Ackerman" in *Mercury*, Jul/Aug 1978, p. 73.

Berman, L. "The Wayward Heavens in Literature" in *Journal of College Science Teaching*, vol. 5, p. 82 (1975).

Black, T. "Oliver Wendell Holmes: Poet of the Sky" in *Sky & Telescope*, June 1999, p. 52.

Byard, M. "Poetic Response to the Copernican Revolution" in *Scientific American*, June 1977, p. 121.

Carter, T. "Geoffrey Chaucer: Amateur Astronomer?" in *Sky & Telescope*, Mar. 1982, p. 246.

- Fraknoi, A. & Friedman, A. "Images of the Universe" in *Mercury*, Mar/Apr 1975, p. 14. On astronomical poetry through history.
- Grover, F. "Poetry and Astronomy" in *Scientific Monthly*, vol. 44, p. 519 (1937).
- Impey, C. "Reacing to the Size and Shape of the Universe" in *Mercury*, Jan/Feb. 2001, p. 36 & Mar/Apr. 2001, p. 34. On poets' reactions to cosmological discoveries.
- Marschall, L. "Modern Poetry and Astronomy" in *Mercury*, Mar/Apr 1983, p. 41.
- Marschall, L. "Comets and the Muse" in *Mercury*, Jan/Feb. 1986, p. 10.
- Maynard, C. "Robert Frost: Poet of the Night" in *Sky & Telescope*, June 1992, p. 692.
- Olson, D. & M. "William Blake and August's Fiery Meteors" in *Sky & Telescope*, Aug. 1989, p. 192.
- Rodgers, G. & Zolbrod, P. "Images of Creation in Science and Poetry" in *Journal for College Science Teaching*, May 1986, p. 530.
- Weitzenhoffer, K. "Well Versed in Astronomy" in *Sky & Telescope*, Oct. 1990, p. 365. Brief introduction to astronomy in poetry over the centuries.
- Yorka, S. "Planets and Poetry" in *Journal of College Science Teaching*, May 1995, p. 404.

