

College Guild
PO Box 6448 Brunswick, Maine 04011

Sampler

~ To The Stars ~

Unit 1 of 6

"One of the things that helped keep me sane, that opened my mind beyond those walls and unleashed my imagination was the program that College Guild offers."
~ Catarino ~

Welcome to the course where every Unit takes off in a different direction. You'll be flying to the stars and driving along a road with your wipers on. You'll be playing an instrument, planting potatoes, and who knows what else!

Star Traveling

"Star Trek" was a TV show that turned into an amazing success -- some of the fans even went around wearing Spock ears. The movie "Star Wars" had a huge following too. Traveling to outer space is a popular TV, book, and movie theme. Books and movies that feature space travel, "flying saucers," and "humanoids" have always been popular.

1. **Why are stars and space such a popular subject?**
2. **What do you think will happen when humans meet other species from different worlds for the first time?**
3. **Make up a fictional species (it can be realistic if you want) that exists on a different planet. Be sure to mention what they eat, how they communicate, where they sleep, their dispositions, and anything else that might give us a more vivid image of these creatures.**

There has been much speculation as to how these aliens may look and act. Imagine you woke up one morning, looked outside, and saw an alien outside your window! You take this alien into your home and get to know it pretty well.

4. **Write a newspaper article on your discovery and be sure to include:**

- * his/her/its appearance, personality, likes and dislikes
- * how it got to Earth
- * a picture of the alien or the spaceship
- * a catchy title for your article

5. **Write a letter to an alien on another planet. What would you want it to know about earth and earthlings.**

A person doesn't have to come from another world to feel like an alien. For example, immigrants are often described as "aliens".

6. **Why is it difficult to communicate with someone from a different country? (Think of more than the potential language barrier.)**

7. How would you communicate with someone who can't understand your language?

Some people believe that Earth has already been visited. There are huge, unexplained circles in England that are flattened areas in crop fields; some claim they were made by space ships from another world. A newspaper reader sent a letter asking about this to the columnist "Marilynn Vos Savant" (whom the newspaper claims to be the smartest woman in the world). She replied that anyone smart enough to travel through space could find better ways to communicate than by crushing wheat! In Appendix 1, another way to imagine traveling through the universe is provided by a College Guild student.

A Universe of Suns

The sun is:

- a) a burning globe.
- b) a star.
- c) a source of light rays.

If you answered ALL THREE, you're right. The sun is a massive globe of swirling, burning gases. The stars we see from so far away are also suns. Some of them probably have planets, too.

8. What do you suppose our sun looks like from:

- * Mercury (the planet closest to it)?
- * the moon?
- * some planet far, far, far away?

To us, the sun is just a bright (don't look straight at it!), yellow, ball. But what if the sun was shaped or colored entirely differently, and we could actually look at it without being blinded?

9. Draw or describe a new sun.

The light that the sun emits is the basis for how to understand distances in the universe. A "light year" is a unit of measurement -- unlike weight, length, height, etc. it measures the distance light travels in a year. So if we say the Milky Way is 10,000 light years away, that distance is the number of miles light travels in a year multiplied by 10,000.

10. Light travels 186,000 miles/second. If a star were 3,000 light years away, how would you begin to change that into miles? List the first three steps you would take to figure this out. (Extra credit: finish converting it to get the actual mileage.) (Extra, extra credit: what would you have to spend on gas to make the trip?!)

A "constellation" is a group of stars -- from Earth they look close together. In ancient times, the Greeks gave names to patterns of stars that seemed to be points defining a picture -- like a connect-the-dots game. The "belt of Orion", for example, is a line of three stars, supposedly looking like the waist of a picture of Orion (a mighty hunter in Greek mythology). See Appendix 2.

11. What picture would you imagine from the stars in Appendix 3? Connect the stars to form your picture, and feel free to let your drawing go further than the dotted outline.

12. Besides giving us light, name two other gifts the sun gives us. Explain what the world would be like without those.

13. Write a letter as a moon to the Sun, reporting on what you see on earth while you are lighting the night.

Race for Space

How do we start our journey toward the stars? To start off, you spend a lot of money! And of course that means governments, politics, and "national pride" have to enter the picture.

14. How does national pride interfere with space exploration?

15. Do you think we should be spending money on exploring space or focus more on issues on earth? Explain.

The space race begins with defeating gravity. Huge bodies pull small ones towards them; the sun's weight is 333,000 times that of earth and the earth is over eighteen times the weight of the moon. This gravitational pull is what holds the planets in orbit around the sun and holds the moon in orbit around the Earth.

16. Think creatively of another force that seems to "pull" on something. (Ex. The lunch bell drew all the kids to the cafeteria; the dog was drawn to Laura and stayed within 10 feet of her. In these cases, the "lunch bell" and "Laura" are acting like the sun).

17. List three ways people can (temporarily) overcome gravity.

Gravity also means that getting a spacecraft to break away from Earth is a gigantic obstacle. So what do we do?

18. If you are a high jumper on a track team, you obviously want to jump as high as possible. What gives you the best chance of clearing the bar?

19. How does this relate to getting a spaceship to break free of Earth's gravity?

The competition to actually launch the first rocket to reach beyond Earth's gravitational field began after World War II. Russia and the U.S. were the only two countries with the resources to compete. (At that time, Russia was still one country under strict Communist rule.) And the first winner - Russia! This successful launch of "Sputnik" in 1957 was the first great milestone of the space race. America was shaken; see Appendix 4 for an American reaction, and Appendix 5 for more information on Sputnik.

Launching a rocket with human cargo was the next big milestone. Alan Shepard was the first American sent up in a rocket, less than a month after the Russians has accomplished it (1961). He was cargo only, with no control over his spacecraft. Then Yury Gagarin achieved a new feat by being the first man to orbit the earth (1962). The first woman in space was a Russian (1963). Neil Armstrong, an American, was the first person to set foot on the moon, an achievement many never thought possible. Notice how quickly the space age took off!

20. Would you take the chance to be the first to achieve a dangerous feat? Why or why not?

21. Name five things you would take with you on the spacecraft (besides food, equipment, toiletries, clothes, and other basic necessities). Explain why you chose those five items.

Another huge milestone was the creation of the Space Station (built in 1998). Not only did the parts need to be shipped beyond Earth's gravity, the spacecraft that could carry such a load and take them there had to be designed and built, those

space ships had to arrive accurately at their destination, and they had to be manned to achieve such precision. Today, we have astronauts actually living in Earth's orbit.

22. What would you like and dislike about living in a home without gravity?

23. Explain two things you would do differently while living without gravity.

The next milestone in space is sending a human to Mars. The U.S. has already put a robot on the planet in 2012.

The word gravity is used another way: For example, "From looking at their forlorn faces, the gravity of the situation was clear."

24. What is a synonym for gravity when it is used like this?

25. Write an essay, fictional story, or poem about (at least) one of the following:

- (a) travelling to other stars
- (b) the financial cost of exploring space
- (c) the space race mentality
- (d) what a space program should focus on

Stars, The Movie Variety

Actors or actresses who make it big in the movies or on TV are called "stars".

26. What do they have in common with the real ones out in the universe?

27. In your opinion, what should someone have to do to become a "star"?

28. Do you think these stars are too idolized, or do they deserve the credit? Explain, using an example of a specific movie/TV star.

29. Write a sentence including the word "prison" or "prisoner" about each of the following:

- aliens
- gravity
- the space race
- movie actors

(Example: I wonder what it would take to launch my prison walls off the face of the earth.)

30. Whatever your definition of star, write a question for the next CG class about stars.

Remember: First names only & please let us know if your address changes

Appendix
Sampler ~ To The Stars: Unit 1 of 6

Appendix 1

My Celestial poem

I long to leave this plane and travel on
To where others may have, but mostly haven't gone
I long to have a strange and new existence
Where living is Oh, so much more than mere subsistence.

To be a prime but certainly not the sole being,
Where harmony reigns supreme, and no reason for thoughts of
fleeing

In this world above the stars and so far away,
There is no fear, no sorrow, no tears to chase astray,
And each scenery is more precious than the last,
And the suns never set and the moons never pass.

And to find solace at the bottom
Of a purple sea,
Just the water, and the creatures,
And of course you, and of course me!

~ Michael. P.

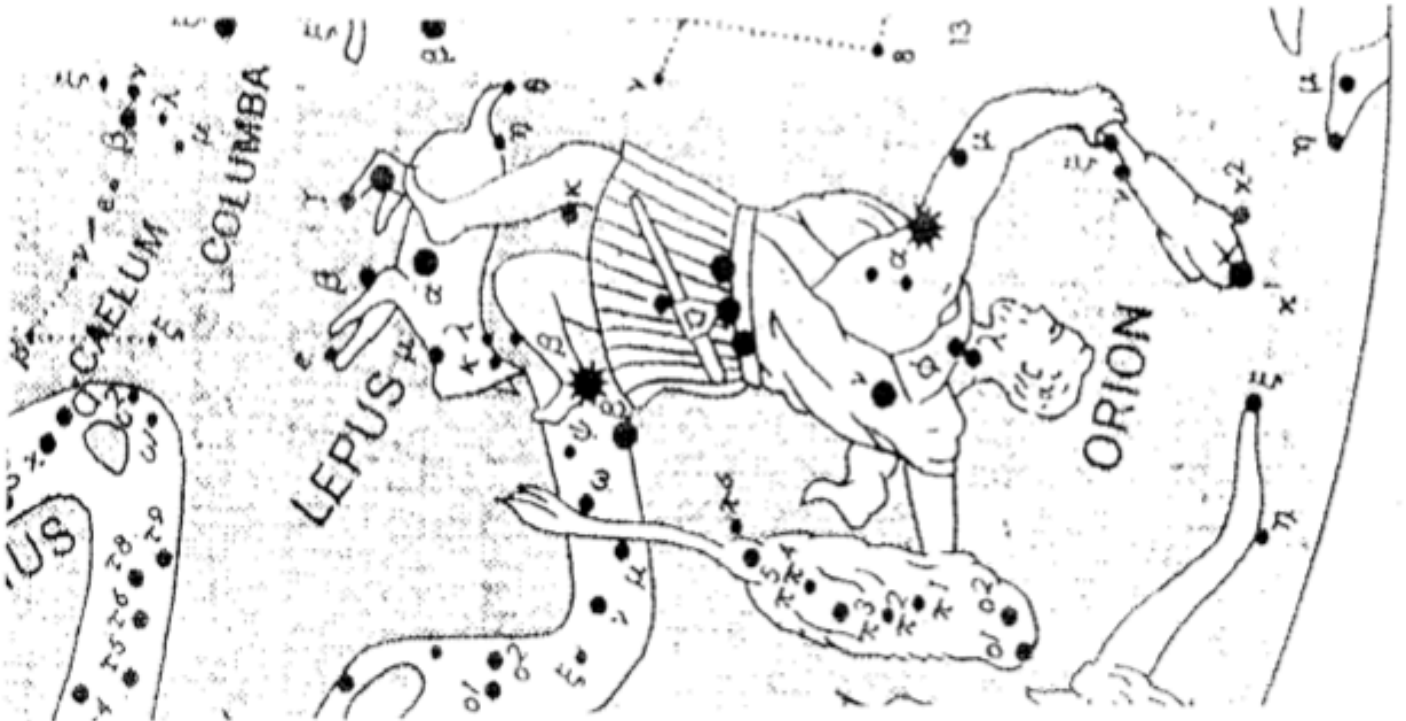
Appendix 4

Sputnik

Dad set the television on the back porch.
Mom shook a pot full of popcorn.
Sis poured the sodas over ice.
I laid the big quilt in the grass.
When the sun went down on those summer nights
our backyard became a drive-in movie.
One night my dad pointed out a tiny white light
moving slowly across the sky.
"That's Sputnik," he said grimly.
The popcorn felt like rocks in my stomach
We didn't laugh at Abbott and Costello.
They were just two more dumb Americans.

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Appendix 2



Appendix 3

Appendix 5

Sputnik and The Dawn of the Space Age

History changed on October 4, 1957, when the Soviet Union successfully launched Sputnik I. The world's first artificial satellite was about the size of a basketball, weighed only 183 pounds, and took about 98 minutes to orbit the Earth on its elliptical path. That launch ushered in new political, military, technological, and scientific developments. While the Sputnik launch was a single event, it marked the start of the space age and the U.S. - U.S.S.R. space race.

The story begins in 1952, when the International Council of Scientific Unions decided to establish July 1, 1957, to December 31, 1958, as the International Geophysical Year (IGY) because the scientists knew that the cycles of solar activity would be at a high point then. In October 1954, the council adopted a resolution calling for artificial satellites to be launched during the IGY to map the Earth's surface.

In July 1955, the White House announced plans to launch an Earth-orbiting satellite for the IGY and solicited proposals from various Government research agencies to undertake development. In September 1955, the Naval Research Laboratory's Vanguard proposal was chosen to represent the U.S. during the IGY.

The Sputnik launch changed everything. As a technical achievement, Sputnik caught the world's attention and the American public off-guard. Its size was more impressive than Vanguard's intended 3.5 pound payload. In addition, the public feared that the Soviets' ability to launch satellites also translated into the capability to launch ballistic missiles that could carry nuclear weapons from Europe to the U.S. Then the Soviets struck again; on November 3, Sputnik II was launched, carrying a much heavier payload, including a dog named Laika.

Immediately after the Sputnik I launch in October, the U.S. Defense Department responded to the political furor by approving funding for another U.S. satellite project. As a simultaneous alternative to Vanguard, Wernher von Braun and his Army Redstone Arsenal team began work on the Explorer project.

On January 31, 1958, the tide changed, when the United States successfully launched Explorer I. This satellite carried a small scientific payload that eventually discovered the magnetic radiation belts around the Earth, named after principal investigator James Van Allen. The Explorer program continued as a successful ongoing series of lightweight, scientifically useful spacecraft.

The Sputnik launch also led directly to the creation of National Aeronautics and Space Administration (NASA). In July 1958, Congress passed the National Aeronautics and Space Act (commonly called the "Space Act"), which created NASA as of October 1, 1958 from the National Advisory Committee for Aeronautics (NACA) and other government agencies.

<http://www.coldwar.org/articles/50s/sputnik.asp>