

Teacher's Guide for ODYSSEY

November/December 2011: Does E.T. Exist?

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Teacher's Note:

This guide contains project ideas, short answer, extended response, fill-in, and true/false with correction. The variation is designed to have the students think critically, as well as to test their comprehension. An answer key to the short answer sections can be found at the end of the guide.

Extended Response: Comprehension & Critical Thinking

The questions below can be used as written, simply answered in complete sentences or easily transformed into longer essay (ELA) style questions, or even research topics. In any case, have the students support their answers with details from the text or use critical thinking skills to create a thorough and interesting answer. The questions, essays and projects have been aligned with the **Common Core Standards**. Consider the level of your students when deciding how to use the questions.

"Am I Crazy to Search for E.T.?" p. 6-9

1. What is the purpose of the experiment known as SETI?
2. How does the complex equipment at the station work?
3. Why is it more practical to stay on Earth and try to find ETs than to zoom around the galaxy?
4. How long ago did the first SETI experiment take place?
5. What are some solid reasons that rationalize searching for ETs ?
6. Why do you think that SETI is not a huge experiment with hundreds of researchers?
7. Do you feel that the SETI experiment is worthwhile? Why or why not?
8. What could be the reason that the scientific method wasn't widely used until the late 17th century?

"How to Know Alien Life When You See It" p. 10-12

1. Why can 'life' be hard to recognize?
2. What are the 3 three things that should be on the checklist to determine if something is 'alive'?
3. What is DNA?
4. Why will the checklist to determine if something is a living creature change in different environments?
5. Explain the term 'evolution'.
6. What is biodiversity?
7. Using information from this article, explain why identifying alien life will be a challenge.

"The Search for Another Earth" p. 13-15

1. Why does a star that has a planet around appear to wobble?
2. What is the Doppler Effect?
3. Explain the difference between the radial velocity technique and microlensing.
4. What is the transit method?
5. What does the Kepler telescope do?
6. Define the 'habitable zone'.
7. What are the advantages and disadvantages of the direct imaging method?
8. Why isn't likely that we would ever see an Earthlike planet from the ground?

"What Makes Astronomers Spin?" & "Scanning the Sky for Puzzle Pieces" p. 16-19

Project: Make a Venn Diagram comparing and contrasting Debra Fischer and Meg Schwamb. Next, use the information on your diagram to write a paragraph.

"The Mentor" p. 20-23

1. How did the Mentors in this story communicate with the humans? Do you believe this type of communication will ever be possible between people?
2. Does this type of 'peaceful' existence seem possible on Earth? Why or why not?
3. Do you think the older people or younger people on Earth would have issues with the plan of the Mentors?
4. How will the Mentors benefit from implanting the devices?
5. Do you think some humans may benefit from these devices? Why or why not?
6. Do you agree with Jane's decision to go North?

Essay: Write an essay explaining the methods of the Mentors. Compare and contrast the negative and positive qualities of the Mentor's plan. Include a paragraph that expresses your own opinion of the events.

"So Much to Learn from E.T." p. 24-27

Read the article and find the correct word(s) to fill in the blanks in the following sentences.

1. SETI first came into existence _____ years ago.
2. SETI looks for _____ _____ mainly in the direction of stars that are like our own Sun and can live long enough that there may be an opportunity for technological life to evolve.
3. _____ are key in the sense that life, as we know it, is a planetary phenomenon.
4. Dr. Jill Tarter, director of SETI, uses a _____ _____ to look for extraterrestrial intelligence.
5. If SETI can verify that there is an extraterrestrial signal, they will then share that information with the _____.
6. To _____, means to check by comparison with a standard.

7. SETI is in the process of building a global community called, _____, where they are reaching out and involving people in the development and improvement of, and participation in, the technology and science of SETI.
8. From space we are all the same on this one planet when viewed from the perspective of the _____.
9. The term, _____, refers to the range of invisible radiation wavelengths just longer than those of red.
10. A primary goal of Dr. Jill Tarter is to see SETI become a _____ project.

"SETI: The Game" p. 28 - 31

Read the article and then decide if the statements below are True or False. If the statement is false, provide the correction.

- _____ 1. A search of the Milky Way galaxy involves 400 billion stars scattered across 100,000 light years.
- _____ 2. Astronomy is a science that seems to bore Earth's most intelligent species.
- _____ 3. Galaxy Zoo has enjoyed the participation of more than 250,000 professional astronomers.
- _____ 4. SETI's screensaver tackles the large-scale task of picking out possible alien signals from a flood of radio telescope data.
- _____ 5. Wave Recorders are astronomical instruments that detect radio waves.
- _____ 6. The Green Bank Telescope is the most high-tech single-dish radio telescope in the world.

"Alien Country" p. 32

1. Why has Nevada State route 375 been dubbed the "Extraterrestrial Highway"?
2. Why do visitors flock to South Central Nevada?
3. What is the significance of the "black mailbox"?

"Are We Being Visited?" p. 33

1. Why would a particular UFO sighting be more credible than others?
2. What are some of the most usual explanations for UFO sightings?
3. What is Area 51?

ANSWER KEY:

"So Much to Learn From E.T."

1. 26
2. Extraterrestrial Intelligence

3. *Exoplanets*
4. *Radio Telescope*
5. *world*
6. *calibrate*
7. *infrared*
8. *global*

"SETI, the game"

1. ***True***
2. ***False, piques the interest***
3. ***False, volunteers***
4. ***True***
5. ***False, radio telescopes***
6. ***True***