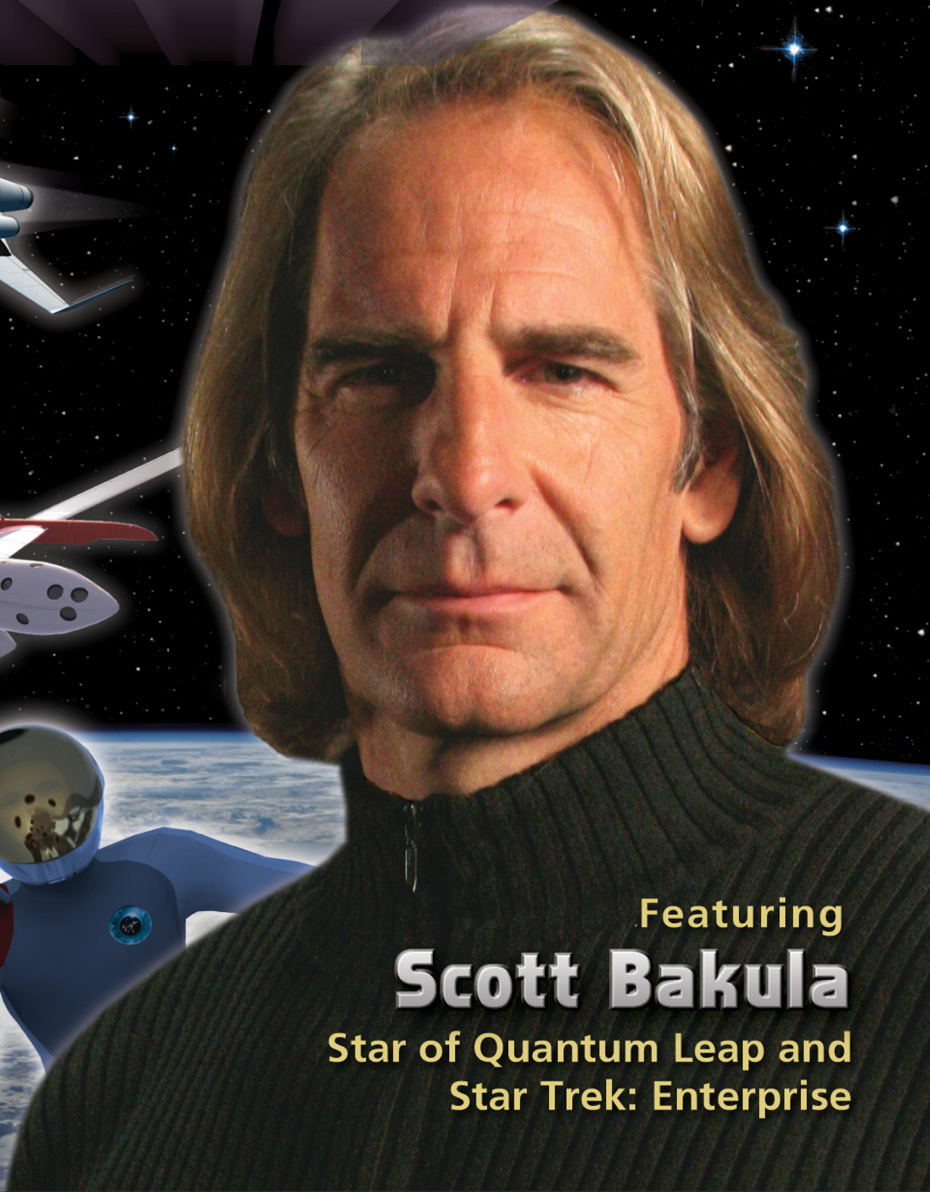


TEACHER'S GUIDE

EVERYONE'S SPACE



Featuring
Scott Bakula
Star of *Quantum Leap* and
Star Trek: Enterprise



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Video Page



Everyone's Space

Teacher's Guide

IMPORTANT NOTE: Sputnik, with a diameter of approximately 23 in (58 cm), was actually more than twice the size of a basketball, which has a diameter of 9.5 – 9.8 in (24.1 – 25 cm). We apologize for the error.

This Teacher's Guide includes the following:

- Suggested Lesson Plan
- Key Terms and Preview Questions
- Viewing Guide
- Comprehension Questions
- Discussion Questions
- Quiz
- Activity: Who Chooses?
- Enrichment Activities
- Answer Key

Suggested Lesson Plan

These materials may be used in a variety of ways. For maximum benefit, we suggest the following lesson plan:

- As a class, discuss the Key Terms and Preview Questions.
- Distribute copies of the Viewing Guide for students to use as a note-taking tool during the video.
- Play the video, pausing if needed to facilitate understanding and note-taking.
- Review and discuss answers to the Viewing Guide using the Answer Key as a guide.
- As a class or in small groups, discuss the Comprehension Questions. See Answer Key.
- Use Discussion Questions to spark class discussion, or assign these questions as homework.
- Replay the video as preparation for the Quiz.
- Administer and grade the Quiz using the Answer Key as a guide.
- As a class or in small groups, complete the Who Chooses Activity.
- Optional: Assign Enrichment Activities.

Everyone's Space

Key Terms and Definitions

Entrepreneur – A person who innovates and decides which projects to undertake. A successful entrepreneur's actions will increase the value of resources and expand the size of the economic pie.

Incentive – Any factor, financial or non-financial, that provides a motive for a particular course of action, or counts as a reason for preferring one choice to the alternatives.

Innovation – The introduction and adoption of a new product or process; the economic application of inventions and marketing techniques.

Private Sector or Private Enterprise – That part of an economy in which goods and services are produced by individuals and companies rather than by the government, which controls the public sector.

Preview Questions

1. Can you think of some products and services we take for granted that did not even exist 20 years ago?
2. How many students in the class have smartphones? Estimate the percentage. What would the percentage have been five years ago? What changed?
3. When your parents were your age, what would they have used if they wanted to listen to music, chat with friends, or play games? How is today's technology an improvement over the choices they had?
4. What are some products you have seen improved during your lifetime? Why were they improved? Who paid for developing the improvements? Why?
5. How do incentives work in school? At work? In business?
6. How does competition affect price and quality?
7. Do you think you will have the opportunity to travel into space in your lifetime? If so, do you think space travel will be cheap enough for the average American or will it be something that only the wealthy will be able to afford?
8. What would make it possible for average people to be able to afford space travel?

Name: _____

Date: _____

Everyone's Space **Viewing Guide, page 1**

1. There wasn't any competition...until the government stepped aside and allowed private businesses to _____ for the telephone dollar.
2. The more the space industry can escape _____ confines and open up to commercial competition, the more likely that "manned space flight" could include you.
3. Competition is establishing _____ as a new, highly profitable marketplace.
4. In 1957, America was caught off-guard by Sputnik, a Soviet-made _____ that began orbiting the planet.
5. In 1969, American _____ landed on the moon and the intense "race for space" was over.
6. When the _____ ended, the competitive edge went dull and the government reverted to "business as usual," never recapturing the space program's early momentum.
7. Raymond Orteig, a French hotel owner, offered \$25,000 to the first flyboy who could make a nonstop flight across the _____.

Name: _____

Date: _____

Everyone's Space **Viewing Guide, page 2**

8. Tension was high on both sides of the Atlantic until his (Lindbergh's) plane, the Spirit of St. Louis, touched down in _____, 33 hours later.

9. The Ansari X Prize offered a _____ award to the first private team that launched a manned craft with a 3-person capacity 100 kilometers into space.

10. The winner of the _____ was White Knight and SpaceShipOne.

11. Space Adventures arranged my (Anousheh Ansari's) 11-day mission to the International _____.

12. From a _____ perspective, space tourism makes all kinds of sense.

13. There are critics that call _____ "trivial, of no economic value, a waste of money."

14. We can only access the bounty of space if we can get there and back _____, _____, and economically.

Name: _____

Date: _____

Everyone's Space
Comprehension Questions, page 1

1. What common device is used at the beginning of the film to show the power of competition?

2. What kind of travel is now becoming a new, highly profitable marketplace due to competition?

3. What war was the US and Russia (USSR) engaged in during the Space Race?

4. What was the name of the basketball-sized satellite launched by Russia (USSR) in 1957?

5. What goal did President Kennedy set for the nation in 1961?

6. How and when was this goal met?

Name: _____

Date: _____

Everyone's Space **Comprehension Questions, page 2**

7. In 1919, a French hotel owner offered \$25,000 to the first person who could do what?

8. Who won the prize in 1927, by flying 33 hours nonstop from New York to Paris in his plane, the Spirit of St. Louis?

9. Hoping a similar prize could launch the space travel industry, what prize did Peter Diamandis create?

10. What "firsts" did Anousheh Ansari achieve?

11. What did a contestant need to do to win the X Prize?

12. Which of the 26 teams from seven different countries won the \$10 million X Prize?

Everyone's Space **Discussion Questions**

1. What is the point of the discussion about the telephone in the introduction? What does this have to do with space travel?
2. What is an entrepreneur? What is the role of competition in bringing about progress?
3. What prediction does host Scott Bakula make about the next era of space exploration? How does he think it will be different from the past?
4. How did the Space Race between the U.S. and Russia (USSR) come about?
5. What was the significance of Sputnik? How did the United States respond?
6. What did Neil Armstrong accomplish in 1969? What was significant about that?
7. For many Americans in 1969 there seemed to be no limit to what we could accomplish in space. What was the reason for this optimism?
8. Why, according to the video, did the space program never regain its early momentum after the first moon landing?
9. How did competition lead to the birth of the airline industry?
10. Why did Peter Diamandis create the X Prize?
11. How did the X Prize competition challenge the assumption that space travel could only be undertaken by governments?
12. Why are people investing large sums of money in the projects of the Space Tourism Society?
13. What do critics say about the idea of private space tourism?
14. What do supporters of private space travel say about government space agencies and the cost of space travel?
15. Do you think affordable private space travel will become a reality during your lifetime? Why/why not?

Name: _____

Date: _____

Everyone's Space **Quiz, page 1**

1. Which of the following does NOT describe Anousheh Ansari?
 - A) winner of Ansari X Prize
 - B) first female private citizen astronaut
 - C) first astronaut of Iranian descent
 - D) member of family sponsoring X Prize

2. Who was the winner of the X Prize?
 - A) Charles Lindbergh
 - B) Peter Diamandis
 - C) White Knight/SpaceShipOne
 - D) Anousheh Ansari

3. The Space Race began during which war?
 - A) World War I
 - B) The Cold War
 - C) The Gulf War
 - D) The Iraq War

4. The Space Race ended in 1969 when _____.
 - A) American astronaut Neil Armstrong set foot on the moon
 - B) an unmanned Soviet satellite orbited the earth
 - C) the Cold War ended
 - D) President Eisenhower established NASA

5. Sputnik was the name of _____.
 - A) a small satellite launched by Russia in 1957
 - B) the first manned spacecraft to orbit the earth
 - C) the first lunar mission
 - D) one of the X Prize contestants

Name: _____

Date: _____

Everyone's Space **Quiz, page 2**

6. The winner of the X Prize received _____.
- A) \$25,000
 - B) \$10 million
 - C) \$100 million
 - D) a trip to the International Space Station
7. One hundred years ago, a French hotel owner offered a large cash prize as an incentive to the first person who could _____.
- A) orbit the earth
 - B) land on the moon
 - C) circumnavigate the globe
 - D) fly nonstop across the Atlantic
8. Which of the following was NOT a criterion for winning the X Prize?
- A) Launch a manned craft 100 km into space and return safely.
 - B) Craft must have a three-person capacity.
 - C) Contestants must receive government funding.
 - D) Complete two successful launches within two weeks.
9. In creating the X Prize, Peter Diamandis challenged the idea that _____.
- A) competition drives progress
 - B) only governments can undertake space travel
 - C) safe, affordable space travel is a worthwhile goal
 - D) private space tourism could become a reality
10. The winner of the X Prize successfully reentered Earth's atmosphere by using the principles embodied in _____.
- A) a mosquito
 - B) a Frisbee
 - C) a hot air balloon
 - D) a badminton birdie

Everyone's Space **Activity:**

Who chooses? Who benefits? Who pays? What's fair?

[These four questions can be a useful tool for evaluating any policy or system. Posing the questions is a great way to stimulate critical thinking.]

As a class, or in small groups, discuss the following:

(For each question, think about all the possible people or groups of people who may be affected.)

- 1a. With a government space program like NASA, who pays for space travel?
- 1b. Who benefits, and in what way?

- 2a. Who pays for private space exploration?
- 2b. Who benefits, and in what way?

- 3a. Who makes the choice about whether the benefits of NASA are worth the costs?
- 3b. Who makes the choice about whether private exploration is worth the costs?

- 4a. Who chose what kind of phones we had when the phone business was a government regulated monopoly?
- 4b. Who paid?
- 4c. Who chooses and pays for phones now?

Everyone's Space

Enrichment Activities

1. Develop a marketing campaign to promote some aspect of commercial space travel—moon resorts, orbital experiences, etc. Consider the following: Why would someone want to go into space? How would a company advertise space travel to appeal to the potential traveler? How would the company handle the risk factor?
2. Go to Anousheh Ansari's website and read her biography. Review her videos and blogs. Then do either A or B:
 - A) Write a summary of her biography, being sure to include what motivated her and how she went about achieving her goals.
 - B) Discuss her experiences as an astronaut. Try to imagine yourself aboard the space station. What would you like most about the experience? Least? Be sure to discuss your experiences as they relate to hers.
3. List all of the arguments against space tourism. Write an essay supporting or refuting one or more of these arguments.
4. Design your own spaceship.

Everyone's Space **Viewing Guide Answer Key**

1. compete
2. government
3. space
4. satellite
5. Neil Armstrong
6. Space Race
7. Atlantic Ocean
8. Paris
9. \$10 million
10. Ansari X Prize
11. Space Station
12. business
13. space tourism
14. quickly, safely

Comprehension Questions Answer Key

1. telephone
2. space
3. Cold War
4. Sputnik
5. Before the decade is out, land a man on the moon and return him safely to earth.
6. The goal was met in 1969 when American astronaut Neil Armstrong set foot on the moon.
7. Fly nonstop across the Atlantic.
8. Charles Lindbergh
9. X Prize
10. first female private space explorer; first astronaut of Iranian descent
11. Be the first private team to launch a manned craft with a 3-person capacity 100 km into space, twice within two weeks.
12. White Knight / SpaceShipOne

Everyone's Space **Quiz Answer Key**

1. A) Winner of Ansari X-Prize
2. C) White Knight/SpaceShipOne
3. B) The Cold War
4. A) American astronaut Neil Armstrong set foot on the moon
5. A) a small satellite launched by Russia in 1957
6. B) \$10 million
7. D) fly nonstop across the Atlantic
8. C) Contestants must receive government funding.
9. B) only governments can undertake space travel
10. D) a badminton birdie

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