

Building Language Skills with The Seattle Times

January 26, 2017

Article: X Prize: 5 teams now racing to land on the moon in 2017

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Standard:

CCSS.ELA-LITERACY.RI.5.10

By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Objective:

Students will practice reading and using space related vocabulary.

Pre-Reading:

1. Ask students write one fact they know about the moon, and moon exploration on their paper.
2. When students finish writing their fact, ask them to travel around the room or work in small groups to share their facts until they have at least four facts (including their original fact) written down.

Vocabulary:

As you read, look for the following vocabulary words that appear in today's article. Write down what you think the words mean based on the "context," or how the words are used in the sentence in which they appear. Next, look up the definitions in a dictionary and see how close your guess was for each word.

aviation

entrepreneurs

eschewing

extraterrestrial

feats

laser

lucrative

lunar

niche

slogans

usher

Comprehension:

1. What materials could be mined from the moon?
2. What organization is financing the prizes for the competition?
3. By what time are the teams aiming to get to the moon?
4. The competitions resemble which other competitions?
5. How far up could the first winner of the X Prize go?
6. How much is the top prize worth?
7. Narayan estimates that the price tag of his team's project is now what?
8. Where is Moon Express based out of?

Post-Reading:

After reading the article discuss the following questions:

Did you learn anything new about the moon from reading this article? What do you think it would be like to go into space? Do you think that the teams will be able to complete the challenge? What kind of skills would you need to be successful in participating in this type of challenge? Do you think that you would travel to space if you had the opportunity? Why or why not?

As you ask questions of the class, call on student volunteers to summarize or recall what the previous speaker said.

Building Language Skills:

After students fill in the blanks in the passage on the following page, discuss the strategies they used to determine which word went where.

Use the vocabulary list as a word bank and fill in the blanks with the correct words in the following passage:

X Prize: 5 teams now racing to land on the moon in 2017

By *KENNETH CHANG*

The New York Times

The surface of the moon may soon be dotted with corporate logos, and its craters labeled with _____. Families might be able to send their loved ones' ashes — or even their pets' remains — for _____ burial.

Entrepreneurs hope that commercial ventures expand in _____ ways in later years. In a farther, fanciful future, for example, the moon could be mined for platinum, a metal far more valuable than gold, or helium-3, to be used as fuel for fusion energy reactors that do not yet exist.

Private access to the moon grew a little closer to reality on Tuesday, when the X Prize Foundation, with prizes financed by Google, chose five teams of private _____ who say they can get to the moon by the end of this year.

If any of them succeeds — the deadline has been pushed back several times — it could _____ in an era of _____ commerce and renew interest in our long-ignored moon.

"It's incentivized this whole business of the niche space economy," said Chanda Gonzales-Mowrer, a senior director at the X Prize Foundation, which runs the contest.

The five finalist teams span the globe: Moon Express in the United States, Hakuto in Japan, SpaceIL in Israel, Team Indus in India, and Synergy Moon, an international collaboration.

The X Prize Foundation was founded by Peter Diamandis, an entrepreneur who wanted to use competitions to encourage technological innovation in the way that _____ prizes in the early 20th century helped transform airplanes from a dangerous avocation of barnstormers to a commonplace mode of transportation.

The first X Prize award of \$10 million in 2004 went to the first private spaceship that could take people 62 miles up, into outer space. That led to the founding of Richard Branson's Virgin Galactic, which aims to take tourists to the edge of space for a few minutes of weightlessness.

The foundation began a similar competition in 2007 to point attention to the moon.

To win the top \$20 million prize, a spacecraft must land on the moon, move 500 meters and send back video and photographs. The second team to accomplish the task wins \$5 million. The

contest also offers \$5 million in bonus prizes, for _____ like surviving the cold lunar night and traveling more than 5,000 meters on the surface.

The next 11 months are a dash to finish team designs, assemble spacecraft and prepare for launching. And the teams differ on their approaches.

Rahul Narayan, the leader of Team Indus, said the engineers had to develop their own computer, software, power system and other components when the initial approach of buying off-the-shelf satellite parts did not work out, increasing costs. Narayan now estimates the price tag at \$70 million to \$75 million.

The Hakuto team, with a \$10 million budget, is not building a lander at all, but hitching a ride for its rover with Team Indus. If Team Indus is the first to land on the moon, its rover and Hakuto's will race to travel the 500 meters to capture the \$20 million prize. Both rovers have a top speed of about 4 inches a second.

"We think that we can beat them on the moon," said Takeshi Hakamada, the leader of Hakuto.

For SpaceIL and Synergy Moon, the main goal is not starting a business, but inspiring the next generation. "Kind of like Jacques Cousteau did with ocean exploration," said Kevin Myrick, a founder of Synergy Moon.

Moon Express, based in Cape Canaveral, Fla., is building a scaled-down lander to fit into a small, \$5 million rocket called Electron, developed by a startup company, Rocket Lab.

It will carry a reflecting mirror experiment that bounces back _____ beams from Earth, the same type of experiment that Apollo astronauts left behind on the moon.

SpaceIL and Moon Express are _____ rovers. To fulfill the 500-meter requirement, both instead intend to have their landers lift off and land again.

Comprehension Question Answers:

1. The moon could be mined for platinum, a metal far more valuable than gold, or helium-3, to be used as fuel for fusion energy reactors that do not yet exist.
2. Google
3. By the end of the year
4. Aviation prizes in the early 20th century helped transform airplanes from a dangerous avocation of barnstormers to a commonplace mode of transportation
5. 62 miles
6. \$20 million
7. \$75 million
8. Cape Canaveral, Florida

Building Language Skills Answers:

Blanks, in order of appearance:

slogans

lunar

lucrative

entrepreneurs

usher

extraterrestrial

niche

aviation

feats

laser

eschewing