

Luxembourg to develop asteroid mining

6th February, 2016



The tiny European nation of Luxembourg is not well known as a major player in the space race. However, its government has just made big

investments in the future industry of asteroid mining. Private companies will mine asteroids near the Earth for water and minerals. Some of the things they mine will one day help fuel trips to Mars and beyond. Luxembourg's government is looking at research and development projects to make sure it is one of the leading countries in this new industry. Minister for the economy Etienne Schneider said: "Our aim is to open access to a wealth of previously unexplored mineral resources on lifeless rocks speeding through space, without damaging natural habitats."

Luxembourg is not the only country to look up to the skies for new places to mine. In 2015, US president Barack Obama signed a law that will let American companies mine space resources. In January, the European Space Agency shared a vision for a research village on the Moon. This would be used as a base for mining companies. The US company Deep Space Industries said space resources will allow greater exploration of the solar system without the need to mine resources on Earth. However, there could be problems ahead for mining companies. The Outer Space Treaty of 1967 says that natural resources in space are part of mankind's 'common heritage'. This means private companies may not be able to mine asteroids.

Sources: mashable.com / mining-technology.com / spacedaily.com

Writing

Mining asteroids and other space resources is a great idea. Discuss.

Chat

Talk about these words from the article.

tiny / European / nation / the space race / investments / mining / wealth / minerals / space resources / vision / research / exploration / solar system / mankind / asteroids

True / False

- Luxembourg is well known for having a major role in the space race. T / F
- Luxembourg's government has not yet invested in asteroid mining. T / F
- Private companies will try to mine asteroids for water. T / F
- A Luxembourg politician said he didn't want to harm natural habitats. T / F
- Luxembourg is the only country looking into mining space resources. T / F
- The European Space Agency hopes to build a village on the Moon. T / F
- A company said using space resources would protect Earth's resources. T / F
- A 1967 treaty allows companies to mine for space resources. T / F

Synonym Match

- | | |
|--------------|------------------|
| 1. tiny | a. the heavens |
| 2. major | b. close by |
| 3. near | c. in the future |
| 4. fuel | d. big |
| 5. damaging | e. centre |
| 6. the skies | f. harming |
| 7. let | g. very small |
| 8. base | h. public |
| 9. ahead | i. allow |
| 10. common | j. power |

Discussion – Student A

- What mining is there in your country?
- Is mining good or bad?
- What do you think of the idea of asteroid mining?
- Do you think asteroid mining is a good thing to invest in?
- How useful could asteroid mining be?
- What are the dangers of asteroid mining?
- What would it be like to work as an asteroid miner?
- What other things in space could we use to help the Earth?

Phrase Match

- | | |
|---------------------------------------|-----------------------------|
| 1. well known as a major | a. new places to mine |
| 2. help fuel trips to Mars | b. for mining companies |
| 3. make sure it is one of | c. habitats |
| 4. speeding | d. ahead |
| 5. natural | e. to mine asteroids |
| 6. look up to the skies for | f. and beyond |
| 7. This would be used as a base | g. system |
| 8. exploration of the solar | h. through space |
| 9. there could be problems | i. player in the space race |
| 10. private companies may not be able | j. the leading countries |

Discussion – Student B

- What do you know about asteroids?
- How might asteroid mining help the Earth?
- Will countries have fights over who mines which asteroid?
- Do you think there will be a space war one day?
- Do you think it's ok to mine the Moon?
- What kind of things do you think are in a space treaty?
- Is it ok for private companies to make money from asteroids?
- What would you like to ask an asteroid mining company boss?

Spelling

- a aromj player in the space race
- the future tysniudr of asteroid mining
- help fuel trips to Mars and enbody
- research and development eorjptsc
- mineral esrsoeurc
- without damaging natural aattihsb
- look up to the sseik
- the European Space Agency shared a nosiiv
- exploration of the solar etysms
- there could be problems hadae
- part of mankind's nmomoc heritage
- parveit companies

Answers – Synonym Match

1. g	2. d	3. b	4. j	5. f
6. a	7. i	8. e	9. c	10. h

Role Play

Role A – Asteroids

You think an asteroid is the best place to get resources for Earth. Tell the others three reasons why. Tell them things that aren't so good about their places. Also, tell the others which is the least useful of these (and why): Mars, the Sun or another galaxy.

Role B – Mars

You think Mars is the best place to get resources for Earth. Tell the others three reasons why. Tell them things that aren't so good about their places. Also, tell the others which is the least useful of these (and why): asteroids, the Sun or another galaxy.

Role C – The Sun

You think the Sun is the best place to get resources for Earth. Tell the others 3 reasons why. Tell them why their places aren't so good. Also, tell the others which is the least useful of these (and why): Mars, asteroids or another galaxy.

Role D – Another galaxy

You think another galaxy is the best place to get resources for Earth. Tell the others 3 reasons why. Tell them why their places aren't so good. Also, tell the others which is the least useful of these (and why): Mars, the Sun or asteroids.

Speaking – Space race

Rank these with your partner. Put the best places to get to for resources at the top. Change partners often and share your rankings.

- | | |
|-------------|------------------|
| • asteroids | • Jupiter |
| • Mars | • a comet |
| • the Moon | • a black hole |
| • the Sun | • another galaxy |

Answers – True False

a	F	b	F	c	T	d	T	e	F	f	T	g	T	h	F
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Answers to Phrase Match and Spelling are in the text.