

Japan finds enough rare-earth metals to last 700 years

14th April, 2018



Japanese researchers have discovered enough reserves of rare-earth metals (REMs) to satisfy global demand for up to 700 years. Oceanographers surveyed the deep-sea mud on the Pacific Ocean floor near

Japan's Ogasawara Islands, which are about 2,000 kilometers southeast of Tokyo. Scientists say the minerals find, "has the potential to supply these metals on a semi-infinite basis to the world". Researchers from Waseda University and the University of Tokyo estimate the area they mapped contains more than 16 million tons of rare-earth metals. They added that the area offers "great potential as ore deposits for some of the most critically important elements in modern society".

A rare-earth metal is one of a set of seventeen chemical elements in the periodic table. They have what many of us would consider to be relatively unknown names, like europium, promethium scandium and terbium. The uses, applications, and demand of rare-earth elements have greatly increased with our reliance on high-tech products. They are widely used in the production of electric motors for hybrid vehicles, wind turbines, hard disc drives, portable electronics, microphones, speakers and a whole array of other products. Around 90 per cent of the world's supply of REMs used to manufacture advanced electronics currently comes from China. The discovery near Japan could bring down prices.

Sources: japantoday.com / mainichi.jp / wikipedia.org

Writing

We need to stop mining things from the Earth. Discuss.

Chat

Talk about these words from the article.

researchers / reserves / global demand / deep sea / minerals / potential / modern / chemicals / applications / reliance / products / hybrid / microphones / discovery

True / False

- a) The reserves of rare-earth metals were found in the Sea of Japan. T / F
- b) Researchers from Osaka universities found the reserves. T / F
- c) Researchers say they found over 16 million tons of rare-earth metals. T / F
- d) The metals aren't that important for modern society. T / F
- e) The periodic table contains 18 rare-earth metals. T / F
- f) Most of the rare-earth metals have unfamiliar names. T / F
- g) Rare-earth metals are used in the production of microphones. T / F
- h) China supplies 90% of the rare-earth metals used in advanced electronics. T / F

Synonym Match

(The words in **bold** are from the news article.)

- | | |
|----------------------|------------------|
| 1. discovered | a. charted |
| 2. satisfy | b. manufacture |
| 3. estimate | c. comparatively |
| 4. mapped | d. meet |
| 5. area | e. dependence |
| 6. elements | f. unearthed |
| 7. relatively | g. presently |
| 8. reliance | h. reckon |
| 9. production | i. region |
| 10. currently | j. components |

Discussion – Student A

- a) What do you think about what you read?
- b) What do you know about the periodic table?
- c) What high-tech products do you rely on most?
- d) What do you know about hybrid vehicles?
- e) What do you know about wind turbines?
- f) How will scientists get the metals from the ocean floor?
- g) Could you live without high-tech products?
- h) What questions would you like to ask the researchers?

BreakingNewsEnglish - The Mini Lesson

Phrase Match

1. reserves
 2. Oceanographers
 3. supply these metals on
 4. some of the most critically
 5. in modern
 6. one of a set of seventeen chemical
 7. relatively
 8. our reliance
 9. hybrid
 10. a whole
- a. elements
 - b. important elements
 - c. on high-tech products
 - d. array of other products
 - e. a semi-infinite basis
 - f. of rare-earth metals
 - g. vehicles
 - h. society
 - i. unknown names
 - j. surveyed the deep-sea mud

Discussion – Student B

- a) What do you know about rare-earth metals?
- b) What other useful stuff might be in or under the oceans?
- c) What will we be making with these materials in 700 years?
- d) What is the world's most useful metal?
- e) Does mining rare-earth materials damage the Earth?
- f) What do you think an oceanographer does?
- g) Why are REMs so critically important?
- h) What would happen if we ran out of minerals?

Spelling

1. rseesver of rare-earth metals
2. Oceanographers rdevsuey the deep-sea mud
3. on a semi-tiinnfie basis
4. etimtsea the area
5. great ttoeanipl as ore deposits
6. the most tlilcycria important
7. a set of seventeen chemical etsenlme
8. in the eiircpod table
9. retlivayle unknown names
10. our eciranle on high-tech products
11. rihdyb vehicles
12. aaremutucnf advanced electronics

Answers – Synonym Match

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

Role Play

Role A – Hybrid Vehicles

You think hybrid vehicles are the most useful things. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): wind turbines, hard disc drives or X-ray machines.

Role B – Wind Turbines

You think wind turbines are the most useful things. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): hybrid vehicles, hard disc drives or X-ray machines.

Role C – Hard Disc Drives

You think hard disc drives are the most useful things. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): wind turbines, hybrid vehicles or X-ray machines.

Role D – X-Ray Machines

You think X-ray machines are the most useful things. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least useful of these (and why): wind turbines, hard disc drives or hybrid vehicles.

Speaking – Hi-Tech

Rank these with your partner. Put the most useful high-tech products at the top. Change partners often and share your rankings.

- speakers
- printers
- cameras
- X-ray machines
- hybrid vehicles
- wind turbines
- hard disc drives
- microphones

Answers – True False

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