

Water bears will survive until the Sun dies

17th July, 2017



Photo: Schokraie E, Warnken U, Hotz-Wagenblatt A, Grohme MA, Hengherr S, et al. (2012)

A new study has revealed that a tiny, water-dwelling creature is likely to live until the end of the Earth. The near indestructible tardigrade, also known as water bear, looks like a short caterpillar with

eight legs. It is just one-tenth of a millimeter in size but has the physiological makeup to be able to survive in any extreme conditions. The microscopic water bear can survive without food for three decades. It can also exist in bitterly freezing temperatures of -272° Celsius and in furnace-like temperatures of 150°C . Water bears can also survive the crushing pressure of deep oceans, the vacuum of outer space, nuclear war, global warming, or any other extreme meteorological event that would doom humans.

Scientists say water bears are so hardy and resilient that the only thing that would wipe them out for good is if the Sun boils all the Earth's oceans away. The study says this is likely to happen in several billion years from now. The new study states that complex life is extremely difficult to destroy and could exist on other planets. A researcher said: "Tardigrades are as close to indestructible as it gets on Earth, but it is possible that there are other resilient species examples elsewhere in the Universe." He added: "There is a real case for looking for life on Mars and in other areas of the Solar System. If tardigrades are Earth's most resilient species, who knows what else is out there?"

Sources: sciencenews.org / sciencealert.com / nature.com

Writing

We need to put the DNA from water bears into our bodies to live longer. Discuss.

Chat

Talk about these words from the article.

tiny / water-dwelling / caterpillar / survive / extreme / vacuum / global warming / resilient / oceans / destroy / indestructible / species / life on Mars / Solar System

True / False

- a) Water bears do not actually live in water. T / F
- b) A water bear looks like an eight-legged caterpillar. T / F
- c) Water bears can live without food for thirty years. T / F
- d) Water bears could survive a nuclear war. T / F
- e) If the Sun boiled all the Earth's oceans, water bears would survive. T / F
- f) A study says the Earth's oceans will boil in a billion years from now. T / F
- g) A researcher said tardigrades are pretty close to being indestructible. T / F
- h) The researcher said there is no point in looking for life on Mars. T / F

Synonym Match

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

- | | |
|--------------------------|---------------|
| 1. study | a. exist |
| 2. likely | b. example |
| 3. survive | c. emptiness |
| 4. vacuum | d. tough |
| 5. event | e. immortal |
| 6. hardy | f. research |
| 7. complex | g. in space |
| 8. indestructible | h. occurrence |
| 9. case | i. elaborate |
| 10. out there | j. probable |

Discussion – Student A

- a) What do you think about what you read?
- b) Do you think water bear DNA should be used in humans one day?
- c) What would the Earth be like if the oceans boiled?
- d) Is there life elsewhere in the Universe?
- e) How dangerous would it be for us if alien life came to Earth?
- f) What would you like to know about tardigrades?
- g) How resilient are you?
- h) What questions would you like to ask the researchers?

Phrase Match

- | | |
|--------------------------------------|--------------------------|
| 1. a tiny, water- | a. be able to survive |
| 2. like a short caterpillar | b. for life on Mars |
| 3. the physiological makeup to | c. freezing temperatures |
| 4. It can also exist in bitterly | d. of outer space |
| 5. the vacuum | e. them out for good |
| 6. water bears are so hardy | f. dwelling creature |
| 7. the only thing that would wipe | g. as it gets |
| 8. if the Sun boils all the | h. and resilient |
| 9. as close to indestructible | i. with eight legs |
| 10. There is a real case for looking | j. Earth's oceans away |

Discussion – Student B

- Why do you think the creatures are called water bears?
- Why do you think water bears are so resilient?
- How can water bears help humans?
- What extreme conditions have you been in?
- What do you think -272° Celsius feels like?
- What would the vacuum of space do to organisms?
- Will humans survive global warming?
- What do you think could doom humans in the future?

Spelling

- a tiny, water-dwelling rucaert
- the chpsoyoillgia makeup to be able to survive
- in efcunar-like temperatures of 150°C
- the crushing ersspeur of deep oceans
- the vaumcu of outer space
- any other extreme cglmtoooalreie event
- hardy and neslireit
- in seavlre billion years from now
- loxecpm life
- mxeelerty difficult
- ewleeresh in the Universe
- as close to cdtteurensbiil as it gets

Answers – Synonym Match

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

Role Play

Role A – Ants

You think ants are the most interesting creatures. Tell the others three reasons why. Tell them why their creatures aren't as interesting. Also, tell the others which is the least interesting of these (and why): fleas, silk worms or fireflies.

Role B – Fleas

You think fleas are the most interesting creatures. Tell the others three reasons why. Tell them why their creatures aren't as interesting. Also, tell the others which is the least interesting of these (and why): ants, silk worms or fireflies.

Role C – Silk Worms

You think silk worms are the most interesting creatures. Tell the others three reasons why. Tell them why their creatures aren't as interesting. Also, tell the others which is the least interesting of these (and why): fleas, ants or fireflies.

Role D – Fireflies

You think fireflies are the most interesting creatures. Tell the others three reasons why. Tell them why their creatures aren't as interesting. Also, tell the others which is the least interesting of these (and why): fleas, silk worms or ants.

Speaking – Tiny creatures

Rank these with your partner. Put the most interesting at the top. Change partners often and share your rankings.

- | | |
|--------------|------------------------|
| • plankton | • ladybirds / ladybugs |
| • ants | • mosquitos |
| • fleas | • fireflies |
| • silk worms | • water bears |

Answers – True False

a	F	b	T	c	T	d	T	e	F	f	F	g	T	h	F
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Answers to Phrase Match and Spelling are in the text.