

Octopuses and humans share intelligence gene

4th July, 2022



It is common knowledge that sea creatures like dolphins have a high level of intelligence. Scientists have now discovered that octopuses also have "remarkable" intelligence. A team of Italian marine biologists have revealed that octopi have a gene

that also determines the intelligence of humans. The eight-tentacled sea creature has short sequences of DNA called "jumping genes". These same genes make up 45 per cent of the human genome. The researchers said the DNA sequences are important for learning and for creating and storing memories in the brain. The scientists say the DNA may give octopuses cognitive abilities that are similar to those humans have.

The scientists say their research findings are important as they give an insight into how octopuses amend their behaviour in response to different stimuli. Scientists describe this process as "behavioural plasticity". Biologist Graziano Fiorito suggested that the research could help us understand more about intelligence in humans. He said: "The brain of the octopus is functionally analogous in many of its characteristics to that of mammals....For this reason [the DNA] represents a very interesting candidate to study to improve our knowledge on the evolution of intelligence." He says the brain structure of octopuses may mean the creatures are more similar to mammals than invertebrates and other sea life.

Sources: ivescience.com / natureworldnews.com / eurekaalert.com

Writing

Research on intelligence will make us more intelligent. Discuss.

Chat

Talk about these words from the article.

common / knowledge / intelligence / scientists / biologists / gene / genome / humans / research / octopus / process / plasticity / characteristics / candidate / evolution / sea

True / False

- 1) Not many people know about the intelligence of dolphins. T / F
- 2) Scientists said octopuses are remarkably intelligent. T / F
- 3) Humans and octopuses share the same intelligence genes. T / F
- 4) Human and octopus cognitive abilities are incredibly different. T / F
- 5) The research gives an insight into what octopuses like and dislike. T / F
- 6) Adapting behaviour to stimuli is called behavioural plasticity. T / F
- 7) The scientist said an octopuses brain was similar to a mammal brain. T / F
- 8) The scientists said octopus brains are identical to those of invertebrates. T / F

Synonym Match

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

- | | |
|----------------------|----------------|
| 1. creatures | a. action |
| 2. remarkable | b. alike |
| 3. determines | c. amazing |
| 4. sequences | d. conclusion |
| 5. similar | e. shape |
| 6. findings | f. regulates |
| 7. process | g. development |
| 8. analogous | h. animals |
| 9. evolution | i. comparable |
| 10. structure | j. cycles |

Discussion – Student A

- a) What do you think about what you read?
- b) How intelligent do you think octopuses are?
- c) In what ways do octopuses show their intelligence?
- d) Do you think we should be eating octopuses?
- e) What do you know about the 'evolution of intelligence'?
- f) How can we improve our intelligence?
- g) What are the differences between vertebrates and invertebrates?
- h) What questions would you like to ask the researchers?

Phrase Match

- | | |
|---|-----------------------------|
| 1. common | a. amend their behaviour |
| 2. dolphins have a high | b. tentacled sea creature |
| 3. The eight- | c. of intelligence |
| 4. 45 per cent of the human | d. abilities |
| 5. the DNA may give octopuses cognitive | e. sea life |
| 6. an insight into how octopuses | f. level of intelligence |
| 7. Scientists describe this process as | g. of octopuses |
| 8. the evolution | h. knowledge |
| 9. the brain structure | i. genome |
| 10. invertebrates and other | j. "behavioural plasticity" |

Discussion – Student B

- What do you know about octopuses?
- What do you think of the intelligence of dolphins?
- What do you think of your intelligence?
- Why do people have different levels of intelligence?
- Which marine creatures do you like best?
- What do you know about DNA?
- How useful do you think it is to have eight tentacles?
- In what other ways are octopuses similar to humans?

Spelling

- It is common enwlkgoed
- A team of Italian marine sistilbogo
- The eight-encaedtlt sea creature
- make up 45 per cent of the human moneeg
- the DNA sueeqecsn
- the DNA may give octopuses givniteco abilities
- in response to different itimusl
- Scientists describe this process as behavioural stiltacyi
- functionally uaglansoo
- the uventlooi of intelligence
- the brain urscterut of octopuses
- more similar to mammals than seetrvbianrte

Answers – Synonym Match

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

Role Play

Role A – Money

You think money is the most important thing to have knowledge of. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): coding, literature or the environment.

Role B – Coding

You think coding is the most important thing to have knowledge of. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): money, literature or the environment.

Role C – Literature

You think literature is the most important thing to have knowledge of. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): coding, money or the environment.

Role D – The Environment

You think the environment is the most important thing to have knowledge of. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): coding, literature or money.

Speaking – Knowledge

Rank these with your partner. Put the best thing to have knowledge of at the top. Change partners often and share your rankings.

- | | |
|-------------|-------------------|
| • Money | • Psychology |
| • Nutrition | • Literature |
| • Coding | • The environment |
| • Politics | • Marine biology |

Answers – True False

1	F	2	T	3	T	4	F	5	F	6	T	7	T	8	F
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Answers to Phrase Match and Spelling are in the text.