

Raising eyebrows: how evolution gave us expressive faces

Level 1 • Pre-intermediate / Intermediate

1 Warmer

Humans communicate feelings using different parts of the face and body. Rank these features in order from 1 to 5, with 1 being most important for communication in your opinion and 5 the least important.

- | | |
|----------|------------------|
| 1. _____ | a. the eyes |
| 2. _____ | b. the hands |
| 3. _____ | c. the mouth |
| 4. _____ | d. the eyebrows |
| 5. _____ | e. the shoulders |

2 Key words

Fill the gaps in the sentences using these key words from the text. The paragraph numbers will help you.

ancestors

ridge

anatomy

dominance

bony

- A _____ part of the body is so thin that the shape of the bones can be seen. (para 1)
- Your _____ are people who are related to you who lived a long time ago. (para 1)
- A _____ is a long, narrow raised line along the surface of something. (para 1)
- _____ is a situation in which one person has more power than another. (para 2)
- _____ is the scientific study of the physical structure of an animal or plant. (para 2)

primate

get on

evolution

skull

virtual

- _____ is when types of plants and animal change gradually over long periods of time. (para 3)
- If you _____ with other people, you are friendly with them. (para 3)
- The bones of the head form a person's _____. (para 5)
- A _____ image is created on a computer. (para 6)
- A _____ is an animal that belongs to the same group as humans, which includes monkeys and apes. (para 9)

3 Find the information

Find the following information in the text as quickly as possible.

- Where were the researchers based?
- Why, according to the researchers, did early humans have large eyebrow ridges?
- Where was the study published?
- What did the scientists from the study want to find out?
- Where did *Homo heidelbergensis* live?
- When did *Homo heidelbergensis* live?

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9 April, 2018

- 1 A new study suggests that modern humans would not be able to raise an eyebrow if *Homo sapiens* had not lost the thick, bony brows of its ancient ancestors and developed smoother facial features. Researchers at the University of York believe early humans had large brow ridges to show physical strength and as the human face became smaller and flatter, the eyebrows could show a much wider range of emotions.
- 2 "We exchanged dominance or aggression for a wider range of expression," said Paul O'Higgins, a professor of anatomy and main author on the study. "As the face became smaller and the forehead flatter, the muscles in the face could move the eyebrows up and down and we could express lots of different feelings."
- 3 The researchers say their conclusions are just a theory but if they are right, the evolution of smaller, flatter faces allowed humans to communicate in more complex ways. "Before, it was important to look scary but later, it became more important to get on with people, to recognize each other from far away, to sympathize and so on," said Penny Spikins, a co-author on the study, published in *Nature Ecology & Evolution*.
- 4 The scientists were trying to find out why ancient humans had such large brow ridges. There have been many different theories over the years. One idea is that the ridge filled the gap between the face and the braincase. Another idea is that a large brow protected the face during powerful chewing.
- 5 The researchers used a 3D X-ray scan of the ancient skull of a human ancestor called *Homo heidelbergensis* that lived in what is now Zambia between 300,000 and 125,000 years ago. The skull had a thick brow ridge that was even larger than the brow ridge of Neanderthals.
- 6 Using computer models, the scientists did experiments on the virtual skull. First, they looked at how much brow bone was needed to fill the gap between the face and the braincase. "We took away parts of the bone to get the minimum needed to fill the gap and found we could reduce its size dramatically," O'Higgins said. "The skull has much more bone than it needs to fill the gap."
- 7 Next, the researchers looked at how the stress of chewing spread over the face with and without the brow ridge. Again, it seemed to make little difference. "We expected serious consequences for the face but nothing happened. The only explanation that is left is a social explanation," O'Higgins said.
- 8 It isn't clear why the human face became smaller and lost its thick brow ridges but a flatter face probably helped humans communicate better and work together more. In *Homo heidelbergensis* and other ancestors, the thick brow meant physical strength: in those early humans, the muscles that moved the eyebrows simply pulled them back and forth.
- 9 As eyebrows are important in human communication, it is not clear why other primates do not use them more, said Robin Dunbar, professor of evolutionary psychology at Oxford University.

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4 Comprehension check

Match the beginnings and endings to make statements about the text.

- | | |
|--|--|
| 1. Researchers believe that early humans ... | a. ... humans to show a much wider range of emotions. |
| 2. Over the years, humans have evolved to ... | b. ... an image of the skull of a human ancestor. |
| 3. These smaller, flatter faces allow ... | c. ... had large eyebrow ridges to show physical strength. |
| 4. No one is sure ... | d. ... but other primates don't use them. |
| 5. The researchers did experiments using ... | e. ... why the human face became smaller and flatter. |
| 6. Eyebrows are important in human communication ... | f. ... have smaller, flatter faces. |

5 Chunks

Rearrange the words to make phrases from the text.

1. range emotions a wider much of
2. the in the muscles face
3. theories years over many different the
4. forth back and
5. size its dramatically reduce
6. of feelings lots different

6 Two-word phrases

Match the words in the left-hand column with the words in the right-hand column to make expressions from the text.

- | | |
|-------------|-----------------|
| 1. physical | a. models |
| 2. ancient | b. explanation |
| 3. social | c. features |
| 4. facial | d. strength |
| 5. computer | e. consequences |
| 6. serious | f. ancestors |

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7 Word-building

Complete the table using words from the text.

	verb	noun
1.	communicate	
2.	experiment	
3.	explain	
4.	conclude	
5.	evolve	
6.	research	(person)

8 Discussion

- Do you think eyebrows are important for human communication? Why? Why not?
- What do we have in common with primates?

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KEY

2 Key words

1. bony
2. ancestors
3. ridge
4. dominance
5. anatomy
6. evolution
7. get on
8. skull
9. virtual
10. primate

3 Find the information

1. the University of York
2. to show physical strength
3. in *Nature Ecology & Evolution*
4. why ancient humans had such large eyebrow ridges
5. in what is now Zambia
6. between 300,000 and 125,000 years ago

4 Comprehension check

1. c
2. f
3. a
4. e
5. b
6. d

5 Chunks

1. a much wider range of emotions
2. the muscles in the face
3. many different theories over the years
4. back and forth
5. reduce its size dramatically
6. lots of different feelings

6 Two-word phrases

1. d
2. f
3. b
4. c
5. a
6. e

7 Word-building

1. communication
2. experiment
3. explanation
4. conclusion
5. evolution
6. researcher