

How many Great Great Great Great Grandparents? Finding out how we inherit our characteristics

How do we inherit our characteristics?

Try addressing this question by asking the pupils this series of questions, when you have explained what a 'blood parent' means:

- How many blood parents do you have?

Answer – 2

- How many blood grandparents do you have?

Answer – 4

- How many blood great grandparents do you have?

Answer – 8

- How many do you have of blood:
 - great great grandparents?
 - great great great grandparents?
 - great great great great grandparents?
 - great great great great great grandparents?
 - great great great great great great grandparents?

Answers – 16, 32, 64, 128, 256

When parents produce a child, half the DNA from each parent combines in that child.

- You have DNA from how many great great great great great grandparents in your cells?

Answer - 256

- If most of these great great great great great great great grandparents were tall – what are the chances that you would be tall? Choose from: Very likely; likely; 50:50 chance; unlikely; very unlikely

Answer – very likely

- If half these great great great great great great great grandparents had good eyesight – what are the chances that you would have good eyesight? Choose from: Very likely; likely; 50:50 chance; unlikely; very unlikely

Answer – 50:50 chance

- If one of these great great great great great great great grandparents had a very good sense of smell – what are the chances that you would have a very good sense of smell? Very likely; likely; 50:50 chance; unlikely; very unlikely

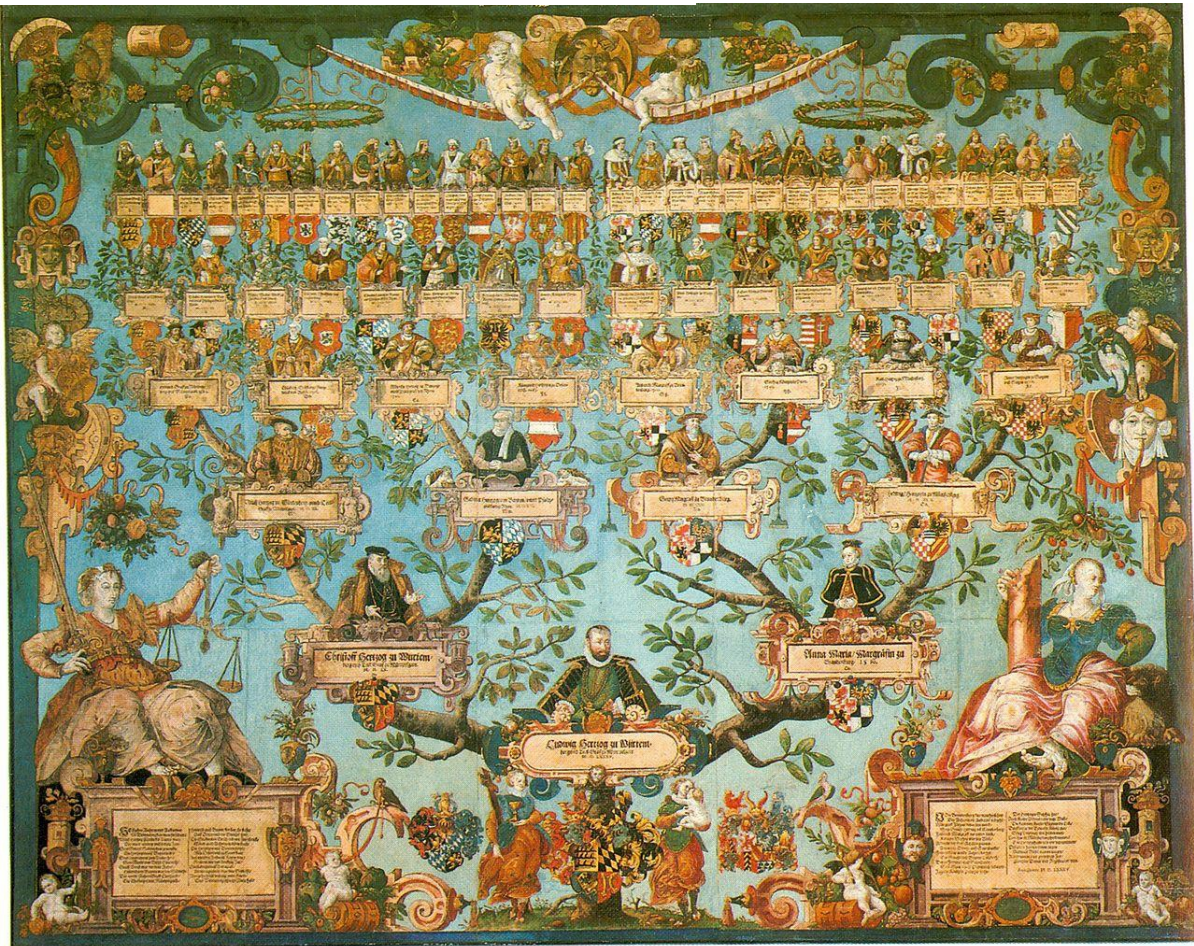
Answer – very unlikely

- Your great great great great great great great grandparents lived more than 200 years ago – which of these might have helped them to survive best then: being tall; having good eyesight; having a good sense of smell?

Answer – there is no clear answer – but this question should prompt a discussion about which characteristics are best for survival, and how they might be inherited.

Family tree of Ahnentafel von Herzog Ludwig (1568-1593), (Württembergisches Landesmuseum, Stuttgart)

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Thinking skill development:

A pattern is constructed as pupils begin to see how the numbers increase geometrically. Discussions about the best senses for survival can cause cognitive conflict.

Resource list:

- none
- for follow up activity – graph paper, ruler, pencils

Useful links:

A table showing numbers of ancestors can be found at: <http://dgmweb.net/Ancillary/OnE/NumberAncestors.html>

Follow this activity with the Earthlearningidea 'How many Beany Beetles? - the evolution game: investigating evolution by adaptation and natural selection' (www.earthlearningidea.com).

Source: Devised by Chris King of the Earthlearningidea Team.

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