

**Video question script, KS2: Circus activity 2: How many Great Great Great Great Grandparents?**

Question/Activity	Likely response	Rationale
When teaching about the Earth we often use practical activities to explore Earth processes. This example looks at how organisms might have got their inherited characteristics.		Preparation for bridging from a human case study to transmission of characteristics in the natural world
What is this?	A family tree, with photographs of several generations in my own family as an example.	Concrete preparation = asking them to describe the items
Although we are thinking of plants and animals in the geological record, we can show the principle of how we get our own characteristics from a human example. Perhaps you could do the same for your own family. So how many blood grandparents did I have? (explain "blood"). How many great grandparents? My great great grandparents were born before photographs were invented, but how many were there? More great –greats	Grandparents – 4 Great grandparents? - 8 Great great grandparents – 16 Great great great grandparents -32 Great great great great grandparents - 64  etc.	Construction -describe how a pattern develops in calculating the numbers of their ancestors;
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 grandparents in your cells?	64	
If most of these 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	<i>Answer – very likely</i>	Explain how this relates to the characteristics they have inherited from their ancestors and understanding the pattern of increasing complexity may result in cognitive conflict. Reasoning is metacognition.
If half these 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	<i>Answer – 50:50 chance</i>	As above
If one of these 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;	<i>Answer – very unlikely</i>	As above

unlikely; very unlikely		
Your really ancient ancestors lived thousands of years ago – which of these might have helped them to survive best then: being tall; having good eyesight; having a good sense of smell?	<i>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.</i>	As above
Now let's think more about fossil animals and plants. Photo of fossil –trilobite. What characteristics in the ancestors of this trilobite might have enabled it to survive against its enemies better?	<i>Development of a hard outer shell, eyes on top of its head; stronger legs for scurrying around on the sea bed</i>	Bridging from the human example to a fossil animal
What about the ancestors of this dinosaur? We leave you to think about what features would be good to pass down from its ancestors to enable it to survive.	<i>Own answers</i>	As above