



# **Humans in the Natural World**

**Front –end evaluation report**

**June 2006**

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## **Introduction**

This report summarizes the findings of the Humans in the Natural World front-end evaluation conducted in March 2006.

The Humans in the Natural World exhibition (working title) will be situated on the first floor of the Life Galleries of the Museum and thus will be for more committed and interested visitors rather than casual browsers. This is in line with the Museum's Life Galleries redevelopment plans.

As a result the target audience for the exhibition is lone adults (25-59) both from the UK and abroad, GCSE and A-level students and tertiary students.

The aims of the evaluation were to:

1. Find out about visitors' feelings towards the natural world and their role within it.
2. Find out about visitors' interests with regard to humans and the natural world.
3. Find out about visitors' understanding of key words and phrases.

It is hoped that the results will contribute to the development of a visitor-focused exhibition.

## **Method**

The evaluation used several methods in order to maximise results with limited resources (of time and money).

In terms of visitor's understanding of evolution, two PhD researchers have carried out extensive visitor research both at the Natural History Museum and other museums for their theses. It was felt that this information was more than sufficient in order to find out about visitor understanding and conceptions of the topic of evolution and related areas. Reference will be made to these studies where appropriate. A summary of one of the theses "*Exhibiting Evolution at the Natural History Museum: An Audience Report*" by Dr Monique Scott has been provided for the project team by the author. In addition, a brief summary of the other thesis "*A comparative study of American, Australian, British and Canadian Museum visitors' understanding of the nature of evolutionary theory*" by Linda M. Abraham-Silver has been provided in Appendix 1.

In order to meet the other aims of the evaluation, a survey and interview were conducted with visitors to the Museum. A copy of the survey and interview can be found in Appendices 2 and 3.

The survey was conducted by the project team with 31 visitors to the Museum. It was entirely conducted during term time weekdays. A requirement of the survey was to be quick to administer and so it consisted of mainly tick box questions. The questions mainly addressed visitors' interests.

In addition, a more in depth interview was carried out with 19 visitors to the Museum. This addressed visitors' feelings towards the natural world and was qualitative in nature. This took place during term time weekdays and weekends.

It is hope that this combination of methods will provide useful results. It must be noted that due to the small sample size results should not be generalised. The analysis will look at trends and the range of results rather than percentages.

## Visitor profile

Visitors were asked what age category they fitted in to and their gender was noted. Their ethnicity and class was not asked or recorded. Only visitors in adult groups or lone adults were approached, as this was the main target audience.

*Figure 1: Survey visitor profile*

	17-24	25-34	35-44	45-59	60+	Total
Male	3	4	1	6	5	19
Female	1	3	2	5	6	17
Total	4	7	3	11	11	36

*Figure 2: Interview visitor profile*

	17-24	25-34	35-44	45-59	60+	Total
Male	2	4	1	1	0	8
Female	4	4	1	2	0	11
Total	6	8	1	2	0	19

It can be seen in Figure 1 above that the survey total is 36, higher than the 31 completed surveys. This is due to the team asking more than one member of a group on the same survey but not recording what each individual said. It was decided to use the answers anyway as the results have not been analysed by gender or age.

The survey also shows a very high proportion of over 45s. This does not seem to have altered the results. The high number of older visitors is likely to be because the surveys were completed during term time weekdays when there are a higher proportion of retired visitors. By contrast, the interview profile shows high numbers of younger visitors.

*Figure 3: Where do visitors come from?*

	Survey	Interview
London	3	6
Rest of UK	19	5
Rest of world	9	7

Visitors were also asked where they came from. It can be seen from Figure 3 that most of the survey visitors were from the UK, with about a third from abroad. There are low numbers of visitors from London represented.

Visitors who took part in the interview had approximately a third of visitors in each category, which mirrors the general visitor profile of the Museum. Visitors from the USA made up the largest foreign contingent.

Visitors were also asked if they had any special interest or training in science.

It was interesting to note that some visitors answered yes to this question for reasons such as "my brother teaches it".

When their answers were examined, five of the survey visitors and three of the interview visitors were deemed to have a special training or interest in science or the topic in question, including 2 anthropology students.

It must be noted, however, that although most visitor did not have special interest or training in

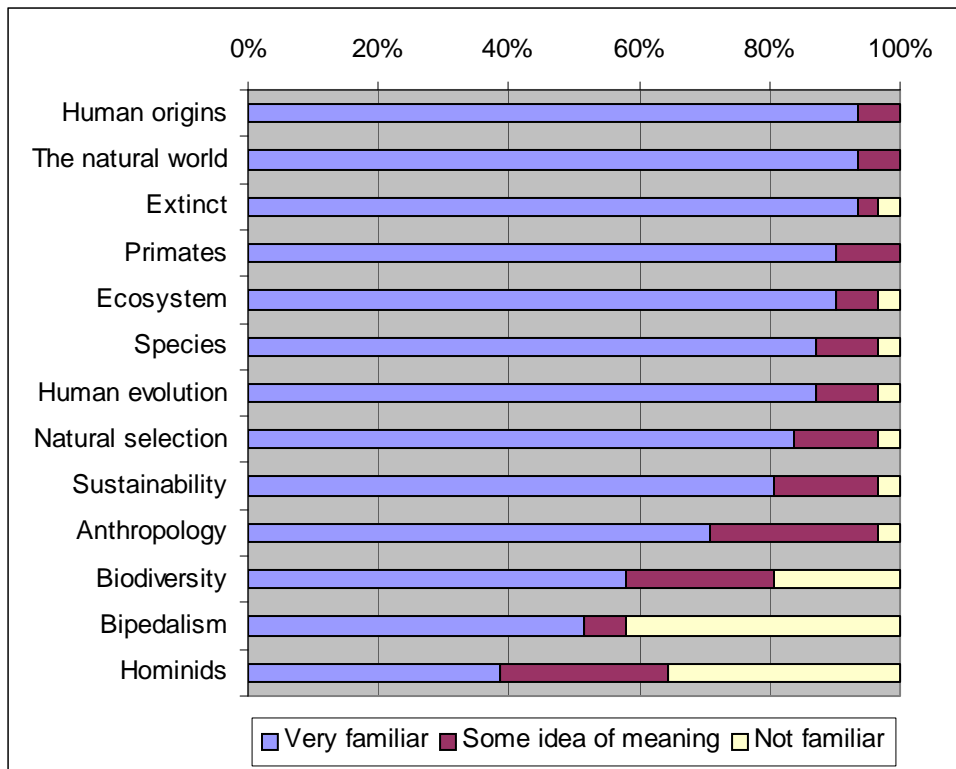
science, it was still more than the general public is likely to have.

Also visitors to the Museum generally have more qualifications than the general public, indicating they may have a higher level of knowledge or understanding of science than average. In addition, the fact they are visiting the Natural History Museum shows an interest in the topic that someone not visiting the Museum may not have.

### Familiarity and understanding

Visitors were read a list of key words and phrases related to the topic of humans and the natural world and were asked whether they were very familiar with the word, had some idea of its meaning or were unfamiliar. Visitors were not challenged to describe the meaning of the words.

Figure 4: Visitors' familiarity with key words



It can be seen from Figure 4 above that most visitors were "very familiar" with almost all of the words.

The words that caused the most problems for visitors were hominids and bipedalism. Less than half of the visitors (n=19) were very familiar with hominids and only half (n=16) were familiar with bipedalism.

In addition, some visitors were not familiar with the term biodiversity.

Being familiar with a word and understanding it correctly are, however, not the same thing. The PhD theses both show that visitors actually have a low understanding of the words and concepts surrounding evolution.

*"Many Natural History Museum visitors are scientifically astute, despite this they still often*

*harbor entrenched popular images and misconceptions about human evolution"*  
( Exhibiting Evolution, Scott, p 3)

Scott also mentioned that visitors' perceptions of evolution are

*"overwhelmingly influenced by perceptions they bring with them".*

Although this exhibition will not be exclusively about evolution, these findings raise interesting challenges for the project team. If visitors already feel they are familiar with key concepts in an exhibition they may be less receptive to changing their views or even reading definitions of concepts within an exhibition. However, as research show that most visitors hold misconceptions, certainly about the areas surrounding evolution, it is vital that the exhibition challenges these preconceptions and encourages visitors to approach evolution from a fresh angle.

### **Feelings towards the natural world**

Visitors who took part in the interview part of the evaluation (n=19) were asked about their feelings towards the natural world.

Visitors often seemed surprised by the question and sometimes found it difficult to articulate their feelings to start with perhaps indicating that visitors don't think about their feelings towards the natural world very often.

Most visitors (n=15) described their feelings towards the natural world with emotional words, for example love (n=3), amazement (n=3) or awe (n=2).

Four visitors mentioned that the natural world needed preserving or protecting. Several visitors felt the natural world was complex and two also said that they had a lack of knowledge about it.

Visitors certainly seemed to feel an emotional attachment towards the natural world, although, interestingly, only one visitor mentioned that they actually felt part of the natural world.

Visitors were also asked how they felt humans affected the natural world.

Only 3/19 visitors mentioned any positive impacts at all. All visitors, however, could list several negative impacts that humans had had on the natural world.

Half of the visitors (n=9) mentioned pollution. It was by far the most common impact mentioned. Several visitors mentioned the exploitation and stripping of the earth's resources (n=3). The same number also mentioned extinction and hunting of animals and climate change. More than one visitor also cited settlements, agriculture and deforestation.

Overall, the respondents painted a very gloomy picture of how humans have impacted upon and affected the natural world.

Visitors were also asked to comment son the opposite question, how the natural world affects us (humans).

A quarter of visitors (n=5) mentioned that we get our food from the natural world. A further quarter cited the weather. Related to the concept of weather, visitors also mentioned the climate and natural disasters. Two visitors said energy, air and diseases.

Several visitors did not talk about the natural world in terms of the resources humans get from it but mentioned the natural world affected them through views and countryside and through their

enjoyment of it. However, a further two mentioned that they felt separated from the natural world.

Visitors were asked in a separate question what benefits they felt they gained from the natural world. Their answers were similar to those above, with seven visitors mentioning food. Visitors also cited resources such as oil, wood and water, energy and again enjoyment.

These answers show that the visitors felt that the natural world is affecting us in both positive ways such as giving us food and resources but also mention areas which humans have no control over such as weather and natural disasters. This contrasts with the entirely negative actions performed by humans, which have affected the natural world.

Visitors were asked about the similarities and differences between humans and other animals. Although three visitors said that humans were not very different from other animals, all visitors were able to think of some differences.

Nearly a third of visitors (n=6) mentioned language and talking as a difference. Four visitors felt humans were more intelligent. Related to this, several visitors also cited human self-awareness and our ability to make predictions and be aware of the consequences of actions. Several visitors also noted that humans have complex culture and disciplines such as science.

One visitor, a creationist, noted the main difference between humans and other animals as being that humans have souls. She also felt that humans and animals did not have any similarities.

Interestingly, while visitors pointed to language as being a defining characteristic, a quarter mentioned the related areas of socializing and interaction as a similarity between humans and other animals.

Over a third (n=8) also mentioned that humans and other animals have the same instincts, in particular the desire to reproduce.

Several visitors pointed out specific similarities between humans and primates such as body structure and tool making. Other visitors mentioned more basic similarities such as skeletons and the need to eat and sleep. Two visitors mentioned aggression as a similarity.

Overall, visitors were able to come up with many suggestions for similarities and differences. This indicates that most of the visitors did not feel strongly that humans were either very different or the same as other animals but took a balanced view encompassing both.

## Potential exhibition themes and interpretation

The Museum has many human remains in its collection, some of which could be used in an exhibition on this topic. As it was felt this could be a sensitive issue for visitors, they were asked about how comfortable they would be seeing human remains of different ages in an exhibition.

Figure 5: Human remains

	Comfortable	Not comfortable
Real human remains from someone who died 1 million years ago.	31	0
Real human remains from someone who died 1000 years ago.	31	0
Real human remains from someone who died in the last 50 years.	21	10

It can be seen from the table above that all of the visitors surveyed were comfortable seeing human remains from 1 million and 1000 years ago. It must be remembered however, that all the visitor surveyed were in the lone adult target audience. Although families with young children are not the target audience, they will still be welcome in exhibitions and this should also be taken into consideration along with other research in the future on this topic before a final decision is taken.

Visitors were less comfortable seeing recent human remains, although 2/3 still said they were comfortable (n=21). A number of visitors mentioned, however, that they would want and expect such a display to be dignified, respectful and not sensationalist.

Visitors were then read a list of possible exhibition topics for an exhibition mainly aimed at adults. The visitors were asked to indicate whether they were very interested, slightly interested or not interested in the topic.

Figure 6: Visitors' interest in key topics

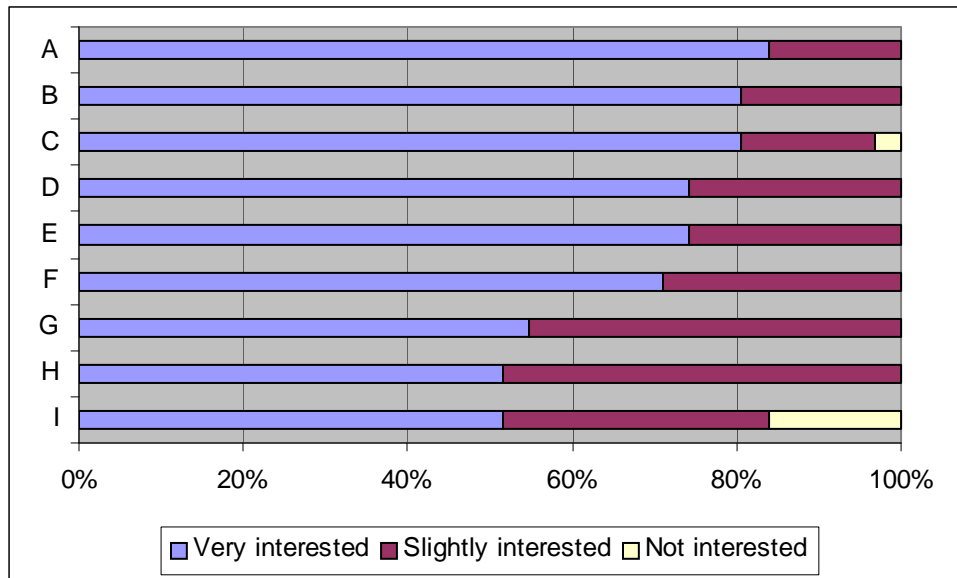


Figure 6 Key

A	Examples of how humans have used the natural world without damaging it.
B	How human evolution relates to the evolution of other animals.
C	Examples of how humans have damaged the environment.

D	The path of human evolution.
E	The other types of human who have existed and from whom we may be descended.
F	Our use of resources from the natural world.
G	Research by scientists at this museum about the natural world
H	Research by scientists at this museum in human origins
I	The views of religious groups about human origins.

It can be seen from the chart above that visitors were very interested in most of the topics. Visitors were slightly less interested in research by scientists at the Museum. This result tallies with a similar survey carried out for the Meteorites exhibition front -end evaluation.

The least popular topic was the views of religious groups about human origins. It was the only topic which more than 1 person was not interested in. It is interesting to note, however, that there was not much difference in interest from visitors wanting to know about scientist's research and religious views.

Visitors who took part in the interview were also asked about what kinds of things they would like to see in an exhibition specifically about evolution.

Visitors came up with a wide variety of suggestions pertaining both to the content and design of such an exhibition. The most popular single suggestion was to do with time and chronological development of human evolution and when it happened (n=4). For example, one visitor suggested having a timeline. This is borne out by the PhD theses, which discuss that visitors have problems understanding the timescale of evolution and when humans evolved.

Several of the visitors also mentioned having fossils in such an exhibition and the need to talk about uncertainties in our knowledge and contentious issues.

Despite Museum science being a less popular topic than others in the survey, many of the questions visitors had and suggestions such as the uncertainties of science show that visitors are, perhaps unwittingly, interested in the results of Museum science. For example, two visitors were interested in the future of human evolution and if we are still evolving, another mentioned the complexity of the non-linear nature of evolution. These areas are undoubtedly being investigated by science today, perhaps at the museum, but visitors seem unaware of the connection between their own questions and the questions and study of Museum scientists. Indeed, previous research (for Darwin Centre phase 2) indicates visitors are largely unaware of the science that happens at the Museum.

Only two visitors specifically mentioned religion in their answers, which tallies with the lower than average interest in the topic in the survey. One wanted to see "creationism vs. evolution" the other wanted to see the Biblical stages of human origins in the exhibition. This lack of creationist thinking tallies with the PhD theses, which found that Museum visitors were less likely to hold such beliefs than the general public. The general public's interest in such issues is not discussed here and more research needs to be carried out in this area, even among current Museum visitors.

In terms of other suggestions for an exhibition about evolution, several interview visitors mentioned that they had enjoyed the current Our Place in Evolution gallery because it was easy to understand and it featured recent discoveries. This exhibition was in visitors' minds as some had just visited it before being interviewed, nevertheless, no visitor made a negative comment about it.

Visitors were asked about the types of display they would like to see in an exhibition about humans and the natural world, mainly aimed at adults. As expected, most of the visitors were interested in most of the methods of interpretation.

Visitors were asked to say if they liked an interpretation method a lot, a little or if they didn't like it.

Figure 7: Visitors' interests in types of display

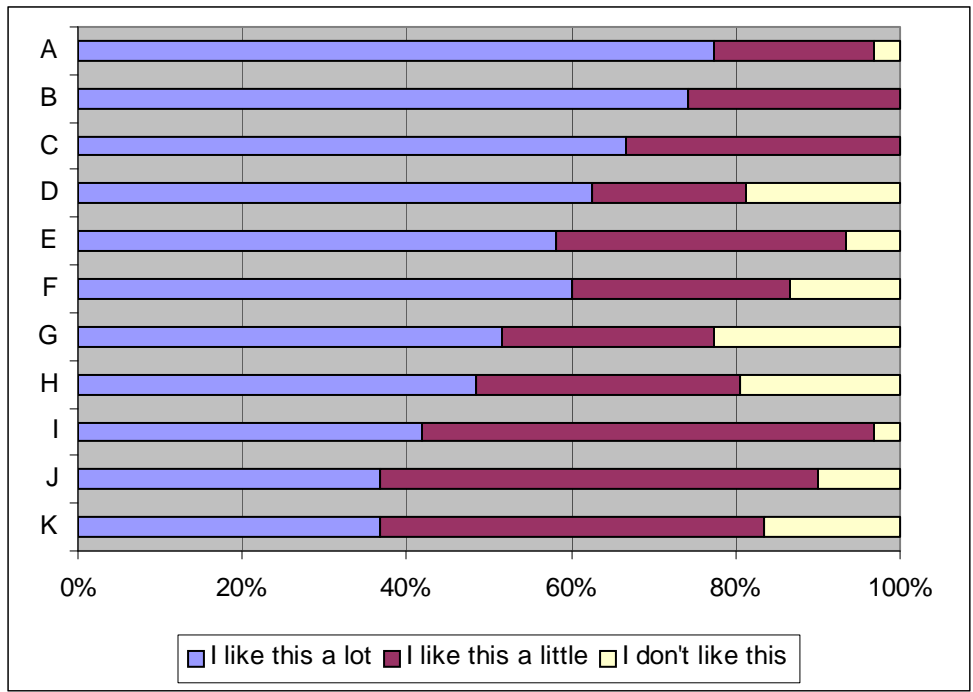


Figure 7 key

A	Reconstructions of early humans to show what they may have looked like.
B	Real specimens
C	Reconstructions (e.g. of early humans in their environments)
D	Places to sit and read about current research/breaking news
E	Films
F	Physical interactives (e.g. buttons and levers)
G	Live animals
H	Computer interactives
I	Replicas of early human fossils
J	Live plants
K	Displays of early tools (e.g. flint axe heads)

It can be seen from the chart above that visitors were most interested in reconstructions of early humans to show what they might have looked like and real specimens. Having real specimens was also popular in the front-end evaluation for the Meteorites exhibition.

Visitors were least interested in seeing live plants and animals and displays of early tools (e.g. flint axe heads)

## Conclusions

- This report has shown that visitors are interested in the natural world around them and have an emotional attachment to it.
- Visitors focused almost entirely on the negative impact that humans have on the natural world, in particular, pollution.
- Visitors were able to find what they believe to be both similarities and differences between themselves and other animals.
- Visitors were largely comfortable with the idea of human remains being on display at the Museum, as long as they were treated respectfully.
- Visitors appeared to be very familiar with many of the key words they were asked about but the PhD research has shown that visitor understanding of the concepts surrounding evolution is low.
- Visitors were interested in all the potential topics suggested for an adult focused exhibition. However, Museum science and the views of religious groups were the least popular.
- Visitors had many ideas and questions that they would like to see displayed and answered in an exhibition about human evolution, many of which could undoubtedly be answered by Museum science.
- More research needs to be done in the future, in particularly on the possibility of using human remains and also to find out in more detail about what visitors feel about the absence or inclusion of religious views in an exhibition on this topic.

## Appendix 1.

*This is a brief summary of key areas of “A comparative study of American, Australian, British and Canadian Museum visitors’ understanding of the nature of evolutionary theory” a PhD thesis by Linda M. Abraham-Silver.*

*The summary has been put together by Matt Kaplan.*

Countless scholars and educational councils argue that understanding evolution is critical to understanding modern biology. Yet Gallup polls show that only a third of Americans agree with the statement that Darwin’s Theory is supported by evidence. A literature review, included in the paper hypothesizes that the reason for American rejection of evolution reflects a “unique settlement and religious history” of the USA. Specifically the review attributes three specific reasons for why Americans so widely reject evolution. First, the USA has a decentralised formal education system, there is no national control of what is taught. Second, religion and religious influence at local levels is unregulated. Third, a surge in Christian Fundamentalism that took place in 1915 has endured to this day.

Understanding natural selection (or misunderstanding it) is the key problem. It is a complex concept that is not easily communicated. This matter is particularly visible in America where even those who support the theory of evolution cannot agree on how best to teach. Researchers have suggested that this leads to confusion and has ultimately scuppered a coherent message from gaining momentum in the USA. Furthermore, unclear use of language (specifically the terms “theory”, “adaptation”, and “fitness”) makes communication difficult at the best of times.

This paper specifically looks at evolution as it is perceived by museum visitors. In the study that it conducted, 9.5% of American museum visitors reject evolution while only 2% of non-American museum visitors reject it. Yet in spite of this difference, all groups (Americans, Australians, Britains, and Canadians) showed equal levels of confusion with regards to understanding natural selection. Participants showed consistent tendencies to apply Lamarckian explanations for evolution.

General education did not seem to play a role in whether or not museum visitors rejected evolutionary theory. However, this is contrary to Gallup poles which have shown that individuals who are more highly educated and who have higher levels of income are more likely to accept the evidence for evolution than are members of the population who are less so. This report suggests that people who visit natural history museums are more informed about evolution and thus more likely to accept evolution as the explanation for biologic change over time. Interestingly, the report showed that people who actually understood natural selection were much more likely to accept the theory of evolution as were those who had an understanding of the nature of science.

Age had a mild effect on whether or not museum visitors rejected evolution. Young people were more likely to accept the theory while older people were more likely to reject it.

An interesting discovery made when the study results were compared to Gallup data was that misconceptions about natural selection were just as likely to be made by museum visitors as they were by the general public. An actual understanding of the scientific process was simply not present in a majority of those interviewed. One example given by the report details how a visitor was asked to explain how scientists would perceive the discovery of new fossils in a layer where they had not been discovered before. The visitor suggested that they [scientists] would explain it by an earthquake or other physical event had moved the specimens rather than suggest that they would modify their arguments to cope with new evidence (which is what would normally be done).

**Appendix 2.**  
**Survey questionnaire**

1. The Museum holds lots of human remains in its collection. Which of these would you feel comfortable seeing in an exhibition?

	Comfortable	Not comfortable
Real human remains from someone who died 1 million years ago		
Real human remains from someone who died 1000 years ago		
Real human remains from someone who died in the last 50 years.		

2. Do you have any other comments about displaying human remains?

3. How familiar are you with these words and phrases?

	Very familiar	Some idea of meaning	Not familiar
Biodiversity			
Natural selection			
Sustainability			
Hominids			
Bipedalism			
The natural world			
Primates			
Anthropology			
Ecosystem			
Species			
Extinct			
Human evolution			
Human origins			

4. I'm going to read you a list of possible topics for an exhibition mainly aimed at adults. Please tell me how interested you might be in seeing them.

	Very interested	Slightly interested	Not interested
The path of human evolution			
Our use of resources from the natural world			
Examples of how humans have damaged the			

environment.			
Examples of how humans have used the natural world without damaging it.			
The other types of human who have existed and from whom we may be descended.			
The views of religious groups about human origins			
Research by scientists at this museum in human origins			
Research by scientists at this museum about the natural world			
How human evolution relates to the evolution of other animals			

5. In an exhibition about humans and the natural world mainly aimed at adults what kinds of display would you like to see?

	I like this alot	I like this a little	I don't like this
Reconstructions (eg of early humans in their environments)			
Displays of early tools (eg flint axeheads)			
Replicas of human fossils			
Real specimens			
Films			
Reconstructions of early humans to show what they may have looked like			
Physical interactives (eg buttons and levers)			
Computer interactives			
Places to sit and read about current research/breaking news			
Live plants			
Live animals			

6. Which of these age categories do you fit in to?

Age	17-24	25-34	35-44	45-59	60+
Male					
Female					

7. Where are you visiting from today?

8. Do you have any special interest or training in science?



6. What benefits do humans get from the natural world?

7. In an exhibition specifically about human evolution, what would you want to see?  
(Prompt to talk about content and themes if necessary)

8. Which of these age categories do you fit in to?

Age	17-24	25-34	35-44	45-59	60+
Male					
Female					

9. Where are you visiting from today?

10. Do you have any special interest or training in science?