Name: Date:

25 total marks

Science Assessment Year 6: Evolution and Inheritance

Inheritance

1. Explain what **inheritance** means:

.....

1 mark

2. Write down the meaning of these words:

a) Offspring

.....

1 mark

b) Cells

.....

1 mark

c) DNA

.....

1 mark

3. Explain why:

a) You are not an exact clone of your Mum.

.....

1 mark

b) Brothers and sisters from the same parents are different.

.....

1 mark

Total for this page

4. Draw lines to sort these characteristics into inherited characteristics and acquired characteristics.

Characteristics
Eye colour
Roller skating
The ability to roll your tongue
Natural blonde hair
Reading books
Playing guitar

Type
Inherited
Acquired

3 marks

Adaptation

5. Why do you think bats have developed large ears over time?

.....

1 mark

6. Give two ways a penguin is suited to swimming under the water.

.....

1 mark

7. Mutations are not always an advantage. Name one way a giraffe could have mutated that would be disadvantageous.

.....

1 mark

Total for this page

Evolution

8. Explain the term '**natural selection**'.

.....

1 mark

9. Circle the names which are stages in human evolution.

Pliohippus	Homo erectus
Homo sapien	Canis lupus familiaris

2 marks

10. In biological taxonomy,

a) Which kingdom do humans belong to?

.....

1 mark

b) Which domain do humans belong to?

.....

1 mark

11. Think about **selective breeding**:

a) Explain what it is and give an example.

.....

.....

1 mark

b) Give a reason some people are against human intervention in evolution.

.....

1 mark

Total for this page

c) Give a reason some people support human intervention in evolution.

.....

1 mark

12. What is **cross breeding**?

.....

.....

1 mark

13. Name one advantage of cross breeding.

.....

1 mark

Fossils

14. How can we use fossils as evidence of evolution?

.....

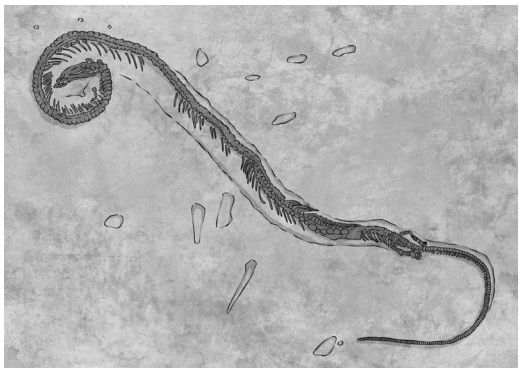
.....

1 mark

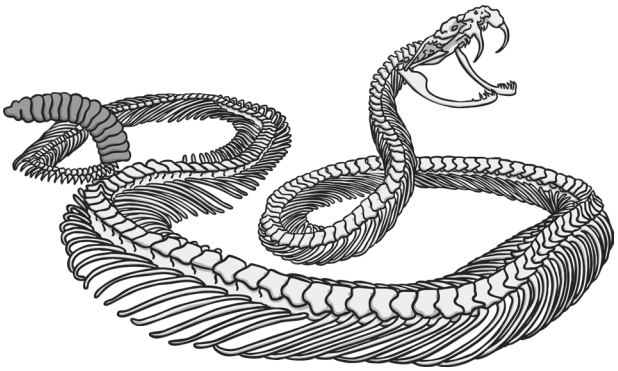
Total for this page

15. Compare the snake fossil with the snake skeleton and write down one similarity and one difference you can see between them.

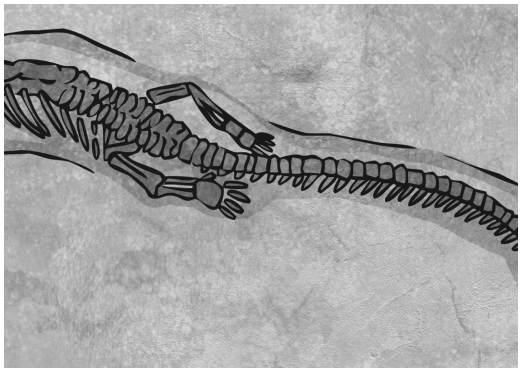
Early Snake Fossils



Modern Day Snake Skeleton



Close up of the back end:



Similarity:

.....

.....

.....

1 mark

Difference:

.....

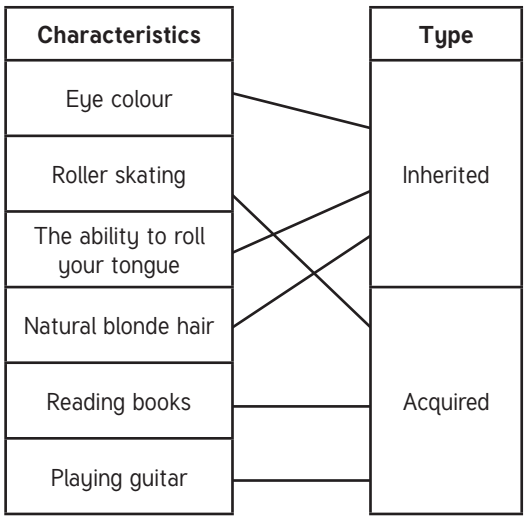
.....

.....

1 mark

Total for this page

Answer Sheet: Science Assessment Year 6:
End of Unit Assessment

question	answer	marks	notes
1. Explain what inheritance means.			
	• Characteristics passed (down) from parents (to offspring) • Genetic information from parents to offspring	1	Ideally offspring should be mentioned as well as parents. This needs reiterating in class, but only inferring for the mark.
2. Write down the meaning of these words:			
a	• Descendants from parents • Children of a parent • Animal young of a parent	1	
b	• The small parts a body is made up of • The smallest part of a plant of animal • The basic unit of living things	1	
c	• Deoxyribonucleic acid • Atoms that form a spiralling ladder (double helix) • A blue print/recipe for a living things • a long molecule that contains our unique genetic code • the instructions for making all the proteins in our bodies.	1	You may have described DNA another way in class, it is a complicated concept so use your discretion for this mark.
3. Explain why:			
a	• You have 2 parents and inherit from both • You have a mum and a dad and are a mix of both • You have your Dad's genes too	1	
b	• Genes/characteristics are mixed in different way in each person	1	
4. Draw lines to sort these characteristics into inherited characteristics and acquired characteristics.			
		3	0 marks for 0-1 correct 1 mark for 2-3 correct 2 marks for 4-5 correct 3 marks for all 6 correct

question	answer	marks	notes
5. Why do you think bats have developed large ears over time?			
	• Because they fly at night and have to hear better because they can't see as well. • They use echolocation to find obstacles and prey. • They use big ears for echolocation. • Their hearing needs to be better as they can't see at night because they are nocturnal	1	
6. Give two ways a penguin is suited to swimming under the water.			
	• It is a streamline shape • Smoothness • Pointy beak is streamlined • Flippers/webbed feet • Wings acting like fins • Solid bones allowing them to stay under water • Hold breathe for 22 minutes/ a long time • Muscles can hold extra oxygen to stay under water • Fat layers to keep warm in the water • Bending down to drink water is difficult • Drinking water makes them more vulnerable to predators	1	1 mark for any two correct answers.
7. Mutations are not always an advantage. Name one way a giraffe could have mutated that would be disadvantageous.			
a	• Any reasonable answer	1	
8. Explain the term 'natural selection'.			
	1 mark for any from: • Adaptation and evolution making some types of plants or animals more likely to survive than others. • Adaptations/evolution making some animals/plants stronger and surviving whilst others die out/become extinct	1	

question	answer	marks	notes
9. Circle the names which are stages in human evolution.			
	Pliohippus **<u>Homo Sapien</u>** **<u>Homo Erectus</u>** Canis Lupus Familiaris	2	2 marks: Homo Erectus and Homo Sapien circled and no others. 1 mark: Homo Erectus and Homo Sapien circled and one other incorrectly circled. OR either Homo Erectus or Homo Sapien circled and no others circled. 0 marks: none circled or one correct and one incorrect circled.
10. In biological taxonomy...			
a	Animal	1	
b	Eukaryote	1	
11. Think about selective breeding:			
a	Explanation: • Choosing two animals/plants to breed who both have the characteristics you want to make stronger/mix Examples: • Cows to produce more milk • Sheep with thicker wool • Dog breeders • Food crops for bigger/quicker fruit	1	1 mark for an explanation and an example. There are many examples. Use your discretion when marking. But, selective breeding **must** have human intervention.
b	• Some people think that you should leave things to be natural • Let nature take its course • Might have religious beliefs against it • Cannot always predict fully the outcome of such breeding • Manipulating animals for human gain • Where will it stop? • Can be bad/painful for animals • Can lose genes from the gene pool	1	
c	• Can improve resistance to diseases • Can eliminate 'bad' characteristics (eg sharp horn on cattle) • More food • Quicker produced food • Improved quality of food • Specific examples such as growing human body parts for transplant	1	1 mark for a correct answer.

question	answer	marks	notes
12. What is cross breeding?			
	• Breeding/offspring from two parents from different breeds. (eg. Labrador + Poodle = Labradoodle) • Selective breeding but with different breeds (animals OR plants)	1	
13. Name one advantage of cross breeding.			
	• Positive characteristics from both breeds can be put together to make a stronger breed. • Making a new breed (eg. Labradoodle, broccoli)	1	
14. How can we use fossils as evidence of evolution?			
	• Comparing the same species/animal with a skeleton now • To see how a skeleton has changed in a plant/animal compared with today	1	
15. Compare the snake fossil with the snake skeleton and write down one similarity and one difference you can see between them.			
	Similarities • Curved • Long and thin • Many vertebrae • Skull similar • Large jaw • Thinner at the tail end **Differences:** • The early snake fossil shows legs	2	1 mark for a correct similarity. 1 mark for the correct difference. Do not accept a difference being less 'bones'/ ribs on the early fossil as this can be down to incomplete/damaged skeletons shown in fossils.
		total 25	