

Science – Year 5/6B Summer 2

Revision Block B

Sensational Science

Session 5

Resource Pack

Creature cards

Polar bear

I have thick white fur and an extra layer of blubber under my skin. I have large broad paws with fur on the underside and sharp teeth for hunting. I hibernate in snow caves.

Thermophile bacteria

I thrive and grow well in extreme, high temperatures. I oxidize sulphur to make sulphuric acid as an energy source. I also contain enzymes that can function at very high temperatures.

Angler fish

I am a dark grey or brown colour and have a glowing 'bulb' dangling from my head that contains luminous bacteria. I can withstand fairly low temperatures.

Camel

I have large, flat feet to spread my weight on sand, and small nostrils and two rows of eyelashes to help keep the sand out. I have thick fur on the top of my body for shade, and thin fur elsewhere that enables easy heat loss. I can tolerate body temperatures up to 42°C.

Red Fox

I have a red-orange fur which is designed to help with thermoregulation – I can survive in both cold and hot environments. I am an omnivore and eat most things I can get my teeth into – my senses of smell, vision and hearing are all strong.

Environment images







- 1 – **Hot geyser** where temperature can reach as high as 100°C
- 2 – **Temperate forest** where temperatures vary from 0°C - 20°C
- 3 – **Arctic tundra** where temperatures drop to as low as -50°C
- 4 – **Desert** where midday temperatures can reach 50°C
- 5 – **Deep ocean** where light can be very limited and temperatures plunge to 0°C

Research lists

Set one: desert regions

- Human adaptation living in extremely hot deserts (include behaviours)
- Insect adaptation in desert environments
- Plant adaptation in desert environments

Set two: mountain regions

- Human adaptation living at high altitudes (include behaviours)
- Animal adaptation in extreme mountain environments
- Plant adaptation in extreme mountain environments

Set three: arctic regions

- Human adaptation living in artic regions (include behaviours)
- Animal adaptation in artic environments
- Plant adaptation in artic environments

Set one: desert regions

- Human adaptation living in extremely hot deserts (include behaviours)
- Insect adaptation in desert environments
- Plant adaptation in desert environments

Set two: Mountain regions

- Human adaptation living at high altitudes (include behaviours)
- Animal adaptation in extreme mountain environments
- Plant adaptation in extreme mountain environments

Set three: artic regions

- Human adaptation living in artic regions (include behaviours)
- Animal adaptation in artic environments
- Plant adaptation in artic environments

Extinction

Which definition do you think describes extinction?

Extinction is...

- *When all living things of a given species are poorly adapted to their environment and they do not survive.*
- *When new diseases and predators wipe out a species that is not adapted to survive their arrival.*
- *When new, more successful competitors in an environment win in the competition for survival and cause a species to die out.*
- *When changes to the environment over a long period of time, or a single catastrophic event (e.g. a massive volcanic eruption or a collision between an asteroid and the Earth), wipes out a species (probably many species).*

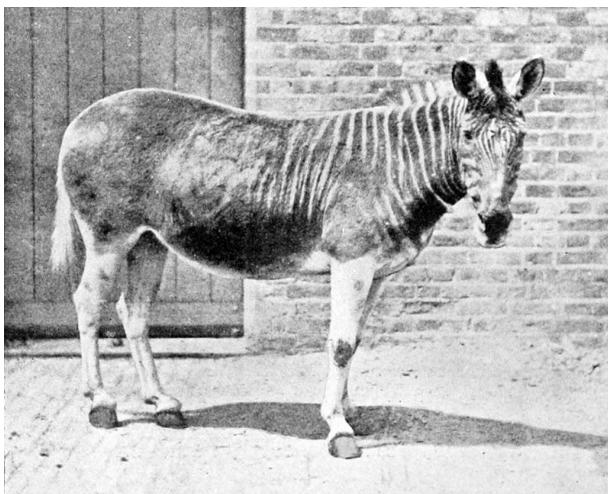
The tale of the quagga

The quagga is an extinct subspecies of plains zebra. It lived in South Africa until the 19th century. It had mainly brown and white stripes that covered the front part of the body. The rear was brown and without stripes. It looked a bit like a zebra at the front and a horse at the back.

Quaggas were once found in the Karoo of Cape Province and the southern part of the Orange Free State in South Africa. When South Africa was settled by the Dutch they hunted the quagga because it competed with domesticated animals for food. Some quaggas were taken to zoos in Europe, but breeding programs didn't work.

The quagga was extinct in the wild by 1878 and the last captive specimen died in Amsterdam on 12 August 1883. Only one quagga was ever photographed alive and only 23 skins survive today. However, in the 1980s, the quagga was the first extinct animal to have its DNA analysed, and the Quagga Project is trying to recreate the phenotype of hair coat pattern and related characteristics by selectively breeding Burchell's zebras.

By 2006, the third and fourth generation animals produced by the breeding project (called 'breeding back') looked very similar to the original quagga. The project is controversial, as the 'new' zebras will only look like the quaggas in appearance, but will be genetically different.



Original quagga



Breeding back program

Evolution ‘What if’

Ask children to explore the following questions and make suggestions of possible consequences.

What if dinosaurs had survived?

What if only humans were left in the world?

What if plants evolved the ability to run?

What if humans evolved gills?

What if insects all became extinct?

What if all predators stopped eating meat and lived off vegetation?

What if the temperature of the Earth increased/decreased by 20°C?