B5.2 Summary questions

1. unicellular, billion, evolved, fossils, stone
2. D C A B
3. 
   a. Lagosuchus
   b. One from: Tyrannosaurus, Camarasaurus, Alamosaurus
   c. 100 ±25 million years
   d. 1.82 kg
   e. i. There are no examples of any living organisms of the species anywhere in the world.
      ii. Lagosuchus
4. e.g. Peppered moths – before the 19th century most peppered moths in Britain were pale coloured, so they were camouflaged against trees. A mutation occurred in some moths which made them dark coloured. These were easily seen by birds and eaten. The pale moths were therefore more likely to survive and reproduce (and pass on the allele to be pale coloured), so pale coloured moths remained more common.
   During the Industrial Revolution many trees became covered in soot, turning the bark black. This meant that the black moths were now more camouflaged, and so more of them survived. After several years, dark peppered moths became more common in urban areas than pale moths.
5. a. the sequence of fossils in different layers of rocks, showing how organisms have changed over time
   b. Fossils of the simplest organisms such as bacteria are found in the oldest rocks, whereas fossils of more complex organisms such as vertebrates are found in more recent rocks. This supports the theory that simple life forms gradually evolved into more complex ones. Plant fossils appear before animal fossils. This is consistent with the fact that animals require plants to survive, and therefore plants appeared on Earth before animals. Closely related organisms have evolved from the same ancestor. By studying similarities in anatomy, such as bone structure, scientists can show how modern day species are related to species which are now extinct.
   c. Any two from:
      i. Some fossils are yet to be discovered; soft-bodied animals / plants may have decayed instead of being fossilised; tectonic movements / volcanic activity may have destroyed fossils.
5. a. Artificial – based on observable characteristics;
   b. a group of organisms who are able to produce fertile offspring
   c. i. class, genus
      ii. plants, animals, fungi
7. Darwin travelled to the Galapagos Islands. He noticed that different islands had different finches. The birds were closely related, but their beaks and claws had different shapes and sizes. Through his observations Darwin realised that the design of the finches’ beaks was linked to the food available on each island.
   He concluded that a bird born with a beak more suited to the food available would survive longer than a bird whose beak was less suited. Therefore, it would have more offspring, passing on its characteristic beak. Over time the finch population on that island would all share this characteristic. Darwin called this process natural selection.