1. Dee lived 12,600 years ago, near the end of the Pleistocene
2. Columbian mammoths are even bigger than African elephants, and their tusks are longer, heavier, and have a distinctive spiral twist to them. The tail of the Columbian mammoth is slightly shorter than that of the African elephant. Similarities include the low-set eye sockets, the fact that there are only four molar teeth, the lamellate structure of these molar teeth, the position of the external naris (bony nose-hole) above and in-between the eyes, and the fact that almost all of the dorsal vertebrae have ribs.
3. Me? Russell? Well, I favour the Pleistocene Overkill Hypothesis. It seems to me that it can’t just be a coincidence that mammoths went extinct first in Europe, then Asia and finally North America just a few thousand years after humans arrived first in Europe, then Asia, and finally North America. Also, this extinction event hit large animal species harder than small ones. Of 5 giant ground sloth species in North America at the end of the Pleistocene, all became extinct. Of 4 or possibly 5 species of proboscidean (elephant), all became extinct. Of three or possibly four species of bison, all but one became extinct — and that one was the smallest of the lot. Meanwhile, there were 14 species of hare in Pleistocene North America. How many became extinct? Zero. Small animals mature faster and breed faster, and they’re able to bounce back from overhunting a lot more easily. If it had been climate change that did in the mammoths, you’d expect the smaller animals to have suffered a mass extinction, too. Besides, I think it’s fun to say ‘Pleistocene Overkill Hypothesis.’
4. Mammoths have flat-topped, lamellate teeth suitable for grinding up grass. Mastodons have teeth with six cusps — like an egg-carton turned upside-down — that are more suited to browsing leaves off of bushes and trees. Mastodons are longer-bodied and shorter legged than mammoths. Their tusks extend forward from the eye socket, while those of the mammoth grow downward from the eye socket and then twist forward and out, up and back in again. Mammoth tusks are larger. Mastodon jaws are longer. Mastodons sometimes have a pair of tiny tusks growing from the point of the chin; mammoths never do.
5. Digitigrade means ‘Walking on the Toes.’ Mammoths walked with the heel held up off of the ground. Humans are plantigrade, which means ‘Walking on the Sole of the Foot.’ We walk with the heel in contact with the ground.
6. Invertebrates do not have a backbone, vertebrates do. Vertebrates have an internal skeleton; invertebrates either have an external skeleton (as in arthropods) or else no skeleton at all. In vertebrates there are at least two semicircular canals in the inner ear, invertebrates have only one semicircular canal or else none at all.
7. Helicoprion was a weird, mysterious shark with teeth that grew in an ever-lengthening spiral. It lived during the Permian period.
8. ‘Dead Sheep 148’ was the partial skeleton of a duckbill dinosaur, or hadrosaur. It was named after the dried out carcase of one of the rancher’s sheep that had died the previous year; ‘148’ was the locality number. It was found in the Upper Cretaceous Lance Formation of Eastern Wyoming, north of the town of Lusk.
9. Well, I think it was because of increasing predation. If you look at ammonite shells over time, you see more and more species with ribs and ridges — these probably helped strengthen the shell in much the same way that corrugations help strengthen cardboard. At the same time,
there were more and more marine reptile species evolving with powerful jaws and thick, shell-piercing teeth that could have fed on ammonites (mosasaurs – giant ocean-going lizards – are particularly good examples). The ribbed shells were better able to withstand attacks by mosasaurs and thus the ribbed ammonite species became more numerous than their smooth-shelled brethren.

10. The chambered nautilus looks more like an ammonite than anything else alive today. They both live in a coiled external shell, and they both have tentacles growing out of their heads. Other cephalopods, like octopus and squid, are a bit like an ammonite, too.

11. There are fossils dating from the Precambrian period that may be animals, but it’s hard to be sure. Charnia, from the Precambrian of England is often considered an animal (albeit a very weird one with no head, eyes, mouth, legs or gut) but there have also been suggestions that it is a seaweed of some kind. You don’t start seeing complex creatures until the Cambrian period.

 Five examples of older creatures differing from current creatures: The first horses are only the size of a dog, and had low-crowned teeth and three toes on each foot. A modern horse has high crowned teeth and only one toe on each foot. Two: The first nautiloids (cephalopods that lived in an external shell) had a straight shell; the modern species has a coiled shell. Three: The first fishes had no teeth and no jaws, modern fishes have both. Four: The first horseshoe crabs had a segmented opisthosoma (in horseshoe crabs the body is divided up into two main blocks, the prosoma in front and the opisthosoma behind); in modern horseshoe crabs the opisthosoma is one single, rigid piece. Five: The first rhinos were small (deer-to-horse-sized) and had upper incisors but no horns. Modern rhinos are 800 kilograms or more in adult weight and have horns, and the two African species of modern rhino have lost the upper incisors.

12. Hogadon Ski Resort is on bedrock of Serpentinite (a metamorphic rock containing the mineral serpentine) and Gneiss.

13. Similarities include a relatively large brain compared to those of other animals, a downwardly-directed foramen magnum, a dental arcade that forms a parabolic arch, and an infraorbital foramen (a small hole in the skull below the eye socket) located very close to the orbit.

 Differences include the chin (seen in the modern human skull, not in the extinct species) brain size (ranging from one-third the size of the modern human brain in Australopithecus to half the size of a human brain in Homo rudolfensis to two-thirds the size of a human brain in Homo erectus) and brow ridges (large in some of the extinct species, smaller in others, absent in modern Homo sapiens.)

14. Jade is the Wyoming state gemstone. It can be found in Carbon county, Natrona county and Fremont county.

15. Muscovite has only one cleavage plane. Halite has three and fluorite has four.

16. I’m going to ask myself ‘Who drew the brilliant glyptosaur in the White River Reptiles display?’ and I’ll reply ‘Why, that was me!’

17. Platinum.

18. The Cambrian period. (Also the Ordovician, Devonian [in part], Mississippian, Pennsylvanian [in part], the Permian [in part], the Triassic [in part], the Jurassic [in part] and the Cretaceous [in part].)