**Student Handout #3: Practice Identifying Data, Prior Knowledge, and Inferences**

In science, what we claim to know is dependent on a network of connections between what we observe and what we think we already know. These connections between observations and ideas exist at a variety of levels, that we are only partly conscious of as we think and reason. Learning to trace those connections and identify those often unconscious ideas will help us understand which knowledge is sound, which is questionable, and which is clearly false. Working to learn about knowledge in this sense will further help us understand the nature of science itself-an activity devoted to making sense out of events in the natural world that often seem unrelated and confusing.

Making claims about what we know (knowledge claims), as described above, is rarely straightforward (especially in science). In this homework assignment you will use your understanding of data, inferences, and prior knowledge and beliefs to analyze a section of popular science writing.

*Data:* What can be sensed directly; observations of the natural world.

*Prior Knowledge:* What we believe to be true about the world; and Beliefs information we bring to a situation based on previous experience.

*Inferences:* Conclusions drawn from what we *see* (observe) and what we *know*; in other words, our interpretation of data based on our prior knowledge and beliefs.

***Read the following paragraph, taken from David Attenborough's 1979 book Life on Earth and answer the questions on the following page.***

***\*THE QUESTIONS NEED TO BE ANSWERED IN COMPLETE SENTENCES\****

At Dinosaur National Monument a museum has been built around a cliff face where a single layer of stone, some four metres thick, has yielded fourteen different species of dinosaur. Some were no bigger than a chicken. Others were the biggest land-living creatures the world has ever seen. Thirty complete skeletons have been taken away but bones of many more remain. The rock which now forms the cliff-face was once a sandbank in the middle of a river. Gigantic rotting carcasses of dinosaurs floated down, beached on the sandbank and were dismembered there partly by putrefaction and partly by smaller dinosaurs that came to feast on carrion. All the long bones, such as those from the limbs and sections of the backbone, lie pointing in roughly the same direction and from them we can deduce which way the river ran. The whole deposit seems to have been laid down in the space of not more than a hundred years or so. It is an astonishing demonstration of how abundant these creatures once were.

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Identifying Data, Inferences, and PKBs

***\*THE QUESTIONS NEED TO BE ANSWERED IN COMPLETE SENTENCES\****

1. Write down two references to data from Attenborough's writing.

2. List two inferences that are included in the passage.

3. For each of the inferences you identified above, list at least one belief or piece of prior knowledge that was used to make that inference.