

Short Written Assignment: Pondering the Future of Humanity

Due Date: 4:00 pm, Friday, October 27, 2006 (Note 10 % will be deducted for each day late; 10 % for weekends)

This assignment will hopefully make you think about both the quality of the fossil record and the nature of long-term evolution. This is your first mission. Be creative, but realistic. Imagine yourself as a paleontologist 10 million years in the future (in that time, perhaps a highly evolved cockroach), studying the fossil record of strata deposited when humans dominated the Earth. Here are two scenarios to ponder.

1. **Our fossil record.** Suppose that humans are long-extinct, the only evidence of their former existence preserved in the fossil record. Explain the types of evidence that would most likely be found in the future, based on what you know about how evidence of past life is preserved and the circumstances that favour or discourage fossil preservation. The bottom line: what evidence remains of the species *Homo sapiens* (hint: think about the preservation potential of our own tissues, of the materials we use, and of evidence of our activities) ? Keep in mind that some materials, such as plastics, do not survive longer than a few thousand years. (1 page of text, 5 marks – use drawings or other aids if you wish).
2. **Our future form.** Now suppose that by some miraculous behavioral change, humans did not go extinct 10 million years ago, but only 5 million years ago. Explain the physical changes humans may have experienced in their evolutionary history from 2004 A.D. to 5 million years in the future, based on trends of human lifestyles. (1 page of text, 5 marks – use drawings or other figures if you wish).

Answer BOTH questions (Total Marks: 10)

Note: Please cite all references in the format below and ***not use encyclopedic sources*** such as Wikipedia or Encyclopedia Britannica (either online or in printed form).

Citing Sources in Text

Illustrations

You can use pictures to illustrate your point (if you feel that they help in your explanation). When you use a picture, you must refer to the corresponding figure number in the text of your report.

Example of a figure should be referred to in the text

Diamond is made of carbon atoms that are arranged in a specific three-dimensional pattern (Figure 1). Each picture should be assigned a figure number and caption, with a reference to the original source of the picture.

Examples of figure captions:

Figure 1: The internal arrangement of carbon atoms within the crystal structure of diamond (from Hildebrand, 1984).

Citations in Text

Properly cite all information used in the text of your report that is not your own. For articles with more than one author, write the last name of the first author, followed by “et al.”

Hard-copy and authored internet articles

For hard-copy publications and , cite the last name(s) of authors, followed by year of publication.

Example sentence:

The effects of volcanic ashfall on marine communities are well-documented (Radinsky, 1987; Fredrickson and Olstott, 1996; Heikoop et al., 1996).

Another example sentence:

As documented by Radinsky (1987), Frederickson and Olstott (1996) and Heikoop et al. (1996), volcanic ashfall can profoundly affect the health of marine communities.

Yet another example sentence (this one is for an authored internet article):

Research on the martian meteorite ALH84001 has provided intriguing evidence for possible ancient life on Mars (McKay et al., 1996).

Unauthored internet articles

If using a website article without an author, give an appropriate title (e.g. Mt. St. Helens Article, Discovery Channel Website).

A Note on Quotations

You are discouraged from using direct quotations; wherever possible, express the concepts in your own words. If you feel that a quotation is absolutely necessary, provide a citation as indicated above, followed by the page number of the publication you derived the quotation from (e.g., Heikoop et al., 1996, p. 287). If using an unauthored internet article, cite it as indicated above - a page number is not necessary.

Reference Format

Citations in the text and figure captions of your essay should correspond with full citations in a “References” section at the end of your report. This should be divided into the subheadings “Hard-copy publications and authored internet publications” and “Unauthored internet articles” These should be listed in alphabetical order (according to last name of author or title of webpage). Your references must be written in the following format (this includes correct use of grammar, spelling and sentence structure):

Hard-copy publications and authored internet articles

1) For scientific journal articles:

Heikoop, J.M., Tsujita, C.J., Risk, M.J., and Tomascik, T., 1996, Corals as proxy recorders of volcanic activity: evidence from Banda Api, Indonesia. *Palaios*, v. 11, p. 286-292.

2) For books:

Radinsky, L.B., 1987, *The Evolution of Vertebrate Design*. The University of Chicago Press, Chicago,

188 p.

3) *For articles in popular magazines:*

Fredrickson, J.K., and Onstott, T.C., 1996, Microbes deep inside the Earth. *Scientific American*, October, p. 68-73.

5) *For articles in compendia:*

Kidwell, S.M., and Bosence, D.J.W., 1991, Taphonomy and time -averaging of marine shelly faunas. *In*: Allison, P.A. and Briggs, D.E.G., eds., *Taphonomy: Releasing the Data Locked in the Fossil Record*. Plenum Press, New York, p. 115-209.

6) *For articles in conference symposia:*

Buddemeier, R.W., 1974, Environmental controls over annual and lunar monthly cycles in hermatypic coral. *Proceedings of the Second International Symposium on Coral Reefs*, v. 2, Great Barrier Reef Committee, Brisbane, p. 259-267

7) *For authored website articles*

McKay, D.S., Gibson, E.K., Thomas-Keprta, K.L., and Vali, H., 1996, Search for past life on Mars: possible relic biogenic activity in Martian meteorite ALH84001. Lunar and Planetary Institute website, <http://cass.jsc.nasa.gov/lpi.html>. Accessed February 19, 2005.

Unauthored internet articles:

If an author is not provided on the website, use the appropriate title cited in the text and give the full address of the website source you obtained the information from, plus the date at which the article was accessed. For example:

Mt. St. Helens article, Discovery Channel website,
<http://dsc.discovery.com/news/afp/20041004/helens.html>. Accessed February 20, 2005.

Pearls article, American Museum of Natural History website,
<http://www.amnh.org/exhibitions/pearls/>. Accessed February 21, 2005