Materials

Two document sets containing 5 unstapled, single-sided sheets were developed to assess students’ ability to integrate information in order to come to an understanding about a scientific phenomenon: coral bleaching or skin cancer. Prior to development of the documents, a causal model of each scientific phenomenon was created (See figure XX). Each model included two initiating factors, a single to-be-explained outcome, and several intervening steps.

The topics were chosen because each covers some aspect of both life science and earth science. Reputable websites were selected for collection of accurate science information in order to create the content for each document in a set (e.g., NASA earth observatory and National Geographic news). The initial document in each set served as a background text providing vocabulary and necessary content knowledge for understanding the entire document set.

Procedures

Data collection was completed as part of the regular class activities in 15 high school biology classes. A brief measure of prior knowledge was completed initially. Then, students received folders that contained an instruction sheet explaining the assignment, the five texts, and lined paper for writing the essay. The instruction sheet explained that they would be reading multiple texts with the goal of understanding a scientific phenomenon. The instructions also encouraged annotation of the text set prior to beginning writing.

Two consecutive days of the same class sessions were used for reading and essay writing. XXX students completed the essays based on the document sets with XXX writing about coral bleaching and XXX writing about skin cancer. These data are a part of a larger project that involved assessments before and after a several week intervention; therefore, some of the data reported here are pretest data and some are posttest data.