Science as a Human Endeavour Investigation – Hair Treatments

This task has a focus on science as a human endeavour; how science interacts with society. The SHE focus of this investigation is how chemical knowledge has been used to develop hair treatments.

Select and explore a recent innovation in which the pH of a solution affects the way a particular hair treatment acts on the hair.

For example, hair straightening treatments can involve alkaline solutions and shampoo has an optimum pH to maintain healthy hair.

Select, analyse and synthesise information from different sources to:

* explain the chemistry relevant to the focus of your investigation
* show its connections to key science as a human endeavour concepts. For example, ‘**application and limitation**’: the use of chemical knowledge has been used to improve the quality of the processes used for hair straightening or ‘**influence**’: the use of chemical knowledge to develop hair straightening processes has been influenced by social considerations.

Your report can be in a format of your choice, such as a flowchart (using software of your choice), an infographic with an oral presentation or a video.

You should acknowledge your sources of information using in-text referencing and a reference list.

**Assessment Conditions:**

Some class time is provided for research and support. Students have 2 weeks to complete the task. Students may submit one draft for feedback.

Word Count: maximum of 1000 words or 6 minutes for an oral presentation, or the equivalent in multimodal form.

Date Due:

**Performance Standards for Stage 2 Chemistry**

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|  | | **A** | **B** | **C** | **D** | **E** |
| **Investigation, Analysis and Evaluation** | **1**  **2**  **3**  **4** | Critically deconstructs a problem and designs a logical, coherent, and detailed chemistry investigation.  Obtains records, and represents data using appropriate conventions and formats accurately and highly effectively.  Systematically analyses and interprets data and evidence to formulate logical conclusions with detailed justification.  Critically and logically evaluates procedures and their effects on data. | Logically deconstructs a problem and designs a well-considered and clear chemistry investigation.  Obtains, records, and represents data using appropriate conventions and formats mostly accurately and effectively.  Logically analyses and interprets data and evidence to formulate suitable conclusions with reasonable justification.  Logically evaluates procedures and their effects on data. | Deconstructs a problem and designs a considered and generally clear chemistry investigation.  Obtains, records, and represents data using generally appropriate conventions and formats with some errors but generally accurately and effectively.  Undertakes some analysis and interpretation of data and evidence to formulate generally appropriate conclusions with some justification.  Evaluates procedures and some of their effects on data. | Prepares a basic deconstruction of a problem and an outline of a chemistry investigation.  Obtains, records, and represents data using conventions and formats inconsistently, with occasional accuracy and effectiveness.  Describes data and undertakes some basic interpretation to formulate a basic conclusion.  Attempts to evaluate procedures or suggest an effect on data. | Attempts a simple deconstruction of a problem and a procedure for a chemistry investigation.  Attempts to record and represent some data with limited accuracy or effectiveness.  Attempts to describe results and/or interpret data to formulate a basic conclusion.  Acknowledges that procedures affect data. |
| **Knowledge and Application** | **1**  **2**  **3**  **4** | Demonstrates deep and broad knowledge and understanding of a range of chemical concepts.  Applies chemical concepts highly effectively in new and familiar contexts.  Critically explores and understands in depth the interaction between science and society.  Communicates knowledge and understanding of chemistry coherently with highly effective use of appropriate terms, conventions and representations. | Demonstrates some depth and breadth of knowledge and understanding of a range of chemical concepts.  Applies chemical concepts mostly effectively in new and familiar contexts.  Logically explores and understands in some depth the interaction between science and society.  Communicates knowledge and understanding of chemistry mostly coherently with effective use of appropriate terms, conventions, and representations. | Demonstrates knowledge and understanding of a general range of chemical concepts.  Applies chemical concepts generally effectively in new or familiar contexts.  Explores and understands aspects of the interaction between science and society.  Communicates knowledge and understanding of chemistry generally effectively using some appropriate terms, conventions, and representations. | Demonstrates some basic knowledge and partial understanding of chemical concepts.  Applies some chemical concepts in familiar contexts.  Partially explores and recognises aspects of the interaction between science and society.  Communicates basic chemical information, using some appropriate terms, conventions, and/or representations. | Demonstrates some limited recognition and awareness of chemical concepts.  Attempts to apply chemical concepts in familiar contexts.  Attempts to explore and identify an aspect of the interaction between science and society.  Attempts to communicate information about chemistry. |