 Assessment task notification

Year 11 - investigating science

Teacher:

Task Number:

Notification Date:       Term - Week

Weight:

Due Date:       Term – Week

Outcomes

* INS11/12-1 develops and evaluates questions and hypotheses for scientific investigation
* INS11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information
* INS11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information
* INS11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose
* INS11-8 identifies that the collection of primary and secondary data initiates scientific investigations

Task Description and Instructions

You are to choose ONE of the consumer product ranges:

* Solids soaps
* Liquid soaps
* Shampoos
* Detergents

Researching, planning and conducting

* Research the qualities and properties of soap, shampoo or detergent that make it the “best” to use. Detail the science behind these properties.
* Develop an inquiry question that can be tested in the laboratory.
* Formulate your hypothesis.
* Select your samples of soap, shampoo or detergent and record details about the ingredients in each, as provided on the packaging.
* Plan and conduct a series of tests to compare at least three samples of soap, shampoo or detergent, collecting qualitative and quantitative data.
* Complete a risk assessment for your investigation.

Reporting

You are a science journalist working for a media outlet that targets non-scientists as readers and consumers of your products. You are required to write an article that explains the differences between the soaps, shampoos or detergents that you have investigated so that readers can make informed decisions about what they buy.

In your article, you need to:

* give an assessment of the soaps, shampoos or detergents you have investigated
* show how your qualitative and quantitative data collected supports your assessment
* describe how your data was collected and how it allowed you to determine which product was the best
* explain how you ensured that you used fair testing methods in your investigation
* show scientific understanding of the properties of your product
* effectively communicate to your readers.

Assessment Criteria

Your task will be marked according to your ability to:

* develop an inquiry question
* write a hypothesis linking the dependent variable with the independent variable
* design a controlled experiment which
  + allows the inquiry question to be solved
  + includes safety considerations (risk assessment)
* perform the experiment
  + making qualitative and quantitative observations
  + making accurate measurements
  + safely
* use first-hand data to complete a science report targeted at consumers, which
  + provides an interesting heading that conveys a scientific idea
  + outlines the inquiry question and states the hypothesis
  + compares the products tested
  + describes the tests carried out and how fair testing methods were used
  + assesses the products based on data collected
  + uses scientific language and concepts to explain the properties of the chosen products
  + includes a conclusion which: answers the inquiry question, relates to the tested hypothesis, gives an assessment of the products for consumers
  + effectively communicates to readers.

Marking rubric

| Criteria | Marks |
| --- | --- |
| * describes the inquiry question * states a hypothesis linking the dependent variable with the independent variable * designs an investigation which allows the inquiry question to be solved * includes a risk assessment * performs the investigation making accurate qualitative and quantitative observations * uses data from the practical investigation to complete a science report targeted at consumers, which   + provides a clear heading that conveys a scientific idea   + outlines the inquiry question and states the hypothesis   + describes, in detail, the tests carried out and how fair testing methods were used   + provides detailed observations   + compares the products tested   + assesses the products based on data collected   + uses scientific language and concepts to explain the properties of the chosen products * includes a conclusion which:   + answers the inquiry question   + relates to the tested hypothesis   + gives an assessment of the products for consumers * effectively communicates to readers | 17-20 |
| * states the inquiry question * states a hypothesis linking the dependent variable with the independent variable * designs an investigation which allows the inquiry question to be solved * performs the investigation making qualitative and quantitative observations * uses data from the practical investigation to complete a science report targeted at consumers, which   + provides a clear heading that conveys an intended meaning   + outlines the inquiry question and states the hypothesis   + describes, in detail, the tests carried out   + describes observations made in the investigation   + uses scientific language and concepts correctly in the article * includes a conclusion which:   + answers the inquiry question   + relates to the tested hypothesis   + gives an assessment of the products for consumers * effectively communicates to readers | 13-16 |
| * states the inquiry question * states a hypothesis linking the dependent variable with the independent variable * designs an investigation which allows the inquiry question to be solved * performs the investigation making qualitative and quantitative observations * uses data from the practical investigation to complete a science report targeted at consumers, which   + provides a clear headline that conveys an intended meaning   + outlines the inquiry question and states the hypothesis   + describes the tests carried out   + describes observations made in the investigation   + assesses the products based on data collected   + uses scientific language and concepts to explain the properties of the chosen products * includes a conclusion which:   + answers the inquiry question   + relates to the tested hypothesis   + gives an assessment of the products for consumers * effectively communicates to readers | 9-12 |
| * states the inquiry question * states a hypothesis linking the dependent variable with the independent variable * designs an investigation which allows the inquiry question to be solved * includes a detailed risk assessment * performs the investigation making qualitative and quantitative observations * uses data from the practical investigation to complete a science report targeted at consumers, which   + provides a clear headline that conveys an intended meaning   + outlines the inquiry question   + describes several the tests carried out   + provides detailed data of observations made   + assesses the products based on data collected   + uses scientific language and concepts to explain the properties of the chosen products * includes a conclusion which:   + answers the inquiry question   + relates to the tested hypothesis   + gives an assessment of the products for consumers * effectively communicates to readers | 5-8 |
| * states the inquiry question or the aim of the investigation * designs an investigation which allows the inquiry question or aim to be solved * performs the investigation making some observations * uses data from the practical investigation to complete a science report targeted at consumers, which   + provides a clear heading   + outlines the inquiry question   + describes at least one of the tests carried out   + describes observations made   + uses some scientific language or refers to a scientific concept * includes a conclusion which:   + answers the inquiry question   + compares the products tested * communicates ideas in the written form to readers | 0-4 |