Year 12 Investigating Science First Hand and Secondary Source Investigation

Module 7: Fact or Fallacy

IQ4: How does the reporting of science influence the public’s understanding of the subject?

• Examine a contemporary scientific debate and how it is portrayed in the mainstream media, including but not limited to:
  – Accuracy of information
  – Validity of data
  – Reliability of information sources

• Evaluate the use and interpretation of the terms ‘theory’, ‘hypothesis’, ‘belief’ and ‘law’ in relation to media reporting of scientific developments

• Compare the difference in reporting between a peer-reviewed journal article and a scientific article published in popular media

Task: This assessment is to be submitted via Canvas on the 1st July 2020 by 3:00pm. Canvas assignment: First hand and Secondary source Investigation Task.

Part 1: Contemporary scientific debate and hypothesis (3 marks)

a) Select a contemporary scientific debate/enquiry question. (1 mark)
   Options:
   - Climate change (Enquiry question: Is climate change actually happening?)
   - Vaccinations (Enquiry question: Do vaccinations cause health issues e.g. autism?)
   - Fluoride in tap water (Enquiry question: Is fluoride in tap water bad for us?)
   - Genetically modified organisms (Enquiry question: Are genetically modified organisms bad for our health?)

b) Develop a hypothesis as the focus for this investigation. Be sure to use the correct format for a hypothesis. (2 marks)
**Part 2: Secondary data collection (37 marks)**

Examine 4 secondary sources that show support for, and against, your selected issue. Select sources that are from both mainstream media (newspaper articles, online newspaper/magazine articles etc.) and the scientific community (*peer reviewed* scientific journals).

a) Complete the table below. (32 marks)

<table>
<thead>
<tr>
<th>Source</th>
<th>Viewpoint of the author (outline what they think about the issue) - 1 mark</th>
<th>Who produced it? (Scientist, doctor, journalist, blogger etc.) - 1 mark</th>
<th>The validity of the data - 2 marks</th>
<th>The reliability of the source and it's references - 2 marks</th>
<th>Accuracy of the information – 2 marks</th>
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</thead>
<tbody>
<tr>
<td>1 – Mainstream article (pro)</td>
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<td>2 - Mainstream article (con)</td>
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<td>3 – Peer reviewed scientific article (pro)</td>
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<td>4 - Peer reviewed scientific article (con)</td>
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</table>

**Important note:** Access information regarding validity, reliability and accuracy of secondary sources on Canvas in Module 7 (Second Hand Investigations_ Validity, reliability and accuracy).

b) Compare the reporting between a peer-reviewed journal article and a scientific article published in popular media. Use a table to present your comparison. (5 marks)
Part 3: Primary data collection (13 marks)

Design a questionnaire to collect primary data on what people think/feel about the issue you have chosen. Possible questions to ask: Where do they get their information from regarding the issue, do they believe what they see in the mainstream media, do they ever read scientific journal articles, is this issue of concern to them, have they always felt the same way about the issue or has something happened recently to change their mind etc.

Specific criteria:
- Include between 10 and 15 questions in your questionnaire (Tip: multiple choice questions will make your data analysis much easier than written response questions). (3 marks)
- Issue your questionnaire to at least 5 people (parents/carers, siblings, and friends). Tip: A digital questionnaire may be preferable to a paper copy. (2 mark)
- Include a blank copy of your questionnaire (labelled BLANK) in an appendix at the end of your assessment. (1 mark)
- Analyse your results by graphing/visually representing your data, identifying the trends in your data and discussing the reliability of your results. (7marks)

Part 4: Opinion and conclusion (4 marks)

a) State your own position on the issue and justify your stance (why do you have this opinion). (2 marks)
b) Write a conclusion that supports or refutes your hypothesis. (2 marks)

Part 5: Bibliography: (3 marks)
Include a bibliography. Use the school referencing system (go to school website to review how to write a bibliography).