Sample Pearson Set Assignment Brief

Single Part Assessment

Unit 8 – Contemporary Issues in Science

For use with:

Pearson International BTEC Level 3 Qualifications in Applied Science

Certificate / Subsidiary Diploma / Foundation Diploma / Diploma / Extended Diploma

Supervised hours	Up to 20 hours

For completion by the centre

Qualification (select as appropriate)	Certificate / Subsidiary Diploma / Foundation Diploma / Diploma / Extended Diploma
Assessment date	

Instructions to Teachers/Tutors and/or Invigilators

The Pearson Set Assignment should be undertaken in conditions that assure the authenticity of outcome. This may require supervision.

We advise that the Pearson Set Assignment be completed in sessions that come to a total of 20 hours. The Pearson Set Assignment should not be shared with learners prior to the start of the assessment period. Teachers/tutors are responsible for security of the Pearson Set Assignment and materials.

Outcomes for Submission

Learners may submit handwritten or word-processed evidence.

Learners must submit their own, independent work as detailed in the assignment activities, research activity notes, printed or pdf copies of the three articles sourced. Each learner must complete an authentication sheet.

Instructions to Learners

You will be asked to carry out specific activities using the information provided. You will be given a specific time period to complete the assignment. Read the Set Assignment Brief carefully.

You must submit:

- your own, independent work as detailed in the assignment activities
- research activity notes
- printed or pdf copies of the three articles sourced
- a completed authentication sheet.

Your research activity notes should:
• be individually and independently prepared by you
• use short, bullet-point style information.

At all times you must work independently and must not share your work with other learners. You must complete an authentication sheet and submit this along with your work. This document contains the information you need to prepare for the set assignment.

Set Assignment Information

You work as a junior scientist at a global biotechnology company.

A growing area of the business is the research and development of genetically modified (GM) crops, which can have enhanced properties such as insect resistance, increased nutrition value or vitamin content. Some examples of crops that the company can genetically modify include:

- soybean
- maize
- cotton
- canola
- rice

You have been asked to research case studies of different GM crops. You will then produce a report for your head of department to inform their decision on which type of GM crop to focus future development in, based upon a range of factors.

You will also produce a second article which will be used to inform the general public and potential clients of the company's work in the selected type of GM crop and its benefits in comparison to the same crop which is grown conventionally.

Set Assignment

You must complete ALL activities.

RESEARCH ACTIVITY

You are required to undertake research into at least **three** different types of genetically modified (GM) crop:

- soybean
- maize
- cotton
- canola
- rice

Your research should consider the issues surrounding GM crops in terms of:

- enhancing or removing existing characteristics and the introduction of new ones
- nutritional value, vitamin content and other health-related considerations
- resilience to insects and other pests, to disease and to extremes of conditions or climate
- the impact on the surrounding environment and biodiversity
- commercial and humanitarian considerations
- food security, legislation and cultural attitudes in different parts of the world

You will need to prepare notes on:

- the use of, or problem caused by, each type of GM crop
- the underlying science behind GM crops and in the issues resulting from their use
- the benefits and drawbacks of GM crops, in terms of:
    - economic
    - environmental
    - ethical, and
    - social implications
- the organisations and individuals that influence and / or are impacted by issues involving the development and use of GM crops, to include:
    - government and global organisations
    - non-government organisations, professional bodies and associations
    - universities and research groups/teams
    - private and multinational organisations
    - voluntary pressure groups, charities and trusts
    - individuals such as scientists, engineers, medical professionals, politicians, entrepreneurs, campaigners, journalists, members of the public
- current developments and research in GM crops

You will need to ensure that you can reference at least **three** different sources of information used in your notes.

You will also need to source **three** different types of article which report on a specific type of GM crop. The articles must be:

- a short general interest article (e.g. newspaper, information leaflet)
- a longer scientific article (e.g. scientific research paper, specialist journal article)

- an article from an organisation or individual with connection to a specific type of GM crop, either in encouraging its development or campaigning against it (e.g. webpage, promotional literature)

The three articles selected must together show a range of:

- quantitative and qualitative evidence
- expert and general opinion
- primary and secondary research
- presentation styles e.g. text, data and charts, graphics and pictures, etc
- citations and references

You will need to be able to use your research notes and articles in Activities 1, 2, 3 and 4 of this set assignment and to reference your sources of information. The three sourced articles must submitted alongside Activities 1, 2, 3 and 4.

ACTIVITY 1

Using your research and notes on genetically modified (GM) crops, prepare a report for your head of department which assesses the implications of future developments within this scientific field.

Your report will:

- **describe** the benefits and disadvantages for a modern society of at least **three** different types of GM crop, which will include:
  - the science involved in each GM crop and the problem that this causes or solves
  - how the society functioned before the introduction of GM crops, using conventional methods to grow crops
- **discuss** the benefits and drawbacks for society in using a specific GM crop in terms of:
  - economic
  - environmental
  - ethical, and
  - social implications
- **describe** and **justify** further research and development that can be undertaken for at least three different scientific issues from GM crops, including:
  - why more research and development is needed
  - reference to research and development that is currently happening
  - your own proposals for further research and development, with reasoning
- **assess** the probable implications of the future developments, to include:
  - positive and negative impacts for society
  - your judgements and conclusions on how significant these impacts would be
  - the evidence and sources of information for your judgements and conclusions

Your report will need to show how you have applied evidence and information from your research, showing referencing throughout from at least three different sources. The report will explain how the different implications of the use of GM crops are interrelated and how further scientific research or development will solve or create further problems.

This activity covers learning aim A:
A.P1, A.P2, A.M1, A.M2, A.D1

ACTIVITY 2

Using your research and notes on genetically modified (GM) crops, prepare a report for your head of department that assesses the influence and impact of key organisations and individuals upon the development and use of GM crops.

Your report will:

- **identify** different types of organisations and individuals in connection with at least **three** different types of GM crop, to include:
    - government and global organisations
    - non-government organisations, professional bodies and associations
    - universities and research groups/teams
    - private and multinational organisations
    - voluntary pressure groups, charities and trusts
    - individuals e.g. scientists, engineers, medical professionals, politicians, entrepreneurs, campaigners, journalists, members of the public

- **explain** in detail the background, purpose and role of different types of organisations and individuals in connection with a type of GM crop of your choice
- **discuss** the influence of organisations and individuals in connection with your selected type of GM crop, either directly or indirectly, and how it could be increased
- **assess** the relative magnitude of each organisation or individual's contribution to the advancement or restriction of your selected type of GM crop and conclude who has the greatest influence.

Your report will need to show how you have applied evidence and information from your research, showing referencing throughout from different sources. The report will explain how the different organisations and individuals are interrelated in the selected type GM crop and how they will be involved or impacted by further scientific research or development.

This activity covers learning aim B:
B.P3, B.P4, B.M2, B.D2

ACTIVITY 3

Using your **three** articles on a specific type of genetically modified (GM) crop, prepare a report which evaluates the reliability and validity of the conclusions (or main points) being made in each article.

Your report will:

- **summarise** the conclusions on the specific type of GM crop, its development and impacts from each article
- compare similarities and differences of the conclusions being made by each article
- identify the references and type of information within each article (e.g. quantitative or qualitative evidence, expert or general opinion), the source (e.g. primary or secondary research) and its presentation (e.g. graphically, pictorially, citation or reference) to support the conclusions being made on the type of GM crop
- **discuss** the information and references within each article to support the conclusions being made on the type of GM crop
- **assess** the evidence presented or referenced within each article by:
    - identifying how the author(s) of each article has presented, interpreted and analysed the evidence
    - judging how accurately the evidence and other information has been used
    - identifying any notable omissions of facts or evidence that would influence the conclusions
    - providing your own interpretation and analysis of the evidence or its original source
    - discussing your own or other alternative interpretations of the evidence, in comparison with each article
- **assess** the accuracy and authenticity of each article in terms of:
    - the author's credentials, experience and knowledge regarding the type of GM crop
    - how much of the article is based upon the author's own contribution and knowledge as opposed to using the work of others
    - whether the approach is impartial or biased towards a particular viewpoint
    - evidence that the article has been reviewed independently or is cited elsewhere in other publications
- **evaluate** whether the reliability and validity of the conclusions made in each article have equal value or whether one article has more validity than the others

This activity covers learning aim C:
C.P5, C.P6, C.M4, C.M5, C.D3

ACTIVITY 4

Using your **three** articles, identify the target audience for each article and **explain** how a specific type of genetically modified (GM) crop is reported and presented, in terms of the article's structure and content, for each audience.

Having considered the articles, you will **plan** two documents on your selected type of GM crop but that are aimed at different target audiences:

- the first plan will be for an article for the general public. The general public may not have any scientific knowledge.
- the second plan will be for a report for your head of department. Your head of department is a scientist and subject expert.

The plans for both documents should outline:

- the purpose of each report
- the choice of an appropriate medium (e.g. blog, social media, information leaflet, newspaper article, specialist journal, research paper, scientific presentation)
- the choice of an appropriate format and structure
- the level of detail and accuracy
- the level of language and terminology
- the style of writing and visual aids that will be used
- the quality and quantity of scientific information that needs to be conveyed

You will then write the two documents, according to the structure, content, detail, style and tone that has been planned for.

For the general audience, your article will **discuss** your choice of GM crop and its benefits compared to the same crop that is grown by conventional means, and will use information from your three sourced articles. You will select and summarise the main points and evidence from the sourced articles, which will include any supporting and conflicting statements, and will show clarity and coherence in your writing.

For the professional audience, the report will **evaluate** your selected GM crop against the same crop grown conventionally and also against other types of GM crops that you have researched. You will use your three sourced articles and your additional research notes in the writing of your report. The report will show evidence of integration of the sources and research to give a synthesised report which is clear and coherent but also consistent and logical. Supporting and conflicting evidence will be evaluated, and your own conclusions or recommendations on your selected GM crop will be put forward to your head of department.

This activity covers learning aim D:
D.P7, D.P8, D.M6, D.D4