JOHN EDMONDSON HIGH SCHOOL
Assessment Notification

Faculty: Science   Course: Biology   Year: 12

Assessment Task: Depth Study Report

Assessment Weighting: 30%   Due: Term 1  Week 10  Date: 2/04/2019

Task Type: Hand in Task ☒   In Class Task ☐   Practical Task ☐

<table>
<thead>
<tr>
<th>Outcomes assessed (NESA)</th>
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<tbody>
<tr>
<td>BIO11/12-5 analyses and evaluates primary and secondary data and information</td>
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<tr>
<td>Problem solving</td>
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<tr>
<td>BIO11/12-6 solves scientific problems using primary and secondary data, critical</td>
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<tr>
<td>thinking skills and scientific processes</td>
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<tr>
<td>BIO11/12-7 communicates scientific understanding using suitable language and</td>
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<tr>
<td>terminology for a specific audience or purpose</td>
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<tr>
<td>BIO12-13 explains natural genetic change and the use of genetic technologies to</td>
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<tr>
<td>induce genetic change</td>
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- investigate the uses and applications of biotechnology (past, present and future), including: (ACSBL087)
  - analysing the social implications and ethical uses of biotechnology, including plant
    and animal examples
  - researching future directions of the use of biotechnology
  - evaluating the potential benefits for society of research using genetic technologies
  - evaluating the changes to the Earth’s biodiversity due to genetic techniques

<table>
<thead>
<tr>
<th>Task Description/Overview</th>
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<tbody>
<tr>
<td>Part A: Write an investigative report on a chosen biotechnolgy.</td>
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<tr>
<td>Part B: Research a bioethical topic and create a podcast discussing the societal impacts and the ethics surrounding the topic</td>
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Total 50 marks

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<tr>
<th>Detailed Assessment Task Description</th>
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<td>Part A (32 marks)</td>
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Investigate one of the following biotechnologies:
- Selective breeding
- Recombinant DNA
- Invitro Fertilisation (IVF)
- Artificial Insemination & artificial pollination
- Cloning
- Transgenic organisms

Write an investigative report on your chosen biotechnology. It should be formatted with subheadings in the following way.
Title (1 mark)

Introduction

• Definition of biotechnology (1 mark)
• Changes in technology; past, present and future (8 marks)
• Definition of your chosen biotechnology (1 mark)

Body

• Process of chosen biotechnology, using a diagram/flowchart to support your response (5 marks)
• What are the outcomes of your chosen biotechnology? (does it achieve the desired outcome?) Include at least 2 examples. (3 marks)
• Construct a table outlining the advantages & disadvantages/limitations (such as cost, time & availability of resources) of your chosen biotechnology. (9 marks)

Conclusion (2 marks)

• Assess the effectiveness of your chosen biotechnology.

Literacy & grammar (2 marks)

Part B (15 marks)

Research one of the following bioethical topics that interest you to make an informed opinion about the societal impacts and the ethics surrounding the topic.

1. Head-transplants were attempted on monkeys in the 1970s. Should medical research that attempts to conduct head-transplants in humans be allowed?
2. Technology exists to sequence entire human genomes relatively quickly. This can predict a number of traits in an individual. Should babies have their genomes sequenced at birth?
3. Increasing numbers of couples are finding that they have fertility issues. Should tax money be used by the government to pay for fertility treatments?
4. There is the potential to create an artificial uterus in which to grow human embryos. Should scientific research seek to create an artificial human uterus?
5. CRISPR-Cas9 is a genetic technology that allows specific DNA sequences to be targeted and modified. Should medical research be conducted to attempt to develop techniques using CRISPR-Cas9 to fix genetic diseases in embryos?
6. Vaccines are medical preventions given to individuals to teach their immune system to fight diseases. Should governments make vaccination compulsory for children?

Prepare a 2-3 minute podcast about your chosen topic.
In your podcast you should:
• Introduce the topic (1 mark)
• Analyse the societal implications (8 marks)
How does this impact upon society? Does it impact society in a good way or in a bad way? Why?
Does your topic violate human rights? Why/why not?
Are there benefits to humans and other organisms?
Sustainability of resources
- State your opinion on your chosen topic (1 mark)
Explain the ethical beliefs that led to your opinion (2 marks)

Submission of transcript & time limit of podcast (3 marks)
As well as uploading your podcast to the podcast channel, you MUST submit a physical transcript of your podcast to your Biology teacher.

Instructions on submitting your podcast

Website
Go to the following url https://anchor.fm/login and use the following details to log in.
Username: Jeanelle.karagiannis@det.nsw.edu.au
Password: Biology2019
Upload or record your podcast.

App
Download the app anchor for the app store. Use the same login details and upload or record your file.

Bibliography (3 marks)
Alphabetical order
3 sources correctly referenced according to school website

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<tr>
<th>Assessment Criteria</th>
<th>Description</th>
<th>Mark Range</th>
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<tr>
<td>Outstanding (O)</td>
<td>The student has an extensive knowledge and understanding of the content and can readily apply this knowledge. In addition, the student has achieved a very high level of competence in the processes and skills and can apply these skills to new situations.</td>
<td>79.5-100</td>
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<tr>
<td>High (H)</td>
<td>The student has a thorough knowledge and understanding of the content and a high level of competence in the processes and skills. In addition, the student is able to apply this knowledge and these skills to most situations.</td>
<td>69.5-79</td>
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<tr>
<td>Sound (S)</td>
<td>The student has a sound knowledge and understanding of the content and has achieved a good level of competence in the processes and skills.</td>
<td>49.5-69</td>
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<td>Basic (B)</td>
<td>The student has a basic knowledge and understanding of the content and has achieved a basic level of competence in the processes and skills.</td>
<td>19.5-49</td>
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<tr>
<td>Limited (L)</td>
<td>The student has an elementary knowledge and understanding in a few areas of the content and still requires further work to achieve competence in the processes and skills.</td>
<td>0-19</td>
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Satisfactory completion of courses
A course has been satisfactorily completed, when the student has:

- Followed the course developed/endorsed by the NSW Educational Standards Authority (NESA)
- Applied himself/herself with diligence and sustained effort to the set tasks and experiences provided in the course.
- Achieved some or all of the course outcomes