JOHN EDMONDSON HIGH SCHOOL
Assessment Notification

Faculty: Science  Course: HSC Biology    Year: 12

Assessment Task: Depth Study - Presentation

Assessment Weighting: 30%    Due: Term 1  Week 9  Date: 24/03/2020

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>BIO11/12-1 develops and evaluates questions and hypotheses for scientific investigation</td>
</tr>
<tr>
<td>BIO11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information</td>
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<tr>
<td>BIO11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information</td>
</tr>
<tr>
<td>BIO11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media</td>
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<tr>
<td>BIO11/12-5 analyses and evaluates primary and secondary data and information</td>
</tr>
<tr>
<td>Problem solving</td>
</tr>
<tr>
<td>BIO11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes</td>
</tr>
<tr>
<td>BIO11/12-7 communicates scientific understanding using suitable language and 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 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
- investigate the uses and advantages of current genetic technologies that induce genetic change
- evaluate the benefits of using genetic technologies in agricultural, medical and industrial applications (ACSBL086)
- evaluate the effect on biodiversity of using biotechnology in agriculture
- interpret a range of secondary sources to assess the influence of social, economic and cultural contexts on a range of biotechnologies
### Task Description/Overview

Part A and Part B to be submitted on CANVAS (and hard copy handed in) by 8.40 am. Part C infographic poster to be submitted in SOLE room by 8.40 am on due date. Presentation in class period 2 & 3 in D04.

TOTAL MARKS 45

<table>
<thead>
<tr>
<th>Part</th>
<th>Processing data and information</th>
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<tbody>
<tr>
<td>Part A</td>
<td></td>
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<tr>
<td>Part B</td>
<td>Analysing data and information</td>
</tr>
<tr>
<td>Part C</td>
<td>Communicating</td>
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If you are sick/late on the day of submission and presentation, an illness and misadventure form needs to be submitted to Ms Violi.

### Detailed Assessment Task Description

**Part A: CRISPR (15 marks)**
Processing data and information

1. What exactly is CRISPR and describe how does it work? (3 marks)
2. Prepare a flowchart (using boxes and arrows) to outline the process in simple terms. It should include presenting the CRISPR-Cas9 molecule, labelling it's parts and briefly outlining the role of each part of the system. Include diagrams. ( 6 marks)
3. Identify possibilities/diseases that can be eradicated using CRISPR technology. Write at least 3 possibilities/diseases. (3 marks)
4. Choose one possibility/disease and summarise the information, outlining how CRISPR could be used to achieve this goal. (3 marks)

**PART B: ( 8 marks )**  
Analysing data and information

1. Evaluate social, cultural, economic and environmental implications of CRISPR technology.

**PART C: (14 marks)**  
Communicating

Choose one biotechnology from the following list:
- selective breeding
- artificial insemination and artificial pollination
- in vitro fertilisation
- cloning
- recombinant DNA technology

Design an infographic poster A3 size choosing your technology which should include the following information:
- Identify the technology
- Describe the process
- give plant and animal example and describe each
- describe any medical and industrial benefits of the technology
- outline any possible long term impacts of the technology on genetic diversity.
- include images, diagrams and video links.

You will present this information in class. Presentation should be between 2 and 3 minutes. Presentation 5 marks.

Resources
You will be allocated 3 lessons for this research task.
Lesson 1 - planning and research.
Lesson 2 - planning and research.
Lesson 3 - teacher feedback on progress.

Bibliography
At least 3 different resources referenced as per school website. (3 marks)

Assessment Criteria

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Mark Range</th>
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<tbody>
<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>
</tr>
<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>
</tr>
<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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<tr>
<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