Assessment Task

Subject: Stage 1 Biology
Teacher: Leslie Beissel: leslie.beissel@ntschools.net
Task Title: Physiology Reproduction Folio Task
Draft Due Date: Monday, 17 October 2016
Final Due Date: Monday, 31 October 2016

Please note that failure to submit the task by this date will result in academic detention until completed.

Learning Requirements:
1. identify and formulate questions, hypotheses, concepts, and purposes that guide biological investigations
2. design and conduct individual and collaborative biological investigations
3. select and critically evaluate biological evidence from different sources and present informed conclusions and personal views on social, ethical, and environmental issues
4. communicate their knowledge and understanding of biological concepts using appropriate biological terms and conventions
5. demonstrate and apply biological knowledge and understanding of concepts and interrelationships to a range of contexts and problems, including by presenting alternative explanations

Outcomes Assessed:

Investigation
I1 Design of a biological investigation.
I3 Manipulation of apparatus and technological tools to implement safe and ethical investigation procedures.
I4 The obtaining, recording, and display of findings of investigations using appropriate conventions and formats.

Analysis and Evaluation
AE2 Evaluation of procedures, with suggestions for improvement

Application
A3 Demonstration of skills in individual and collaborative work.

Knowledge and Understanding
KU3 Communication of knowledge and understanding of biology in different formats
Task Outline:
In this practical you are required to design an investigation into a factor related to the reproduction or growth of an organism. See your teacher for possible topics, and negotiate an appropriate investigation for your group.

As a starting point, you are expected to develop a measurable hypothesis, collect, display, interpret and analyse data, and present a conclusion appropriate to the initial hypothesis. You should also critically evaluate the outcomes of the practical, consider a range of explanations for your observations, and suggest improvements to the design of the investigation.

You are required to work collaboratively in pairs when designing and carrying out the investigation, but must produce individual assessment items.

Your assessment item will be presented in the form of a written practical report and MUST address the following criteria

- Introduction
- Aim
- Hypothesis
- Variables - independent, dependent, controlled.
- Equipment
- Method
- Data presented in both table and graph format.
- Interpretation of results – spell out exactly what the results were
- Discussion – why do you think the results were as they were?; were there any errors in your design?; how could they be overcome?; what improvements could be made?
- Conclusion
- Reference List

Possible topics:

- Does light colour affect the growth of a plant?
- Effect of fertiliser on plant growth?
- Factors affecting germination in seeds (pH, temp, soil, medium used)
- Types of reproduction in plants in the school.

Marking:

Marking: Remember that the marking follows the Performance Standards for Stage 1 Biology (see the attached Performance Standards pages), with emphasis on
- Designing and implementing a logical, coherent and detailed plan
- Manipulate apparatus and technological tools carefully, effectively, safely and ethically
- Obtaining, recording, and displaying your findings accurately and appropriately
- Logically evaluate procedures and suggest a range of appropriate improvements
- Individual and collaborative work skills
- Using a variety of formats to communicate your knowledge effectively
### Stage 1 Biology Performance Standards

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<thead>
<tr>
<th>Investigation</th>
<th>Analysis and Evaluation</th>
<th>Application</th>
<th>Knowledge and Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Designs a logical, coherent, and detailed biological investigation.</td>
<td>Systematically analyses data and their connections with concepts to formulate logical and perceptive conclusions and make relevant predictions. Logically evaluates procedures and suggests a range of appropriate improvements.</td>
<td>Applies biological concepts and evidence from investigations to suggest solutions to complex problems in new and familiar contexts. Uses appropriate biological terms, conventions, formulae, and equations highly effectively. Demonstrates initiative in applying constructive and focused individual and collaborative work skills.</td>
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<tr>
<td>B</td>
<td>Designs a well-considered and clear biological investigation. Logically selects and appropriately acknowledges information about biology and issues in biology from different sources. Manipulates apparatus and technological tools carefully and mostly effectively to implement well-organised safe and ethical investigation procedures.</td>
<td>Logically analyses data and their connections with concepts to formulate consistent conclusions and mostly relevant predictions. Evaluates procedures and suggests some appropriate improvements.</td>
<td>Applies biological concepts and evidence from investigations to suggest solutions to problems in new and familiar contexts. Uses appropriate biological terms, conventions, formulae, and equations effectively. Applies mostly constructive and focused individual and collaborative work skills.</td>
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<tr>
<td>C</td>
<td>Designs a considered and generally clear biological investigation. Selects with some focus, and mostly appropriately acknowledges, information about biology and issues in biology from different sources. Manipulates apparatus and technological tools generally carefully and effectively to implement safe and ethical investigation procedures.</td>
<td>Analyses data and their connections with concepts to formulate general appropriate conclusions and make simple predictions with some relevance. Evaluates some procedures in biology and suggests some improvements that are generally appropriate.</td>
<td>Applies biological concepts and evidence from investigations to suggest some solutions to basic problems in new or familiar contexts. Uses generally appropriate biological terms, conventions, formulae, and equations with some general effectiveness. Applies generally constructive individual and collaborative work skills.</td>
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<tr>
<td>D</td>
<td>Prepares the outline of a biological investigation. Selects and may partly acknowledge one or more sources of information about biology or an issue in biology. Uses apparatus and technological tools with inconsistent care and effectiveness and attempts to implement safe and ethical investigation procedures.</td>
<td>Describes basic connections between some data and concepts and attempts to formulate a conclusion and make a simple prediction that may be relevant. For some procedures, identifies improvements that may be made.</td>
<td>Applies some evidence to describe some basic problems and identify one or more simple solutions, in familiar contexts. Attempts to use some biological terms, conventions, formulae, and equations that may be appropriate. Attempts individual work inconsistently, and contributes superficially to aspects of collaborative work.</td>
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<tr>
<td>E</td>
<td>Identifies a simple procedure for a biological investigation. Identifies a source of information about biology or an issue in biology. Attempts to use apparatus and technological tools with limited effectiveness or attention to safe or ethical investigation procedures. Attempts to record and display some descriptive information about an investigation, with limited accuracy or effectiveness.</td>
<td>Attempts to connect data with concepts formulate a conclusion and make a prediction. Acknowledges the need for improvements in one or more procedures.</td>
<td>Identifies a basic problem and attempts to identify a solution in a familiar context. Uses some biological terms or formulae. Shows emerging skills in individual and collaborative work.</td>
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