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|  | **Bass High School Assessment Task**  **YEAR 9 SCIENCE**  Assessment Task Title**: INDEPENDENT PRACTICAL PROJECT**  Task Type: **FIRST HAND INVESTIGATION**  Student Name: …………………………… Class: YEAR 9 SCIENCE  **Weighting:** 30 % Task No. 2 | |
| Due Date: **16/10/2020** | Date Issued: 7/09/2020 |
| **Submission Instructions:** | The finished report is to be handed to your science teacher in class on the due date. You will hand in all of the following documents on this date:   * The Coversheet (this sheet) * Your practical report * The Marking Criteria Sheet | |

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| **Task:**  This is a **MANDATORY** part of the Stage 5 Science syllabus. Students are to undertake the project as an individual and must **submit their own** completed report.    **Suggested Practical Activities:**  Students select and research a topic from the list below and notify your teacher. The student will design and perform an experiment to test a hypothesis.   |  |  |  |  | | --- | --- | --- | --- | | **option** | **Practical** | **Possible aim** | **Outcome** | | 1. | Activity Series of metals: | Determine the relative reactivity of five different metals. | SC5-CW4 | | 2. | Stopping the Rust: | Determine the most effective way to slow corrosion (rusting) of different metals. | SC5-CW4 | | 3. | Fruit battery: | Calculate the voltage produced from a range of fruits and vegetables. | SC5-PW3 | | 4. | Tensile Strength of paper: | Determine the relative strengths of different types of paper. | SC5-PW2 | | 5. | Water content of foods: | Calculate the water content of various fruits and vegetables. | CS5-LW2 | | 6. | Water holding capacity of soils: | Calculate the water content of different soils. | CS5-LW2 | | 7. | Paper Castles: | Determine which structure made only of newspaper and masking tape, will the hold up the largest mass, at the greatest height, yet still be the lightest weight. | CS5-PW2 | | 8. | Bouncing balls: | Investigate the effect of temperature on the height a ball bounces. | CS5-PW4 | | 9. | Emptying a bottle: | Determine the quickest way to empty water from a plastic bottle. | CS5-PW4 | | 10. | Angle of Trajectory: | Determine which launch angle produces the greatest distance travelled by a bottle rocket. | CS5-PW4 | | 11. | Student choice: | Following a discussion with your teacher students may undertake a task of their choice | varies | |

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| Penalties: Years 9-12  *Failure to satisfactorily complete this task by the due date or if absent on the day, the next day at school, will require you to submit a school illness/misadventure form to the relevant Head Teacher for review of your situation or a mark of zero will be awarded.* |

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| **In order to undertake this task you need to:**   * Look at the list of projects and inform the teacher which one you wish to do. * Design and carry out the experiment. * Write a report on the experiment. NOTE: This is to be done **individually,** * The guidelines for marking each section of the project are included to assist in the setting out and completion of the project. * Complete the task within the 4 week period (this includes time in class for research and performing the investigation) |
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| **Outcomes being assessed:**  SC5-4WS - develops questions or hypotheses to be investigated scientifically  SC5-5WS - produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively  SC5-6WS - undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively  SC5-7WS - processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions  SC5-8WS - applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems  SC5-9WS - presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations  SC5-\_\_\_\_\_\_\_ - Knowledge and understanding outcome depends on practical experiment chosen |

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| **REPORT FORMAT & MARKING CRITERIA** |

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| **Heading** | **Knowledge & Understanding Outcomes** | **Marks** | | |
| **Title** | *Appropriate Title for this investigation* | 0 | 1 |  |
| **Inquiry Question** | *What are you going to investigate? [Stated as a question.]* | 0 | 1 | 2 |
| **Introduction** | *Defines “energy” and “energy transformation”.* | 0 | 1 | 2 |
| *Describes the* ***TWO*** *types of energy in this investigation.* | 0 | 1 | 2 |
| *Clarifies the type of energy object has at the top of the ramp.* | 0 | 1 |  |
| *Clarifies the type of energy object has as it rolls on the floor.* | 0 | 1 |  |
| ***TOTAL: Knowledge & Understanding*** | | ***/8*** | | |

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| **Heading** | **Working Scientifically Outcomes** | **Marks** | | |
| **Aim** | *The purpose of your investigation – starts with “To…..”* | *0* | *1* |  |
| **Hypothesis** | *An ‘educated guess’ and explains why* | *0* | *1* | *2* |
| **Variables** | *Independent variable – what you changed [the “cause”]* | *0* | *1* |  |
| *Dependent variable – what you measured [the “effect”]* | *0* | *1* |  |
| *Controlled variables – list* ***TWO*** *that were kept constant* | *0* | *1* | *2* |
| **Results** | *Uses an appropriate Results Table to present data* | *0* | *1* |  |
| *Writes correct headings and units for measurements* | *0* | *1* | *2* |
| *Evidence of reliability in measurements [More than 1 trial]* | *0* | *1* |  |
| *Calculates averages* | *0* | *1* |  |
| **Analysis** | *Independent and dependent variables on correct axes* | *0* | *1* |  |
| *Accurately scaled ‘x’ and ‘y’ axes* | *0* | *1* | *2* |
| *Accurately labelled ‘x’ and ‘y’ axes* | *0* | *1* | *2* |
| *Accurate graph drawn showing the “best fit” trend* | *0* | *1* |  |
| **Discussion** | *Explains the relationship between the variables investigated* | 0 | 1 | 2 |
| *Describes the trend indicated by the graph* | 0 | 1 |  |
| *Explains if* ***Hypothesis*** *is supported or not* | 0 | 1 | 2 |
| *Discusses at least* ***TWO*** *sources of error in investigation* | 0 | 1 | 2 |
| *Describes* ***TWO*** *improvements to this investigation* | 0 | 1 | 2 |
| **Conclusion** | *This is a short summary of your investigation.* | 0 | 1 |  |
| **Bibliography** | *Cites at least* ***TWO*** *reliable websites as references* | 0 | 1 | 2 |
| **Journal** | *Dated entries describing progress of the investigation* | 0 | 1 | 2 |
| ***TOTAL: Working Scientifically*** | | ***/32*** | | |