



# Boorowa Central School

*Excellence through Respect, Responsibility and Participation*

## Assessment Task Notification

All tasks should be clearly outlined in the notice and give information pertaining to the nature of the task, the outcomes being assessed and the marking schedule giving individual component weightings.

<b>Teacher:</b> Mr Corcoran	<b>Course:</b> Inv. Science
<b>Task and Number:</b> 3 Theories and Laws	<b>Task Weighting:</b> 40%
<b>Date Issued:</b> 31/7/20	<b>Date Due:</b> Friday 11/9/20 Wk 8
<b>Syllabus component:</b> Module 4	
<b>Syllabus outcomes being assessed:</b>	
<b>Outcomes assessed</b> Compulsory outcomes <ul style="list-style-type: none"><li>INS11/12-1 develops and evaluates questions and hypotheses for scientific investigation</li><li>INS11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose</li><li>INS11-11 describes and assesses how scientific explanations, laws and theories have developed</li></ul>	
Three outcomes must be selected from the following Working Scientifically outcomes <ul style="list-style-type: none"><li>INS11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information</li><li>INS11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information</li><li>INS11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media</li><li>INS11/12-5 analyses and evaluates primary and secondary data and information</li><li>INS11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes</li></ul>	
<b>Task</b>	
<p>The various theories and laws developed by Science are the result of the patient accumulation and collection of data derived from the observation, collection and recording of data which is then analysed to make inferences based on trends and patterns by generations of scientists. Scientists seek to explain and understand these trends and patterns by developing theories and laws to determine cause and effect or by establishing the circumstances under which an event occurs.</p> <p>Students are to research theory or law of their choosing and from this research and understanding on the topic, develop an inquiry question based on an established theory or law and research how diverse phenomena have been unified to develop the theory or law up to the present day. The investigation may be conducted using primary or secondary sources, or a combination of both with the findings presented in a scientific report.</p> <p>Theories or laws that could be investigated include, <b>but are not limited to</b> (there's heaps more):</p>	
<ul style="list-style-type: none"><li>atomic theory</li><li>theory of evolution by natural selection</li><li>big bang theory</li><li>plate tectonic theory</li><li>Ohm's law</li><li>law of conservation of energy</li><li>Avogadro's law</li><li>Newton's laws of motion</li><li>law of superposition</li><li>germ theory</li><li>oxygen theory of combustion</li></ul>	<ul style="list-style-type: none"><li>law of conservation of mass</li><li>Mendel's laws</li><li>cell theory</li><li>game theory</li><li>Statistical mechanics</li><li>theory of general and/or special relativity</li><li>quantum theory</li><li>heliocentrism</li><li>information theory</li><li>social identity theory</li><li>Kepler's laws of planetary motion</li></ul>



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| <ul style="list-style-type: none"><li>• Bernoulli's law of fluid dynamics</li><li>• Dalton's law of partial pressures</li><li>• Fourier's law of heat conduction</li><li>• Hubble's law of cosmic expansion</li></ul> | <ul style="list-style-type: none"><li>• universal law of gravitation</li><li>• Archimedes' buoyancy principle</li><li>• Heisenberg's uncertainty principle</li><li>• Hooke's law of elasticity</li></ul> |
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## Task Criteria

### The task is split into 2 parts - Part A: The Theory or Law

- Outline the general information about this theory or law and the people behind it.
- Outline the original hypothesis proposed by the scientist/s credited for developing the theory or law
- Describe the observation/s that form the basis of the theory or law
- Discuss the evidence that has been collected or generated by both the original scientist/s or subsequent scientists to support the theory or law
- Explain how the theory or law is applied or used in modern society
- Analyse any observations or evidence that may conflict with the theory or law as it is currently stated. For example Newtons Laws don't apply at an atomic quantum level.

### Part B: First or Second Hand Investigation

- Create an inquiry question that you will investigate that is related to your theory or law. Discuss how you developed this question and why
- Complete a full scientific report including aim, hypothesis, risk assessment, materials, method, variables, pictures, results (tables, graphs & summary of your data), discussion and conclusion on the primary or secondary data you collect to investigate your inquiry question.
- Evaluate how your investigation backed up/or went against the theory or law.

Pick your three optional rubrics and complete appropriate inquiry or analysis to fulfil the rubrics specifications. Ask Mr Corcoran for a plan of how to attack this marking criteria.

### Submission of Task requirements:

The investigation is to be presented using appropriate understanding and terminology; the task is to be completed on a Google Doc and submitted on the Google Classroom or printed and submitted by hand by or on the due date.

**Note:** If a student is absent for an assessment task or fails to submit a task when it is due, then a medical certificate or other acceptable explanation must be presented on the first day the student returns to school or a zero mark is awarded.