

## Levels of Performance in Physics for Grade Twelve at Independent schools

Level Strand	High Performance	Satisfactory Performance	Low Performance
Reasoning and problem solving	<p><u>student can:</u></p> <ul style="list-style-type: none"> <li>☒ solve routine and non routine problems in a range of mathematical and other contexts.</li> <li>☒ Use mathematics to model and predict the outcomes of substantial real-world applications.</li> <li>☒ Generate mathematical proofs and generation whenever possible.</li> <li>☒ Synthesize, combine, present, interpret and criticize mathematical information, working to the expected degree of accuracy and know when to use ICT effectively.</li> </ul>	<p><u>student can:</u></p> <ul style="list-style-type: none"> <li>☒ solve routine problems in a range of mathematical and other contexts.</li> <li>☒ Synthesize and present mathematical information, working to an accepted degree of accuracy.</li> </ul>	<p><u>student can:</u></p> <ul style="list-style-type: none"> <li>☒ Synthesize and present mathematical information using ICT.</li> </ul>

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Number and Algebra	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li>☒ generate recursive sequences to model the behavior of real – world situations(e.g. population growth, genetics and speed of bacteria growth).</li> <li>☒ use physical context to plot and interpret the graphs of functions.</li> <li>☒ use realistic data and ICT to analyze problems through studying functions and their graphs, and solve the relevant equations.</li> <li>☒ rearrange formula connecting two variables and generate further formula from physical context.</li> </ul>	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li>☒ solve most of recursive sequences to model the behavior of real –world situations (e.g. population growth, genetics and speed of bacteria growth)</li> <li>☒ use realistic data and ICT to analyze problems through studying functions and their graphs, and solve the relevant equations.</li> <li>☒ rearrange harder formula connecting two variables and generate further formula from physical contexts.</li> </ul>	<p><u>Student can</u></p> <ul style="list-style-type: none"> <li>☒ solve some of recursive sequences to model the behavior of real –world situations (e.g. population growth, genetics and speed of bacteria growth).</li> <li>☒ draw graphs of the functions and solve some equations related to these functions.</li> </ul>
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<p>Geometry and measures</p>	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> use transformations to transform two-dimensional surfaces.</li> <li><input checked="" type="checkbox"/> use ICT to investigate geometric constructions and projections.</li> <li><input checked="" type="checkbox"/> use vectors to solve physical problems.</li> <li><input checked="" type="checkbox"/> solve of problems involving compound measures.</li> <li><input checked="" type="checkbox"/> use geometrical reasoning and proof to solve geometric problems.</li> <li><input checked="" type="checkbox"/> draw graphs of trigonometric functions and solve relevant simple problems .</li> <li><input checked="" type="checkbox"/> calculate the area of irregular two-dimensional flat surfaces.</li> </ul>	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> use transformations to transform two-dimensional surfaces.</li> <li><input checked="" type="checkbox"/> use vectors to solve physical problems</li> <li><input checked="" type="checkbox"/> solve problems involving compound measures.</li> <li><input checked="" type="checkbox"/> calculate the area of most of irregular two-dimensional flat surfaces.</li> </ul>	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> use some of transformations to transform two-dimensional surfaces.</li> <li><input checked="" type="checkbox"/> calculate the area of some irregular two-dimensional flat surfaces.</li> </ul>
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Probability and Statistics	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li>☒ use a simple mathematical model to calculate the theoretical probability of obtaining a particular outcome for a random variable associated with a set of events.</li> <li>☒ use simple simulations and consider trends over time using a moving average.</li> <li>☒ use tree diagrams, graphs and tables to represent the conclusions from the formulation of a problem.</li> <li>☒ use ICT and a calculator with statistical function to aid the analysis of large data sets .</li> </ul>	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li>☒ use simple simulations and consider trends over time using a moving average</li> <li>☒ construct some graphs to represent some given statistical quantities.</li> <li>☒ use a simple mathematical model to calculate the theoretical probability of obtaining a particular outcome</li> </ul>	<p><u>Student can:</u></p> <ul style="list-style-type: none"> <li>☒ construct some graphs to represent given statistical quantities .</li> </ul>
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