



# LESSON PLAN

| Date:   | Subject: Science   |            | Topic: BSKC |  | PoS Ref: AT4 | Teacher:   |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
|---|--|------------|-------------|--|--------------|------------|-----|--|---|--|---|---|--|---|---|--|---|---|--|---|---|------|---|---|--|---|---|--|--|--|
| Sequence of session in scheme of work:  | <p>Focus of the session:</p> <p>To enable students to understand what factors affect the acceleration of a vehicle and then apply that understanding</p> |            |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
| <p>Expectations (Learning Outcomes):</p> <table border="1"> <thead> <tr> <th data-bbox="107 504 309 632">Group Level</th> <th data-bbox="309 504 1160 632">Expectations</th> <th data-bbox="1160 504 1469 632">AT/Minimum</th> </tr> </thead> <tbody> <tr> <td data-bbox="107 632 309 1015">All</td> <td data-bbox="309 632 1160 759">Can design and carry out experiments to find factors that affect the acceleration of a vehicle</td> <td data-bbox="1160 632 1469 759">5</td> </tr> <tr> <td data-bbox="107 759 309 839"></td> <td data-bbox="309 759 1160 839">Can interpret experimental data to identify key factors that limit acceleration</td> <td data-bbox="1160 759 1469 839">5</td> </tr> <tr> <td data-bbox="107 839 309 887"></td> <td data-bbox="309 839 1160 887">Understand that Mass is a limiting factor in acceleration</td> <td data-bbox="1160 839 1469 887">5</td> </tr> <tr> <td data-bbox="107 887 309 935"></td> <td data-bbox="309 887 1160 935">Understand that the bigger the force, the higher the acceleration</td> <td data-bbox="1160 887 1469 935">5</td> </tr> <tr> <td data-bbox="107 935 309 1015"></td> <td data-bbox="309 935 1160 1015">Can suggest how cars could be made to increase acceleration</td> <td data-bbox="1160 935 1469 1015">6</td> </tr> <tr> <td data-bbox="107 1015 309 1150">Most</td> <td data-bbox="309 1015 1160 1094">Can identify that friction can limit acceleration</td> <td data-bbox="1160 1015 1469 1094">6</td> </tr> <tr> <td data-bbox="107 1094 309 1150"></td> <td data-bbox="309 1094 1160 1150">Can suggest design requirements for the go kart that maximise</td> <td data-bbox="1160 1094 1469 1150">6</td> </tr> </tbody> </table> |  |            |             | Group Level  | Expectations | AT/Minimum | All | Can design and carry out experiments to find factors that affect the acceleration of a vehicle | 5 |  | Can interpret experimental data to identify key factors that limit acceleration | 5 |  | Understand that Mass is a limiting factor in acceleration | 5 |  | Understand that the bigger the force, the higher the acceleration | 5 |  | Can suggest how cars could be made to increase acceleration | 6 | Most | Can identify that friction can limit acceleration | 6 |  | Can suggest design requirements for the go kart that maximise | 6 | <p>Equipment/resources needed:</p> <p>Nuffield mechanics trolleys or equivalent<br/>           Mechanics tracks<br/>           Bench/ track mounted pulleys<br/>           String<br/>           Stopwatch<br/>           100-1000kg masses in 100g units<br/>           Access to spreadsheet</p> |  |  |
| Group Level   | Expectations   | AT/Minimum |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
| All   | Can design and carry out experiments to find factors that affect the acceleration of a vehicle   | 5          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
|   | Can interpret experimental data to identify key factors that limit acceleration  | 5          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
|   | Understand that Mass is a limiting factor in acceleration  | 5          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
|   | Understand that the bigger the force, the higher the acceleration  | 5          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
|   | Can suggest how cars could be made to increase acceleration  | 6          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
| Most  | Can identify that friction can limit acceleration  | 6          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
|   | Can suggest design requirements for the go kart that maximise  | 6          |             |  |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
| <p><b>Skills to be developed:</b> Investigation, measuring, taking data</p>   |  |            |             | <p><b>Assessment:</b> Understanding of the limiting factors, ability to apply to the go kart – Through the plenary q/a and experimental write up</p> |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |
| <p><b>Differentiation:</b> By objective; differentiated data collection sheets; spreadsheet with acceleration calculator</p>  |  |            |             | <p><b>Cross Curriculum Development (Literacy, Numeracy, Citizenship):</b><br/>           Numeracy, data calculations; teamwork</p>                   |              |            |     |  |   |  |   |   |  |   |   |  |   |   |  |   |   |      |   |   |  |   |   |  |  |  |

