**Year 10 Extension Physics Program 2015**

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| **WEEK** | **STUDENT UNDERSTANDINGS** | **TEXT REFERENCE** | **ASSESSMENT** |
| 1 | ACSSU229  •gathering data to analyse everyday motions produced by forces, such as measurements of distance and time, speed, force, mass and acceleration | 8.1 Describing Motion |  |
| 2 | All Science Inquiry Skills  ACSSU229  •gathering data to analyse everyday motions produced by forces, such as measurements of distance and time, speed, force, mass and acceleration | 8.2 Changes in Speed | **Investigation**  Ticker tape Exp. Speed |
| 3 |  |  | **Investigation**  Ticker tape Acceleration Speed |
| 4 | ACSSU229  •recognising that a stationary object, or a moving object with constant motion, has balanced forces acting on it  •recognising and applying Newton’s Third Law to describe the effect of interactions between two objects | 8.3 Newton’s Laws of Motion |  |
|  | ACSSU190  •recognising that the Law of Conservation of Energy explains that total energy is maintained in energy transfer and transformation  •recognising that in energy transfer and transformation, a variety of processes can occur, so that the usable energy is reduced and the system is not 100% efficient  •comparing energy changes in interactions such as car crashes, pendulums, lifting and dropping | 8.4 Energy Changes |  |
| 6 | Catch up and Mid Topic Test |  | **Test**  Mid Topic |
| 7 | ACSSU229  •using Newton’s Second Law to predict how a force affects the movement of an object  ACSHE195  Advances in science and emerging sciences and technologies can significantly affect people’s lives, including generating new career opportunities | 9.1 Forces in a Structure |  |
| 8 | ACSSU190  •using models to describe how energy is transferred and transformed within systems | 9.2 Taller & Taller  9.3 Bridging the gap | **Assignment**  Bridges |
| 9 | Catch up and Revision |  | **Test**  End of Topic |

**Assessment**

Speed Ticker Tape Investigation 10

Acceleration Investigation 15

Mid Topic Test 30

Bridges 10

Homework 5

End of Topic Test 30

**Year 10 Physics – Vocabulary List**

**Chapter 8**

Distance

Displacement

Scalar quantity

Vector quantity

SI Unit

Average

Speed

Reaction distance

Velocity

Ticker timer

Distance time graph

Gradient

Displacement time graph

Speed time graph

Increasing

Decreasing

Constant

Systematic error

Random error

Acceleration

Average acceleration

Final speed

Initial speed

Gravity

Air resistance

Terminal velocity

G-force

Deceleration

Negative acceleration

Newton's first law

Inertia

Newton's second law

Force

Newtons

Mass

Newton's third law

Energy

Joules

Work

Power

Kinetic energy

Potential energy

Elastic potential

Gravitational potential

Law of Conservation of energy

Efficiency

**Chapter 9**

9.1

Balanced forces

Unbalanced forces

Weight

Compression

Tension

Cable

Stress

Area

Necking

Taut

9.2

Pyramid

Skyscraper

Stability

Centre of mass

Centre of gravity

Base

9.3

Post and beam

Roman arch

Gothic arch

Bridge

Beam bridge

Arch bridge

Suspension bridge

Cable stayed bridge

Cantilever bridge

Bowstring arch bridge

Truss