

## CURRICULUM CONTENT

### Theme I: Forces in equilibrium (1<sup>st</sup> Quarter)

#### Lessons:

- Vectors and scalars
- Balanced forces
- The principle of moments
- More on moments
- Stability
- Equilibrium rules
- Statics calculations

### Theme II: On the move (2<sup>nd</sup> Quarter)

#### Lessons:

- Speed and velocity
- Acceleration
- Motion along a straight line at a constant acceleration
- Free fall
- Motion graphs
- More calculations on motion along a straight line
- Projectile motion 1
- Projectile motion 2

### Theme III: Motion and force (2<sup>nd</sup> Quarter)

#### Lessons:

- Force and acceleration
- Using  $F=ma$
- Terminal speed
- On the road
- Vehicle safety

**Theme IV: Work, energy and power (3<sup>rd</sup> Quarter)****Lessons:**

- Work and energy
- Kinetic energy and potential energy
- Power
- Energy and efficiency
- Renewable energy

**Theme V: Materials (3<sup>rd</sup> Quarter)****Lessons:**

- Density
- Springs
- Deformation of solids
- More about stress and strain

**Theme VI: Waves (4<sup>th</sup> Quarter)****Lessons**

- Waves and vibrations
- Measuring waves
- Wave properties 1
- Wave Properties 2
- Stationary and progressive waves
- More about stationary waves on strings

**Theme VII: Optics (4<sup>th</sup> Quarter)****Lessons**

- Refraction of light
- More about refraction
- Total internal reflection
- Double slit interference
- More about interference
- Diffraction
- Diffraction grating

