|  |  |  |
| --- | --- | --- |
| **Before** | **Objectives** | **After** |
|  | **1 Use** the equations for uniformly accelerated  motion in one dimension: *v = u + at, s = ut + ½ at2, v2 = u2 + 2as*. |  |
|  | **2 Demonstrate** an **understanding** of how ICT can be used to collect data for, and display, displacement/time and velocity/time graphs for uniformly accelerated motion and **compare** this with traditional methods in terms of reliability and validity of data. |  |
|  | **3 Identify** and **use** the physical quantities derived from the slopes and areas of displacement/time and velocity/time graphs, including cases of non-uniform acceleration. |  |
|  | **4 Investigate**, using primary data, **recognise** and **make use** of the independence of vertical and horizontal motion of a projectile moving freely under gravity. |  |
|  | **5 Distinguish** between scalar and vector quantities and **give examples** of each. |  |
|  | **6 Resolve** a vector into two components at right angles to each other by **drawing** and by **calculation**. |  |
|  | **8 Draw** and **interpret** free-body force diagrams to represent forces on a particle or on an extended but rigid body, using the concept of *centre of gravity* of an extended body. |  |
|  | **9 Investigate**, by collecting primary data, and **use** Σ*F = ma* in situations where *m* is constant (Newton’s first law of motion (*a* = 0) and second law of motion). |  |
|  | **10 Use** the expressions for gravitational field strength *g* = *F/m* and weight *W* = *mg.* |  |
|  | **11 Identify** pairs of forces constituting an interaction between two bodies (Newton’s third law of motion). |  |
|  | **12 Use** the relationship *Ek* = ½ *mv2* for the kinetic energy of a body. |  |
|  | **13 Use** the relationship Δ*Egrav* = *mg*Δ*h* for the gravitational potential energy transferred near the Earth’s surface. |  |
|  | **14 Investigate** and **apply** the principle of conservation of energy including use of work done, gravitational potential energy and kinetic energy. |  |
|  | **15 Use** the expression for work Δ*W* = *F*Δ*s* including calculations when the force is not along the line of motion. |  |
|  | **16 Understand** some applications of mechanics, for example to safety or to sports. |  |
|  | **17 Investigate** and **calculate** power from the rate at which work is done or energy transferred. |  |