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| **Teaching and Learning Guide**: Unit – 11 Physics 2D Motion |
| **TOPIC****Total 3 weeks** | **LEARNING INTENTIONS** | **REFERENCES & RESOURCES** | **Suggested****Time** | **PRODUCT & SUCCESS CRITERIA** | **21st Century Skills** |
|   |   | * + Multimedia, Web
	+ Text references
	+ Library
 |   | * + How will success be measured?
	+ What are the success criteria?
 | Characteristics of Learning |
| **Phase 1 & 2****Focussed Lesson****Guided Instruction**  | **The everyday motion of objects can be analysed through the application of Newton’s Laws***Constant Velocity Motion**Constant Acceleration Motion**2D Constant Acceleration Motion* | Textbook questionsKahn Academy | 1.0 3.0 3.0 | **Shallow**Given starting conditions, I can calculate other variables of an object travelling in two dimensions, using given Laws of Motion(*s, u, v, a, t, F, m*)  | **Collaboration**: No student Collaboration **Knowledge Construction**: Students do not construct knowledge **Problem Solving:** Students are not solving problems (?) |
| **Phase 3****Collaborative Learning** | **The relationship between force, mass and acceleration can be analysed qualitatively and quantitatively using algorithms and graphical techniques.***Determine the initial velocity of the projectile launcher* | Projectile Launchers | 3.0 | **Deep**I can apply the Laws of Motion in a real situation, and use measured data to determine other variables as needed.I can take into account errors and environmental conditions that may affect the application of theory. | **Collaboration:** Students work together, students have shared responsibility **Problem Solving:** Students are solving problems, but may not be authentic **Knowledge Construction**: Activity requires students to interpret, analyse, synthesis or evaluate knowledge |
| **Phase 4****Independent Task** | **The motion of particles can be described and analysed using principles of dynamics.***Hit a set a target for the projectile launcher* |  Projectile Launchers | 2.0 | **Conceptual** I can apply the Laws of Motion to solve a problem in a real situation, and use measured data to predict outcomes in a complex situation.I can modify calculated values to take into account environmental conditions that may affect the application of theory | **Collaboration:** Students make substantive decisions together, students' work is interdependent **Problem Solving:** Students innovate to solve authentic problems **Knowledge Construction:** (not relevant at this stage) |
|   |   |   |   |   | Not covered:**Self Regulation****Skilled Communcation****The Use of ICT** |