******

**LANGDON PARK SIXTH FORM**

|  |  |  |
| --- | --- | --- |
| **Subject: Physics** | **Year: Y13** | **Topic: 3.6.1 Circular Motion** |

|  |
| --- |
| ***What and Why*** “In the Solar System the planets orbit the Sun. What causes the planets to remain in their orbit? What is meant by centripetal force and how can we explain that it acts towards the centre of motion? Why are astronauts in the International Space Station considered to be weightless?” |

|  |  |  |  |
| --- | --- | --- | --- |
| **Key terms**Angular displacementAngular velocityCentripetal acceleration | Centripetal forceDisplacementFrequencyFriction | Linear velocityPeriodRadianRadius | Reaction forceSupport forceTangent |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning**  | **Extension – Cultural Capital and Reading** |
| **3.6.1.1:** I can calculate the linear and angular speed of an object moving in a circle I can convert degrees in to radians and vice versaI can determine the centripetal acceleration and force.I can give examples of situations where circular motion arises derive the equation $\tan(θ=\frac{v^{2}}{gr})$ for a body moving at an angle to the centripetal forceI can derive the equation $R=\frac{mv^{2}}{r}-mg$ for a body moving in a circle in a vertical plane | Use the Oxford AQA A2 textbook p.4 to 11. Look at other textbooks in the library for alternative ideas, explanations and diagrams.**YouTube Videos:**(1) [Centripetal Force](https://www.youtube.com/watch?v=KvCezk9DJfk)(2) [Physics - What Is a Centripetal Force](https://www.youtube.com/watch?v=SQX22VVmRPs) **Websites:**<http://hyperphysics.phy-astr.gsu.edu/hbase/cf.html><http://www.schoolphysics.co.uk/age16-19/Mechanics/Circular%20motion/text/Motion_in_a_vertical_circle/index.html> | **Practicals:**(1) Demo: Motion in a circle in the horizontal and vertical plane **Assessment**:Minitest on Circular motion (4th week March) | (1) Calculate the speed required for an object to leave the road surface on a humped-back bridgeMake notes on each topic and complete the exam style practice questions | (1) Visit a fair ground and identify the experience the centripetal forces involved**Reading:** Ride That Rollercoaster: Forcesat an Amusement ParkBy Louise Spilbury |

**Pre-assessment content review**

|  |  |  |
| --- | --- | --- |
| I feel secure in | I need to focus on | My action plan |

**Pre-assessment skills review**

|  |  |  |
| --- | --- | --- |
| I feel secure in | I need to focus on | My action plan |

**Post-assessment review**

|  |  |  |
| --- | --- | --- |
| Weaknesses in content knowledge | Skills I need to focus on | My action plan |
| Retest / review – teacher and student comment |

**Revision planning**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Spec point | Notes complete | Revision materials | Past paper Qs  | Timed conditions |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |