

# P3 Topic 4 Revision tracker

## PHYSICS

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
<b>4.1</b> Discuss how instruments, including particle accelerators, can help scientists develop better explanations about the physical world			
<b>4.2</b> Discuss reasons for collaborative, international research into big scientific questions, including particle physics			
<b>4.3</b> Explain that for motion in a circle there must be a resultant force known as a centripetal force that acts towards the centre of the circle			
<b>4.4</b> Explain that particle accelerators called cyclotrons cause charged particles to move in a circular or spiral path, due to a magnetic field			
<b>4.5</b> Demonstrate an understanding that certain stable elements can be bombarded with proton radiation to change them into radioactive isotopes			
<b>4.6</b> Describe the use of particle accelerators (cyclotrons) to produce radioactive isotopes for medical purposes			
<b>HSW 14</b> Describe how scientists share data and discuss new ideas, and how over time this process helps reduce uncertainties and revise scientific theories			
<b>4.12</b> Investigate factors affecting the height of rebound of bouncing balls			
<b>4.7</b> Demonstrate an understanding that for inelastic collisions momentum is conserved but kinetic energy is not conserved			
<b>4.8</b> Demonstrate an understanding that for elastic collisions both momentum and kinetic energy are conserved			
<b>4.9</b> Analyse collisions in one dimension in terms of momentum and kinetic energy			
<b>H 4.10</b> Carry out calculations using momentum conservation for a two-body collision (in one dimension only)			
<b>H 4.11</b> Carry out calculations using conservation of kinetic energy for a two-body elastic collision (in one dimension only)			
<b>HSW 3</b> Describe how phenomena are explained using scientific theories and ideas			
<b>4.13</b> Recall that gamma rays can be produced by the annihilation of an electron and a positron			
<b>4.14</b> Apply conservation of momentum and charge to positron electron annihilation			
<b>4.15</b> Apply the idea of conservation of mass energy for positron electron annihilation <b>a</b> in a qualitative way (calculations involving $E = mc^2$ will not be required)			
<b>H b</b> in a quantitative way using the equation $E = mc^2$			
<b>4.16</b> Explain the use of radio isotopes in PET scanners to produce gamma rays			
<b>HSW 3</b> Describe how phenomena are explained using scientific models			