Science & ICT

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Describe and give examples of performance analysis software and hardware				
Describe technological innovations and their advantages e.g. Cyclops at Wimbledon or Hawk eye at cricket matches				
Describe the advantages of technological advances for the accurate recording in world class events e.g. instant replays, photo finishes, split times etc				
Describe how science and ICT can help with the planning of improvement and involvement in physical activities – including ICT to track involvement and improvement, the use of interactive tools and devices including games consoles				

PERFORMANCE ANALYSIS EXAMPLES
Software= programmes & applications that run on a computer
Hardware= devices & equipment that make up a computer system
- Hardware such as heart rate monitors can be independent or linked to computers. They can show speed, effort and work rate. Foot pods attached to the performer's laces can record speed, distance, pace and level of performance.
- Visual recording and analysis software can improve understanding of the skills involved, show the correct technique to follow, give an understanding of how the human body moves. Example; freeze frame – show position of players, time lapsed photography showing shape & action, showing 2 performances overlaid to compare, showing measurements of angles of an action to see where adjustments can be made, showing work rate, tracking a player in a game, recording matches for positional & tactical play etc. Data management software allows athletes to display their performance statistics; helps with tracking their performances against others'.
- TECHNOLOGICAL INNOVATIONS
- Technological innovations can help with enforcing the rules which can put pressure on officials to make the right judgement. Modern stadiums have video screen that can replay an incident, Cyclops at Wimbledon to say if the ball is in or out as it beeps if the ball is out, Hawkeye in cricket shows the pathway of the ball to see if the player should be in or out. 6 cameras can show 3D images from all different angles tracking spin, bounce,

- Technological advances = lots of advantages in World Class Events: World class events are televised globally and capture huge audiences. Technological innovations are used in pundits to educate & explain world class performances. They are a great platform to aim for breaking world records therefore accurate recordings, split times (to gain spectators interest as each split time is in line with or beating a previous record) are essential. Photo finishes capture how close the end of races are, brings spectators into the decision of winners to events. Instant replays show where a good skill or tactic was used and helps with understanding of official decisions nor showing false starts etc. Bring in information from Technological innovations – Cyclops, Hawkeye & there importance in getting the difficult decisions correct in world class events.

- Interactive tools can help improve performance as performers can see where the ball goes for example when using simulators in target sports or how accurate a swing is in golf driving machines. Looking at different components of performance can help work towards overall success. In addition, performers that use entertaining tools & devices may be spurred on to try it in the flesh.

- Interactive tools and devices simulate involvement in a chosen activity. Can be for entertainment/ technical application. Games software can focus on sport and can be handheld, free standing or linked to televisions and personal computers using accessories such as driving wheels and dance mats. When devices are technically accurate they can help improve performance. Devices include Wii, PlayStation® 2, Skiing machines, Golf driving machines