



PROVISIONAL

# TOPIC EXPLORATION PACK

Theme: Modern Technology in Sport

June 2015



## A Level Physical Education

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This Topic Exploration Pack should accompany the OCR resource 'Modern Technology in Sport' learner activities, which you can download from the OCR website.



*This activity offers an opportunity for English skills development.*



*This resource is an exemplar of the types of materials that will be provided to assist in the teaching of the new qualifications being developed for first teaching in 2016. It can be used to teach existing qualifications but may be updated in the future to reflect changes in the new qualifications. Please check the OCR website for updates and additional resources being released. We would welcome your feedback so please get in touch.*



## Curriculum Content

<b>Modern technology in Sport – its impact on participation, fair outcomes and entertainment</b>	<p><b>Participation</b></p> <ul style="list-style-type: none"><li>– the extent to which modern technology has increased participation including increased / improved:<ul style="list-style-type: none"><li>• access</li><li>• comfort, facilities</li><li>• monitoring of exercise</li><li>• safety</li></ul></li><li>– the extent to which modern technology has limited or reduced participation including:<ul style="list-style-type: none"><li>• cost</li><li>• the range of alternatives to physical activity and sport</li></ul></li></ul> <p><b>Fair outcomes</b></p> <ul style="list-style-type: none"><li>– the extent to which modern technology has increased fair outcomes including:<ul style="list-style-type: none"><li>• better timing devices,</li><li>• increased accountability of officials</li><li>• more accurate decision making</li><li>• improved detection of foul play</li><li>• improved detection of doping</li></ul></li><li>– the extent to which modern technology has limited or decreased fair outcomes including:<ul style="list-style-type: none"><li>• access to modern technology can be limited</li><li>• performance enhancing drug testing technology cannot keep up with new drug development</li><li>• pressure on officials due to the exposure and scrutiny of their decisions</li></ul></li></ul> <p><b>Entertainment</b></p> <ul style="list-style-type: none"><li>– the extent to which modern technology has increased entertainment including:<ul style="list-style-type: none"><li>• action replays,</li><li>• multiple camera angles</li><li>• slow motion technology</li><li>• improved analysis</li><li>• punditry</li></ul></li><li>– the extent to which modern technology has reduced or limited entertainment including:<ul style="list-style-type: none"><li>• interruption and delay</li><li>• reduced live attendances</li></ul></li></ul>
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#### Teacher Guide

The AS and GCE Physical Education specifications require students to develop knowledge and understanding of the role of technology in sport. At GCE, two specific areas must be addressed: the effect of technology on sport for performers and audiences, and the development of equipment and facilities in physical activity and sport. It is recommended that these be combined and delivered as a discrete topic within the Sport and Society section of the specification. The purpose is for students to critically engage with how far technological products have actually improved sport and physical activity.

Before delivering this component of the specification, it is important to be clear what is meant by 'technology'. After all, almost any item ever used in sport, be it the first leather football or shin pad, could be considered 'technology'. Students should be aware of this historical perspective in order to understand that technology in sport is nothing new. For the purposes of the specification though, technology refers to recent technical advances that impact upon sport, be it for participants or spectators.

Given the variety of forms of technology in sport, the topic is best approached through specific examples. Students should initially be encouraged to brainstorm technological innovations in a variety of sports. They are likely to have prior knowledge of a range of products from their own experiences. However, teachers should quickly move beyond identifying superficial lists of products that have recently been introduced into sport. Instead the specification is designed to be addressed through an issues-based approach. Students should engage critically with *how* technology affects sport for both participants and spectators, both positively and negatively. Specifically, students should understand the extent to which technological products may:

- effect participation in sport
- make sport fairer for participants
- make sport more/less entertaining for spectators

Due to the fast-pacing nature of technological innovation in sport, there is not a prescriptive list of specific technological products that should be covered. Rather students should be encouraged to keep track of recent innovations and evaluate their potential impact. This provides numerous opportunities for research-based activities, which may or may not be linked to students' chosen practical activities. The assumption is that while new products may be introduced, the issues surrounding their effects tend to be similar. While this requires ongoing teacher awareness of technological developments in sport, it guarantees a topic area that is dynamic, evolving and relevant.



## Suggested activities

### Activity 1: Development of equipment and facilities and their effect on participation in sport

1. Based on this image, identify two technological developments to sports facilities and explain how they could increase participation in sport.



1. Floodlights – enable sport to be played during hours of darkness, increasing participation especially during winter.
2. Synthetic surfaces – enable play all year round in different weather conditions. Increases quality of play so may incentivise people to participate.

2. For the following technological innovations, describe how they might affect participation in sport and physical activities.

#### a) Running Blades



Increase participation of disabled athletes in a wider variety of activities, particularly amputees.  
May enable disabled athletes to participate in equal competition with able-bodied athletes.

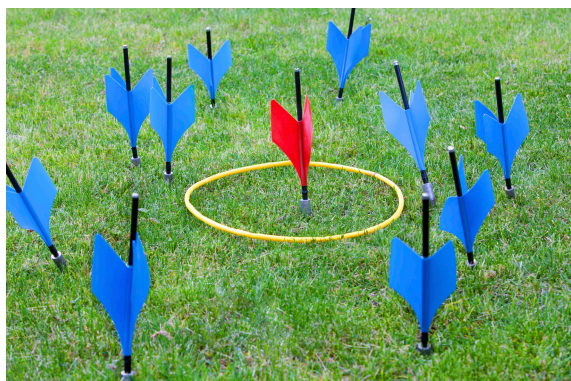
b) Safety Clothing and Equipment



Perceptions of increased safety eg through fluorescent clothing, helmets may increase participation in activities such as cycling.

Increased comfort of sports clothing may make people more likely to participate.

c) Lawn Darts (modified sports equipment)



Modified sports equipment makes sports activities safer, making activities such as javelin more accessible for children. This in turn may increase future participation in sport and physical activity.

### d) Segways



Labour saving devices such as Segways may decrease daily physical activity levels as they replace walking. This may have a long term negative impact on health.

### Activity 2: The effect of technology on participation in sport and physical activity

Fitness apps, usually based on smartphone technology, are seen as one way of increasing participation in sport.



1. Complete the table of benefits and limitations of fitness apps as a means of improving participation in sport:

Benefits	Limitations
Improve goal setting.	Cost.
Cheaper than personal trainer.	Does not provide a shortcut to fitness.
More accurate monitoring of progress.	Requires high levels of computer literacy.

*\*Students may provide other answers.*

*\*\*There may be opportunities to use fitness apps in practical sessions so that students can experience them first-hand to inform discussion.*





2. Group debate: In small groups, debate the following motion:

### **‘Computer games decrease participation in sport’**

NB – homework activity could be to research this issue and come prepared to debate this.

*For this question, students might be expected to research data on physical activity and computer game usage, but also combine that with their own experiences of why they play computer games. This is likely to vary, which can stimulate interesting debate.*

*Issues to debate in this question might include:*

- *The general effect of gaming on sedentary lifestyles.*
- *Whether people may use computer games as a replacement for participation in the actual activity, or whether it might motivate or inspire people to participate. It is commonly assumed that computer games reduce participation in the actual activities. However, it may be that people play computer games of a certain sport because they play and like that sport already.*
- *How far computer games based on physical activity eg Wii Fit might actually increase physical activity levels.*

### **Activity 3: Technology and its effects on fairness and entertainment in sport**

Sports such as Rugby Union, Cricket and American Football have introduced Television Match Officials (TMOs) to adjudicate decisions when the on-field referee is uncertain.

Read the following report from a leading sport science think tank in 2014\*:

‘Leading sports sociologists have generated fascinating findings on the use of video replay technology to help match officials in sport. Video referral technologies, as used by ‘third umpires’ in cricket and ‘television match officials (TMO’s) in rugby have been welcomed by some NGB’s as making their sports fairer. However, opinion is divided on whether such systems have changed sports for the better, either for performers or spectators.

While surveys have shown that most players like the improved accuracy that comes from video referral technology, several players have expressed concerns when interviewed. Professional rugby players have expressed frustration that they have scored tries that the referee has initially given, but informal requests from opposition players to use the TMO has led to the decision being overturned. Players in



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away matches have noticed that in stadia where there are giant screens, replays of foul play or refereeing controversies may lead to the crowd influencing officials.

Other players are concerned that with more and more decisions being referred to video officials, the flow of the game is impeded by the sheer number of stoppages. In rugby, close decisions sometimes take up to five minutes to decide. In cricket, video referral technologies have occasionally been wrong, affecting the outcome of matches, leagues and tournaments.

For spectators, opinion on the use of video replays for officiating is similarly mixed. In cricket, teams can decide which technologies are used and which are not, which leads to inconsistency and disagreement across the sport. Given that video replay technologies are expensive, the way professional sport if refereed becomes very different from grass-roots sport.

Overall, as much as spectators like fairness, they also like to be entertained. Video replays provide drama and debate, but if they disrupt gameplay, is it worth it? While some welcome the influence of these innovations, some long to return to the days when the referee's decision was final.'

(\*note to teacher – this article has been produced as an example report. An alternative article could be the following newspaper article:

<http://www.telegraph.co.uk/sport/rugbyunion/international/england/11219678/England-v-New-Zealand-Television-replays-in-danger-of-turning-Tests-into-NFL-says-All-Blacks-No-8-Kieran-Read.html>)

1. Complete the table of arguments for and against the use of TMO's in sport:

For	Against
Increased proportion of accurate decisions.	Slows the game down through prolonged interruptions in play.
Increased entertainment due to tension and drama as replays occur.	Increased certainty of decisions may make sport less entertaining for some.
Improved accountability of officials in professional sport where results have significant financial implications.	Crowd may influence outcome if giant screens in stadium show replays.
Fairer sporting outcomes.	Television producers in choosing replays might affect officiating.

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Does not affect grassroots sport.	Decisions may still be wrong or incidents may still be missed. Human error is not eliminated.
Improved debate and punditry for audience.	Only available in professional sport.

2. Compare your answers with a partner, and add theirs to your table.

Through peer assessment, students can debate their answers with others, delete weaker points, refine stronger points and come up with a more definitive list of arguments.

3. Using the information in the table and your own knowledge, write a short essay on the following question:

**‘Television match officials have a positive impact on sport for spectators’**

Discuss.

Students can deploy information already provided in the previous activities but also their own experience of other sports. This could form part of a research task whereby students research how TMOs are used in sports other than rugby. Note that as well as news articles, video footage of controversial incidents in sport provide useful stimulus material to enhance student understanding of these issues.



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**General qualifications**

Telephone 01223 553998

Facsimile 01223 552627

Email [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk)

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