

# OCR (B) Physics GCSE

## Topic 7.4 - How do science and technology impact society?

### Flashcards

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Give examples of applications of science that have had a positive impact.



Give examples of applications of science that have had a positive impact on society.

- Generating and distributing energy
- Road safety
- Medical diagnostic devices from use of EM spectrum
- Medical treatment from use of EM spectrum
- Developing electric motors



Give examples of scientific applications that have had unintended negative impacts.



Give examples of scientific applications that have had unintended negative impacts.

- Reduced biodiversity from the use of pesticides, insecticides and fertilisers.
- Greenhouse gas emissions from the burning of fossil fuels contributing to climate change.
- Increase in energy demand and the approach to meeting it.



# How is the size of a risk estimated?



## How is the size of a risk estimated?

The size of the risk is estimated based on the chance of it occurring in a large sample over a period of time.



Suggest why an individual may be willing to accept a risk.





Suggest why an individual may be willing to accept a risk.

A person is usually more willing to accept the risk if the effects of it are short-term, rather than long-term. Furthermore, a person may accept the risk if they chose to, rather than having it imposed on them.



What is the difference between a  
perceived risk and a calculated risk?  
(higher)



What is the difference between a perceived risk and a calculated risk? (**higher**)

A perceived risk refers to a person's perception of how large the risk is, whereas the calculated risk is the actual, statistically estimated risk. The perceived risk may differ from the calculated risk - for example, a person's perception of the risk of flying in an aeroplane may be higher than the calculated risk.



What does 'ethical implication' mean in terms of science?



What does 'ethical implication' mean in terms of science?

If an area of science has an ethical implication, it means that we have to ask the question of whether the work is morally right or wrong, and consider it from an ethical viewpoint.



Give examples of scientific research that may have ethical implications.



Give examples of scientific research that may have ethical implications.

- Solutions and treatments for disease by using ionising radiation
- The sources used to generate electricity



Outline the factors that have to be considered when making decisions about scientific work.





Outline the factors that have to be considered when making decisions about scientific work.

- The risks to individuals or groups
- The benefits to these same individuals or groups
- The ethical implications of the work
- The cost



Give reasons why different decisions may be made on the same issue.



Give reasons why different decisions may be made on the same issue.

The people deciding may have different personal circumstances, social or environmental contexts, or economic positions.

