Lesson plan

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| Topic 2 Global and environmental issues |
| Learning Objectives:   * Describe the moral and ethical factors relating to the use of information technology: * Globalisation * Unequal access to information technology * Environmental * Describe the implications of moral and ethical factors of using IT * on individuals * on organisations   Please note: This topic covers five of the specification points in F1. Other specification points are covered in Topic 1 and Topic 4. |
| Content |
| Starter  PowerPoint Guide: Topic 2 Global and environmental issues  Globalisation  There are many examples that students may be familiar with as a result of globalisation. Examples might be:   * The ability to buy products from abroad online and have them shipped to the UK * Products (such as an iPhone) can be designed in the USA, built in China and then shipped to the UK * A phone call to sort out a mobile phone issue can be answered by a worker in India   What do students understand by ‘globalisation’?  A definition of globalisation can be found on this webpage:  <http://lexicon.ft.com/Term?term=globalisation>  Globalisation: ‘The integration of economies, industries, markets, cultures and policy-making around the world.’  Discuss globalisation and the role that IT plays in making it easier to achieve for large and small companies.  Main  The role of technology  Discuss the advantages and disadvantages to countries such as the UK and India, organisations, employees and customers, of call centres located in developing countries. What about companies like Amazon operating out of Luxembourg, and Google operating out of Ireland?  These companies are using complex tax avoidance schemes such as the ‘double Irish’.  <https://www.ft.com/content/f7a2b958-4fc8-11e4-908e-00144feab7de>  Ask: Who are the winners, and who are the losers?  Winners from globalisation  Hi-tech software firms, high earners and large corporations are among those who benefit. Relatively well-paid employment for local workers may be welcomed. Are some workers exploited? A Guardian article suggests that some are.  <https://www.theguardian.com/technology/2012/sep/05/samsung-accused-exploiting-workers-china>  “Workers were barred from sitting during shifts and some suffered physical and verbal abuse, the organisation (China Labor Watch) alleges. The organisation said it investigated eight plants in China that produce mobile phones, media players, DVD players, TV components, mobile displays, printers, home appliances and mobile phone casings for Samsung. The plants' staff totals more than 24,000 workers.”  See also Foxconn in Taiwan, who make iPad, iPhone, iPod, Nintendo, PS3, PS4, Wii, Xbox One, Kindle and other products  <https://en.wikipedia.org/wiki/Foxconn>  In many cases, the winners are companies themselves who make cost savings which result in higher profits for their owners or shareholders. However, there is also an increase in competition which drives prices lower for consumers.  Problems of globalisation  Not everyone benefits – developing countries which have poor infrastructure, no Broadband, inadequate or intermittent electricity supply and a workforce who have limited exposure to IT, are left even further behind.  Topic 2 Worksheet 2  Topic 2 Worksheet 2 Answers  Computing in developing countries  Many educational organisations and charities in the UK try to help developing countries to catch up in IT skills.  One such charity is Ripple Africa – <https://www.rippleafrica.org>  The digital divide in the UK  Broadband and good mobile coverage from all providers is far from universal in the UK. This can hamper businesses from starting up, or existing businesses from benefitting from IT in the same way as better-served areas.  The stats on the slide are taken from  <https://www.comparethemarket.com/broadband/content/broadband-in-rural-areas/>  Mobile coverage  See stats at:  <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2017/connected-nations-digital-divide>  Ask students to do **Task 1** and **Task 2** on the worksheet.  Environmental issues  Discuss resources used in manufacture – these are listed in a later slide (packaging materials, electricity and gas to power factories, diesel for transportation, water).  Manufacture of IT devices  Electronic devices use rare earth materials such as lithium, which have to be mined, often exposing workers to toxic substances and causing environmental damage.  Ask students to do the research **Task 3** on the worksheet.  Useful sites for the research are:  <https://www.cornishlithium.com/lithium-faq/>  <https://inews.co.uk/news/uk/cornwall-tin-mines-reopen-collect-lithium-electric-cars/>  <https://www.telegraph.co.uk/business/2018/01/25/cornish-mining-startup-hopes-prospect-lithium-satellites/>  <https://www.bbc.co.uk/news/uk-england-cornwall-40922321>  The following site has some interesting details about the amount of energy used by data centres:  <https://www.independent.co.uk/environment/global-warming-data-centres-to-consume-three-times-as-much-energy-in-next-decade-experts-warn-a6830086.html>  Disposal of devices  Not everything can be recycled. Global e-waste is set to hit 50m tonnes in 2018, according to the [United Nations University’s Global E-waste Monitor](https://i.unu.edu/media/unu.edu/news/52624/UNU-1stGlobal-E-Waste-Monitor-2014-small.pdf). 80% of this waste ends up being shipped to developing countries, including Ghana, Nigeria, China and India.  <https://www.theguardian.com/global-development/2013/dec/14/toxic-ewaste-illegal-dumping-developing-countries>  Ask students how this can be recycled. For example, when retailers sell you a new item they have to, by law, be able to take in the equivalent old model and dispose of it according to regulations specified in the Waste Electrical and Electronic Equipment (WEEE) directive.  It is possible for a retailer to pay into an alternative scheme, such as local recycling centres, so that customers can take their waste there.  For more information. See  [https://en.wikipedia.org/wiki/Waste\_Electrical\_and\_Electronic\_Equipment \_Equipment\_Directive](https://en.wikipedia.org/wiki/Waste_Electrical_and_Electronic_Equipment_Directive)  <https://www.theguardian.com/environment/2017/nov/20/electronic-recycling-e-waste-2017-gadgets>  Planned obsolescence is the name given to companies who design products that are planned to go obsolete so that customers have to buy a new model. Batteries in iPhones, for example, are not designed to be replaced by a consumer – even though they could be.  <https://en.wikipedia.org/wiki/Planned_obsolescence>  Positive environmental impact  It’s not all bad news – IT has helped us to use resources more sparingly in many ways, from more fuel-efficient cars to energy saving devices, less commuting and less paper waste.  Moral and ethical issues  These issues are touched on briefly and will be revisited in Topic 4.  Ask students to do **Tasks 4** and **5** on the worksheet.  Plenary  A quick review of the three main issues covered in this lesson, and the moral and ethical responsibilities of IT users – which includes all of us - in relation to these.  Hand out **Homework 2**.  Topic 2 Homework 2  Topic 2 Homework 2 Answers |