

Lesson: 3. Wisdom and IT/Computing: Computer misuse	Comic: 3
Overview of Key Skills Concepts – understand key vocabulary relating to computer ethics, understand IP addresses and how they work Skills and process – be able to use IT skills to query IP addresses	Cross-curricular links English: reading and writing PSHE: Health and Wellbeing RE: Morality and Ethics
Learning Objectives:	<ul style="list-style-type: none"> • To understand key vocabulary relating to computer ethics • To understand some of the key concepts relating to computer ethics and security • To understand some of the key concepts relating to the effects of computers and IT on society
Key Teaching Points / Research Opportunities	<p>Revise the key concepts and vocabulary from lesson 2.</p> <p>Part 1: Effects on Society</p> <p>Computer misuse As the use and importance of computer systems in society has increased, the opportunities to misuse them have also increased. In the UK there is a legal framework that governs the use of computers.</p> <p>Cyberbullying and trolling The ease of communication that comes with social networking sites, email and mobile phones means that it is also easier to be unpleasant to other people.</p> <p>Cyberbullying involves abuse of another person using threats, insults and hurtful remarks and messages over the internet. There have been numerous reports of people who have been driven to suicide by persistent cyberbullying.</p> <p>Internet trolls post messages and comments that try to evoke an emotional response from other people. BBC presenter Richard Bacon and other celebrities have spoken about being victims of trolls.</p> <p>The law The Computer Misuse Act makes it an offence to:</p> <p>access computer material without permission, eg looking at someone else's files access computer material without permission and with intent to commit criminal offences, eg hacking into your bank's computer and increasing the money in your own account alter computer data without permission, eg writing a virus to destroy someone else's data</p> <p>The digital divide A society which is dependent on technology can create inequality. The gap between those who have access to the latest technology and those who do not is called the</p>

'digital divide'.

The digital divide is a global issue as well as a national issue. In the UK it is mostly due to availability of technology and network coverage. Some of the main causes of the digital divide in the UK are:

Money - people need money to access the internet and buy the latest devices, such as computers, smartphones and tablets.

Location - access to network coverage and high-speed broadband can vary greatly depending on where you live. Most large towns and cities have good network coverage and access, but rural areas can have limited or no coverage. Without these connections, the internet can be slow or non-existent.

IT literacy - knowing how to use technology empowers people to make the most of it. People who don't know how to use computers and the internet do not have the opportunities that IT-literate people do.

Internet access - the internet provides many opportunities for people who want to access online shopping, banking and job adverts. Students with internet access at home can research or revise with online help. Many universities and schools offer courses online. Social networking helps people make connections and stay in touch.

The global divide

There are different levels of IT access, infrastructure and skills across the world. For example, South Korea has some of the fastest broadband speeds in the world and it is widely accessible, but the opposite is true of Myanmar (Burma).

There are a number of projects that aim to increase access to the internet and technology around the world such as the One Laptop per Child (OLPC) project which aims to provide affordable, modern technology to all children in developing countries.

Computers and the environment

Technology has had an impact on the environment that is both positive and negative. The use of computers affects the environment in different ways, such as energy consumption, technological waste, and the impact of remote working.

Advantages

There are some benefits to the introduction of technology on the environment:

using email and working electronically means that less printing is required, and so less paper is used

using systems like FaceTime, Skype and video conferences can reduce the need for people to travel to meet each other, and so less fuel is used

people can work from home - which reduces commuting (less fuel is used) and means that less office space is needed

Disadvantages

However, there are also some drawbacks. These include:

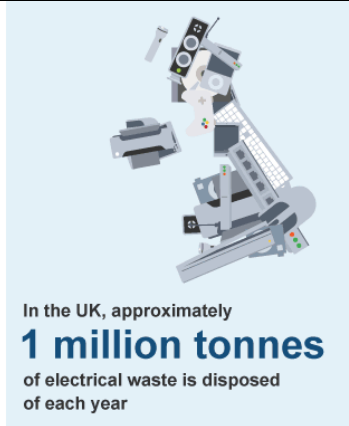
Technology consumes energy. Computers require electricity, and most smartphones and tablets require recharging after just a few hours of use. Tablets and mobile phones use less energy than desktops and laptops as the hand-held devices use flash memory instead of hard drives and RISC CPUs instead of CISC CPUs.

Technological waste - also known as e-waste - sometimes contains poisonous chemicals and can be an environmental hazard.

In the UK, the average lifespan of an electronic device is two years. It is often easier to buy a new device and discard the old one than to maintain or upgrade an old device. If the item isn't recycled or resold, it will end up in a landfill site. Sometimes electrical items are sent to countries which have less strict laws about recycling. For example, in Ghana there have been reports of highly-toxic dumping grounds for old technology.

20–50

million tonnes of waste is generated worldwide each year, leading to pollution and contamination of soil and water supplies



In the UK, approximately
1 million tonnes
of electrical waste is disposed
of each year

From 2016 EU member states will have to collect

45 tonnes of e-waste

for every 100 tonnes of electronic goods put on sale during the previous three years



New EU laws will oblige retailers to accept small electrical items for recycling to combat this issue

Activity 1: What are some of the effects of IT on society as discussed so far during this lesson?

Part 2: IP, patents and copyright

Innovations and creative work that belong to a person or company are their intellectual property (IP). Anyone who creates an original piece of work usually wants to be recognised for their work and to be able to make money from it.

Copyright and patents can be used to protect the IP in software, hardware and computer devices.

Patents

You can register ownership of an invention or new process and be given a patent. This can stop rivals from copying the idea for a set number of years.

Patents can apply to many different aspects of a device. With smartphones, patents apply to the user interface, the design of the software and each physical component inside the device. As components get smaller, each individual part of a new product is usually patented separately.

Smartphones are often at the centre of patent wars as there are many patents involved in a device. Companies are not keen to share profits. They are likely to sue each other if they can prove that their IP has been infringed.

Copyright

From the moment you create an original piece of work, you become the legal copyright holder.

Copyright gives the creators of media the rights to control how media is used and distributed. Music, books, video and software can all be covered by copyright. Copying material that is subject to copyright without permission is illegal.

Creative Commons

Creative Commons (CC) licences make it easier and legal to share data online.

CC licences help copyright owners share their work while keeping the copyright. They allow the copyright owner to say exactly what other people can do with it. For example, a CC licence might say that other people can copy and distribute the copyright owner's work if they give them credit.

There are a number of CC licences. The four licences in this table are commonly used.

Licence	Description
Attribution	It can be copied, modified, distributed, displayed and performed but the copyright owner must be given credit.
Non-commercial	It can be copied, modified, distributed and displayed but no profit can be made from it.
No derivative works	It can be copied, distributed, displayed and performed but cannot be modified.
Share-alike	It can be modified and distributed but must be covered by an identical licence.

Piracy

The unauthorised use of another person's work is known as piracy.



Software piracy

Software piracy is any attempt to break the licence terms of a piece of software. This includes downloading and using a program without paying for it, as well as buying, selling or giving away illegitimate copies of a game or any other piece of software. It could mean extracting code from a program, or modifying it without permission in order to do something that the developers did not wish you to do.

When you buy software, music or films legally, copyright law forbids you from:

- giving a copy to a friend
- making a copy and then selling it
- using the software on a network (unless the licence allows it, eg it is a business licence)
- renting the software without the permission of the copyright holder

The practice of copying software is a serious problem in some countries. Copying music, films and software illegally means that there is less money available to pay the writers, developers and artists.

Some people argue that the incentive to produce new songs, films, television shows and games disappears as a result of piracy.

Activity 1: Explain some of the issues regarding IP, patents and copyright as discussed during this lesson?

Independent Work

Activities 1 and 2.

Plenary	<ul style="list-style-type: none"> • How would you define wisdom? • How would you define ethics? • How would you define computer ethics? • Let's revise some of the key vocabulary? • What are some of the effects of IT on society as discussed so far during this lesson? • What are some of the issues regarding IP, patents and copyright as discussed during this lesson? • So what do you know now that you didn't know before? <p>Now let's try the End-Of-Lesson Assessment.</p>
Resources, including ICT	PC computers with screen magnification/speech Microsoft Office Accessible CMD program Quiz End-Of-Lesson Assessment Online quiz
Key Questions	<ul style="list-style-type: none"> • What are some of the effects of IT on society as discussed so far during this lesson? • What are some of the issues regarding IP, patents and copyright as discussed during this lesson?
Vocabulary	Morality, Ethics, Computer Misuse, Cyber-bullying And Trolling, The Digital Divide, IT Literacy, Internet Access, The Global Divide, Smart-phones, Tablets, E-Waste, Environmental Hazard, Landfill Site, IP, Patents And Copyright, Creative Commons, Attribution, Non-Commercial, No Derivative Works, Share-Alike, Piracy, Software Piracy
Success Criteria	<ul style="list-style-type: none"> • Ability to understand key vocabulary relating to computer ethics • Ability to understand some of the key concepts relating to computer ethics and security • Ability to understand some of the key concepts relating to the effects of computers and IT on society
Assessment Opportunities	<ul style="list-style-type: none"> • Post-Lesson Assessment sheet and online quiz