

Unit 11 Data: use and misuse

About the unit

In this unit pupils investigate the large-scale use of data by commercial organisations. The unit is based around the use of ICT in the retail industry and pupils find out about electronic stock control systems, including the use of bar codes and electronic point of sale (EPOS) systems, and loyalty cards. The social implications of loyalty cards and EPOS cards are emphasised.

The unit also introduces pupils to the ways in which other organisations collect data, the Data Protection Act, and the different ways data can be protected from misuse or damage.

This unit involves extensive class discussion and will need to be managed so it gives pupils the chance to deduce answers from the facts presented. It can be taught without direct contact with computers, although the use of the internet is encouraged.

Although many of the activities are based around the retail industry other contexts could be used.

This unit is expected to take approximately 3 hours.

Expectations

At the end of this unit

most pupils will: understand that data about us can be collected through everyday activities and that this data can be used by organisations to adapt the way that they work; know that this information needs to be protected and that we have rights concerning its use; understand what EPOS and EFTPOS mean and how they benefit customers and organisations

some pupils will not have made so much progress and will: understand that organisations collect information on people so that they can make decisions; know that we have rights to the use of this information; understand that EPOS and EFTPOS are used by organisations to make it easier for customers and themselves

some pupils will have progressed further and will: understand that there are many issues surrounding the collection and use of data that is of a personal nature; know that there are laws that protect individuals as to the use and storage of this data; understand the effect of EPOS and EFTPOS with regards to the customer and vendor; understand clearly the link between each of these elements

Language for learning

Through the activities in this unit pupils will be able to understand, use and spell correctly vocabulary relating to:

- EPOS (electronic point of sale), *eg EFTPOS (electronic fund transfer point of sale), validation, verification, security, bar codes, check digit, stock control, feedback*
- networks, *eg WAN (wide area network), LAN (local area network)*
- logging on, *eg online*
- data protection, *eg mail shot, junk mail, hacking*

Speaking and listening – through the activities pupils could:

- listen for a specific purpose, note the main points and consider their relevance

Resources

Resources include:

- relevant internet sites
- loyalty card application forms

Pupils should learn:

Pupils:

Activity 1

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| <ul style="list-style-type: none"> • that data about us can be easily collected through data capture forms | <ul style="list-style-type: none"> • Introduce to the class the scenario of 'going to the supermarket'. The scenario must include the use of loyalty cards and credit/debit cards. Pupils should listen to arguments, note the main points and consider their relevance. • Discuss with the pupils the benefits of loyalty cards to customers, <i>eg points, money off, special sale prices, etc.</i> Once several benefits are identified give out examples of loyalty card application forms. • Discuss with the class what information the supermarket gets from the application form. Expand the discussion, <i>eg How will they store the data? What links this information to the card?</i> • Once the idea that the card and its use is linked to a name and address in a database move onto the next discussion: the benefit of loyalty cards to supermarkets. The discussion should lead to the understanding that supermarkets can gain in-depth knowledge of our personal shopping habits without having to ask us. Extended discussion could emphasise possible dangers to the consumer. | <ul style="list-style-type: none"> • listen and be able to comment fully on the main points of what they have heard • understand that information can be readily gathered about people and used to help in decision making by large organisations | <ul style="list-style-type: none"> • Homework could involve finding out which loyalty systems family members belong to and what reasons they have for using them. |
| <ul style="list-style-type: none"> • that bar codes are used to identify products, ie the bar code holds a number sequence which is unique to the product, and is read by a bar code reader or scanner | <ul style="list-style-type: none"> • Now discuss with the pupils the goods on the shelf, <i>eg Are the goods priced? Where is the price?</i> Lead on to: <i>How does the supermarket know the price at the checkout?</i> • Explain the link between bar codes and the products. If possible, either use the internet to apply bar codes to database queries or an automated library (see Points to note on ISBN). • Discuss with the pupils the benefit of bar codes to the supermarket; main points should include easy control of pricing, accuracy at the till and stock control. • Discuss future developments, <i>eg personal bar code readers and internet shopping.</i> Relate this discussion to loyalty cards and how the use of bar codes enables supermarkets to collate data on individual shopping habits. Discuss the implications this might have for advertising, special offers. | <ul style="list-style-type: none"> • describe how the bar coding system operates and its links to data handling | <ul style="list-style-type: none"> • www.isbn.nu is the ISBN database and can be used to show the significance of the bar code number. A number of bar code websites exist and some allow the six-digit US manufacturer's number to be searched. • Homework could involve speculation on how retailers might extend the data they collect to target shoppers more effectively, and discussion on the ethics of this sort of data collection. |

Learning objectives

Pupils should learn:

Possible teaching activities**Learning outcomes**

Pupils:

Points to note**Activity 2**

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| <ul style="list-style-type: none"> that EPOS and EFTPOS are used alongside bar coding to give supermarkets and customers more accurate, faster and convenient till service | <ul style="list-style-type: none"> Explain and discuss the process of scanning the bar code and the till's output in response to the code. Demonstrate the effect of bar codes using information from supermarket receipts. Discuss this information in the light of previous discussions. Introduce the term EPOS, and refer back to the link between the product bar code, and the information received by the till from the store's computer during scanning. Extend the discussion to include the term EFTPOS to discuss paying by credit/debit card transfer. | <ul style="list-style-type: none"> describe the process of scanning bar codes into an EPOS terminal and the output of those results | <ul style="list-style-type: none"> The use of internet sites that explain the bar scanning process. Homework could involve a study of the information on a supermarket till receipt identifying the different components and their possible significance. |
| <ul style="list-style-type: none"> that EPOS and EFTPOS allow information to be gathered about how well shops are doing and about the shops' customers | <ul style="list-style-type: none"> Explain the basics of stock control and the related benefits of using EPOS. Discuss with the pupils what information shops can find out when customers use loyalty cards in EPOS terminals, in light of the knowledge that supermarkets can monitor the sales of their products very closely with every item being registered by a computer. | <ul style="list-style-type: none"> understand that information about customers can be easily collected through the linking of loyalty cards and the input at the EPOS terminal | |
| <ul style="list-style-type: none"> that private information can be used in different ways | <ul style="list-style-type: none"> Discuss with the pupils ways in which supermarkets can use the information that they obtain, <i>eg offer suitable discounts, stock more of a product, sell the information, send special promotional mail (junk mail)</i>. | <ul style="list-style-type: none"> understand that private information can be used in different ways | |

Activity 3

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| <ul style="list-style-type: none"> that individuals and organisations are protected, by law, from information about them being misused or used at all | <ul style="list-style-type: none"> Hold a discussion on what pupils would want as laws to stop information about them being used or misused. This should be compared to the main points of the 1984 and 1998 Data Protection Acts. | <ul style="list-style-type: none"> understand that there are laws that protect people from misuse of information about them | <ul style="list-style-type: none"> Homework may include a study of the junk mail received during the week and seeing if family members know why particular items are received. In a class discussion this can introduce the concept that we have a right to know who holds information on us and why they should hold information on us. |
| <ul style="list-style-type: none"> that information, such as that gathered by supermarkets, is also at risk from physical loss, hacking and damage from viruses, and that there are simple precautions to protect the data | <ul style="list-style-type: none"> Use some real news stories relating to the risks associated with data collection to guide pupils towards the identification of the main areas of physical loss, hacking and viruses. Provide an outline of methods for the protection of data within the context of a supermarket. | <ul style="list-style-type: none"> understand that there are risks involved in data collection and that there are ways to reduce these risks | |
| <ul style="list-style-type: none"> to apply the facts learnt from this scenario to a different situation | <ul style="list-style-type: none"> Provide a selection of different situations where data is collected and stored about individuals on computers, <i>eg doctors' surgeries, hospitals, banks, schools</i>. Ask pupils to choose one example and identify the benefits and drawbacks of storing the data on computers for both the client/customer and the organisation. | <ul style="list-style-type: none"> understand that they can apply previously learnt facts to a new situation | |