



UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

Security Measures

Cycle 2 – Grade 8

Computing, Creative Design and Innovation

Student book

Grade 8
Volume 3



1445- 1446 A.H./2024- 2025 A.D

Unit 3

Networks and the Internet

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Security measures

Security measures (also called cybersecurity) are physical and digital methods used to protect electronic devices and information from harm, theft, and unauthorised use. Security measures are important as networked computers can render information vulnerable to threats. Some threats you should already know about are:

- phishing
- hacking
- spyware
- data interception

Physical measures

Physical measures are used to stop someone accessing devices or information in person. Some physical security measures include:

- locks
- safe boxes
- alarm systems

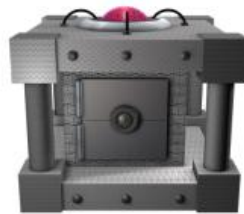
Locks

Locks can be used to help to stop someone accessing a device or information in person. They are often used in combination with doors, fences, gates and walls. Some modern locks use ID cards or biometrics such as facial recognition or fingerprint scans which are more secure than traditional locks that use keys or codes.



Safe boxes

Safe boxes can be used to help to stop someone accessing a backup drive information in person. They can be used to store digital backup drives away from the network and hard copies of information. Similarly, to door locks they can be used to stop someone accessing a device or information in person.



Alarm systems

Alarm systems can help to stop someone accessing a device or information in person. Modern alarm systems will alert the property owner in the event of unauthorised access. These systems often also work as a deterrent for those who may want to attempt to gain unauthorised access.



Digital measures

Digital measures are used to stop someone accessing devices or information electronically. Some digital security measures include:

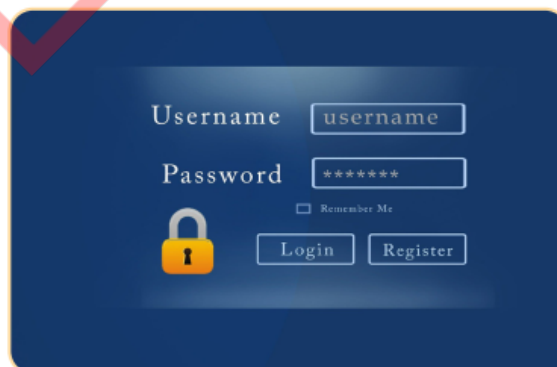
- passwords
- antivirus software
- firewall software
- encryption

Passwords

Passwords can help to stop unauthorised access to devices, networks and accounts. They are a digital way of proving who you are. A good password will meet the following requirements:

- an English uppercase character (A-Z).
- an English lowercase character (a-z).
- a number (0-9) and/or symbol (such as !, #, or %).
- eight or more characters in total.


For passwords to work effectively you must not share them with others and remember to lock devices and log out of accounts when you are not using them.



Username

Password

☐ Remember Me



Anti-virus software

Anti-virus software can help to stop viruses and malware getting onto your device. This software works by inspecting device files and files downloaded from a network. The software will compare each file to known viruses and remove or quarantine any suspicious files that are identified. Though anti-virus software is very effective it can only identify known viruses, so it is important to update the software regularly.



Firewall software

Firewalls can help to stop someone hacking your computer or network. Firewalls monitor network traffic and decides whether to allow or block specific traffic based on a set of security rules. Firewalls are often used to create a barrier between trusted local area networks and untrusted outside networks, such as the Internet.



Activity 10



Activity 11



Activity 12



Activity 13



Network resources for entertainment and research

Many resources are available on the internet that can be used for entertainment and research. Some examples of resources that can be used for entertainment and research are:

- social media
- websites

When using online resources for entertainment or research it is important to remember:

- not to access content that is inappropriate or illegal. For example, music or videos protected by copyright laws.
- only use reliable information (factually correct information that can be verified by multiple sources)
- sometimes reliable information can be difficult to find because information online can be biased.

What is biased information?

Biased information is not factually correct and verifiable. Some reasons that information may be biased are:

- sourced from an unreliable website.
- opinions rather than verifiable facts.
- author has an agenda (such as advertising).
- author has not considered other points of view.



Social media

Social media are websites and or applications that enable users to create and share information in virtual communities.



Social media can be very useful for entertainment as it often has vast amounts of content that is copyright free. Many social media services also have games and activity groups amongst other things. However, some content on social media may still be inappropriate.

Social media is not very useful for research as most content is the opinions of the users rather than factually correct information. Though, in some cases it might be useful if you want to research public opinion on a particular topic.



Activity 14



Websites

Websites are a group of pages accessible from the world wide web containing information and/or providing services.



Websites can be very useful for research. However, you must source factually correct information from reliable websites and verify the information using multiple sources.

Websites can be useful for entertainment when the content is freely available or accessed legally with a subscription. However, many websites host illegal and or inappropriate content.



Activity 15



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Security measures



Activity 10



Ahmed is learning about security measures.

Explain physical and digital security measures.

Use the words to fill in the blank spaces.

digital

information

firewalls

locks

physical

measures

Security (also called cybersecurity) are physical and methods used to protect electronic devices and information from harm, theft, and unauthorised use.

..... measures are used to stop someone accessing devices or information in person. Some physical security measures include:

- safe boxes
- alarm systems

Digital measures are used to stop someone accessing devices or electronically. Some digital security measures include:

- passwords
- anti-virus software
-
- encryption



Activity 11

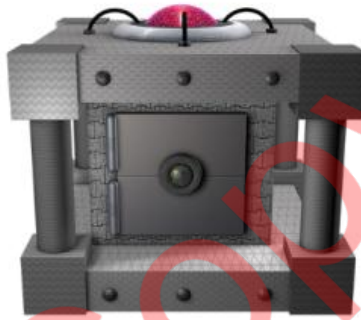
Lab



Noor is learning about physical security measures.

Demonstrate your knowledge and apply the skills you have already developed to create a model of a safe box using computer aided design software.

Here is an example of a safe box:



Did You Know?

Modelling is an important part of engineering. You use engineering skills when you create computer aided design models.





Activity 12

Lab



Noor is learning about physical and digital security measures.

Working in groups, demonstrate how to use one physical and one digital security measure.

Remember, some physical security measures include:

- locks
- safe boxes
- alarm systems

Remember, some digital security measures include:

- passwords
- anti-virus software
- firewalls

Explain how these measures you used can help to stop someone accessing devices or information.

Write your answer below.



Activity 13

Lab



Ahmed is learning about digital security measures.

Demonstrate how to add a password to a wireless router to increase network security. Use a network simulation tool for your demonstration.

Use the QR code below for technical guidance on this activity.





Network resources for entertainment and research



Activity 14



Noor is learning about the use of social media for research and entertainment.

Explain how social media can be used for entertainment and research.

Write your answer below.

S

T

R

E

A

M

Evaluate the use of social media for research and entertainment by explaining some advantages and disadvantages.

Write your answers below.

Social media for entertainment	
Advantages	Disadvantages
Social media for research	
Advantages	Disadvantages



Activity 15

Lab



Ahmed is learning about the use of websites for research.

Identify websites that are suitable and unsuitable for research and explain your answers.

Write your answers below.

Website	Suitable for research? (Yes or No)	Explanation
www.moe.gov.ae		
www.facebook.com		
www.code.org		
www.amazon.ae		
lms.moe.gov.ae		



