3.6.2 Methods to detect and prevent cyber security threats

Lesson plan

Materials needed

1. 3.6.2 Lesson PowerPoint.

2. Students will need access to presentation software or similar for slides 7–13 where they are asked to create a 'Security measures user guide'.

3. Mini whiteboards or plain paper.

Starter activity (5 minutes)

1. **Slide 2: Activity – Mix and match**

   Students are divided into pairs or work individually. They have to try to match the images with the correct security measure. Click on 'Start' to begin the three-minute timer.

   Differentiation: Students could be given the start of the definition or part of the sentence and fill in the missing words as an easier alternative.

   Extension: If students finish early, get them to think of, or research any other security measures to prevent cyber security threats.

2. **Slide 3:** Answers to the 'mix and match' activity.

3. **Slide 4:** Discussion and questions leading into the topic following on from the starter. Questions are differentiated to gradually get more difficult.

Main activities (35 minutes)

1. **Slide 5:** Introduction to the objectives of the lesson.

2. **Slide 6:** Security measures that students need to know about are listed. There is a definition of each security measure in the notes section, with some supporting links.

   Alternatives: Depending on the ability of the class, the teacher may wish to discuss the security measures with the class, or get them to independently research them.

3. **Slide 7: Activity – Security measures**

   You have been employed as the Cyber Security Advisor for a local business. Create a user guide or infographic to help staff understand what security measures are and why they should use them to prevent cyber security threats. Include images to support your explanations.

Alternatives: If students have not been given information from slide 7, there is a good video link (youtube.com/watch?v=tS5_t_11eaU&spfreload=1) about security measures.

Extension: Further reading on cyber security and protection, directed at organisations: theguardian.com/public-leaders-network/2015/oct/14/how-to-stop-cyber-attacks-on-your-organisation.

Assessment opportunity: This task provides an opportunity to assess the understanding of security measures used and how they might prevent cyber security threats. It is unlikely that students will finish this in the allotted time so it could completed for homework.

4. **Slide 8:** Visual examples of a user guide and an infographic.

5. **Slides 9–13:** Depending on class ability and teacher preference, students can use the questions to help them create a user guide or they could research and respond to the questions independently.

Alternative: The activity could be followed up with homework to ask family members/friends if any security measures are used in their work places. Students could also read up on biometrics (iritech.com/blog/mobile-biometric/) and creating strong passwords (safeandsavvy.f-secure.com/2010/03/15/how-to-create-and-remember-strong-passwords/).

Plenary (5 minutes)

1. **Slide 14: Activity – Draw quickly**

   Divide the class into pairs. Person A draws an image that represents one security measure, Person B guesses which security measure they are drawing. This can be repeated with students taking turns to draw. The activity can be completed on paper or mini whiteboards.

   Click on 'Start' to begin the one-minute timer.

   Alternatives: This activity could also be completed as a whole class activity where the class is divided into teams and key words from the lesson are used rather than just the security measures.

Lesson

Slide 1

3.6 Fundamentals of cyber security

3.6.2 Methods to detect and prevent cyber security threats

Lesson

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Slide 2

Starter activity

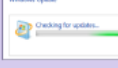Look at the pictures and identify the security measures.

Email confirmations to confirm identity

Password systems
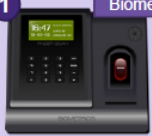
CAPTCHA

Biometrics

Automatic software updates

TIME UP
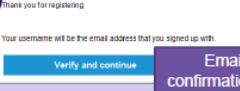
Start

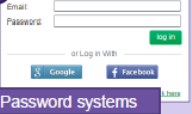© 2016 AQA. Created by Teachit for AQA

Slide 3

Starter activity: Answers

1. Biometrics
2. Thank you for registering — Your username will be the email address that you signed up with. — Verify and continue — Email confirmations to confirm identity
5. CAPTCHA
4. Windows Update — Checking for updates... — Automatic software updates
3. Email / Password — log in — or Log in With — Google — Facebook — Password systems
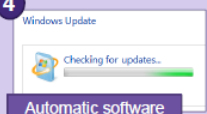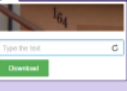
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Slide 4

Discussion

- Which of the security measures did you recognise?
- What security measures have you used before?
- When are these measures used?
- How could cyber security threats be prevented or detected using these methods?

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Slide 5

Objective

Understand and be able to explain security measures.

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Slide 6

Security measures

Biometric measures (particularly for mobile devices)

Password systems

CAPTCHA (or similar)

Using email confirmations to confirm a user's identity

Automatic software updates

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Security measures activity

You have been employed as the Cyber Security Advisor for a local business.

Create a user guide or infographic to help staff understand what security measures are and why they should use them to prevent cyber security threats.

Include images to support your explanations.

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Security measures activity

Examples of infographics:

- media.cutimes.com/cutimes/article/2015/02/27/cut260704031504img001.jpg
- gov.uk/government/publications/cyber-risk-management-a-board-level-responsibility/10-steps-summary

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Security measures user guide – questions

- What are **biometric measures**?
- Why might they be used (particularly for mobile devices)?
- How will biometric measures prevent cyber security threats?

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Security measures user guide – questions

- What are **password systems**?
- Why might they be used?
- Give an example of when they are used.
- How will password systems prevent cyber security threats?

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Security measures user guide – questions

- What is **CAPTCHA** (or similar)?
- Give an example of when it is used.
- Why is it used?
- How does CAPTCHA prevent or detect cyber security threats?

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Security measures user guide – questions

- What is an **email confirmation** that confirms a user's identity?
- Why is it used? Give an example of when it is used.
- How does the email confirmation prevent or detect cyber security threats?

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Security measures user guide – questions

- What are **automatic software updates**?
- Why are they used? Give an example of when they are used.
- How do automatic software updates prevent or detect cyber security threats?

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Plenary – Draw quickly

In pairs:

- **Person A** draws an image that represents one security measure.
- **Person B** guesses which security measure they are drawing.

TIME UP

Start

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