## Reliability Of Computer Systems

### Lesson Plan

<table>
<thead>
<tr>
<th>Length</th>
<th>60 mins</th>
<th>Specification Link</th>
<th>2.1.1/c</th>
<th>Reliability of computer systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning objective</td>
<td>Understand why computers need to be reliable</td>
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<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Activity</th>
<th>Further Notes</th>
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<tbody>
<tr>
<td>5</td>
<td>Introduce the topic. Show students the link to the specification. Explain the purpose and objectives of the lesson.</td>
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<td>5</td>
<td>Watch the videos.</td>
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</table>
| 5          | Discuss key aspects of reliability with students. Provide examples of systems failing.  
• Natwest Bank Failure (http://www.cambridgegcsecomputing.org/weblink8)  
• Key points: computer failure meant that people couldn’t access their funds through ATM machines or online banking.  
• Questions to ask – discussion of why the system failed, what went wrong, why was it allowed to? What was the impact of the failure and why was everyone so angry? | Linking what they have learnt with an example can help to consolidate understanding. Probable answers to questions should include that testing is critical to removing system errors to begin with, and testing is also crucial once systems are updated. Pupils may mention the importance of maintaining systems as well. Stretch pupils to enable them to consider the wider impact and consequence of system failure. |
| 5-10      | Pupils to complete the interactive activity individually. | |
| 20        | **Worksheet 1 – Group Research**  
A group activity where students investigate different news stories and feedback to each other. | The activity allows students to teach each other and share their learning. The teacher can circulate and prompt more in depth responses. The links to the stories on the worksheet can easily be replaced with other stories that are more relevant. Teachers may wish to provide printouts of the stories for pupils to discuss if internet access isn’t available. |
| 15        | **Worksheet 2 – Exam Style Questions**  
Each pupil to answer their questions individually and to submit for marking. | |
|           | **Extension Challenge/Homework** | |
| 5         | **Plenary**  
On a post-it note write one thing that you learnt today, and one thing you would like to cover in more detail. | Students stick the post-it note on an area dictated by the teacher as they leave the room. After the lesson, the teacher can use the post-it notes to gauge an understanding of the learning made by the class. The second point in particular will provide valuable insight not just into what the students want to learn |
Reliability is crucial and unreliable systems can cause disaster.

Name one example of a computer system in the airline, medical or banking industries and explain why it needs to be reliable. (2)

A variety of examples can be given including:

Medical
• Life support systems
  Accuracy and reliability critical for patient health.
• Patient record systems
  Doctors need details available for diagnosis and treatment.

Airline
• Flight control systems
  Accurate control of aircraft, health and safety.
• On board computers
  Health and safety of staff and passengers, flight navigation.
• Airline booking systems
  Ability to book tickets, avoid double booking

Banking
• Customer account systems
  Accurate record bank accounts.
• Stocks and shares
  The stock market buys and sell shares.
• Online banking
  Electronic access to funds.

Give examples of two different measures that can be taken to improve the reliability of computer systems. (2)

Answers to include:
• Testing
• Thorough design
• Adhering to professional standards
• Maintenance