

4 Devices, malware, and authentication – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
virus	病毒	_____	_____	_____
worm	蠕虫	_____	_____	_____
ransomware	勒索软件	_____	_____	_____
hash	散列值	_____	_____	_____
Salt	盐值	_____	_____	_____
biometric	生物特征	_____	_____	_____
MFA	多因素身份验证	_____	_____	_____

Recall

- You use several devices: a phone, a laptop, maybe a smart speaker.
- You have heard of viruses and know updates are important.
- You log in with passwords and sometimes a texted code.

New ideas

Read these first. Each idea has a short worked example. Then do the Practice below.

■ 1 Malware types

A **virus** 病毒 needs a user to run a file; a **worm** 蠕虫 spreads by itself; **ransomware** 勒索软件 encrypts files for money; a **rootkit** hides in the OS.

Worked example. Ransomware locks a hospital's files and demands payment for the key.

■ 2 Hashing and salt

Passwords are stored as a one-way **hash** 散列值, never as plaintext. **Salt** 盐值 (random bits) makes two identical passwords hash differently.

Worked example. Two users both pick **sunshine**; with unique salt, their stored hashes look completely different.

■ 3 Authentication factors

Factors are: something you **know** (a password), **have** (a phone), **are** (a **biometric** 生物特征 like a fingerprint), or **where** you are. Two or more is **MFA** 多因素身份验证.

Worked example. A password plus a texted code is MFA - far stronger than a password alone.

Watch out: A worm and a virus are not the same. A worm spreads on its own; a virus needs a person to run it.

Practice

2.1 State the difference between a virus and a worm. [2]

2.2 Name the malware that encrypts files and demands payment. [1]

2.3 Explain how salt protects stored passwords. [2]

2.4 Classify a fingerprint, a texted code, and a PIN by factor type. [3]

2.5 Explain why MFA is stronger than a password alone. [2]
