IGCSE COMPUTER SCIENCE • EXERCISE SHEET

5.2 Digital currency

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

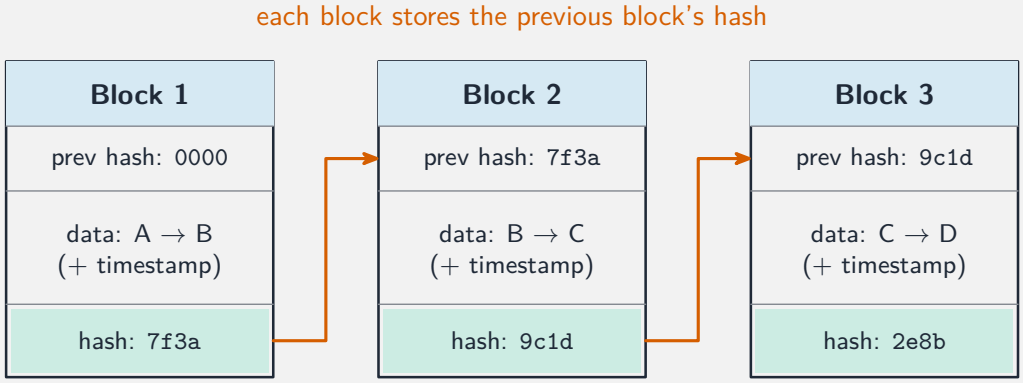
Build the skills to answer exam questions on **digital currency** 数字货币—what it is, and how **blockchain** 区块链 keeps it secure.

You must be able to:

- describe digital currency
- describe a blockchain (a digital ledger of transactions)
- explain how the hash chain detects tampering

1 Worked examples

Blockchain



Each block stores data, a timestamp and a hash, plus the previous block's hash — chaining them

- **digital currency:** money in electronic form only (no coins/notes).
- changing an old block changes its hash, so it no longer matches the next block — the change is spotted.

2 Practice

2.1 Define digital currency. [1]

2.2 State the three things stored in a blockchain block. [3]

3 Exam-style questions

3.1 A blockchain is best described as a: [1]

- **A** single private record
- **B** shared digital ledger copied across many computers
- **C** type of cookie
- **D** web browser

3.2 Blockchain makes records hard to change.

(a) Explain how the hash links the blocks together. [2]

(b) Explain why changing one old block is detected. [2]

4 Go further

You are now ready for the real exam questions on this subtopic. Open the **5.2 Digital currency** past-paper sheet in the Library, or try these in **Practice mode**:

- 0478/11 N24 —Q8 (digital currency / blockchain)
- 0478/12 M24 —Q5 (blockchain)

Solutions

2.1 money that exists only in electronic form (no physical coins or notes).

2.2 the transaction data; a timestamp; a hash value.

3.1 B. A blockchain is a shared digital ledger copied across many computers.

3.2 (a) each block stores the hash of the block before it, linking the blocks into a chain. (b) changing a block changes its hash; so it no longer matches the next block's stored hash, breaking the chain.