KS4 Computer Science Learning Journey

For New Year 10 2023/24

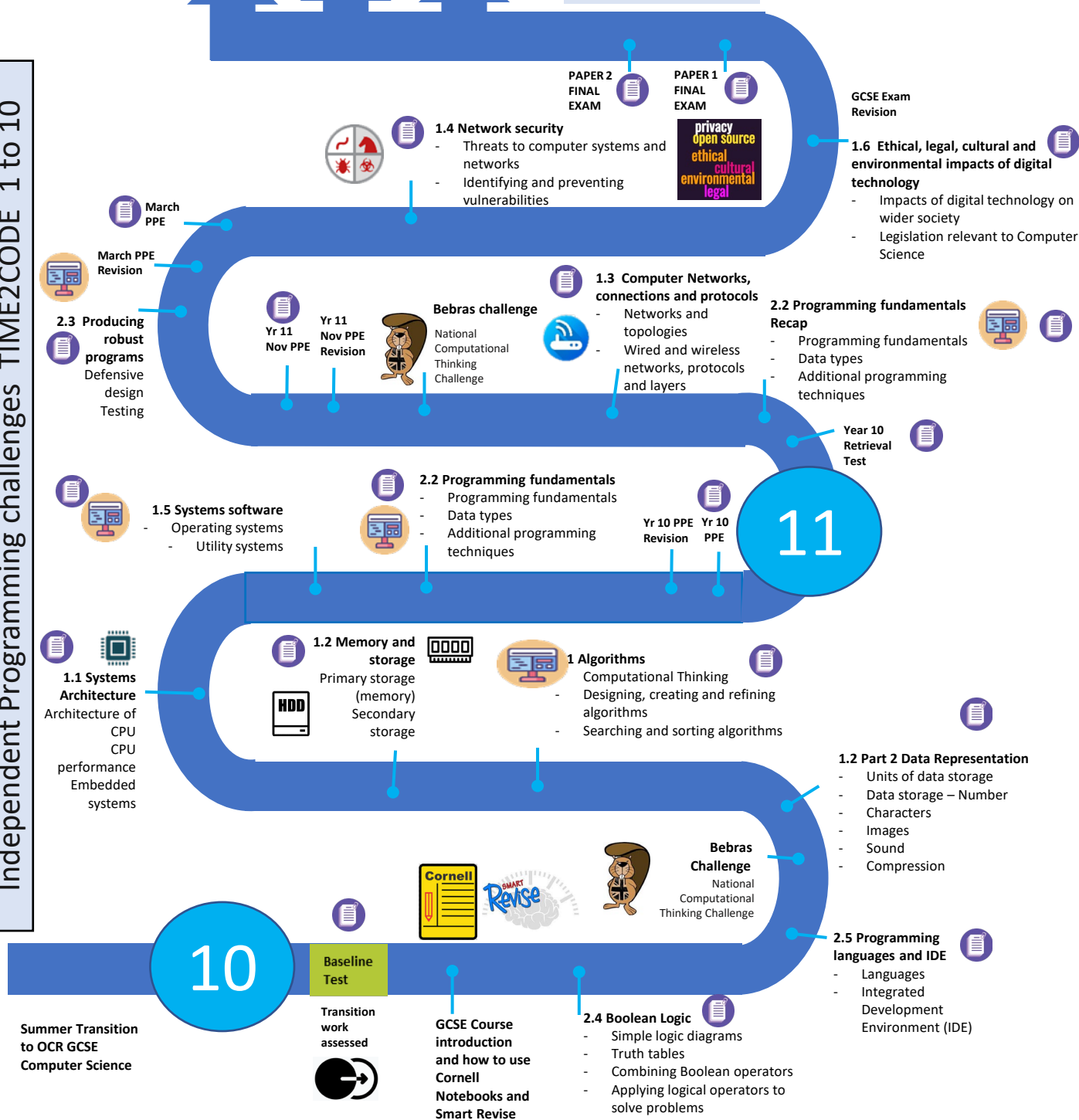**Independent Programming challenges TIME2CODE 1 to 10**

FE & Study Computer Science at A Level

Transition work for A Level

Start a Computing Apprenticeship

Paper 1: Computer Systems Paper 2: Computational Thinking, Algorithms and Programming Both Papers 50% each and 1hr 30mins long

PAPER 2 FINAL EXAM

PAPER 1 FINAL EXAM

GCSE Exam Revision

1.4 Network security
- Threats to computer systems and networks
- Identifying and preventing vulnerabilities

privacy open source ethical cultural environmental legal

1.6 Ethical, legal, cultural and environmental impacts of digital technology
- Impacts of digital technology on wider society
- Legislation relevant to Computer Science

March PPE

March PPE Revision

Yr 11 Nov PPE

Yr 11 Nov PPE Revision

Bebras challenge

National Computational Thinking Challenge

1.3 Computer Networks, connections and protocols
- Networks and topologies
- Wired and wireless networks, protocols and layers

2.2 Programming fundamentals Recap
- Programming fundamentals
- Data types
- Additional programming techniques

2.3 Producing robust programs
Defensive design
Testing

Year 10 Retrieval Test

1.5 Systems software
- Operating systems
- Utility systems

2.2 Programming fundamentals
- Programming fundamentals
- Data types
- Additional programming techniques

Yr 10 PPE Revision

Yr 10 PPE

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1.1 Systems Architecture
Architecture of CPU
CPU performance
Embedded systems

1.2 Memory and storage
Primary storage (memory)
Secondary storage

HDD

1 Algorithms
- Computational Thinking
- Designing, creating and refining algorithms
- Searching and sorting algorithms

1.2 Part 2 Data Representation
- Units of data storage
- Data storage – Number
- Characters
- Images
- Sound
- Compression

Bebras Challenge
National Computational Thinking Challenge

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Baseline Test

Cornell
Smart Revise

2.5 Programming languages and IDE
- Languages
- Integrated Development Environment (IDE)

Summer Transition to OCR GCSE Computer Science

Transition work assessed

GCSE Course introduction and how to use Cornell Notebooks and Smart Revise

2.4 Boolean Logic
- Simple logic diagrams
- Truth tables
- Combining Boolean operators
- Applying logical operators to solve problems

Each topic has an end of unit test that covers the content covered and previous topics.

Each topic has a knowledge organiser which covers basic and more detailed content. These are used for revision.

Each topic has retrieval practice on previous content including past topics.

Each topic has keywords and definitions that need to be learnt and understood.

Each year group will be entered into a national computational thinking challenge.