# Year 7

**CHRIST CHURCH** Church of England Secondary Academy

**Why we think this is important for you:** Computing is a practical subject where students can apply the academic principles learned in the classroom to real-world systems. It's an creative subject that combines invention and excitement and can look at the natural world through a digital prism.

**What are the big ideas and concepts I will cover this year?**

- Learning how to stay safe online by understanding the digital footprint, differences between private / personal information and working respectfully online
- To learn the key concepts in programming (sequence, selection and iteration)
- To understand how a computer system works
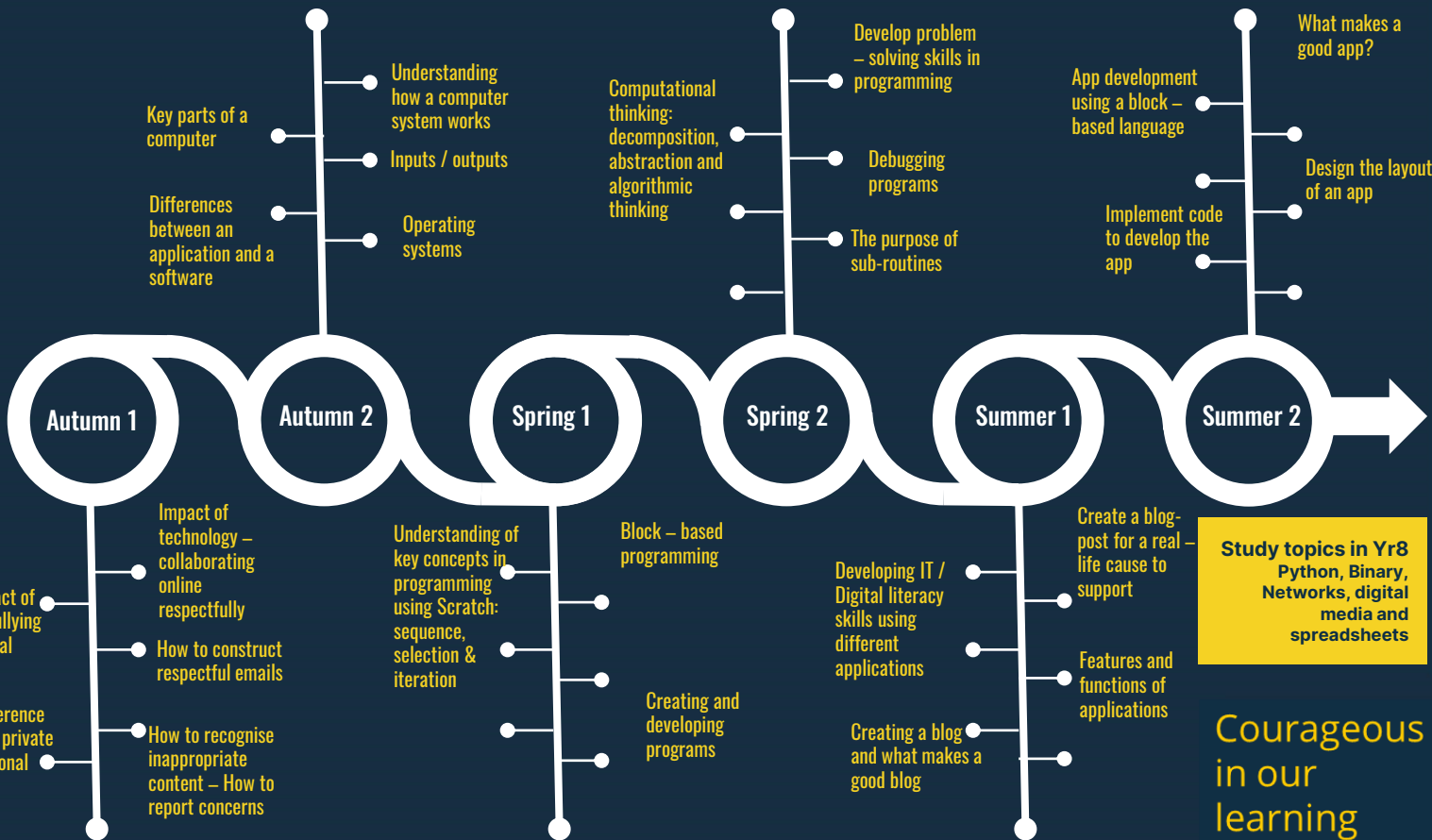- To gain the capacity to think creatively, innovatively, analytically, logically and critically

**What am I learning about in SUBJECT this year?**

**How can I explore this subject and topic more?**

- Explore programming websites online
- News – how is computing developing around the world

**Careers links:**
IT services, app / software development, programme, computer scientist or cyber-security.

## Autumn 1

Key parts of a computer

Differences between an application and a software

The impact of Cyber-bullying and digital footprint

The difference between private and personal content

## Autumn 2

Understanding how a computer system works

Inputs / outputs

Operating systems

Impact of technology – collaborating online respectfully

How to construct respectful emails

How to recognise inappropriate content – How to report concerns

## Spring 1

Computational thinking: decomposition, abstraction and algorithmic thinking

Understanding of key concepts in programming using Scratch: sequence, selection & iteration

Block – based programming

Creating and developing programs

## Spring 2

Develop problem – solving skills in programming

Debugging programs

The purpose of sub-routines

Developing IT / Digital literacy skills using different applications

Creating a blog and what makes a good blog

## Summer 1

App development using a block – based language

Implement code to develop the app

Create a blog-post for a real – life cause to support

Features and functions of applications

## Summer 2

What makes a good app?

Design the layout of an app

**Study topics in Yr8** Python, Binary, Networks, digital media and spreadsheets

Courageous in our learning

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## Courageous in our learning

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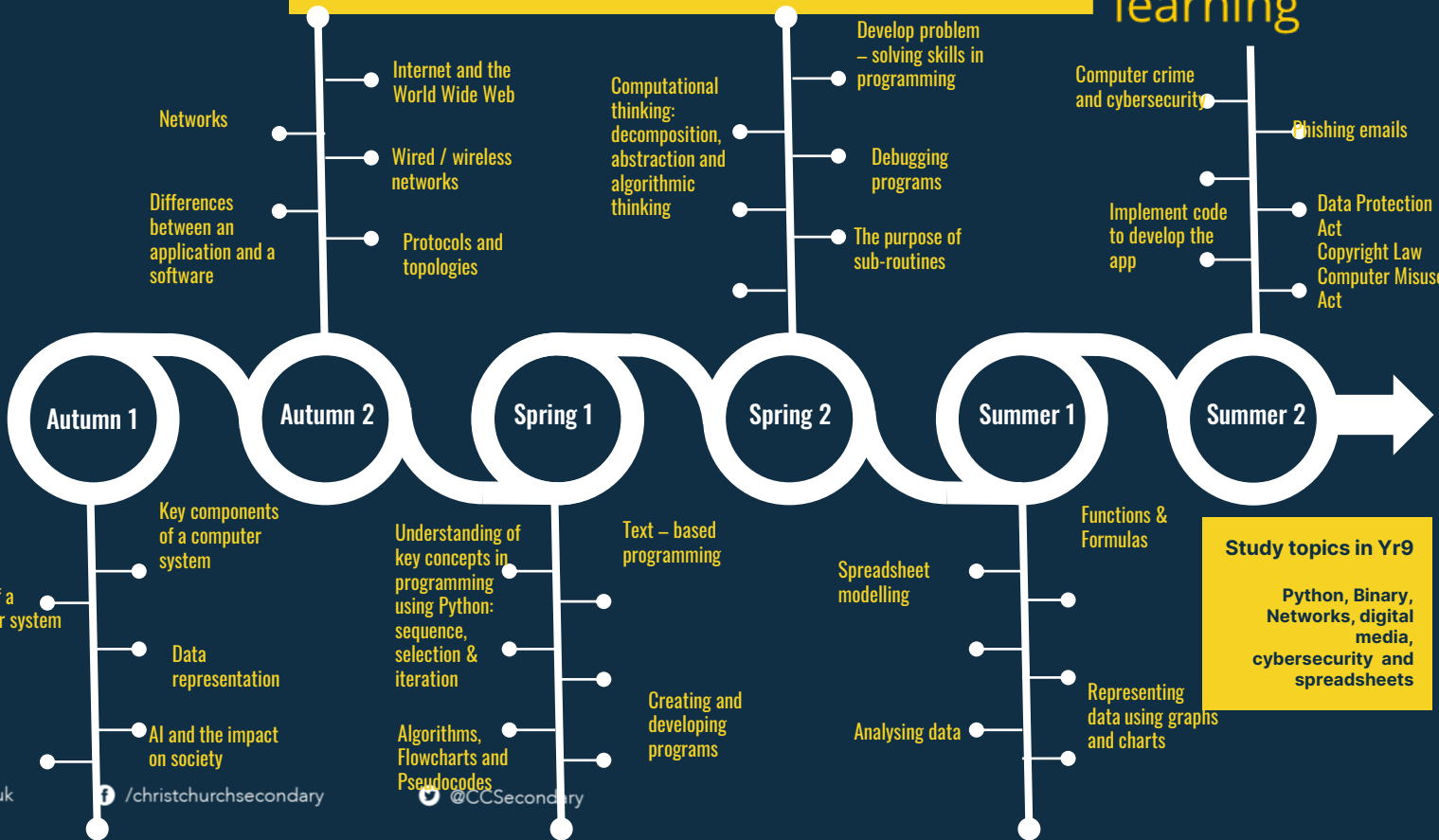- To gain the capacity to think creatively, innovatively, analytically, logically and critically

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### Careers links:
IT services, app / software development, programmer, computer- scientist or cyber-security.

**Autumn 1**

**Autumn 2**
- Networks
- Differences between an application and a software
- Internet and the World Wide Web
- Wired / wireless networks
- Protocols and topologies

**Spring 1**
- Computational thinking: decomposition, abstraction and algorithmic thinking

**Spring 2**
- Develop problem – solving skills in programming
- Debugging programs
- The purpose of sub-routines

**Summer 1**

**Summer 2**
- Computer crime and cybersecurity
- Phishing emails
- Implement code to develop the app
- Data Protection Act
- Copyright Law
- Computer Misuse Act

**Autumn 1**
- Layers of a computer system
- Key components of a computer system
- Data representation
- Binary
- AI and the impact on society

**Spring 1**
- Understanding of key concepts in programming using Python: sequence, selection & iteration
- Algorithms, Flowcharts and Pseudocodes

**Spring 2**
- Text – based programming
- Creating and developing programs

**Summer 1**
- Spreadsheet modelling
- Analysing data
- Functions & Formulas
- Representing data using graphs and charts

### Study topics in Yr9
**Python, Binary, Networks, digital media, cybersecurity and spreadsheets**

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**Courageous in our learning**

## What are the big ideas and concepts I will cover this year?

- Learning key fundamentals of programming and flourishing with your computational thinking skills
- To learn the key concepts in programming (sequence, selection and iteration)
- To understand cybersecurity and the methods used by cyber criminals
- To gain the capacity to think creatively, innovatively, analytically, logically and critically

## What am I learning about in SUBJECT this year?

## How can I explore this subject and topic more?

- Explore programming websites online
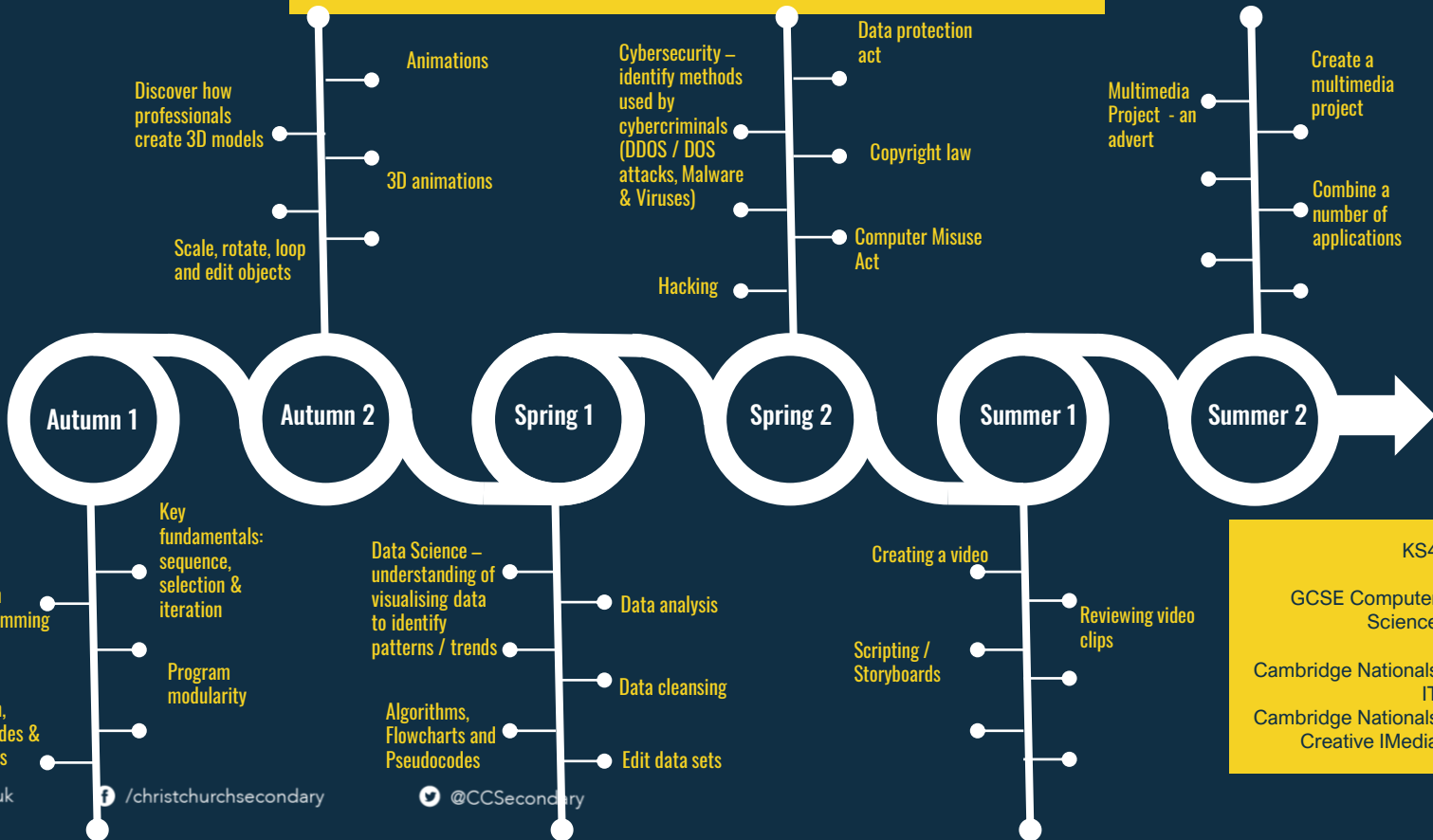- News – how is computing developing around the world

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Discover how professionals create 3D models

Animations

3D animations

Scale, rotate, loop and edit objects

Cybersecurity – identify methods used by cybercriminals (DDOS / DOS attacks, Malware & Viruses)

Data protection act

Copyright law

Computer Misuse Act

Hacking

Multimedia Project - an advert

Create a multimedia project

Combine a number of applications

**Autumn 1**  **Autumn 2**  **Spring 1**  **Spring 2**  **Summer 1**  **Summer 2**

Key fundamentals: sequence, selection & iteration

Python programming

Program modularity

Algorithm, pseudocodes & flowcharts

Data Science – understanding of visualising data to identify patterns / trends

Data analysis

Data cleansing

Algorithms, Flowcharts and Pseudocodes

Edit data sets

Creating a video

Scripting / Storyboards

Reviewing video clips

KS4

GCSE Computer Science

Cambridge Nationals IT
Cambridge Nationals Creative IMedia

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