YEAR 7 – 11 COMPUTING

A-level Computer Science

Prepared for A-Level and Career

Unity Program Associate Course

YEAR 11

Unity Programmer Associate Examination

Microsoft Office Specialist - PowerPoint Examination

Minecraft

System Architecture
Memory
Storage

Ethical, legal, cultural and environmental impacts of digital technology

Programming Fundamentals
Producing robust programs

Exam & Revision

YEAR 10

Algorithms
Boolean logic

Programming languages and Integrated Development Environments

Computer networks, connections and protocols
Network security and systems software

System Architecture
Memory
Storage

Programming Fundamentals
Producing robust programs

Programming Languages and Integrated Development Environments

Algorithms

Computer networks, connections and protocols
Network security

Programming languages and Integrated Development Environments

Data, manipulation, presentation & interpretation

YEAR 9

Data Representation

Programming Techniques

System Architecture

User Interfaces

YEAR 8

System security
Software
User interfaces

Algorithms

Spreadsheets

Cyber Security

Programming Techniques

Data Representation

System Architecture

YEAR 7

Spreadsheets

Algorithms

LEARNING JOURNEY

YEAR 7 COMPUTING

Year 8 Computer Science

Assessment

Cybersecurity

Network security

Software applications

Operating systems

Fetch-Decode-Execute cycle

MAY HALF TERM

Primary and secondary storage

Input-process-output

System architecture

APR END OF TERM

Conditional Formatting

VLOOKUP's

IF Functions

Sum, Average, Min, Max functions

Cell Referencing

Arithmetic Operators

Macros

Spreadsheets

Features

FEB HALF TERM

Code Readability

Data types Operators

Lists

Strings

Applying iteration within program code

Applying selection within program code

Variables/constants

Functions

Programming

Bubble sort/linear search

Pseudocode Iteration

Pseudocode Command sequence/selection

Computational thinking

Flowcharts

OCT HALF TERM

Algorithms

DEC END OF TERM

File sizes

Image Representation

Hexadecimal

Binary addition

ASCII

Binary shifts

Data Representation

START

Binary-denary

1010
1010

LEARNING JOURNEY

YEAR 8 COMPUTING

Year 9 Computer Science

Assessment

User interfaces/ design principles

Utility software

Cybersecurity

Software applications and operating systems

Fetch-Decode-Execute cycle

Networks

System architecture

MAY HALF TERM

Data summary sheets (graphs, dashboard)

Conditional Formatting

Count functions

Data collection methods

Data manipulation

Cloud Technologies

Cloud Technologies

Identifying and preventing vulnerabilities

Primary and secondary storage

Input-process-output

Rank Functions

Importing/ transposing data

Sum, Average, Min, Max functions

IF Functions

Validation

APR END OF TERM

Spreadsheets

Cell Referencing

Absolute/Relative cell referencing

Linked sheets

VLOOKUP's

Macros

Customizing user interface

Debugging/ Code Readability

Features

FEB HALF TERM

String Manipulation

Variables/constants /Data types

Functions

Boolean/ Arithmetic and relational operators

File handling

Arrays/ Records

Lists

Applying iteration within program code

Applying selection/nested selection within program code

Programming

Computational thinking

Pseudocode Command sequence/selection

Logic Gates

Trace tables

Algorithms

DEC END OF TERM

Sorting algorithms

OCT HALF TERM

Flowcharts

Nested selection

Pseudocode Iteration/ nested iteration

Searching algorithms

1010 1010

Binary addition

File sizes

Data Representation

START

Compression

Sound Representation

Image Representation

ASCII

Hexadecimal

Binary shifts

Binary-denary

LEARNING JOURNEY

YEAR 9 COMPUTER SCIENCE

Year 10 CS

Assessment

Preventing threats

Protocols/Layers

Networks and topologies

MAY HALF TERM

Sound

Images

Numbers

Characters

Compression

Threats to systems

Wired/wireless networks

Units

Von Neumann architecture

Fetch-decode-execute cycle

Purpose of CPU

Secondary storage

APR END OF TERM

System architecture/ Memory & Storage

Primary storage

High level languages

Features of IDE

Translators

Authentication

Programming languages & IDE

Defensive design considerations

FEB HALF TERM

Error diagnostics

Low level languages

Testing

Run-time environment

Variables & constants

Sequence & selection

Basic string manipulation

Robust programs & computational logic

Input/output/assignment

DEC END OF TERM

OCT HALF TERM

Programming

Relational and arithmetic operators

Iteration (count/condition controlled)

Sorting algorithms

Searching algorithms

Trace tables

Pseudocode

Decomposition

Algorithms

START

Reference Language

Algorithmic thinking

Structured diagrams

Flowcharts

Abstraction

LEARNING JOURNEY

YEAR 10 COMPUTER SCIENCE

Advanced CS
Unity Programmer Associate course/
Microsoft Office Specialist course

Python functions
Identify loops and operators in code
Understand the basic concepts of Minecraft
GCSE EXAM
Minecraft
Ethical, legal, cultural and environmental impacts
Threats to systems
Protocols / Layers
Minecraft certification /completed project
Link algorithm to programming
Understand variable types
Ethical/Legal/Cultural/ Environmental Impacts
Preventing threats
Wired/ wireless networks
Networks and topologies

Purpose of CPU
Fetch-decode-execute cycle
Secondary storage
APR END OF TERM
Units
Images
Compression
MAY HALF TERM
System architecture/ Memory & Storage
Von Neumann architecture
Primary storage
Numbers
Characters
Sound
Input sanitisation

Features of IDE
Translators
High level languages
Authentication
Validation and anticipating misuse
Defensive design considerations
FEB HALF TERM
Programming languages & IDE
Error diagnostics
Low level languages
Testing
SQL
Robust programs & computational logic
Run-time environment
Variables & constants & data types
Sequence & selection
Basic string manipulation
Input/output/assignment
DEC END OF TERM
OCT HALF TERM
Programming
Truth tables
Logic diagrams
Sorting algorithms
Searching algorithms
Relational and arithmetic operators
Iteration (count/condition controlled)
Trace tables
Pseudocode
Decomposition
Reference Language
Structured diagrams
Flowcharts
Algorithmic thinking
Abstraction
Algorithms
START

LEARNING JOURNEY

YEAR 11 ADVANCE UNITY PROGRAMMER

Year 12

A-level Computer Science / T levels / Apprenticeships

Unity Certified Programmer exam

YEAR 12

APR END OF TERM

Evaluate code

Navigating interface

FEB HALF TERM

Creating code

interpreting API

DEC END OF TERM

Debugging

C# Language

Problem- solving

OCT HALF TERM

Unity Introduction

Managing multiple presentations

Apply transitions and animations

Insert tables, charts, SmartArt, and media

Insert and format text, shapes, and images

Create and manage presentations

Microsoft Office Specialist PPT

START

LEARNING JOURNEY