

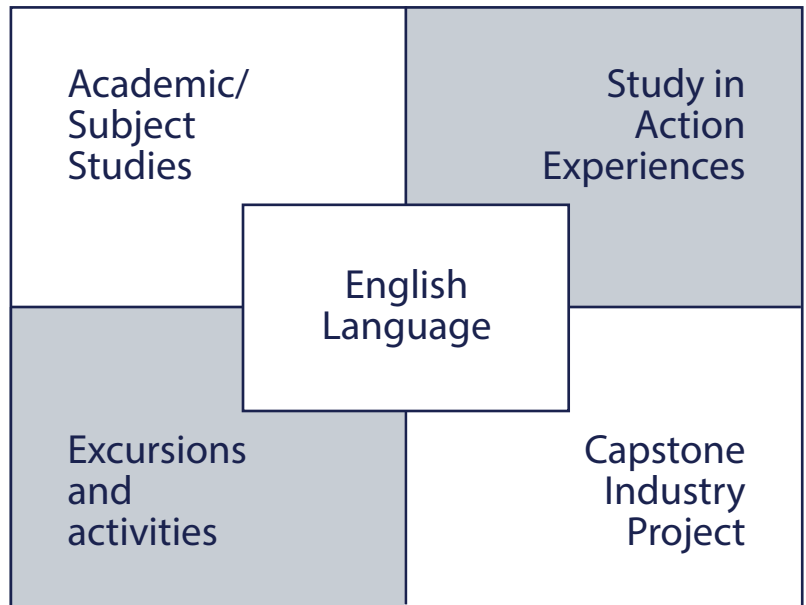
# Young Professionals

Courses for those aspiring to become future professionals • *Ages 13-17*

Our "Aspiring" courses combine academic rigour, practical workshops and real world industry projects to provide an immersive career experience.

## Who is this course for?

- Students with at least an intermediate level of English looking to improve their ability via a challenging context
- Students looking for an insight into future career paths in an English-speaking environment
- Students looking to gain a deeper understanding into the theory and practice in a specific career field



### Academic Studies

Students will learn from highly experienced tutor practitioners who will share their personal insights into the industry, as well as deliver the theoretical and practical components of the course through a tutorial approach.



### Study in Action workshops

The study in action workshops are off-site activities that provide a unique opportunity for students to extend and broaden their academic experience through linked subject specific career-related workshops delivered by industry leading providers.



### Capstone Industry Project

Students from related fields of study will come together to complete an interdisciplinary project based on a real-life problem-solving situation. This project is externally assessed and certified and provides an opportunity to work with industry professionals and can support a student's university application.



### Activities & Excursions

The Activity and Excursion component provides students with the opportunity to socialise with other international students, and visit places of interest within the UK that can help develop their cultural appreciation.

Sample Timetable

	TUE	WED	THU	FRI	SAT	SUN	MON
AM	Arrivals	Subject Theory	<b>Excursion:</b> Study In Action Day School of Coding	Subject Theory	<b>Excursion:</b> London River Cruise and Greenwich tour	Subject Theory	Careers Morning
PM	Arrivals	<b>Activity:</b> Walking Tour of Oxford and punting		Subject Practical		Project Preparation	Subject Practical
EVE	Welcome Games	Project Preparation	<b>Activity:</b> Quiz Night	<b>Activity:</b> Murder Mystery	<b>Activity:</b> Movie Night	Project Presentations	Graduation and Party

\*based on 2023 timetable

# Aspiring AI & Computer Scientist

## Key Facts:



**Age range:**  
13-17



**Location:**  
d'Overbroeck's



**Class size:**  
11



**Certificate:**  
Personalised report card, External and Bucksmore certification



**Minimum language level:**  
B1 (intermediate)



**Tuition content**  
Theory, practical workshops and capstone project



**Weekly excursions:**  
2 full-day



**Hours per week:**  
25



**Dates:**  
9 July - 6 August

The course is intended to provide a comprehensive foundation in both artificial intelligence (AI) and computer science. Students will gain a solid understanding of AI concepts and techniques, as well as develop essential programming and problem-solving skills necessary for building intelligent systems. The course will foster creativity and innovation by encouraging students to explore and develop their own AI projects.

## Learning outcomes

- Targeted career and pre-university development including an Individualised Career Action Plan
- Hands-on experience into careers in computer science and artificial intelligence
- Improvement in English fluency, especially practical and career-oriented language
- Development of transferable skills including leadership, teamwork, and problem-solving

## Example Study In Action Workshops

**The National Museum of Computing** – Students discuss the ethical issues surrounding Chatbots and Artificial Intelligence. Workshops include comparing the achievable (narrow) AI with the Hollywood version in building basic 3D neural networks and applying algorithms.

**Microsoft** – In this Minecraft Education workshop students will be guided through unplugged activities, coding challenges, and interactive discussions to explore artificial intelligence and block-based coding, with a focus on completing quests.

## Capstone Industry Project

Through the Capstone Industry Project students will develop a compelling portfolio which can support their application to university and gain an Industry Certification – delivered by Ofqual recognised UK provider.



# AI and Computer Scientist

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## Course Overview

Our course introduces computer science and programming through hands-on and interactive learning. The aims of this course are to provide students with an opportunity to go beyond the basics of programming and coding and develop strong problem-solving skills and creativity whilst showcasing a wide array of professional career pathways in computer science. Students will develop a strong working knowledge of coding, hardware, and software, artificial intelligence, and the limits of technology. In addition, practical skills such as teamwork, presentation, and critical thinking will be developed in fun and interactive projects and lessons.

## Lessons & Learning Objectives

### Programming

- Develop knowledge and usage of C#, Java and Python languages. Students will learn to read and write code with functions, conditional statements, iteration, and other fundamental techniques.
- Explore the different types of programming languages and their classification into low- and high-level languages.

### Patterns and Problem Solving

- Learn systematic approaches to problem solving, including analysis techniques and how to implement data structures and code problems in a way that computers can understand and process. Learn the process to test for the presence of errors, compiled test data, boundary and erroneous data. Investigate solutions to problems using an iterative process with a focus on solving the critical path first.

### Hardware and Software

- Understand the need for and functions of system software, including operating systems, utility programs, libraries and translators, and more.
- Identify common ideas such as binary arithmetic, control operations, floating-point arithmetic and logical operations. Using Boolean algebra functions and propositional calculus, develop ideas on configuration and input variables.

### Artificial Intelligence and Machine Learning

- Explore techniques for representing and reasoning about knowledge. Define different approaches in machine learning and develop an understanding of stochastic algorithms, game theory, automated theorem proving, computer and human learning, and more.

## Transferrable Skills

- Teamwork and leadership
- Communication
- Problem-solving
- Negotiation
- Time management and organisation
- Report writing
- Numeracy
- Coping with the rapid technological changes in computing
- Commercial awareness.

## Career Pathways

Studying computer science is a gateway to a variety of professions and careers, including but not limited to computer development, technology development, information technology, artificial intelligence, engineering, financial services, research and development, healthcare, aerospace, and more.

# Capstone Project Overview

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## Course Description

Students will work in small teams assuming the role of a game development company who has received a brief from a leading museum to develop an educational video game aimed at 8- to 11-year-olds. The game will be added to the museum website as a means of engaging children in the target age range.

## Course Overview

Learning to code is no longer a "speciality" skill. Rather, it has become a mainstream, core discipline utilized in nearly every industry; requiring more and more skilled workers every year. Coding tests a variety of abilities. It hones problem-solving and analysis skills, such as finding errors and thinking logically. Further, coding often helps people develop teamwork and interpersonal skills since software and application projects are often cross-disciplinary and collaborative.

In this course you will learn to use a games industry standard piece of software and be tasked with developing a project to an industry realistic brief. Our software for this project will be Unity, a game development engine. It is considered easy to learn to use for beginners and allows users to create 2D and 3D games which can be run across multiple operating systems.

## Lesson Plan

### Day 1

#### Introduction to the software

- Students will work individually to create their first project in Unity, learn how to create and navigate around scenes which will form the basis of their project.

### Day 2

#### Systems for project development

- Students will be introduced to the process and workflows that will enable them to work as a team to complete their final projects. In addition, they will learn how to create and design their own game objects. This will include the implementation of physics within their games for added realism.

### Day 3

#### Coding within Unity

- Students will be introduced to coding within Unity. They will work from examples provided to learn how to interpret the code, fix bugs and modify the code to achieve required end results.

### Day 3

#### Final project

- The students will be put into small teams and will be given a final project to complete for assessment. The project submission will include documented workflows to show how the team will produce their final project. Some design elements which storyboard the final project and a prototype of the game demonstrating elements of gameplay and the code which has achieved that result.

## Course Delivery

The course will be developed, delivered and assessed by ComputerXplorers. ComputerXplorers is a dedicated computer education company delivering engaging computer lessons across the UK throughout their school lives.

On completion of the course and submission of the final projects the students will receive a certificate of completion and a written assessment of their project.



# Excursions

Activity trips to help students to relax, learn about a different country and have lots of fun.

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Students have a full activity programme plus two full-days per week. The destinations for each particular week of the course are outlined below.

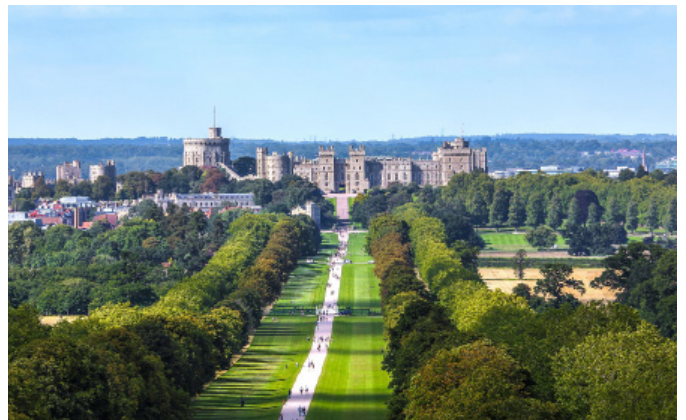
To enable us to respond to student feedback and requests, activities and excursion itineraries are planned and organised by a dedicated Activity Manager. For this reason, it is impossible to provide exact weekly timetables until a few days before the start of the following week.

This enables the Activity Manager to minimise any repetition and give students a unique experience every week. With this in mind, the below excursion destinations are **subject to change** and are meant to give examples of the destinations students will visit.



## London

Students visit key British landmarks such as Trafalgar Square, Downing Street, Horse Guards Parade, Buckingham Palace, Houses of Parliament & Westminster Abbey.



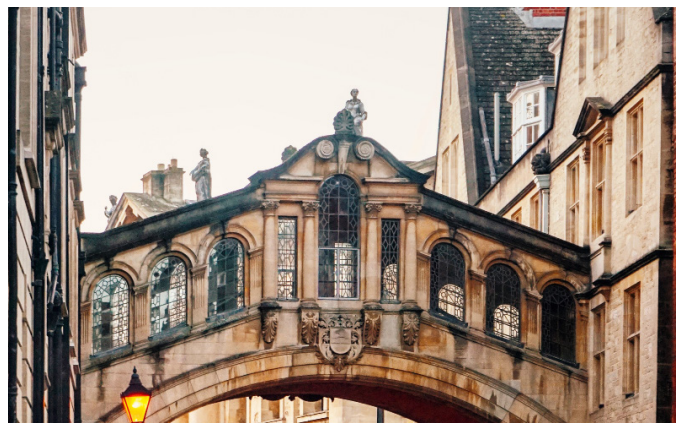
## Windsor

Students are given the opportunity to visit the home of the British Royal Family at their residence Windsor Castle and explore the historic market town.



## Cambridge

Founded in 1209, the University of Cambridge is the heart of the city of Cambridge. The city's skyline is dominated by the university's college buildings including King's College Chapel, Cavendish Laboratory, and the Cambridge University Library.



## Oxford

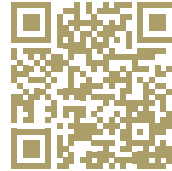
For one afternoon a week, students will go to the centre of Oxford to explore its rich history. They will visit landmarks such as Carfax Tower, Bodleian Library, Christ Church Cathedral, the 'Bridge of Sighs' & many Oxford University Colleges.



# d'Overbroeck's

Oxford • Ages 13-17










Founded in 1977, d'Overbroeck's is a highly successful and well respected British day and boarding school in Oxford. Located to the north of the city centre, d'Overbroeck's state-of-the-art sixth form centre opened in September 2017 and provides first-rate teaching facilities.



*Find out more about d'Overbroeck's*



## Key Facts:

-  **Age range:** 13-17
-  **Location:** North Oxford, 10 minute bus ride to City centre
-  **Bedrooms:** Mix of single, twin and triple
-  **Bathrooms:** Mix of shared & en-suite
-  **Social Space:** Student lounges in each of the three boarding houses with table tennis and televisions
-  **Facilities:** Modern laboratories, art studio, auditorium
-  **Internet:** Wi-Fi available throughout
-  **Security:** Electronic fob access only
-  **Airports:** Heathrow 1 hours  
Gatwick 2 hours