1a) Intent: GCSE study in the sciences provides the foundation for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity. All students should learn essential aspects of the knowledge, methods, processes and uses of science. They should gain appreciation of how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas that relate to the sciences and that are both inter-linked and of universal application.

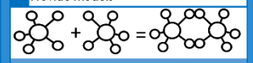
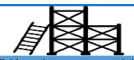
At UTC Swindon the teaching of GCSE Biology encourages student to:

- develop their interest in, and enthusiasm for biology;
- develop their interest in further study and careers in biology;
- develop knowledge and understanding about: how our body works, how organisms relate to each other in their ecosystem, how humans have effects on biological systems, and evaluate how advances in biotechnology can improve the quality of life;
- establish secure skills and knowledge about How Science Works in order to collect and use high quality data from investigations.
- develop logical thinking for the construction and justification of a secure conclusion, including some ethical discussions around the application of biology;
- understand how the sciences contribute to the success of the economy and society.

1b) Careers and further study:
Essential or strongly recommended for further study in: A Level Biology, A Level Psychology.
Biology careers and further study in: Medicine, Paramedic Science, medical research and application (e.g. Immunocore); Pharmacology, Pharmacy and Pharmacogenomics; Food Science and associated tech; Marine science; ecology and conservation; environmental sciences.
The logical thinking, ability to sequence complex events and process, data handling and making strong conclusion also supports: a range of engineering, manufacturing, accountancy and finance.

2) Implementation: What do we do in lessons?

Implementation – Pedagogical approaches including Rosenshine principles of instruction

Daily Review	New Material in Small Steps	Ask Questions	Provide Models	Guide Student Practice	Check Student Understanding	Obtain High Success Rate	Scaffolds for Difficult Tasks	Independent Practice	Weekly and Monthly Review
 Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recall frees working memory for problem solving and creativity	 Our working memory is small, only handling a few bits of information at once. Avoid its overload—present new material in small steps and proceed only when first steps are mastered.	 The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.	 Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud, help to clarify the specific steps involved.	 Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers build in more time for this.	 Less successful teachers merely ask "Are there any questions?" no questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.	 A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.	 Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.	 Independent practice produces 'overlearning' - a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.	 The effort involved in recalling recently –learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.
• Every unit of work has a series of quiz questions to help students recall key knowledge. These are used in lessons and for prep work.	• Teachers define and chunk the steps for students to follow when learning new material. These steps are agreed across the department.	• Teachers use cold calling, pair share and stretch it TLAC strategies to check for mastery. Questions are pre-planned.	• The visualiser is used across the department. Teachers will 'live' model to demonstrate how to construct analytical and creative texts.	• Tasks and activities have been designed so that automaticity can be achieved. Repetition and revision is built into tasks.	• Specific mastery checks are embedded into SOLS so that teachers can check for mastery.	• We use I do, We do, You do to build students retention of key procedural knowledge and support automaticity.	• Scaffolds are pre-planned so that there is consistency across the department. Testing includes memorisation of scaffolds.	• Students repeat activities and tasks at spaced intervals to support learning of key procedural knowledge as well as knowledge.	• We map our quiz questions so that we can test core learning throughout the year. All SOLS have defined 'retention' knowledge.

Teacher effectiveness enhancement programme (TEEP) is at the core of our curriculum delivery. TEEP is a pedagogical framework and training programme that brings together teachers from all subject areas and phases (i.e. works well for established teachers, ITT trainees and ECTs) to validate existing good practice, reinvigorate their approach to teaching and learning.Engaging with TEEP addresses the problem of ineffective learning as a result of variation in teaching quality and school culture across our school. Embedding TEEP model into the core of our teaching across the UTC Swindon enabled us to drive consistency across all subjects.

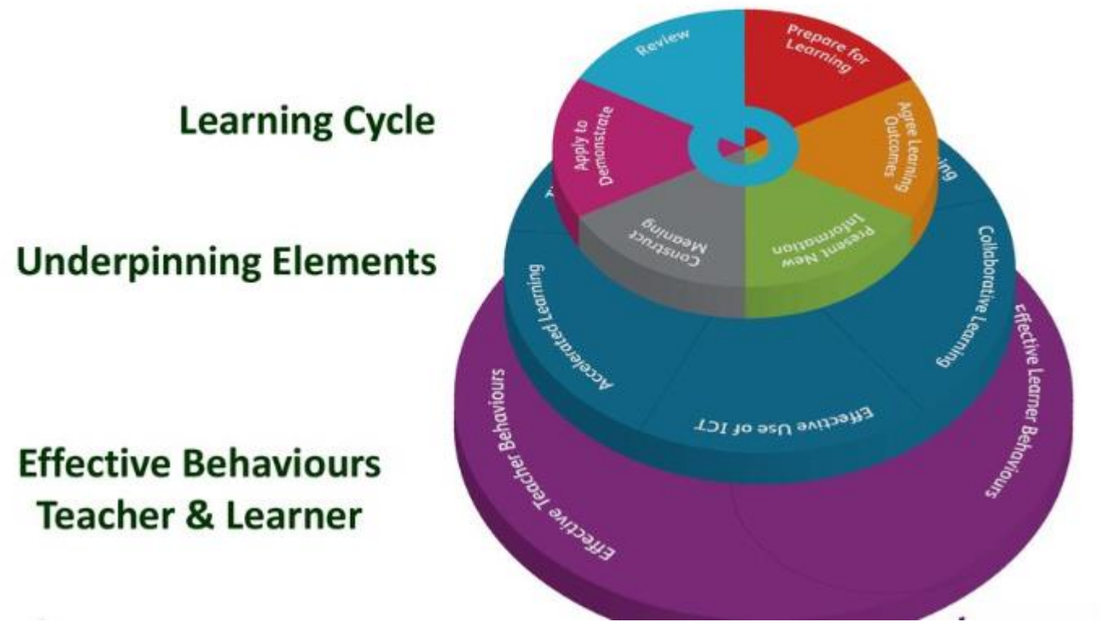
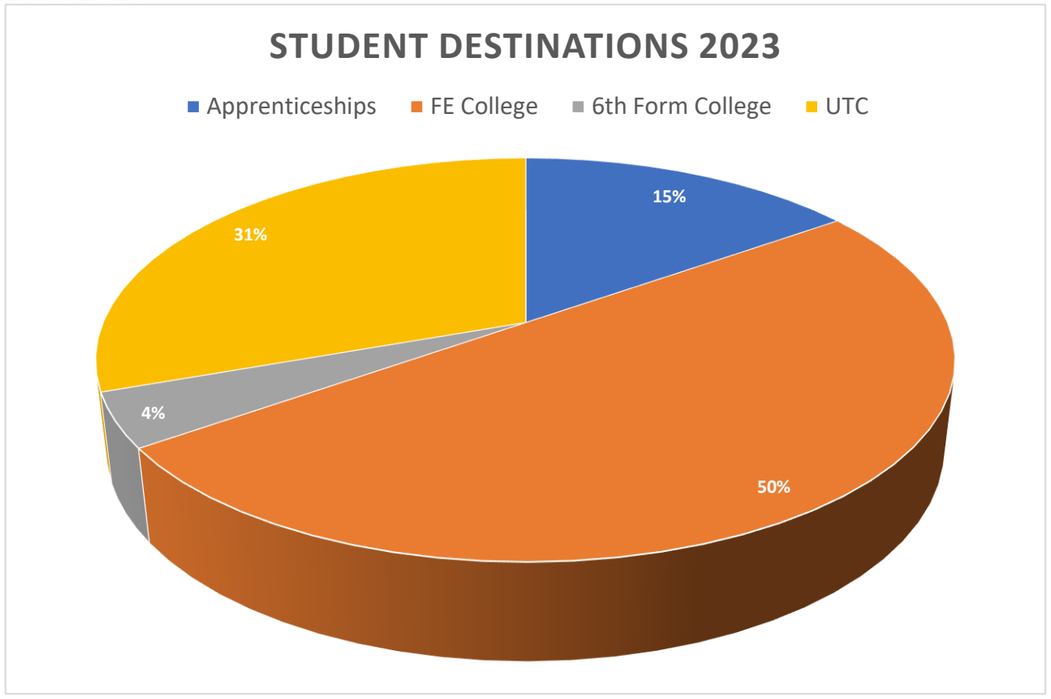


Figure 1 – TEEP Framework

KS4	Term 1		Term 2		Term 3		Term 4	Term 5	Term 6	
Year 10	**Yr10 Base line Assessments AP1 CAT data NGR data**	Cell structure and transport/cell division	Organisation and the digestive system. Organising animals and plants.		Communicable diseases	**Yr 10 PPE's AP2**	Preventing and treating disease; non-communicable diseases	Photosynthesis & Respiration **Science practicals**	Yr10 PPE's AP3	Human nervous system **Science practicals**
Year 11	**Year 11 AP1 Assessments**	Hormonal coordination & Homeostasis in action	Reproduction & Variation and Evolution **Science practicals**	**Year 11 PPE'S Paper 1**	Genetics and evolution **Science practicals**	**Year 11 PPE'S Paper 2**	Adaptations, interdependence and competition & organizing an ecosystem Biodiversity and ecosystems **Science practicals**	Biodiversity and ecosystems Revision for summer exams	GCSE Exams and revision	

Data 2023 -



Biology	% Grade 4+	% Below Grade 4	% Grade 5+	% Grade 7-9
2023	26	50.9	49.1	7.5
2019	28.6	30.4	10.7	1.8