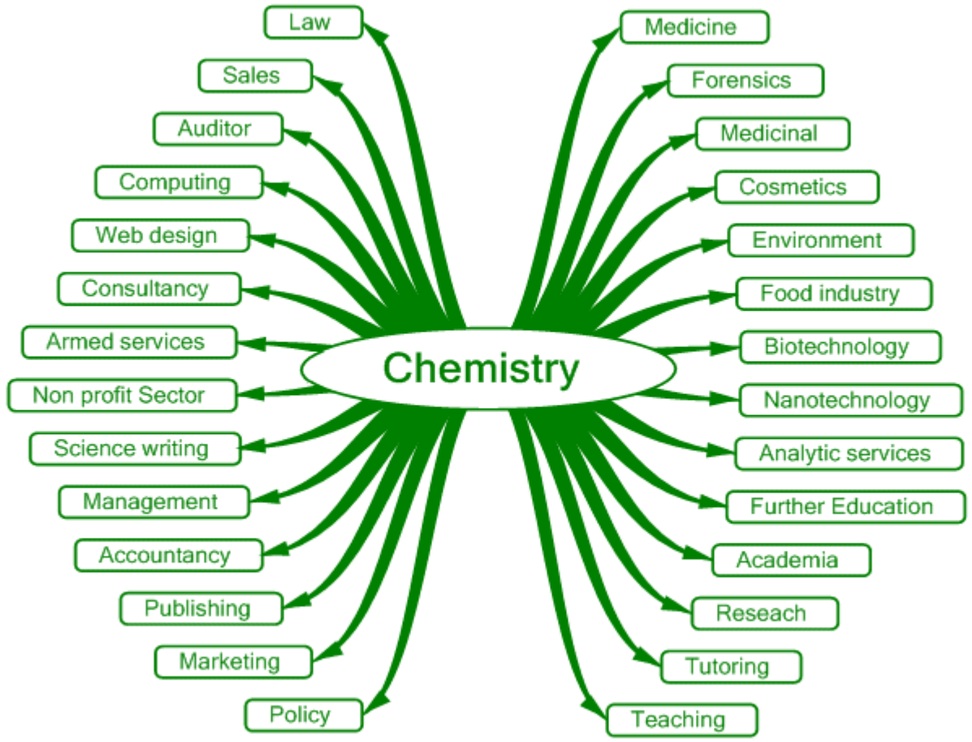
1a) Intent: GCSE study in the sciences provides the foundation for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity. All students should learn essential aspects of the knowledge, methods, processes and uses of science. They 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 Chemistry encourages student to:

- develop their interest in, and enthusiasm for Chemistry
- develop their interest in further study and careers in Chemistry.
- develop knowledge and understanding the composition, structure and properties of the elements within a compound, quantitative and qualitative chemistry
- 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 Chemistry.
- understand how the sciences contribute to the success of the economy and society.
- Transferable skills include mathematical/numerical, analysis and problem solving., time management and organisation., written and oral communication. Monitoring/maintaining records and data. Teamwork. Research and presentation

1b) Careers and further study:



Above imagine shows career opportunities either indirect or direct.
A-level chemistry

Apprenticeship - Intermediate level 2 Apprenticeship. For example, with EDF limited (laboratory assistant), GSK and AstraZeneca

Level 3 vocational qualifications in science, for example. BTEC Level 3 in Applied Science

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.

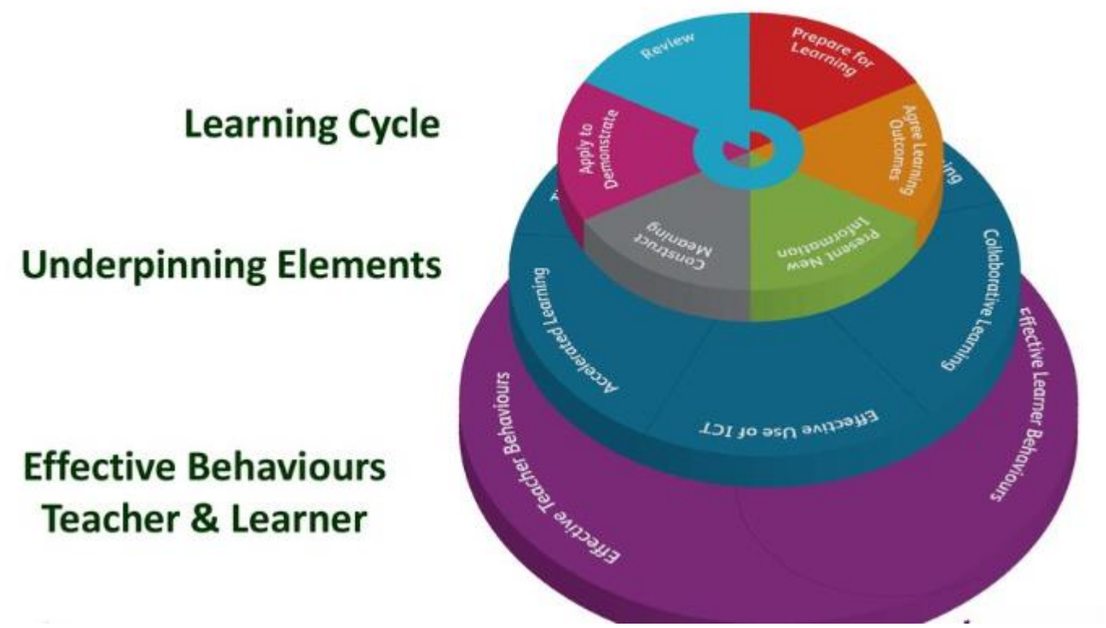
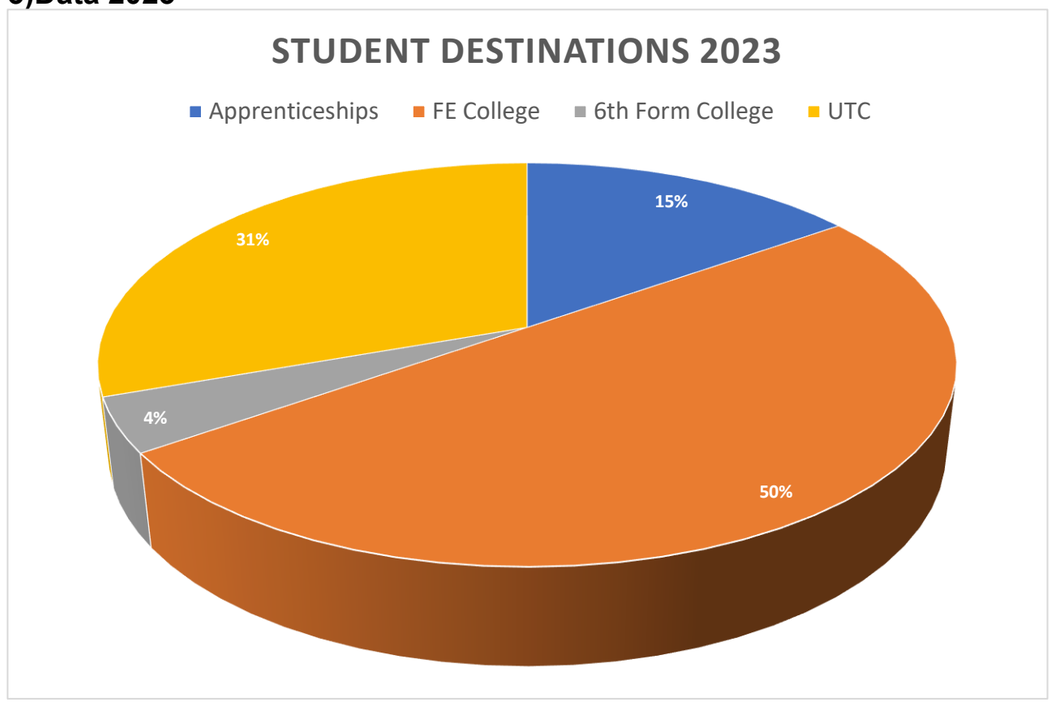


Figure 1 – TEEP Framework

GCSE – Chemistry – AQA

KS4	Term 1		Term 2		Term 3		Term 4	Term 5	Term 6	
Year 10	**Yr10 Base line Assessments AP1 CAT data NGR data**	Atomic structure & Periodic table	Structure and bonding		Chemical calculations	**Yr 10 PPE's AP2**	Chemical changes	Electrolysis & Energy changes **Science practicals**	Yr10 PPE's AP3	Rates and equilibrium **Science practicals**
Year 11	**Year 11 AP1 Assessments**	Crude oils and fuels & Organic reactions	Polymers & Chemical analysis **Science practicals**	**Year 11 PPE'S Paper 1**	The earths atmosphere and earth's resources **Science practicals**	**Year 11 PPE'S Paper 2**	Using our resources **Science practicals**	Revision for summer exams	GCSE Exams and revision	

3)Data 2023 -



Chemistry	% Grade 4+	% Below Grade 4	% Grade 5+	% Grade 7-9
2023	34.6	67.3	15.4	3.8
2019	41.1	58.9	19.6	5.4