Course Specification

T Level Foundation Course in Agriculture, Environmental, and Animal Care

Version V1

Training Qualifications UK

Contents

Summary of changes

The following table provides a summary of the changes that have been made to the course specification since the publication of the previous version.

Version number	Summary of changes

Welcome to TQUK

Our commitment to you

At Training Qualifications UK (TQUK), we believe learning should be meaningful, flexible, and of an exceptional quality, whether it's a regulated qualification or part of our non-regulated course provision.

TQUK is a recognised Awarding Organisation regulated by Ofqual in England and CCEA Regulation in Northern Ireland. We apply the same high-quality standards to our non-regulated courses, ensuring they are well-designed, purposeful, and aligned with the skills, behaviours, and knowledge to support students on their learning journey.

This endorsed, unregulated **T Level Foundation Course in Agriculture, Environmental, and Animal Care** is part of that commitment. It provides a supportive, structured route for students who would benefit from a preparatory year before progressing to a full T Level qualification.

What you need before you can deliver a T Level Foundation Course

To deliver a T Level Foundation course, your organisation must be recognised by TQUK.

Our **endorsed course requirements** check that your policies, systems, and staffing are in place to deliver high-quality learning. Centres must show they have:

- appropriate resources
- qualified and occupationally competent staff
- clear systems in place to deliver and assess the course.

Approval must be confirmed by TQUK before any teaching takes place.

Full guidance on centre recognition and approval is available in the TQUK Endorsed Course Customer Requirements accessible from the TQUK website.

About this specification

This course specification sets out everything centres need to plan, deliver, and assess the T Level Foundation Course in Agriculture, Environmental and Animal Care. Inside you will find:

- a clear statement of the course purpose
- the three outcomes with the underpinning knowledge and skills
- practical guidance for delivery.

Using the TQUK name and logo

We're proud of the TQUK brand, and we know our centres are too. That's why we allow recognised centres to use the TQUK logo and name to promote approved courses, with a few simple rules:

- logos must not be altered in colour, shape, size, or design
- use only on approved materials: e.g., course brochures, web pages, or promotional flyers relating to TQUK courses
- centres must monitor how the logo is used — both by themselves and any third parties they work with.

If your centre is no longer recognised, or if your marketing relationships change, you must inform TQUK and remove any use of the logo or name.

More details about logo use and brand guidelines can be found in our full brand policy on the TQUK website.

Advertising rules

As an Awarding Organisation, TQUK and its registered centres are subject to the Conditions of Recognition defined by the regulator, Ofqual. Two of these conditions (B5.1 and B5.2) stipulate that TQUK and its centres must take steps to ensure that non-regulated products are not advertised or promoted to students as regulated qualifications.

To guarantee these conditions are met, we have provided the following requirements that all centres must follow when marketing this course:

- marketing materials should not mislead a student into believing they will gain a regulated qualification
- all marketing materials must not describe this course as "regulated" or "nationally recognised"
- all marketing materials must not describe this course as equivalent to a regulated qualification
- all marketing must not state that this course meets industry standards for employment.

Accessibility

As an Awarding Organisation, TQUK is committed to ensuring that all our products are accessible, inclusive, and non-discriminatory. We ensure that no aspect of this course disadvantages any group of students who share a protected characteristic or introduces unjustifiable barriers to entry, other than those essential to the course's intended purpose. Where such features are necessary, they will be clearly stated and justified.

TQUK monitors and reviews the nine protected characteristics (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation) throughout qualification development to maintain accessibility and inclusivity. This approach promotes positive attitudes and fosters good relations among all students.
More information can be found in our Equality and Diversity Policy.

T Level Foundation Year

Overview

A T Level Foundation Year is a preparatory study programme designed to support students who have the potential to progress to a T Level.

The programme comprises 5 key components:

- industry-relevant technical knowledge and skills
- skills for successful study
- English, maths, and digital skills
- knowledge and skills for the workplace
- positive attitudes and behaviours.

The primary purpose of this T Level Foundation Course in Agriculture, Environmental, and Animal Care is to provide the foundational technical knowledge and skills relevant to the student's preferred T Level route.

The course is designed for students who would benefit from additional preparation and study time before starting a T Level. It supports progression to their chosen subject route by developing the knowledge, skills, and behaviours needed for level 3 study.

A Foundation Year should support students in making informed decisions about their next steps. This may include progressing to a T Level or pursuing an alternative pathway, with guidance provided to ensure each student chooses the route that is right for them.

It is designed to meet the requirements outlined by the Department for Education (DfE) in its T Level Foundation Year: framework for delivery guidance.

The TQUK T Level Foundation Course in Agriculture, Environmental, and Animal Care is a non-regulated, accredited course.

How will a T Level Foundation Course benefit your students?

This T Level Foundation Course provides a tailored year of learning to help students prepare for the demands of level 3 study. It focuses on developing the core knowledge, skills, and behaviours needed to succeed on a T Level, providing a clear and supportive transition into level 3 study. It helps students build confidence and independence while gaining a clear understanding of what is expected within their chosen T Level route.

Students will have opportunities to engage with employers and make meaningful links between their learning and the world of work. The course also supports personal development by encouraging students to take ownership of their progress, with time built in to meet individual learning needs and provide appropriate pastoral support.

By the end of the course, students should have a clear understanding of what is required to succeed on their chosen T Level, or feel confident in making an informed decision about an alternative progression route or career path.

The course is intended for students identified through diagnostic assessment as not yet ready to meet the demands of a T Level. It provides targeted preparation and structured study to support progression to level 3 study.

Diagnostic assessment

Centres must ensure that all students complete an initial diagnostic assessment before the start of a foundation year. This may take different forms depending on centre practice but should be used to identify each student's learning, development, and pastoral support needs.

The findings should inform how a foundation year is tailored, including any support for students with SEND. It will also assist in determining whether a T Level Foundation Course or direct entry to a T Level is the most appropriate route for each student. Diagnostic activities may include a taster sessions, one-to-one discussions, self-assessments, assignments or reflective tasks, and may be supported by knowledge, skills and behaviour matrices.

This stage should help students make informed decisions about their next steps. Students who have identified a preferred T Level route should be supported to confirm that it is the most suitable option for them, while those who are undecided should be given opportunities to explore alternative options.

The Foundation Year

A T Level Foundation Year is designed to support students in building a strong basis for further study. It is structured around 5 areas that provide students with the essential academic, practical, and personal skills needed to successfully progress to a T Level qualification. The 5 areas that make up a foundation year are listed below:

Technical knowledge	Skills for successful study	English, maths, and digital skills development	Knowledge and skills for the workplace	Positive attitude and behaviours
Students are introduced to key concepts and practical skills relevant to their intended T Level. This builds early technical understanding and prepares them for level 3 learning.	This area focuses on essential study skills development to include time management and independent learning. Students will also develop techniques in formal writing, research, referencing, and critical thinking.	Students who have not yet attained a GCSE grade 4 in English and/or maths (or equivalent qualification) are required to continue working towards this achievement through GCSE resits, or by completing a Functional Skills qualification.	This component introduces students to professional workplace behaviours and the expectations of a T Level industry placement. It covers key areas such as professionalism, communication, teamwork, understanding organisational policies, and effective travel planning.	This component helps students build confidence, manage stress, and cultivate a positive mindset. It focuses on goal-setting, self-reflection, and using feedback to support their personal growth and enhance their wellbeing.

Entry requirements

There are no specific entry requirements for this TQUK T Level Foundation Course.
The course is primarily aimed at students aged 16-19 years, but may be suitable for students up to the age of 24 who have an Education, Health, and Care (EHC) plan.

NOTE: The T Level Foundation Year is designed to support students who may not yet have achieved a GCSE grade 4 or equivalent qualification in English and maths by providing targeted teaching and additional time to build their confidence and ability. Students who have not achieved the minimum requirement in English and maths will be expected to work towards achieving a GCSE grade 4 or a level 2 Functional Skills qualification during the course to meet the entry requirements for their chosen T Level route.

Key areas of learning

This T Level Foundation Course offers a balanced programme that helps students develop the essential technical knowledge, skills, and behaviours needed to progress onto a T Level within the Agriculture, Land Management, and Production, or Animal Care and Management routes.

This includes an introduction to the core principles and industry-relevant practices drawn from the National Technical Outcome (NTO) for the T Level route.

Students will explore areas such as:

- scientific contexts
- business concepts and business development
- health and safety
- animal health and welfare
- plant, establishment, maintenance and development.

These topics are designed to give students a strong foundation for the more advanced technical learning they will encounter on the T Level and will support their understanding of how technical knowledge is applied in real workplace settings.

English, maths, and digital skills, relevant to agriculture, environmental and animal care, and transferable skills, such as communication, problem-solving, and teamwork, will also be developed during the course.

There are opportunities for employer engagement, personal development, and work experience linked to agriculture, environmental and animal care, helping students build confidence, gain industry insight, and prepare for the expectations of the workplace.

Course structure

Students must complete the 3 Outcomes to achieve this T Level Foundation Course.
We have devised a simple, clear structure to showcase the knowledge and skills that students must be able to evidence to ensure they can successfully demonstrate each of the 3 outcomes. The layout comprises:

- technical knowledge and skills
- blended delivery (through a combination of theoretical and engaging, practical learning)
- supplementary delivery information for student stretch and challenge
- positive behaviours that may be demonstrated (such as professionalism, resilience).

The course provides the knowledge students must develop and the skills they are expected to demonstrate to fulfil the expectations of each outcome.

Each topic includes the essential knowledge, and the skills section details what students must be able to do in practice, ensuring that learning is applied and demonstrable within relevant contexts.
To support effective teaching and learning, each topic includes some suggestions on how the content can be taught.

Supplementary information is also provided to extend learning and encourage stretch and challenge for those who are ready to progress beyond the core requirements.

Important: Outcome 3 requires students to choose between two pathways:
3A is focused on animal health and welfare and is aimed at students intending to progress to the T Level in Animal Care and Management.
3B is focused on supporting the sustainable development of plants and is aimed at students who intend to progress to the T Level in Agriculture, Land Management, and Production.

Students must select either 3A or 3B based on their intended progression route.

Outcome title – 3A pathway combination	**Guided learning hours (GLH)**
01: Apply knowledge and understanding of scientific concepts and principles to agriculture, environmental and animal care contexts	50
02: Develop enterprising ideas for business development opportunities in agriculture, environmental and animal care businesses	50
03A: Maintain the health and welfare of animals	50
Total (GLH) contact time, guidance, and supervision of a student for this course	150*
Outcome title – 3B pathway combination	**Guided learning hours (GLH)**
01: Apply knowledge and understanding of scientific concepts and principles to agriculture, environmental and animal care contexts	50
02: Develop enterprising ideas for business development opportunities in agriculture, environmental and animal care businesses	50
03B: Support the sustainable development of plants	50
Total (GLH) contact time, guidance, and supervision of a student for this course	150*

* **The Guided Learning Hours (GLH)** for this course are set at 150 hours to ensure appropriate provision for students with varying needs and to accommodate opportunities for stretch and challenge in each of the 3 outcomes.

English, maths, and digital skills in the T Level Foundation Course

English (communication), maths (numeracy), and digital skills are essential components of the T Level Foundation Course. Details of where these skills are embedded and developed are set out in the National Technical Outcome (NTO), linked in the website section of this specification, which outlines the specific opportunities for teaching and application. Some skills will be explicitly taught, while others will be embedded through the delivery of the wider course content.

- **English (Communication)**: Communication skills will be developed through tasks that require students to articulate their ideas and present information clearly. These skills will be embedded within the context of the course, ensuring they are relevant to industry and student learning.
- **Maths (Numeracy)**: Numeracy skills are integrated into the qualification, particularly when students need to apply mathematical principles in real-world contexts. This includes tasks involving measurement, calculations, and data interpretation.
- **Digital Skills**: Digital skills will be embedded through the use of relevant software and tools that students will need in agriculture, environmental and animal care. These skills will be developed and applied in context, ensuring students understand their practical applications.

Assessment

Assessment approach

All students must be assessed in English.

Centres are expected to create their own assessments that reflect the aims of this T Level Foundation Course, ensuring alignment with the National Technical Outcome (NTO) for the subject area. When designing them, tutors must consider the depth and breadth of knowledge allowed by each task.

The assessments may be on an individual outcome basis or designed holistically for the whole course across all 3 outcomes. Whichever approach is used, assessments should also reflect and align with the embedded English, maths, and digital skills.

Assessment might include a mix of:

- examinations
- assignments
- case studies
- projects
- observations.

Assessment activities should enable students to demonstrate the knowledge, skills, and behaviours outlined across all outcomes, showing how these can be applied in realistic, work-related contexts to support progression to T Level study or employment.

The specification does not prescribe a fixed approach, as this allows centres the flexibility to adapt delivery to their own context and to respond to the individual needs of students. Tutors should use their professional judgement to select methods that provide students with meaningful opportunities to apply and develop the required skills, whether in classroom, simulated, or workplace settings.

All assessments should be supported by appropriate internal quality assurance activities to make sure they are consistent, purposeful and support each student's progression, particularly when holistic assessment is used.

All assessments must be designed to ensure that students are appropriately prepared for the demands of the T Level route and reflect real-world applications.

Establishing consistency in assessment writing

Centres must implement appropriate and consistent assessment approaches to ensure student work is marked fairly and in line with TQUK expectations.

All delivery staff must be familiar with the mandatory teaching content and assessment expectations and apply the same interpretation of knowledge and skill topics when designing and marking their assessments.

Assessments should follow a standardised format to ensure consistency in language, structure, and level of demand.

Tutors must use clear marking criteria and participate in regular standardisation activities to agree on the pass standard. Processes must be in place to confirm the authenticity of student work, and centres should ensure a transparent, accessible procedure is available for students to appeal a fail decision.

Achievement and progression

This is an unregulated course, and assessment will take place throughout the academic year. The assessment model is based on a pass/fail outcome, with no grading.

To pass the course, tutors must be satisfied that the students have met the 3 outcomes.

It is essential that tutors actively monitor student progress and provide timely and constructive feedback, highlighting areas for improvement and reinforcing their achievements. This ongoing feedback will ensure that students are given every opportunity to address any challenges and stay on track to successfully demonstrate the outcomes by the end of the course.

Centres should ensure that the Student Certification Form, available in the T Level Foundation Course resources section on the website, is completed when claiming learner certificates. Certificates will not be issued without the submission of the completed form. Centres are required to submit the form via email to operations@tquk.org

Health and safety considerations

Centres must ensure that all activities and tasks undertaken as part of this T Level Foundation Course are carried out with due regard to health and safety.

Students should only engage in activities within a supervised environment, or where appropriate, in a suitably controlled simulated setting. Centres are responsible for ensuring that all delivery and assessment activities comply with relevant health and safety requirements and safeguarding considerations.

Course Delivery

Monitoring student progress

Centres are expected to monitor students' progress throughout the course through regular tutor and student review points. Ongoing reviews should be used to identify each student's strengths and development needs, track progress in English, maths and digital skills, and monitor competency in employability skills and behaviours.

A range of methods should be used to review their progress, including regular feedback, formative assessments, and observations, with all activities documented to inform decisions about any additional support or interventions.

Students should be supported to take ownership of their learning and development by having a clear understanding of their goals and working with their tutors to agree on an individual development plan that sets out key objectives and milestones.

TQUK has devised a number of templates to support the administration and delivery of this course. These can be accessed here website.

Adapted learning

Centres should take reasonable steps to ensure that all students are given fair access to learning and assessment opportunities. This includes anticipating potential barriers, adapting delivery methods where appropriate, and offering flexible arrangements that enable participation. Centres are encouraged to adopt a student-centred approach that reflects best practice in supporting diverse needs.

For more information, please refer to TQUK's Reasonable Adjustments and Special Considerations Policy on our website.

Resources

All teaching materials and additional resources used to support the delivery of this foundation course must be age-appropriate. Centres should carefully consider student safeguarding and wellbeing when developing or sourcing materials in line with the centre's policies and procedures.

TQUK has produced a Centre Resources Pack that includes a range of useful templates to support the assessment, ongoing monitoring, and pastoral support of your students.

This is a free, optional resource to support the administration of the T Level Foundation Course and may be accessed via the TQUK website.

Personal development opportunities

Centres should include meaningful personal development and enrichment opportunities that help students to build the study skills, behaviours, and transferable skills needed for success on a T Level and in the workplace.

Additional enrichment opportunities, ideally aligned with students' intended T Level route or career goals, might include trips or volunteering activities, or participation in programmes such as The King's Trust.

Student pastoral support

Pastoral support is a vital part of any T Level Foundation Year and plays a key role in preparing students for progression to the demands of a T Level. Many students who register on a foundation year need encouragement, structure, and clear guidance to help them move forward.

A T Level Foundation Year should offer students tailored support to help them build confidence, resilience, and independence as they make the transition from GCSEs to level 3 study. This includes helping students to develop personal skills and support their wellbeing.

Centres should provide regular mentoring sessions as part of the pastoral support offer. These meetings will allow students to reflect on their progress, set goals, and address any issues at an early stage. Pastoral support should also monitor engagement, attendance, and personal development.

Safeguarding and mental health support are essential. Centres must have clear procedures in place to identify and respond to any wellbeing concerns, and students should have access to mental health services or signposting where needed. This is particularly important for students who are unsure of their next steps.

Support for students with special educational needs or disabilities (SEND) must be personalised, with appropriate adjustments made both in the classroom and during work experience activities. Centres should work closely with employers to ensure that any specific needs are understood and met. Overall, pastoral support should help ensure that every student feels supported, understood, and ready to progress confidently to their T Level.

Work preparation

Work experience is a key element of a T Level Foundation Year, supporting students to prepare for their T Level industry placement. Wherever possible, placements should align with the student's intended T Level route; however, alternative opportunities may be offered where employer availability is limited. All students should participate in meaningful, work-related activities and tailored workplace preparation, informed by an assessment of their individual work readiness.

Where a formal work placement is not possible, centres are encouraged to provide alternative forms of industry engagement to ensure students gain relevant and practical exposure to the workplace.

Preparation activities may cover core workplace knowledge and skills and may include:

- employer-led talks
- presenting projects to employers
- industry visits
- pre-placement site visits
- site visits
- mock interviews
- industry mentoring
- travel planning.

Centres must work closely with employers to ensure support and accessibility, safeguarding and health and safety considerations, including reasonable adjustments under the Equality Act 2010.

Student registration

Once approved to offer this T Level Foundation Course, centres must follow TQUK's procedures for registering students. Student registration is at the centre's discretion, in line with equality legislation and health and safety requirements.

Centres must register students before any assessment can take place.

Progression after this course

This T Level Foundation Course aims to prepare students to progress onto a T Level. Successful students can progress to:

- T Level Technical Qualification in Agriculture, Land Management, and Production
- T Level Technical Qualification in Animal Care and Management.

Students will need to apply for entry to the T Level via a centre's standard enrolment processes.

Where progression to a T Level is not appropriate for a student, centres will need to provide students with advice and guidance to support them in determining their next steps, which may include:

- a level 2 or level 3 study programme
- an apprenticeship
- employment.

Centres must provide appropriate careers guidance to help students plan their next steps and ensure the completion of any qualifications, including English and maths.

Staffing and Quality Assurance

All members of staff involved with the delivery of this T Level Foundation Course (tutors or internal quality assurance staff) will need to be occupationally competent in the subject area. This could be evidenced by a combination of:

- a higher-level qualification in the same subject area
- experience in the delivery/assessment/IQA of the course
- work experience in the subject area.

Staff members will also be expected to have a working knowledge of the requirements of the foundation course and a thorough knowledge and understanding of the role of tutors/assessors and internal quality assurance. They are also expected to undertake continuous professional development (CPD) to ensure they remain up to date with work practices and developments associated with the courses they assess or quality assure.

Tutor Requirements

Tutors who deliver this foundation course must possess a teaching qualification appropriate for the level. This can include:

- Further and Adult Education Teacher's Certificate
- Cert Ed/PGCE/Bed/MEd
- PTLLS/CTLLS/DTLLS
- Level 3 Award/Level 4 Certificate/Level 5 Diploma in Education and Training.

Assessors

Staff who assess this foundation course must possess an assessing qualification appropriate for the level or be working towards a relevant qualification and have their assessment decisions countersigned by a qualified assessor. This can include:

- Level 3 Award in Assessing Competence in the Work Environment.
- Level 3 Award in Assessing Vocationally Related Achievement.
- Level 3 Award in Understanding the Principles and Practices of Assessment.
- Level 3 Certificate in Assessing Vocational Achievement.
- A1 or D32/D33.

Quality Assurance

Quality assurance for this TQUK T Level Foundation course should be carried out by experienced professionals within the centre to ensure it meets learning standards.

Centres should implement regular checks on student progress, provide constructive feedback, and maintain a supportive environment. Centres should also ensure that staff delivering the course are suitably qualified and experienced.

Additionally, centres will receive an annual request to provide samples of student work and confirmation of the qualifications of those involved in delivery.

Useful Websites

- Department for Education
- T Levels
- T Level Foundation Year Framework for Delivery
- The Skills Builder
- Barclays Life Skills
- Skills England

You may also find the following website useful:

- National Technical Outcome Agriculture, Environment and Animal Care

Teaching Content

Course structure

The structure of the T Level Foundation Course is informed by the National Technical Outcome (NTO) to ensure a comprehensive and cohesive learning experience for the students.

Each outcome is underpinned by a clear rationale, providing context for its relevance to support progression to a T Level.

The content is divided into **knowledge** and **skills** to support a focused and progressive approach to learning.

We provide **supplementary information** to deepen understanding and offer opportunities for stretch and challenge, ensuring students are encouraged to reach their full potential and support progression to level 3 study.

Additionally, English, maths, and digital skills are embedded throughout the course, with guidance on how these competencies may be integrated into learning activities.

The course also includes a strong emphasis on **transferable skills** and **behaviours**, preparing students for successful progression in both their further studies to a T Level and to future employment.

Outcome 1 (O1): Apply knowledge and understanding of scientific concepts and principles to agriculture, environmental and animal care contexts

This outcome focuses on the underpinning scientific knowledge that is essential for a range of agriculture, environmental, and animal care contexts. Students should be supported in both developing an understanding of these concepts and applying them within the relevant sectors to reflect T Level requirements.

The outcome is knowledge only to ensure students can grasp fundamental scientific concepts and their application across a range of different contexts, which will be particularly relevant for Outcomes O3A and O3B.

The study of animal science should relate primarily to mammals, with examples of other animal classifications being used where relevant. The study of plant science should relate to flowering and non-flowering plants, including trees.

<table>
<tr><th colspan="2">Knowledge Topic 1: Classification and adaptations</th></tr>
<tr><td colspan="2">The student must understand:</td></tr>
<tr><td>K1</td><td>Classification: classification systems (including how organisms can be classified in groups by the features they share), the binominal systems of naming genus and species, main features used to place organisms into animal and plant kingdoms, applications of classification systems in agriculture, environmental, and animal care contexts</td></tr>
<tr><td>K2</td><td>Adaptation: how organisms are adapted to live in their natural environment, and features that enable organisms to survive in those environments</td></tr>
<tr><td colspan="2">Tutor guidance:</td></tr>
<tr><td colspan="2">Context – tutors may draw on the following contexts to support delivery of this Outcome:
types of animals: birds, aquatics, invertebrates, and herptiles
types of plants and trees.
K1: Classification
Tutors should introduce students to how organisms are grouped by shared features (e.g., structure or reproduction). They could explore the binomial naming system, explaining genus and species (e.g., canis lupus for wolf). Tutors should outline key features in distinguishing animals and plants (e.g., movement and feeding in animals and photosynthesis in plants). Students will learn how classification supports agriculture, environmental management, and animal care (e.g., selecting crops for different climates or identifying species-specific needs).

K2: Adaptation
Tutors should explain how organisms are adapted to live in their natural environment, focusing on the specific features that enable them to survive. Students should explore the crucial role adaptations play in survival (e.g., how polar bears are adapted to cold climates, or how plants like cacti have spines instead of leaves).</td></tr>
<tr><td colspan="2">Supplementary information to support stretch and challenge:</td></tr>
<tr><td colspan="2">The tutor could introduce:
how classification systems reflect evolutionary relationships.</td></tr>
</table>

Knowledge Topic 2: Animal and plant anatomy and physiology	
The student must understand:	
K3	Organ systems: reproductive system in animals and plants, respiratory system in plants and animals, and physical structures and functions
K4	Disorders: in reproductive and respiratory systems, causes, symptoms, and effects on health and welfare

Tutor guidance:

K3: Organ systems

Tutors should introduce students to a **range of organ systems**, focusing on the structure and function of **reproductive** and **respiratory systems** in **animals** and **plants**, e.g., **mammals** giving birth to live young and **plants reproducing** through pollination and seed formation, lungs in animals and how they vary between species, and gas exchange through stomata in plants.

K4: Disorders

Tutors should introduce various disorders that can affect **the reproductive and respiratory systems** in both animals and plants, focusing on their **causes, symptoms, and effects on health and welfare**. Students should be aware of **reproductive disorders** (e.g., infertility, hormonal imbalances, and infection in animals, or flower abortion, pollen infertility, excessive vegetative growth in plants) and **respiratory disorders** (e.g., tuberculosis, pneumonia, and asthma/COPD in animals, or fungal infection and root rot in plants).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- similarities and differences between the anatomy and physiology of different animal species
- similarities and differences between the anatomy and physiology of different plant species
- impact of evolution and adaptation on anatomy and physiology.

Knowledge Topic 3: Animal and plant health	
The student must understand:	
K5	Pathogens: routes of transmission, physical defences, and chemical defences
K6	Parasites and pests: routes of transmission, control, prevention, and impact on health

Tutor guidance:

K5: Pathogens

Tutors should introduce a **range of pathogens** (e.g., virus, bacteria, fungi, protozoa, prion, with named examples) **that affect animals and plants,** and routes of transmission (e.g., air, water, vector, fomite) Students should explore **physical defences** (e.g., animal skin or waxy leaf cuticles in plants) and be able to describe **chemical defences** (e.g., antibodies in animals and antimicrobial chemicals in plants).

K6: Parasites and pests

Tutors should teach students about a **range of parasites and pests that affect animals** (e.g., ticks, fleas, lice, mites, worms) **and plants** (e.g., aphids, caterpillars, nematodes), and **routes of transmission** (e.g., direct-contact, contaminated food, infested environments). Students should explore **control** and **prevention** methods (e.g., cleaning, repellents, anti-parasitic medication/environmental control, biosecurity). The tutor should also highlight **health impacts** (e.g., disease, irritation, or reduced plant growth).

Supplementary information to support stretch and challenge:
The tutor could introduce: • pathological implications of diseases to plants and animals • treatments for diseases and disorders in plants and animals • selective breeding and gene technology.

Knowledge Topic 4: Animal and plant nutrition	
The student must understand:	
K7	Nutrients: types and sources
K8	Nutrition: factors impacting the quality of nutrition, including situation, purpose, soil type (for plants), and animal environment (for animals)
K9	Metabolism: process and nutritional impact
Tutor guidance:	
K7: Nutrients Tutors should teach students the main **types** of **nutrients** animals and plants need. Students should explore **sources** of nutrients (e.g., protein from meat for animals or soil for plants). **K8: Nutrition** Tutors should teach students how **environmental** and **situational** factors affect **nutrition** in plants and animals. For **plants**, tutors should explain how **soil type** (e.g., pH, drainage) influences **nutrient** uptake. For animals, tutors should cover how **environments** (e.g., husbandry, bedding, other animals, and climate) and **purpose** (livestock, pet, working animal) impact **nutrition**. **K9: Metabolism** Tutors should introduce the **process** of **metabolism** and the **impact nutrition** has upon it (e.g., balanced nutrition for efficient catabolism and anabolism, timing of nutrition for metabolic stability, water's role in the metabolic process, dietary fibre, and blood sugar levels in animals).	
Supplementary information to support stretch and challenge:	
The tutor could introduce: • the relationship between plant hormones and plant growth and development • how soil characteristics affect suitability for different types of plants in different types of environments for different purposes.	

Knowledge Topic 5: Biosecurity	
The student must understand:	
K10	Biosecurity: risk factors in different types of plant and animal environments, measures to prevent and control biosecurity risks
Tutor guidance:	
K10: Biosecurity Tutors should introduce **biosecurity risk factors** (e.g., contaminated equipment or environments, waste handling and disposal, poor personal hygiene/lack of PPE) within different types of **environments** for **plants** and **animals**. Students should explore **prevention** and **control** measures (e.g., cleaning and disinfecting tools/equipment, isolating new animals or plants, maintaining hygiene routines, identifying signs of disease, and correct waste disposal).	

Knowledge Topic 6: Materials	
The student must understand:	
K11	Materials: types of materials, properties, applications in different agricultural, environmental, and animal care contexts
Tutor guidance:	
K11: Materials Tutors should teach the main **types of materials** used in **agricultural, environmental, and animal care** settings (e.g., metals, plastics, fabrics, and natural fibres). They should explain the **properties** of these materials (e.g., strength, flexibility, durability, resistance to corrosion or water, low dust).	
Supplementary information to support stretch and challenge:	
The tutor could introduce: • how properties of materials affect their suitability and use.	

Knowledge Topic 7: Numeracy	
The student must understand:	
K12	Visual representation of data: techniques and formats
K13	Data analysis: techniques used to identify patterns and variances, trends, correlation, and extrapolation
K14	Standard units of measurement: quantities, weights, lengths, volumes, and conversion between units
K15	Number and the number system: techniques for the application of the four operations (addition, multiplication, subtraction, division), working with whole numbers, percentages, fractions, and decimals
Tutor guidance:	
K12: Visual representation of data Tutors should teach students how to **present data** clearly using visual **formats** (e.g., tables, charts, and graphs). They will explain when to use different **techniques** (e.g., bar charts to compare quantities, line graphs to show changes over time, and pie charts to display proportions). **K13: Data analysis** Students should be aware of how to **analyse data** to identify **patterns**, **variances**, and **trends** over time. They should explain **correlation**, showing how two variables are related (e.g., the link between temperature and plant growth). Tutors should also introduce **extrapolation**, teaching students how to use existing data to make predictions (e.g., forecasting future crop yields based on past results). **K14: Standard units of measurement** Tutors should teach students the **standard units** used to **measure quantities**, **weights**, **lengths**, and **volumes** (e.g., kilograms, metres, and litres). Tutors will explain how to **convert between units** (e.g., grams to kilograms or millilitres to litres). **K15: Number and the number system** Tutors should teach students how to apply the **four operations: addition, multiplication, subtraction, division)** using **whole numbers**, **percentages**, **fractions,** and **decimals**. They should provide practical examples (e.g., calculating total feed costs, dividing fertiliser between plots, or working out percentage growth in animal weight).	

Supplementary information to support stretch and challenge:
The tutor could introduce: • scatter diagrams to recognise a correlation between two variables • construct and interpret histograms. **Additionally, in this stretch and challenge section, tutors may wish to incorporate references to engineering to support a student's chosen T Level route or preferences. This approach will allow students to broaden their understanding and engage with a wider range of concepts** **Please note that the NTO does not include any knowledge or skills requirements for this topic.** **Engineering:** • electrical principles, units of electrical measurement, and typical electrical calculations (for example, Ohm's law) • physics of engineering systems.

Outcome 2 (O2): Develop enterprising ideas for business development opportunities in agriculture, environmental, and animal care businesses

This outcome focuses on business development, covering key concepts such as sustainability, ethics, supply chain, and finance—critical areas of the Agriculture, Environmental, and Animal Care T Levels. These topics, identified as challenging, are essential for T Level preparation and understanding future business priorities.

Students will explore technologies like precision farming and Radio-Frequency Identification (RFID) tags, while developing investigative, planning, and communication skills. The outcome offers opportunities for creativity, digital skill development through research, and presenting business proposals both orally and in writing.

Knowledge Topic 1: Business	
The student must understand:	
K1	Business organisations: types of ownership, common structures, aims and values, products and services provided, and interrelationships and contribution to business success
K2	Enterprise: key principles, concept of risk and reward, types of risks and rewards and how enterprise is used to develop business growth and change
K3	Business competitiveness: strategies and techniques used by businesses to improve competitiveness
K4	Finance: key financial terms, concepts of revenue, expenditure, profit and budgeting, sources and how they contribute to business success
Tutor guidance:	

K1: Business organisations
Tutors should explain the **types of business ownership** and **common structures**. Students should explore businesses within the **agriculture, environmental,** and **animal care sectors** and the variation in **objectives, values, products,** and **services for different businesses** (e.g., organic vegetable grower vs intensive dairy farming, wildlife conservation and animal welfare charities versus DEFRA, chain pet store versus dog walker). Students should link how these **contribute** to **business success** (e.g., an organic farmer's sustainable aims and values link with eco-friendly products and services that build trust and attract environmentally conscious customers). Tutors should also introduce the **techniques used to measure business success** and how these will vary according to **business size**.

K2: Enterprise
Tutors should introduce students to the **key principles** of **enterprise** (**risk taking**, **innovation,** and **resilience**), focusing on the **concept of risk and reward**. They should explain different **types of risks** (**financial** and **reputational**) and **rewards** (e.g., profits, growth) in business decisions. Students should explore how **enterprise** strategies drive **business growth and change** (e.g., adapting products based on customer feedback).

K3: Business competitiveness
Tutors should introduce students to **strategies and techniques** businesses use **to improve competitiveness** (e.g., cost leadership, product differentiation, and market positioning). Learners could research the **opportunities available** for **business development support across the agriculture,**

environmental, and animal industries (e.g., government grants, accreditation schemes, business mentoring).

K4: Finance

Tutors should introduce students to **key financial terms: revenue**, **expenditure, profit**, **budgeting,** and **sources,** and how these contribute to business success (e.g., sourcing low-cost seed means less expenditure, more profit, and a lower budget for producing the crop)**.** Leaners should explore **costs incurred by businesses,** the **measures used to reduce costs,** and the **implications** these have on **profitability, reputation, and quality** (e.g., low-cost seed produces poorer quality crop, damaging reputation and future profit). Students should explore the **support opportunities available.**

Supplementary information to support stretch and challenge:

The tutor could introduce:

- finance: implications of cost cutting to employees and the supply chain; cash flow forecasts and how they are calculated and presented.

Knowledge Topic 2: Sustainability	
The student must understand:	
K5	Sustainable development: national and international development goals, purpose of targets, associated actions, benefits of sustainability actions to organisations, societies, and environments
K6	The concept of climate change and scientific views on causes and impacts
K7	Technological developments applied in agriculture, environmental, and animal care contexts, and their contribution to sustainability and business success
K8	Waste management: principles, techniques (refuse, reduce, reuse, repurpose, recycle), procedures, and impact on the environment
K9	Supply chain management: key principles, concept of sustainable procurement, benefits, and limitations

Tutor guidance:

K5: Sustainable development

Tutors should introduce students to **sustainable development goals for business** and the **types** of sustainable development **used to meet the goals**. They should explore **national** and **international development goals** for businesses and the purpose of setting **sustainability targets**. Tutors will cover the **actions** needed to meet these targets (e.g., reducing waste, improving energy efficiency). Students should be aware of the **benefits of sustainability actions for organisations**, **societies**, and the **environment**.

K6: Climate change

Tutors should introduce students to **climate change** and its **impact** on **habitats**, **flora**, **fauna,** and **water levels**. Students should explore the key **causes and impacts of climate change.**

K7: Technological developments

Tutors should introduce **technological developments in agriculture, environmental, and animal care** (e.g., precision farming, renewable energy, use of AI to detect early signs of illness). Tutors should also explain how these technologies promote **sustainability** by reducing waste and improving efficiency, contributing to both **sustainability and business success**.

K8: Waste management

Tutors should introduce students to the **principles** of **waste management** and the techniques of **refuse, reduce, reuse, repurpose, and recycle**. Tutors will explain how these techniques minimise waste and protect the **environment** (e.g., reusing containers, repurposing materials for new products, or recycling paper reduces landfill and conserves resources). Tutors should also explain correct **waste** disposal **procedures** and how effective **waste management** supports sustainability.

K9: Supply chain management

Tutors should introduce **key supply chain management principles**, highlighting **sustainable procurement** (e.g., suppliers who aim to reduce carbon emissions). Tutors should also explain the **benefits** (e.g., cost savings and improved reputation) and **limitations** (e.g., higher upfront costs or limited supplier options).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- policies and practices used to manage the impact of climate change on environments at a national and international level
- the relationship between carbon, water, and biodiversity, and their impact on climate change, and how agriculture, environmental, and animal care organisations contribute to positive impacts
- supply chain: types of procurement and their suitability for different situations.

Knowledge Topic 3: People	
The student must understand:	
K10	Ethics: characteristics of ethical behaviour

Tutor guidance:

K10: Ethics

Tutors should introduce students to the characteristics of **ethical behaviour**. Tutors will explain how **ethical behaviour** guides decision-making in business and everyday life (e.g., a business demonstrating honesty by providing clear information about products or services or treating employees fairly by offering equal opportunities). Tutors should highlight how **ethical behaviour** builds trust and contributes to positive relationships in the workplace and society.

Supplementary information to support stretch and challenge:

The tutor could introduce:

- the relationship between ethics, business objectives and values, and stakeholder relationships.

Knowledge Topic 4: Project management	
The student must understand:	
K11	Project management lifecycle: terminology, key stages, and requirements at each stage
K12	Project planning: project scope, client expectations, resource availability, and timeframe
K13	Project planning and monitoring: tools and techniques

Tutor guidance:

K11: **Project management lifecycle**
Tutors should introduce students to the **project management lifecycle**, covering key terminology and **stages**: initiation, planning, execution, monitoring, and closure. Tutors will cover the **requirements** at each stage (e.g., defining goals and timelines in planning and managing resources in execution). Tutors should also explain how each **stage** ensures a project is completed successfully, on time, and within budget.

K12: Project planning
Tutors should introduce students to **project planning**, covering **project scope, client expectations, resource availability,** and **timeframes** (e.g., in an agricultural project, students might plan the planting of crops, considering the available land, equipment, and labour, while managing client expectations on crop yield and ensuring the project is completed within the growing season).

K13: Project planning and monitoring
Tutors should introduce students to **project planning** and **monitoring tools** in agriculture, environment, and animal care (e.g., crop rotation plans, livestock tracking systems, and environmental assessments). Students will explore how these **tools** help manage resources, track progress, and maintain schedules (e.g., using crop rotation for soil health or a tracking system to monitor livestock movement).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- knowledge of team-working principles and associated skills.

Knowledge Topic 5: Information and data	
The student must understand:	
K14	Sources of financial and non-financial data and information used to measure business success: purpose, typical content, typical format, and terminology

Tutor guidance:

K14: Sources of financial and non-financial data and information used to measure business success
Tutors should introduce students to **sources of financial and non-financial data** used to **measure business success** (e.g., financial statements, customer feedback, and employee performance records). Tutors will also cover the **purpose, content, format, and terminology** of each source (e.g., using profit margins in financial statements to track success or employee surveys to measure morale).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- information and data: range of functions and features of different types of software, use of advanced software features to present information and data
- construct and interpret histograms.

Knowledge Topic 6: Investigation	
The student must understand:	
K15	Validity of information and data: accuracy, reliability, currency, and bias
K16	Referencing of sources: techniques used to reference sources directly, paraphrasing, and different types of sources
Tutor guidance:	
K15: Validity of information and data Tutors should introduce students to the **validity of information**, focusing on **accuracy**, **reliability**, **currency**, and **bias**. Students should understand that accurate **data** is error-free, reliable data is consistent, current data is up-to-date, and bias can distort results. **K16: Referencing of sources** Tutors should introduce students to **referencing techniques**, including **direct** quotes and **paraphrasing**. Tutors should explain the reliability of **different sources** (e.g., books and websites) and how to **reference sources** accurately using the correct referencing style for each.	

Knowledge Topic 7: Communication	
The student must understand:	
K17	Principles of effective communication: two-way process, methods, styles, conventions of different types of written communication, and suitability for different purposes and audiences
K18	Reading: principles, reading for comprehension, identifying salient points, and synthesising information from different sources
K19	Spelling, punctuation, and grammar (SPAG): punctuation markers, grammatical conventions, and spelling of key technical and non-technical terminology
K20	Vocabulary: technical and non-technical, and used to achieve particular effects and for different purposes
K21	Listening techniques: active and deep
K22	Non-verbal communication: meaning of different types of body language, types and value of images and support materials as visual aids, and impact of non-verbal communication to support comprehension of key messages
K23	Oral communication: pitch, tone, and intonation, and their impact on how a message is received
K24	Engaging with an audience: techniques for establishing rapport, in conversation, in discussion, obtaining and clarifying information, and presenting proposals
Tutor guidance:	
K17: Principles of effective communication Tutors should explain that communication is a **two-way process**, involving both sending and receiving messages. Tutors should cover various communication **styles** (formal versus informal) and **methods** (e.g., email for formal, text for informal). Tutors should also highlight the **conventions of written communication** (e.g., tone, structure, format), showing how these vary for **different purposes and audiences** (e.g., a formal letter versus a casual blog post). **K18: Reading** Tutors should teach students to read for **comprehension**, focusing on **understanding key ideas** and details, as well as how to identify **salient points** and highlight important information.	

Tutors should also guide students in **synthesising information** from multiple **sources**, helping them compare and integrate key points to form a clearer understanding of the topic.

K19: Spelling, punctuation, and grammar (SPAG)
Students should be aware of the importance of correct **spelling**, **punctuation**, and **grammar** (**SPAG**) in both technical and non-technical writing, and how to use **punctuation markers** accurately for clarity. Tutors should also guide students on **grammatical conventions** to improve readability. Tutors should focus on the correct **spelling of key technical and non-technical terms** (e.g., terms like "agriculture," "biodiversity," and "photosynthesis" in the agriculture and environment sector, or "herbivore," "carnivore," and "biosecurity" in the animal sector).

K20: **Vocabulary**
Tutors should explain the difference between **technical and non-technical** vocabulary and their specific uses. Students should understand how to adapt their vocabulary based on **purpose**, using **technical** terms for precision (e.g., in reports) and **non-technical** terms to communicate clearly with a broader audience.

K21: Listening techniques
Tutors should explain **active listening**, where students focus fully on the speaker, avoid distractions, and respond appropriately (e.g., making eye contact and nodding). Tutors should also introduce **deep listening**, which involves understanding the underlying message, asking clarifying questions, and reflecting on key points.

K22: Non-verbal communication
Tutors should explain how **body language** (e.g., gestures, posture, and facial expressions) conveys meaning. Tutors should highlight **the value of images and support materials** (e.g., diagrams or photos) in enhancing understanding. Students should explore how **non-verbal communication**, including **body language** and **visual aids**, reinforces **key messages** and **improves comprehension**.

K23: Oral communication
Tutors should explain **pitch** (voice height), **tone** (conveys emotion), and **intonation** (rise and fall of the voice) in **oral communication and** how these elements **impact message reception**.

K24: Engaging with an audience
Tutors should teach students **techniques for establishing rapport** (e.g., using open body language and making eye contact) to build connections in **conversation** and **discussion**. Tutors should also explain how to **obtain** and **clarify information** by asking direct questions and summarising key points. Tutors should guide students in **presenting proposals** clearly, using structured ideas, appropriate language, and relevant examples.

Knowledge Topic 8: Digital	
The student must understand:	
K25	Software: features, functions, applications for creating written documents, project management, and presenting information
K26	Management of digital information and data: classification and organisation, naming conventions, storage systems, protection methods and accessibility
K27	Online/internet searches: techniques used to carry out and refine searches, Search Engine Optimisation (SEO), and its implications for search results
Tutor guidance:	

K25: Software
Tutors should explain **software features** for creating **written documents** (e.g., such as word processors with tools like spell check and templates). Tutors should cover **project management** software for organising tasks and tracking progress. For **presenting information**, tutors should demonstrate presentation software, showing students how to use visuals, text, and animations effectively.

K26: Management of digital information and data
Tutors should teach students to **classify** and **organise** digital information and data into clear categories using consistent **naming conventions**. Tutors should explain **storage systems** and guide students on security, accessibility, and regular backups. Tutors should introduce **protection methods**, and how to ensure data **accessibility** for authorised users.

K27: Online/internet searches
Tutors should teach students how to **refine searches** using specific keywords and operators. Tutors should explain **SEO**, showing how search engines rank content based on keywords, relevance, and authority and how **SEO** impacts **search result** visibility.

Outcome 2 (O2): Develop enterprising ideas for business development opportunities in agriculture, environmental, and animal care businesses

In this outcome, students will develop transferable skills related to investigation and planning. There are also opportunities to develop creativity in their thinking as they consider different options for different businesses. The outcome provides opportunities to develop written and oral communication skills when presenting their proposals. Through their investigations, students will read written information presented in different formats to develop their literacy skills and ability to analyse information and data. Digital skills will be developed through this outcome when students carry out online research and when producing written proposals and materials to support an oral presentation.

It is envisaged that students will be presented with business-related information that they will use to identify enterprising opportunities for business development. Students will develop their ideas and present to others orally and in writing.

Skill Topic 1: Planning	
	Students must be able to:
S1	Identify discrete steps required to achieve an outcome
S2	Estimate time and resources needed to achieve an outcome
S3	Prioritise activities required to achieve an outcome
S4	Sequence activities required to achieve an outcome
Skill Topic 2: Analysing	
	Students must be able to:
S5	Identify common features in information
S6	Organise common features into types
S7	Discern patterns in information
S8	Deconstruct information
Skill Topic 3: Investigating	
	Students must be able to:
S9	Develop search criteria to support an investigation
S10	Identify sources of information to support an investigation
S11	Reference source of information
S12	Interrogate information for validity

Skill Topic 4: Decision-making	
	Students must be able to:
S13	Identify likely impact of decisions
S14	Assess evidence and advice to support decision-making
S15	Justify how a decision would lead to achieving an outcome
S16	Substantiate proposals with evidence
Skill Topic 5: Creativity skills	
	Students must be able to:
S17	Lateral thinking to consider opportunities from different perspectives
S18	Make novel connections between ideas
S19	Recognise ideas, possibilities and/or alternatives
S20	Form ideas iteratively
Skill Topic 6: Communicating	
	Students must be able to:
S21	Synthesise information from different sources
S22	Engage an audience
S23	Summarise information
S24	Apply technical language in relevant contexts
S25	Apply active listening techniques to audience interaction
S26	Apply oral communication techniques to clearly articulate a message
S27	Create documents appropriate to audience and purpose
S28	Engage in discussion, listening to and responding to questions and feedback
S29	Apply inclusive approach to engaging with others
S30	Apply communication techniques to secure audience understanding

Skill Topic 7: Digital skills	
	Students must be able to:
S31	Organise digital information
S32	Store digital information securely
S33	Apply software functions to present information and images
S34	Apply software functions to produce written texts
S35	Apply software functions for project management

Behaviours			
B1 Enterprising	**B2** Responsive	**B3** Self-aware	**B4** Self-confidence

Outcome 3A (O3A): Maintain the health and welfare of animals*

*** The term "animals" refers to mammals, including farm animals, horses, and small domestic animals.**

This outcome focuses on the technical skills that students can apply when working within the animal care sector. The technical skills are those that are relevant to many occupations in the sector, such as working in zoos, equine yards, and veterinary practices.

The development of technical skills is underpinned by technical knowledge that supports the student to make the appropriate decisions regarding their choice of actions when caring for the health and welfare of animals.

<table>
<tr><th colspan="2">Knowledge Topic 1: Animal health and welfare</th></tr>
<tr><td colspan="2">The student must understand:</td></tr>
<tr><td>K1</td><td>Animal welfare frameworks: needs, domains, and best practice in ensuring they are implemented</td></tr>
<tr><td>K2</td><td>Animal handling: techniques for safe and welfare-orientated animal handling, capture, and restraint</td></tr>
<tr><td>K3</td><td>Animal stress: techniques to protect an animal from stress, personal behaviour, and how these are applied</td></tr>
<tr><td>K4</td><td>Physical and behavioural signs of good and poor animal health and welfare</td></tr>
<tr><td>K5</td><td>Techniques used for monitoring and maintaining the health and welfare of animals, and how they are applied</td></tr>
<tr><td colspan="2">Tutor guidance:</td></tr>
<tr><td colspan="2">Context
• Types of animals: birds, aquatics, invertebrates, and herptiles
Tutors should note that while this outcome focuses on animals defined as mammals, farm animals, and small domestic animals, they may wish to use the context of birds, aquatic animals, invertebrates, and herptiles to support delivery and enhance students' understanding.

K1: Animal welfare frameworks
Tutors should introduce the five animal welfare needs according to the Animal Welfare Act 2006 and their link to the five domains of welfare (nutrition, environment, health, behaviour, and mental state) and how needs can be met. Students should apply the five animal welfare needs and best practices to uphold them by applying them to animals kept in different environments, and discuss how natural behaviours such as eating habits and social groupings can be accommodated. Students should also explore the different roles and responsibilities of different occupations involved in maintaining the health and welfare of animals in different types of environments (e.g., veterinary, groomer, farmer, equine groom, wildlife rehabilitator).

K2: Animal handling
Tutors should teach students safe handling techniques that minimise stress and injury (e.g., approaching animals calmly and using slow movements). Students will explore welfare-oriented techniques, like using appropriate restraints (e.g., lead, harness, headcollar, bridle) without causing physical or mental harm.</td></tr>
</table>

K3: Animal stress
Tutors should teach students **techniques** to **reduce animal stress** (e.g., creating a calm environment, handling animals gently, minimal restraint). Tutors should explain how **personal behaviour** can prevent stress and how to **apply these techniques** in various situations.

K4: Animal health and welfare signs
Tutors should teach students the **natural behaviour** of different **animals**, such as **eating habits** and **social groupings**. They should explain how to recognise **physical signs of good health** (e.g., clear eyes, pink gums, and normal weight/body condition score). Tutors should also explain **signs of poor health** (e.g., lethargy, weight loss, unusual posture) and **behavioural** changes (e.g., aggression or withdrawal). Students will explore how to assess both **physical** and **behavioural signs** to monitor **animal welfare** and take appropriate action.

K5: Animal health and welfare techniques
Tutors should teach students **techniques for monitoring health** (e.g., visual and physical health checks) and **technologies that can be used** to aid this (e.g., automated weighing systems in livestock). Tutors will explain methods for **maintaining welfare** to include **maintaining the health and welfare of horses through riding** or providing feeding enrichment for rabbits. Students should explore how to **apply** and evaluate these **techniques** by observing behaviour and seeking veterinary help when needed to maintain animal health. Tutors should also cover how **different types of foods are safely and hygienically stored and prepared for different environments**.

Supplementary information to support stretch and challenge:

The tutor could introduce:

- how classification systems reflect evolutionary relationships
- similarities and differences between the anatomy and physiology of different animal species
- impact of evolution and adaptation on anatomy and physiology
- selective breeding and gene technology.

Knowledge Topic 2: Biosecurity	
The student must understand:	
K6	Biosecurity: risk factors in different types of animal environments, measures to prevent and control biosecurity risks

Tutor guidance:

K6: Biosecurity
Tutors should teach students to identify **biosecurity risks** in **animal environments** (e.g., overcrowding or poor sanitation). Tutors should also explain **control** measures to help prevent infections and diseases from spreading (e.g., regular cleaning, quarantine and isolation, movement restrictions, vaccination).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- pathological implications of diseases to plants and animals
- treatments for diseases and disorders in plants and animals.

Knowledge Topic 3: Tools and equipment	
The student must understand:	
K7	Tools: characteristics, purpose, safety, security, storage, maintenance, applications, and operation of tools used to maintain the health and welfare of animals
K8	Equipment: characteristics, purpose, safety, security, storage, maintenance, applications, and operation of equipment used to maintain the health and welfare of animals

Tutor guidance:

K7: Tools

Tutors should teach students the **types**, **purpose, characteristics,** and **operation** of **tools**. Tutors will explain **safety** measures, such as cleaning and securely **storing** tools to prevent contamination or injuries (e.g., **storing** sharp tools **securely**, cleaning and disinfecting tools to avoid cross-contamination). Tutors should also cover **maintenance** of tools.

K8: Equipment

Tutors should teach students the **types**, **purpose,** and **characteristics** of **equipment** (e.g., personal protective equipment, grooming tables, cattle crush, and veterinary scales). They should explain **safety** measures (e.g., **securing** and cleaning equipment) and the **storage of equipment** (e.g., keeping grooming tables in dry, safe areas). Tutors should also cover the **maintenance** of equipment (e.g., checking and lubricating moving parts of a cattle crush and calibrating scales). Students should explore how to **operate equipment** correctly (e.g., using scales for weight monitoring and using a thermometer to monitor health).

Knowledge Topic 4: Materials	
The student must understand:	
K9	Factors affecting choice of materials: sustainability, cost, availability, durability, form, and suitability for purpose

Tutor guidance:

K9: Factors affecting the choice of materials

Tutors should introduce students to the **different types of material** and how **sustainability** affects material choice (e.g., biodegradable or recycled materials in animal care). Tutors will explain **cost** considerations (e.g., selecting affordable bedding options that fit within budget). They should also cover material **availability** (e.g., sourcing locally to reduce transportation costs) as well as **durability** (e.g., ensuring materials like plastic are strong enough for frequent use in feeding equipment). Tutors should also explain how **form and suitability** affect material choice (e.g., selecting breathable fabric for animal blankets).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- how properties of materials affect their suitability and use.

Knowledge Topic 5: Information and data	
The student must understand:	
K10	Types of data and information (including social media) created, retrieved, and recorded when maintaining the health and welfare of animals
K11	Factors to consider when using information and data: confidentiality, privacy, intellectual property, and security

Tutor guidance:
K10: Data and information when maintaining the health and welfare of animals Tutors should teach students about the **types of data** recorded in animal care (e.g., health records, feeding schedules, and vaccination histories). Tutors will explain the use of **social media** for sharing animal welfare information and the risks involved. They will also cover how data is **retrieved** and **recorded** (e.g., using digital systems for health logs and medication schedules), and **monitoring technologies** (e.g., thermal imaging cameras in livestock). **K11: Factors to consider when using information and data** Tutors should teach students the importance of **confidentiality** when handling animal health data, ensuring it is shared only with authorised individuals. They should explain **privacy**, stressing the need to protect the animal owners' personal details and only share information with their consent. Tutors should also cover **intellectual property** and **security**.

Knowledge Topic 6: Communication	
The student must understand:	
K12	Listening techniques: active and deep
K13	Engaging with an audience: techniques for establishing rapport, in conversation and in obtaining and clarifying information
K14	Reading: principles, reading for comprehension, identifying salient points and summarising key points
Tutor guidance:	
K12: Listening techniques Tutors should explain **active listening**, where students focus fully on the speaker, avoid distractions, and respond appropriately (e.g., making eye contact and nodding). Tutors will also introduce **deep listening**, which involves understanding the underlying message, asking clarifying questions, and reflecting on key points. **K13**: **Engaging with an audience** Tutors should teach students techniques for **establishing rapport**, (e.g., making eye contact, listening actively, and showing interest in the conversation). Tutors will explain the importance of clear communication when **obtaining** and **clarifying information** (e.g., techniques such as summarising what others say to ensure understanding). Tutors will also cover the **principles of customer service and their application in different animal care environments.** **K14: Reading** Tutors should teach students to read for **comprehension**, focusing on understanding main ideas and details (e.g., identifying the central theme of an article). Tutors will guide students in **identifying salient points** by highlighting key facts or arguments (e.g., the main causes of animal health issues in a report). Students should understand how to **summarise key points**, condensing information into clear statements.	

Knowledge Topic 7: Numeracy	
The student must understand:	
K15	Standard units of measurement: length, area, volume, time, temperature, weight, capacity, and conversion between units
K16	Numbers and the number system: techniques for application of the four operations (addition, multiplication, subtraction, division), working with whole numbers, decimals and percentages
K17	Algebra: standard mathematical formulae, techniques used to rearrange formulae to change the subject, and algebraic notation
K18	Measurement: principles, standards, terminology, accuracy, and errors
K19	Geometry: principles, properties of geometric points, lines, and angles

Tutor guidance:

K15: Standard units of measurement

Tutors should teach students standard units like metres for **length**, square metres for **area**, litres for **volume**, and kilograms for **weight**. For example, measuring animal accommodation **area** in m^2 and **weight** in kg. Tutors should explain how units for **time** (hours, minutes, seconds) and **temperature** (Celsius) are used in animal care (e.g., tracking feeding times or core body temperature). Tutors should also guide students in **converting** units (e.g., centimetres to metres or grams to kilograms).

K16: Numbers and the number system

Tutors should teach students how to apply **addition**, **subtraction**, **multiplication**, and **division** using **whole numbers**, **decimals**, and **percentages** (e.g., calculating the total cost of feed supplies or dividing feed for multiple animals). Tutors should also demonstrate working with **decimals** (e.g., calculating the correct dosage of medicine based on weight). Tutors will explain **percentage** calculations, such as finding a 10% discount or determining weight loss percentages.

K17: **Algebra**

Tutors should explain standard **formulae** and how to apply them (e.g., calculating the area of an enclosure). Tutors will explain how to **rearrange formulae** to change the subject (e.g., calculating growth rate i.e. growth rate=final weight-initial rate/time to final weight = (growth rate x time) = initial weight). Tutors should also introduce **algebraic notation**, showing how to solve equations.

K18: Measurement

Tutors should cover the **principles** of **measurement**, using correct tools for reliable data (e.g., accurately measuring an animal's temperature with a thermometer). They will explain measurement **standards** and applying them consistently. Tutors should also introduce key **terminology** (e.g., precision, range, and margin of error), helping students understand their impact on **accuracy** (e.g., understanding the difference between thermometers with different error margins). Students should understand how **errors** can occur (e.g., human error or equipment issues).

K19: Geometry

Tutors should teach students the basics of **geometry**, including **points**, **lines**, and **angles**. Tutors will explain the **properties** of **points** (e.g., points of the horse/cow in anatomy), **lines**, and **angles**, (e.g., how perpendicular lines form a 90° angle such as creating a fenced paddock, and parallel lines never meet which can be applied when strip grazing a field).

Supplementary information to support stretch and challenge:
The tutor could introduce: • use a scatter diagram to recognise a correlation between two variables • construct and interpret histograms.

Outcome 3A (O3A): Maintain the health and welfare of animals*

***Animals refers to mammals, including farm animals, horses and small domestic animals.**

Skills related to maintaining the health and welfare of animals are fundamental – the ability to work closely with the animal without harm to the individual or the animal is critical.

In addition to technical skills associated with handling animals, the outcome also develops transferable skills in self-management where students take responsibility for their own tasks.

It is envisaged that the students will communicate with others to determine animals' needs and provide information on animals' health and welfare; and they will develop oral communication skills for engaging in discussions and conversations. In meeting animals' needs, students will naturally be required to determine resource needs such as nutritional and accommodation requirements, which will support the development of associated numeracy skills.

It is envisaged that students will develop their technical skills in supported environments, working with mammals and learning as much from the observation of others as their own practice. This acknowledges the need to minimise contact with animals which may cause harm.

Skill Topic 1: Animal health and welfare technical skills	
	Students must be able to:
S1	Prepare environments where animal care activities are to take place
S2	Apply biosecurity measures when maintaining the health and welfare of animals, for example, ensuring cleanliness of self when moving from one location to another
S3	Move animals
S4	Monitor animals' health and wellbeing
S5	Assess animals' mobility
S6	Prepare animal accommodation for use
S7	Prepare animal feed
S8	Provide animal feed and water to animals
S9	Maintain tools, equipment and/or machinery
Skill Topic 2: Health and safety skills	
	Students must be able to:
S10	Assess a situation for potential adverse effects
S11	Assess an area for potential health and safety risks

S12	Establish a safe working area
S13	Apply Personal Protective Equipment (PPE) appropriately following agreed procedures
S14	Apply manual handling techniques when lifting and moving live animals and heavy objects
S15	Apply cleaning techniques to an environment
Skill Topic 3: Use of tools and equipment	
	Students must be able to:
S16	Inspect tools and equipment for potential defects and safety issues
S17	Prepare tools and equipment for effective use
S18	Apply techniques to effectively use tools to meet requirements of the task and situation
S19	Apply techniques to effectively use equipment to meet requirements of the task and situation
Skill Topic 4: Physical dexterity skills	
	Students must be able to:
S20	Apply precise and controlled movements with appropriate application of force and fine motor skills
Skill Topic 5: Self-managing	
	Students must be able to:
S21	Monitor own performance against objectives
S22	Reflect on feedback on own performance
S23	Manage own time in achieving objectives
Skill Topic 6: Self-reflecting	
	Students must be able to:
S24	Identify success criteria
S25	Consider process and evidence
S26	Situational awareness
S27	Making judgements
Skill Topic 7: Communicating	
	Students must be able to:
S28	Actively listen
S29	Use oral communication methods to obtain and clarify information and data on animals
S30	Compare information, ideas and opinions in different texts

S31	Summarise information and ideas
Skill Topic 8: Recording	
	Students must be able to:
S32	Capture information and data
S33	Transcribe information from one source to another
Skill Topic 9: Numeracy skills	
	Students must be able to:
S34	Estimate resources required to complete activities
S35	Apply the four operations to calculate the amounts and volumes of materials required
Skill Topic 10: Measuring	
	Students must be able to:
S36	Measure lines and areas of environments and materials

Behaviours		
B5 Attention to detail	**B6** Reliable	**B7** Self-controlled

Outcome 3B (O3B): Support the sustainable development of plants

This outcome focuses on the development of technical skills needed in the agriculture, environment, and land production sectors, applicable to a range of occupations, such as working on farms, in plant nurseries, and in woodlands.

Students will develop skills in plant care, supported by technical knowledge for making informed decisions. The outcome also builds transferable skills in self-management, communication, and numeracy, while emphasising health and safety in plant development tasks.

For the content of this outcome, supporting plant development should be considered in the context of crop production, tree and woodland management, and horticultural environments.

Knowledge Topic 1: Plant establishment and maintenance	
The student must understand:	
K1	Planting and sowing: pre-establishment and post-establishment processes, techniques, and considerations
K2	Soils and growing media: types, characteristics, properties, and suitability for plant growth in different environments
K3	Cultivated areas: considerations for maintaining cultivated areas, including plant health, unwanted vegetation, pests, and environmental impacts
K4	Soil cultivation: including primary, secondary, reduced, characteristics, and techniques
K5	Plant health: techniques for maintenance
Tutor guidance:	

Context:

- **Different types of plants in different types of environments**

K1: Planting and sowing
Tutors should teach students **propagation principles and techniques, including pre-establishment processes** (e.g., selecting plant species, preparing soil, and testing pH). They should also explain **post-establishment** care (e.g., watering, mulching, and monitoring growth). Tutors will also cover planting and sowing **techniques**. Students should explore the **consideration of indoor (container-based) systems as well as outdoor (field, open ground) systems for plant development,** as well as the **application of plant biology knowledge to decision-making.**

K2: Soils and growing media
Tutors should teach students about **soil types** (e.g., loam, clay, sand, and peat) and their **characteristics**. Tutors will explain **properties** (e.g., texture, pH, nutrient content, and water retention) and how they help with the growth of plants. Students should explore the **suitability of different environments for plant growth** (e.g., grasses for areas with heavy footfall, reeds for wetland, or aloe vera for hot and dry conditions). Students should **apply knowledge of plant biology to decision-making**.

K3: Cultivated areas

Tutors should teach students to maintain **plant health** by monitoring for disease, watering, and pruning (e.g., identifying wilting leaves as signs of disease). They will explain how to manage **unwanted vegetation** (e.g., using mulching or hand weeding). Tutors should also guide students in managing **pests** with safe methods (e.g., using beneficial insects or organic pest control). Students should **apply knowledge of plant biology to decision-making**. Tutors should also cover the **environmental impacts** of cultivation, focusing on water conservation, reduced pesticide and herbicide use, and soil health. Tutors should explain the **uses and benefits of plants** to the **economy, society, and the environment**, such as their role in food and material production, improving air quality, supporting biodiversity, and enhancing wellbeing through green spaces.

K4: Soil cultivation

Tutors should teach students the types of **soil cultivation**: **primary** (deep ploughing), **secondary** (fine tilling), and **reduced** (minimal tilling). Tutors will explain the **characteristics** (e.g., primary cultivation improving aeration, secondary for seedbed preparation, and reduced cultivation preventing soil erosion). They should also demonstrate **techniques** (e.g., ploughs for primary, harrows for secondary, and minimal tillage tools for reduced cultivation).

K5: Plant health

Tutors should teach students **techniques** for **maintaining plant health** (e.g., watering, pruning, and monitoring for pests and diseases). They will explain the importance of proper nutrition through balanced fertilisers (e.g., using a general feed for vegetables). Tutors should also cover pest and disease management, introducing methods like natural predators or organic sprays (e.g., neem oil for aphids). Students should **apply knowledge of plant biology to decision-making**.

Supplementary information to support stretch and challenge:

The tutor could introduce:

- analysis of a range of factors that can impact on successful establishment and maintenance of different types of plant development environments
- relationship between land use, change of land use, plant development, and society
- the physical characteristics of indoor and outdoor environments (sites) where plants are grown, implications of site characteristics, and how they can be manipulated to support plant growth and development
- propagation principles and techniques
- application of plant biology knowledge to decision making.

Knowledge Topic 2: Biosecurity	
The student must understand:	
K6	Biosecurity: risk factors in different types of plant environments, measures to prevent and control biosecurity risks

Tutor guidance:

K6: Biosecurity

Tutors should teach students to identify **biosecurity risk factors** in **plant environments** (e.g., pests, diseases, and contaminated equipment). They will explain measures to **prevent** and **control biosecurity risks** (e.g., sanitising tools, using pest barriers, and rotating crops to prevent the build-up of pests or pathogens) in different **plant environments** e.g., greenhouses or outdoor gardens).

Knowledge Topic 3: Health and safety	
The student must understand:	
K7	Typical health and safety hazards when applying technical skills to support the development of plants
K8	Likelihood and severity of health and safety risks associated with typical hazards
K9	Controls used to minimise health and safety risks
K10	Risk assessment: purpose, use, and content
K11	Organisational health and safety policies and their role in meeting legal requirements
K12	Cleaning procedures used to maintain safe and hygienic environments: 'clean as you go', pre-cleaning, sanitising, disinfecting, rinsing, drying, and handwashing
K13	Techniques used to support health and safe working practices, including manual handling

Tutor guidance:

K7: Health and safety hazards
Tutors should introduce students to common **hazards** that risk the **health and safety** of workers and the public (e.g., handling sharp tools, lifting heavy equipment, and working with chemicals like pesticides). Tutors should also highlight risks from harmful plants or allergens (e.g., skin irritation from nettles).

K8: Health and safety risks associated with typical hazards
Tutors should teach students to assess the **likelihood** and **severity** of **risks** (e.g., the high likelihood of cuts from sharp tools, such as pruning shears, and the high severity of injury). Tutors should also explain how to evaluate and minimise **risks and hazards** (e.g., lifting heavy objects, which may cause serious injury, but can be mitigated with proper technique).

K9: Controls used to minimise health and safety risks
Tutors should teach students to use **controls** (e.g., personal protective equipment (PPE) such as gloves and goggles) to **prevent and minimise risks**. Tutors should explain safe practices (e.g., proper lifting techniques and tool maintenance) to reduce injury risk. Tutors should also highlight safety signage and the importance of training, ensuring students know emergency procedures (e.g., where first aid kits are located).

K10: Risk assessment
Tutors should explain that **risk assessments** identify hazards, assess risks, and implement controls to ensure safety (e.g., assessing the risk of cuts when using sharp tools and ensuring proper safety measures). They will teach students how to **use** risk assessments by evaluating tasks and determining necessary controls (e.g., wearing gloves when handling chemicals). Tutors should also cover the key components of a risk assessment: hazard identification, risk evaluation, control measures, and emergency procedures.

K11: Health and safety policies and legal requirements
Tutors should explain how organisational **health and safety policies** ensure **legal** compliance (e.g., requiring PPE when handling chemicals to meet safety regulations, following COSHH instructions to minimise risk to self, others, and the environment). They should cover how these **policies** protect

workers and maintain safe conditions, ensuring **legal requirements** are met. Tutors should also emphasize the importance of following **policies** (e.g., reporting accidents or unsafe conditions).

K12: Cleaning procedures used to maintain safe and hygienic environments
Tutors should teach students the **'clean as you go'** approach to prevent dirt build-up (e.g., wiping surfaces immediately during tasks like plant care). They will explain **pre-cleaning**, **sanitising**, and **disinfecting** (e.g., removing dirt before applying sanitiser to surfaces). Tutors will cover **rinsing** and **drying** to remove residues (e.g., thoroughly rinsing containers after use). Tutors should also emphasise **handwashing** before and after tasks to maintain hygiene.

K13: Techniques used to support health and safe working practices
Tutors should teach students **safe working practices** (e.g., using correct lifting techniques by bending knees to avoid back strain). Tutors should explain the importance of safe tool use (e.g., following guidelines when handling equipment such as lawnmowers or pruning shears) and cover **manual handling techniques** (e.g., using lifting aids or requesting assistance with heavy items).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- hierarchy of risk controls.

Knowledge Topic 4: Tools and equipment	
The student must understand:	
K14	Tools: characteristics, purpose, safety, security, storage, maintenance, applications, operation of tools used to support plant development in their environment
K15	Equipment: characteristics, purpose, safety, security, storage, maintenance, applications, and operation of equipment used to support plant development in the environment

Tutor guidance:

K14: Tools
Tutors should introduce students to the **purpose** and **characteristics** of **tools** (e.g., trowels, pruners, and watering cans), explaining how each **supports plant development** (e.g., using a trowel for planting). Tutors will emphasise **safety** (e.g., using gloves with tools like pruners) and proper **storage** to prevent accidents. Tutors will also cover tool **maintenance** (e.g., cleaning and storing tools in a dry place to avoid rust). Tutors should describe **correct tool usage** (e.g., using watering cans with adjustable nozzles for controlled watering).

K15: Equipment
Tutors should cover the **purpose** of **equipment,** explaining how it **supports plant development**. Tutors will emphasise **safety** (e.g., securing irrigation systems and using pruning saws properly). Students should explore the **storage** and **maintenance** of equipment (e.g., cleaning equipment and storing it in dry, **secure** locations). Tutors should also describe the correct **operation** of different equipment (e.g., setting up and using irrigation systems for even water distribution).

Supplementary information to support stretch and challenge:

The tutor could introduce:

- advanced technical skills related to specific occupations

Knowledge Topic 5: Materials	
The student must understand:	
K16	Factors affecting choice of materials: sustainability, cost, availability, durability, form, and suitability for purpose
Tutor guidance:	

K16: Factors affecting choice of materials

Tutors should introduce students to how **sustainability** impacts material choice (e.g., using compostable pots instead of plastic). They will explain how **cost** affects decisions (e.g., choosing between types of mulch based on budget). Tutors should also cover **material availability** (e.g., using locally sourced soil and fertilisers). Tutors should discuss **durability** (e.g., choosing metal tools for strength and plastic for temporary use), and they will highlight **form** and **suitability** (e.g., using breathable fabric for plant covers). Tutors should link the application of knowledge to business decision-making (e.g., the false economy of buying a cheaper material that is not fit for purpose).

Knowledge Topic 6: Sustainability	
The student must understand:	
K17	Waste management: principles, techniques (refuse, reduce, reuse, repurpose, recycle), and procedures
K18	Sustainable materials: characteristics, purpose, applications, and impact on plant development
Tutor guidance:	

K17: Waste management

Tutors should explain **waste management principles**, focusing on reducing **environmental impact**, such as minimising unnecessary materials.

Tutors will teach students waste management **techniques**:

- **Refuse** excess items (e.g., unnecessary packaging)
- **Reduce** waste (e.g., using fewer plastic bags)
- **Reuse** materials (e.g., reusing plant pots)
- **Repurpose** items (e.g., using old containers for storage)
- **Recycle** materials (e.g., paper, plastic, and metal).

Tutors should also cover procedures like sorting waste for recycling and composting to minimise environmental harm.

K18: Sustainable materials

Tutors should teach students that **sustainable materials** are biodegradable, renewable, or made from recycled resources (e.g., bamboo, which grows quickly and requires fewer resources). They will explain the **purpose** of using **sustainable materials** to reduce environmental impact (e.g., using compostable pots or organic mulch). Tutors should cover how **sustainable materials** (e.g., biodegradable pots allow roots to grow freely) promote healthier **plant development**.

Supplementary information to support stretch and challenge:

The tutor could introduce:

- application of knowledge to business decision-making.

Knowledge Topic 7: Information and data	
The student must understand:	
K19	Sources of information required to undertake plant growth and development activities: purpose, typical content, typical format, and terminology
K20	Types of recording documents: purpose, typical content, and typical purpose
K21	Factors to consider when using information and data: confidentiality, privacy, intellectual property, and security

Tutor guidance:

K19: Sources of information required to undertake plant growth and development activities
Tutors should teach students the purpose of using reliable **sources** (e.g., **maps**, **site plans**, guides on plant care) to ensure accurate **information** on **plant growth**. Tutors should explain **typical content** (e.g., watering **schedules** and pest control) found in sources such as books, online resources, and videos. Tutors should also introduce common **terminology** (e.g., "TLC" for young plants and "hardening off" for acclimatising plants). Tutors should also explain the importance of **product and equipment specifications and maintenance plans**.

K20: Types of recording documents
Tutors should explain the different **types** of **recording documents** (e.g., **stock records** and **site plans**) and the **purpose** of these **documents** (e.g., tracking plant care and growth). Tutors will cover **typical content** (e.g., including dates, plant types, care routines, and health observations, such as noting plant height and leaf condition). Tutors should introduce formats (e.g., paper logs, digital spreadsheets, or apps) for recording plant information.

K21: Factors to consider when using information and data
Tutors should teach students the importance of **confidentiality**, ensuring sensitive data (e.g., plant health records) is shared only with authorised individuals. Tutors will explain **privacy**, protecting personal details, and **intellectual property** (e.g., data and research findings). Tutors should cover **security** measures (e.g., using passwords to protect data).

Knowledge Topic 8: Communication	
The student must understand:	
K22	Listening techniques: active and deep
K23	Engaging with an audience: techniques for establishing rapport, in conversation, and in obtaining and clarifying information
K24	Reading: principles, reading for comprehension, identifying salient points, and summarising key points

Tutor guidance:

K22: Listening techniques
Tutors should teach students **active** listening by focusing on the speaker, avoiding distractions, and responding appropriately (e.g., making eye contact during plant care discussions). Tutors should also explain **deep** listening, which involves understanding, asking clarifying questions, and reflecting on key points (e.g., asking follow-up questions about plant health concerns).

K23: Engaging with an audience
Tutors should teach students to **establish rapport** by using open body language, eye contact, and asking open-ended questions when discussing plant care. Tutors should also explain how to **obtain**

and **clarify information** by listening carefully and asking follow-up questions (e.g., "When did you first notice this issue?").

K24: Reading
Tutors should teach students to **read** for **comprehension**, focusing on main ideas and details (e.g., students should identify key information in a plant care guide). They will explain how to **identify salient points** (e.g., important facts or recommendations, such as types of pests and treatments). Tutors should also guide students in **summarising key points**, condensing information into clear statements (e.g., summarising fertilisation methods).

Knowledge Topic 9: Numeracy	
	The student must understand:
K25	Standard units of measurement: length, area, volume, time, temperature, weight, and capacity
K26	Numbers and the number system: techniques for application of the four operations (addition, multiplication, subtraction, division), working with whole numbers, decimals, and percentages
K27	Algebra: standard mathematical formulae, techniques used to rearrange formulae to change the subject, and algebraic notation
K28	Measurement: principles, standards, terminology, accuracy, and errors
K29	Geometry: principles, properties of geometric points, lines, angles, and Pythagoras' theorem

Tutor guidance:

K25: Standard units of measurement
Tutors should teach students the **standard units** for **length** (metres), **area** (square metres), **volume** (litres), **weight** (kilograms), **time** (hours, minutes, seconds), and **temperature** (Celsius) (e.g., measuring a garden bed in metres and calculating its area). Tutors should also explain **capacity**, using litres or millilitres for liquids (e.g., measuring water for plants).

K26: Numbers and the number system
Tutors should teach students to **apply** the **four operations: addition**, **subtraction**, **multiplication**, and **division** — with **whole numbers**, **decimals**, and **percentages** (e.g., adding plant care costs or calculating garden area). Tutors should also explain working with **decimals** (e.g., calculating fertiliser amounts) and **percentages** (e.g., finding discounts on plant products).

K27: Algebra
Tutors should teach students standard **formulae**, like area (A = l × w) or volume (water volume = flow rate x time) provide real-life applications (e.g., calculating garden area or sprinkler delivery). They should also show how to **rearrange formulae** (e.g., water volume = flow rate x time to time = water volume/flow rate). Tutors should also introduce **algebraic notation** and solve for unknowns (e.g., finding x in 2x + 5 = 15).

K28: Measurement
Tutors should teach students the **principles** of **measurement**, such as using correct tools for accurate data (e.g., measuring plant spacing with a ruler). They will explain **measurement standards**, focusing on metric units (metres, litres, kilograms) for consistency and **calculating and measuring for different materials** (e.g., compost, water, nutrient solutions, cut flower stems) **and different environments** (e.g., cut flower stems in a vase versus foam, water volume in a field versus raised beds). Tutors should also introduce **terminology** like "precision" (consistency) and "**accuracy**" (closeness to true

value) (e.g., using a calibrated thermometer for soil temperature). Tutors should cover common **errors** (e.g., misreading scales) and how to avoid them.

K29: Geometry
Tutors should teach students the basics of **geometry**, including **points**, **lines**, and **angles**, and explain types of angles (acute, right, obtuse) with examples. They will introduce the concept of **Pythagoras' theorem** ($a^2 + b^2 = c^2$) and its use in calculating the hypotenuse in right-angled triangles.

Further information to support stretch and challenge:

In this stretch and challenge section, tutors may wish to incorporate references to floristry and land-based engineering to support a student's chosen T Level route. This approach will allow students to broaden their understanding and engage with a wider range of concepts

Please note that the NTO does not include any knowledge or skills requirements for these topics.

Floristry:

- characteristics of the elements and principles of design and their applications
- assembly of floral materials to a design brief.

Land-based engineering:

- operating principles of equipment and machinery used in agriculture, environmental, and land production environments
- mechanical, and electronic principles.

Outcome 3B (O3B): Support the sustainable development of plants

Skills related to supporting the development of plants are fundamental to any occupation that involves growing plants of any type in different types of locations.

In addition to technical skills associated with working with plants, the outcome also develops transferable skills in self-management where students take responsibility for their own tasks.

It is envisaged that the student will communicate with others to determine actions required to support plant development and provide information on their development and so will develop oral communication skills for engaging in discussions and conversations.

In supporting plant development, students will naturally be required to determine resource needs such as resource requirements, which will support the development of associated numeracy skills.

It is envisaged that students will develop their technical skills in supported environments to support health and safety.

For the content of this outcome, supporting plant development should be considered in the context of crop production, tree and woodland management and horticultural environments.

Skill Topic 1: Plant development technical skills	
	Students must be able to:
S1	Prepare environments for activities, including protection for the environment
S2	Apply biosecurity measures when supporting plant development in their environments
S3	Cultivate soil
S4	Establish plants, for example, sow, drill, and plant
S5	Apply plant protection
S6	Trim plants
S7	Cut back plants
S8	Prune plants
S9	Remove unwanted vegetation
Skill Topic 2: Health and safety skills	
	Students must be able to:
S10	Assess a situation for potential adverse effects

S11	Assess an area for potential health and safety risks
S12	Establish a safe working area
S13	Apply Personal Protective Equipment (PPE) appropriately following agreed procedures
S14	Apply manual handling techniques when lifting and moving heavy objects
S15	Apply cleaning techniques to an environment
Skill Topic 3: Use of tools and equipment	
	Students must be able to:
S16	Inspect tools and equipment for potential defects and safety issues
S17	Prepare tools and equipment for effective use
S18	Apply techniques to effectively use tools to meet requirements of the task and situation
S19	Apply techniques to effectively use equipment to meet requirements of the task and situation
Skill Topic 4: Sustainability skills	
	Students must be able to:
S20	Dispose of waste sustainably
S21	Minimise waste
Skill Topic 5: Self-managing	
	Students must be able to:
S22	Monitor own performance against objectives
S23	Reflect on feedback on own performance
S24	Manage own time in achieving objectives
Skill Topic 6: Physical dexterity skills	
	Students must be able to:
S25	Apply precise and controlled movements with appropriate application of force and fine motor skills
Skill Topic 7: Self-reflecting	
	Students must be able to:
S26	Identify success criteria
S27	Consider process and evidence
S28	Situational awareness
S29	Making judgements

Skill Topic 8: Communicating	
	Students must be able to:
S30	Actively listen
S31	Use oral communication methods to obtain and clarify information and data on plants
S32	Record plant information and data
S33	Compare information, ideas, and opinions in different texts
S34	Summarise information and ideas
S35	Interpret maps and garden design plans
Skill Topic 9: Recording	
	Students must be able to:
S36	Capture information and data
S37	Transcribe information from one source to another
Skill Topic 10: Numeracy skills	
	Students must be able to:
S38	Estimate resources required to complete activities
S39	Calculate the amounts and volumes of materials required
S40	Measure lines and areas of environments and materials

Behaviours		
B5 Attention to detail	**B6** Reliable	**B7** Self-controlled

Appendix 1

Level 2 Command Verbs

These command verbs require students to demonstrate their understanding of facts, ideas, or concepts.

Command word	Definition
Apply	Use knowledge or understanding in a familiar situation to complete a task
Assess	Make a judgement about the value or importance of something using simple reasoning
Calculate	Work out the value of something, showing relevant working out
Choose	Select the most appropriate option from a limited range
Classify	Group items based on shared features or characteristics
Compare	Examine in detail and identify similarities and differences between them
Define	Give a definition or specify the meaning of an idea or concept
Demonstrate	Show understanding of a process or concept through simple examples, actions, or explanations
Describe	Give a detailed account of a subject or set out its characteristics or features
Discuss	Present key points about different ideas or strengths and weaknesses of an idea
Estimate	Make an approximate judgement or calculation based on known information
Explain (why)	Set out purposes or reasons, or make something clear in relation to a particular situation
Explain how	Provide a detailed account of a process or way of doing something
Give examples	Provide specific cases or instances that support or illustrate a point
Identify	Select from a list of options, point something out or give a list of main features
Illustrate	Explain or clarify something using examples, diagrams, or comparisons
Interpret	Explain the meaning of information or data
List	Provide a series of items or points without explaining or describing in detail
Outline	Set out the main characteristics or features
Plan	Outline basic steps or actions needed to achieve a goal, showing understanding of the order or purpose of each step
Record	Accurately document information, actions, observations, or results
Select	Choose the most appropriate option from a limited range, showing understanding of why it fits the given purpose or situation
Show	Present or demonstrate understanding through action, response, or simple explanation in a familiar setting
State	Express in clear, brief terms
Suggest	Apply knowledge to a new situation to provide a reasoned explanation
Summarise	Give a brief account of the main points or ideas
Use	Apply a tool, technique or method correctly and safely in a familiar context, following set procedures or instructions