



Institute of Animal Technology

Syllabus

Level 2 Diploma in Laboratory Animal Science and Technology

Introduction

This document supports all those involved in the delivery, assessment and verification of their qualifications. It should be implemented and referenced in conjunction with the IAT policies and procedures. These can be found on the IAT Education website www.iateducation.co.uk



The European Federation of Animal Technologists

EFAT believe that the learning outcomes listed in the Institute of Animal Technology IAT Level 2 Diploma in Laboratory Animal Science and Technology Syllabus satisfies the requirements under Article 23 of Directive 2010/63/EU Competence of personnel, as stated in 2. The staff shall be adequately educated and trained before they perform any of the following functions: (c) taking care of animals; or (d) killing animals, plus the associated Education and Training Framework for EU Function Group C Modules for Animal Carers see http://ec.europa.eu/environment/chemicals/lab_animals/pdf/guidance/education_training/en.pdf.



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Institute of Animal Technology (IAT)

The Institute acts as the professional body for persons engaged in laboratory animal breeding, care and welfare. The Institute's qualifications provide opportunities for learners to gain accreditation for their individual competencies and level of understanding of the underpinning knowledge required to practise Animal Technology. The names and addresses of the officials of the Council of the Institute and Board of Education Policy are printed in the current edition of the Institute's Journal, *Animal Technology and Welfare*, ISSN 2752-3918.

Questions of a general nature arising from this scheme should be directed to the Board of Education Policy – email: admin@iat.org.uk or via the Institute's website www.iat.org.uk

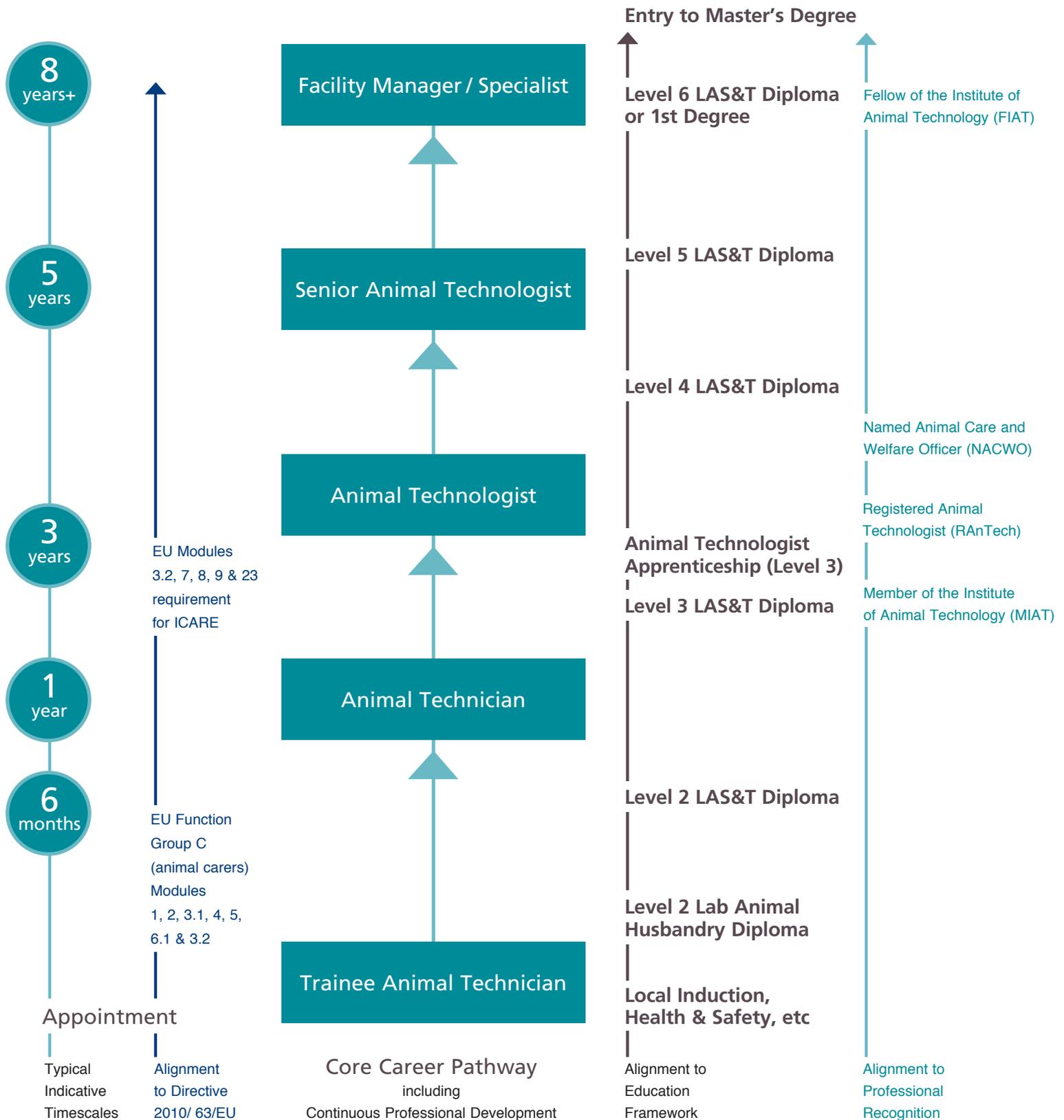
Rationale for IAT qualification

The IAT aims to provide an internationally recognised programme to ensure that Animal Technologists:

- are prepared to meet their legal and ethical responsibilities in providing high standards of welfare for laboratory animals
- demonstrate appropriate standards of knowledge, behaviour and competence for career advancement and election to the professional body

The development of IAT qualifications has been driven through consultation with employers, IAT members, educationalists and the wider scientific community. Successful completion of IAT qualifications allows progression on to the next level of qualification.

Career Pathway for Animal Technologists



For an interactive version go to www.iateducation.co.uk

Objectives of assessment process

This qualification is designed to:

- recognise learning and prepare the learner for further learning and training and to develop knowledge and skills in Animal Technology
- prepare learners for further learning and training by establishing a broad and relevant base of knowledge and skills in Animal Technology
- develop knowledge and skills in laboratory animal science and technology specialists' areas which enhance the learners' ability to take independence and autonomy in their work role
- encourage updating of skills and knowledge and continuing professional development (CPD)
- relate knowledge and skills to legal, technical, process or good practice requirements in the field of laboratory animal science and technology
- develop knowledge and skills in order to gain recognition at a higher level or in a different role
- develop knowledge and skills relevant to a particular specialisation within an occupation or set of occupations

The broad objectives of the assessment process are to:

- provide a sound theoretical knowledge and/or the practical abilities of the principles that underpin the practice of laboratory animal science and technology
- improve the welfare of animals and the quality of the animal work necessary
- fulfil the increasingly demanding role of the Animal Technologist under the legislation protecting animals used for experimental or other scientific purposes
- assist learners effectively to demonstrate competence in the execution of practical skills
- foster a spirit of independent learning, enquiry and continuing professional development
- externally assess the learning that has taken place and its application to the practice of laboratory animal science and technology
- provide the basis of career progression as a qualified Animal Technologist
- provide a coherent and balanced education appropriate to the level of professional membership
- provide a qualification that is recognised by employers and competent authorities
- provide a portable qualification, preparing learners for further professional development transferable between jobs and countries

Grading the IAT units

Each assessment is graded as a pass, merit, distinction or referral. The grade is based on the learning outcomes and grading criteria. To achieve the grade, learners must meet the learning outcomes and grading criteria associated with the particular grade being awarded.

- To gain a pass, learners must achieve all of the learning outcomes and grading criteria associated with the pass grade.
- To gain a merit, learners must achieve all of the learning outcomes and grading criteria associated with the pass and merit grade.
- To gain a distinction, learners must achieve all of the learning outcomes and grading criteria associated with the pass, merit and distinction grade.

If learners fail to achieve all of the learning outcomes and grading criteria associated with the pass grade, the unit is referred and a learner is given one chance only to bring the work up to an appropriate standard. Should a learner be unable to meet the pass criteria on their referral, they will fail the unit and will have to re-register to take the unit again.

Learning outcomes and grading criteria may be covered in one or more assessments.

Each unit must be capable of independent assessment even if an assessment covers more than one unit. Where an assessment covers more than one unit, it should be possible for the learner to achieve all of the units independently, so they could achieve some of the units even if they fail to achieve all of the units being assessed in a single assessment.

Grades are designed to encourage learners to develop higher cognitive, communication and psychometric skills in preparation for further learning and career advancement. It is important that learners are aware that they need to meet all of the learning outcomes and grading criteria and that they are given one chance to rectify any minor omissions, as one omission can reduce a distinction standard piece of work to a pass or even a referral grade. Resubmissions are designed to ensure that learners receive the grade that accurately reflects the level of their performance.

The final grade for each unit will be displayed on the final certificate and the notification of performances. There is no overall grade for the qualification.

Centres should provide the learner and Moderator with clear evidence relating the assessment method to the specific learning outcomes and grading criteria, so it is clear how the learner can successfully complete each unit.

Assessment and verification

The principal objective of the assessment process for each unit will be to ensure learners have reached the appropriate standard to meet the learning outcomes for the unit.

The primary interface with the learner is the Centre Assessor, whose job it is to assess the evidence presented by the learner. The Centre Assessor should provide an audit trail showing how the judgement of the learner's overall achievement has been arrived at.

The Centre's assessment plan, to be agreed with the IAT Moderator, should include a matrix for each qualification showing how each unit is to be assessed against the relevant criteria and which specific pieces of work will be identified in relation to each unit. It should also show how assessment is scheduled into the delivery programme.

In designing the individual tasks and activities, Centres must ensure that:

- The selected assessment task/activity is relevant to the content of the unit.
- There are clear instructions given to learners as to what is expected.
- Learners are clearly told how long the assessment will take (if it is a timed activity) and what reference or other material they may use (if any) to complete it.
- The language used in the assessment is free from any bias.
- The language and technical terms used are at the appropriate levels for the learners.

In addition to the specific assessment criteria in each unit, the learner's work must be:

- accurate, current and authentic
- relevant in depth and breadth
- demonstrating the learner's:
 - clear grasp of concepts
 - ability to link theory to practice
 - ability to communicate clearly in the relevant discipline at the expected level for the qualification

It is important to ensure consistency of assessment and that demands made on learners are comparable within and between Centres. Centres are encouraged to use a range of methods to ensure that all the learning outcomes and assessment criteria are met and to enhance learners' development. The specific assessment methods can be decided by the Centre but must be agreed by the IAT Moderator prior to use.

Centres can verify that learners have achieved the required standard via academic assessment or, where appropriate, via assessment of competence in the workplace, or by a combination of these methods. Assessment of competence in the workplace should be carried out by a Registered Animal Technologist (RAnTech) with appropriate training in assessing work-based learning.

Academic assessment methods can include but are not restricted to:

- case studies
- role play
- time limited tests
- examinations
- assignments
- reports
- integrated work activities
- viva voce
- projects
- presentations

The syllabus allows flexibility to meet the needs of industry. Centres can adapt assessments to recognise the learner's specific needs in terms of specialist areas and geographic location (for appropriate national legislation). Centres are encouraged to discuss any such specific needs with the IAT Moderator when devising the assessment methods.

The Industry has specifically requested some units have time limited tests to encourage learners to develop skills in memorising key professional data and developing skills in working to time constraint pressures. These requirements are noted in the 'qualification unit structure' table on page 12.

Regardless of the method used to assess the learning there must be a clear evidence trail of how the decision of the learner's achievement was reached and this must be available for the IAT Moderator and External Verifier to inspect during visits.

All assessments must be internally verified prior to use. If assessed work is judged by a Moderator to have not been internally verified, it will be returned and verification would need to be recorded before grades can be given to the learners.

Centres and learners are encouraged to use methods of presenting data, analysis and information other than straightforward narrative text. In the appropriate contexts, tables, graphs, pie charts, diagrams and illustrations are just as demanding on the learner.



Animals to be covered

The table below shows the types of animals that should be covered in the unit. Each unit covers the principles of Animal Technology and good animal welfare; the principles should be supported with examples from across the range of species listed in the table below, in order that the learner receives a broad understanding of the industry. Assessment should be based on the species and techniques that are most relevant to an individual learner but learners should be encouraged to explain the relevance of the animal, routines and procedures they use and to discuss other options that may be available.

Small rodents	Larger rodents and lagomorphs	Carnivores	Farm animals	Birds	Amphibia and fish	Primates	Reptiles
Rat	Guinea pig	Cat	Cattle	Chicken	Fish	New World	Chelonian
Mouse	Rabbit	Dog	Sheep/Goat	Quail	Frog	and	Snake
Hamster		Ferret	Pig	Small cage Bird		Old World	Lizard
			Horse/Donkey				

Approved Centres

An IAT Approved Centre will have adequate facilities and expertise, alone or in conjunction with local employers, to teach the syllabus and to provide facilities for assessment.

Centres wishing to offer IAT qualifications must be approved by the Institute of Animal Technology. Application for admission as an Approved Centre shall be made through the Secretary to the Board of Education Policy.

All Centres must be able to provide sufficient evidence that they have suitably qualified staff, resources and management systems necessary to effectively deliver and assess all of the assessment criteria for the IAT units and qualifications they offer.

They must also demonstrate how they will recognise/authenticate the eligibility of exemptions and/or any other prior learning and how they will apply these appropriately when registering learners' results with the IAT as the awarding body.

On registration, the IAT Moderator will check the eligibility of the learner to undertake the chosen level of qualification, learners not eligible for their chosen level by means of previous qualifications will not be registered. The IAT will issue the learner with a Unique Learner Number (ULN) to those who have not been previously issued with a ULN and will, on successful completion of a unit, record the credits in the learner record.

IAT Approved Centres will be listed on the IAT Education website, www.iateducation.co.uk

Moderation

The IAT Moderator, appointed by the Board of Education Policy, will visit the Centre as necessary to assess and approve the Centre is complying with IAT and Ofqual policies and that assessments are fair and appropriate and to monitor learner progression.

The Moderator becomes the link between the Centre and the Board of Education Policy.

The Moderator reserves the right to call a learner to an additional oral examination if they have good cause to suspect that any assessment submitted is not the work of the learner, or to require the learner to sit a further supervised assessment.

Exemptions and credits

Learners may be credited with a unit in a variety of ways:

- Successful completion of the assessments covering the unit learning outcomes and grading criteria.
- Recognition of prior learning and achievement.
- Successful completion of other recognised certificated qualifications covering the unit contents at an equivalent or higher level.

Recognition of prior learning and achievement

The Qualification is based on the principles of credit accumulation and transfer. Learners have the opportunity to build their achievements from a single unit into a full qualification. The IAT will publish via www.iateducation.co.uk examples of which units and qualifications from other awarding bodies can be recognised for credit transfer and exemptions.

There may be instances where learners will wish to claim recognition of prior learning that has not been formally assessed and accredited. In those instances, Centres are free, after discussion and agreement with the IAT Moderator, to support these learners in their effort to achieve recognition of prior learning (RPL) through the policies set out on the IAT Education website, www.iateducation.co.uk

Registration

The IAT will register learners and maintain records of a learner's progress once a completed registration has been received. Learners will be able to follow their progress via the Institute's database. Learners must have access to theoretical instruction and formative assessment to support their development. At registration a learner must indicate an approved Centre from which they intend to receive tuition.

Timing of courses and assessments

Courses may be devised to any timescale to suit local conditions and the designated lengths of the components. Assessments which are devised by the Centre require approval by the Moderator.

Special needs

Learners who provide evidence of special needs (either educational or medical) will be offered support under the Institute's policies of supporting learners with special needs. Details can be found on the IAT Education website, www.iateducation.co.uk

Fees

The Institute charges a learner registration fee.

Details can be found on the IAT Education website, www.iateducation.co.uk

Certification

Learners successfully completing a unit will be provided with a notification of performance, annually. When a learner has successfully completed all of the units required for a qualification, they will be notified in writing and presented with a qualification certificate.

Certificates are printed quarterly per annum. Submission dates for results and dates for certification will be published on the IAT Education website, www.iateducation.co.uk

QUALIFICATION TITLE

IAT Level 2 Diploma in Laboratory Animal Science and Technology

All units are mandatory

Qualification	Unit title	Credit value	Ofqual no.	Guidance on assessment methodology
IAT Level 2 Diploma in Laboratory Animal Science and Technology	Introduction to health and safety principles and legislation	10	A/618/5100	See 'Assessment and verification' above.
	Laboratory animal housing and routines	12	F/602/5879	See 'Assessment and verification' above.
	The production of laboratory animals	8	T/602/5880	A time limited test must form part, or all, of this assessment
	Laboratory animal nutrition	4	A/602/5881	See 'Assessment and verification' above.
	Introduction to laboratory animal science ethics	6	L/615/1145	See 'Assessment and verification' above.
	Introduction to laboratory animal facility legislation	10	Y/615/1147	A time limited test must form part, or all, of this assessment
	Laboratory animal health and husbandry	10	J/602/5883	See 'Assessment and verification' above.
	Laboratory animal biology	8	Y/602/6049	See 'Assessment and verification' above.
	Numeracy for Animal Technologists	4	D/602/6053	See 'Assessment and verification' above.
	Communication for Animal Technologists	4	Y/602/6052	See 'Assessment and verification' above.

Explanatory note

One credit in each unit represents 10 hours of learning time.

Learning time is the amount of time a learner is expected to take, on average, to complete the learning outcomes of the unit to the standard defined by the assessment criteria.

Guided learning hours refers to the total amount of time that the learner has in any form of supported study. Learning time includes all the time needed to achieve a unit, including supported study, homework, assessment time and preparation time.

The difference between the learning time and guided learning hours is not absolute, as in addition, learners will also be learning in the workplace with the support of colleagues and often with the support of their teachers.

UNIT 1

TITLE	INTRODUCTION TO HEALTH AND SAFETY PRINCIPLES AND LEGISLATION		
OFQUAL NO:	A/618/5100	LEVEL	2
CREDIT VALUE	10 credits	Unit guided learning hours	4
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)		N/A	
Location of the unit within the subject/sector classification system		Animal Technology	
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)		<p>The aim of this unit is to provide the learner with a basic knowledge and understanding of the legislative requirements for health and safety in the workplace and to introduce basic terms and principles.</p> <p>This unit is designed to introduce the principles of safety, accident prevention and risk assessment and to encourage learners to follow safe working practices in the animal unit.</p>	

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Understand the basic principles of health and safety and prevention of accidents at work.	1.1. Identify key health and safety legislation and outline its main purpose. 1.2. Identify responsibilities placed on employers and employees for ensuring health and safety in the workplace. 1.3. Define common terms used in health and safety.
2	Identify different types of hazards and risks in a typical animal facility and understand the measures that can be taken to mitigate them.	2.1. State the types of hazard present in a typical animal facility and how they might cause harm. 2.2. State the control measures used to minimise hazard. 2.3. State examples of safety precautions that can be put in place to minimise risk.
3	Understand the principles of risk assessment.	3.1. Describe the purpose of a risk assessment.

Unit contents and assessment

Introduction to health and safety principles and legislation

Principles of health and safety at work: Relevant Act and Regulations, Codes of Practice, HSE guidance notes, accident prevention, reasons for ensuring health and safety at work – financial, moral, legal

Employers and employees' responsibilities: responsibilities as defined in legislation, safe working environment, duty of care, welfare facilities

Common terms: health, safety, welfare, accident, near miss, hazard, risk, dangerous occurrence

Hazards: slips, trips and falls, bites and scratches, moving objects, electrical, chemicals including gases, biological, fire, physical, radiation

Safety precautions and control measures: engineering controls, training, provision of PPE, occupational health screening, allergen monitoring, routine servicing, personal hygiene, manual handling, emergency response plans and equipment, signage

Risk assessment principles and process: importance of the process, who carries it out, responsible persons, identifying hazards, identify those at risk, evaluate risk, record findings, review and revision

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Understand the basic principles of health and safety and prevention of accidents at work.	1.1. Identify key health and safety legislation and outline its main purpose. 1.2. Identify responsibilities placed on employers and employees for ensuring health and safety in the workplace. 1.3. Define common terms used in health and safety.	Provide examples of key regulations outlining their main purpose.	Explain the importance of reporting accidents and dangerous occurrences.
2	Identify different types of hazards and risks in a typical animal facility and understand the measures that can be taken to mitigate them.	2.1. State the types of hazard present in a typical animal facility and how they might cause harm. 2.2. State the control measures used to minimise hazard. 2.3. State examples of safety precautions that can be put in place to minimise risk.	Provide examples of the different types of hazards found in the workplace.	Explain how individual action can reduce risks to health and safety.
3	Understand the principles of risk assessment.	3.1. Describe the purpose of a risk assessment.	Explain the basic steps of the risk assessment process.	Explain the use of risk assessment as a technique to prevent accidents and ill health in the workplace.

UNIT 2

TITLE	LABORATORY ANIMAL HOUSING AND ROUTINES		
OFQUAL NO:	F/602/5879	LEVEL	2
CREDIT VALUE	12 credits	Unit guided learning hours	5
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT 1 CU2, 3, 32, 33, 34, 38, 39		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the principles of laboratory animal husbandry and welfare.</p> <p>This unit is designed to introduce learners to the principles of laboratory animal husbandry and welfare. Learners should appreciate that animals bred for, and used in, scientific procedures must receive the highest standards of care and welfare and recognise how they can contribute to this in their daily tasks.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know/understand suitable routines and husbandry practices concerning the maintenance and care for a range of laboratory animals.	1.1. Describe appropriate routines and husbandry practices for two different species. 1.2. Explain the importance of regular husbandry routines. 1.3. Define scientific and technical terms relating to the housing and care of laboratory animals.
2	Know/understand the consequences for the animal resulting from inappropriate environmental conditions.	2.1. Identify appropriate environmental conditions for two different named species. 2.2. Describe the effects on the animals if appropriate environmental conditions are not maintained. 2.3. Know which Codes of Practice describe suitable environmental conditions for laboratory animals. 2.4. Know who to contact in the event of inappropriate environmental conditions being suspected or identified.
3	Describe appropriate methods for identifying a range of animals.	3.1. Select appropriate methods for identifying laboratory animals given specific conditions. 3.2. Describe methods for identifying animals.

Unit contents and assessment

Laboratory animal housing and routines

ANIMAL HOUSING AND ANIMAL FACILITY MATERIALS

Materials: physical states (solids, liquids, gases) and movement of molecules, properties and uses of materials commonly found in the animal facility, transfer of heat between materials (conduction, convection, radiation, latent heat of vapourisation, insulators, conductors)

Animal housing: design features of cages and pens and vivaria e.g. containment of the animal, provision for the animal's needs, ease of use and of servicing, economic considerations, compliance with any experimental, legal or breeding requirements, stocking densities

Organisation of cages, pens and vivaria: permanent, flexible, mobile, partitions, shelves, racks, independently ventilated cages

Animal facility barriers: definition, purpose, examples of barriers

THE ENVIRONMENT

Optimum conditions: comfort and wellbeing of the animals, legislation, Codes of Practice, animal welfare, control experimental variables

Recording conditions: methods for recording temperature and humidity (Building Management Systems, automated recording, manual recording), equipment and techniques, limitations

Effects of the environment on the animal: light, noise, temperature, humidity, other animals, personnel

Environmental enrichment: examples, benefits, uses

ROUTINE CARE

Routine procedures: importance of routines, habits of the animals, conditions in which they are housed, purposes for which they are kept

Tasks: work routines suitable for the care and welfare of animals, procedures, frequency, reasons

BEDDING AND NESTING MATERIALS

Bedding materials: ideal properties, compare and contrast uses of a range of materials, recognition of good and bad samples

Nesting materials: ideal properties, compare and contrast uses of a range of materials, recognition of good and bad samples

HYGIENE

Hygiene: definition, reasons for good hygiene

Disease causing agents: nature and size of agents (e.g. viruses, bacteria, fungi, protoctista, invertebrate parasites (internal and external), prions, susceptibility of agents to methods of sterilisation and disinfection)

Personal hygiene: reasons for good hygiene, protective clothing, washing, showering, air showers, reporting of ill health

Cleaning procedures: unit, rooms, animal accommodation, cage washers, equipment, comparison of methods (dusting, sweeping, mopping, wet and dry vacuum-cleaning, hosing, high-pressure hosing with water and with steam)

Detergents: hydrophilic, hydrophobic, ionic and non-ionic detergents

Definitions: sterilisation, pasteurisation, disinfection, fogging, fumigation

Disinfection and sterilisation: description and comparison of methods for sterilising and disinfecting animal accommodation, equipment, consumables and waste in the animal facility (e.g. disinfectants, autoclaves, cage and bottle washing machines, incinerators)

Chemical disinfectants: ideal properties, comparison of properties and uses, dilution concentrations

IDENTIFICATION

Ideal characteristics: harmless to the animal, simple to apply, easy to decipher, sufficiently permanent, compliant with breeding or experimental and legal requirements

Methods: describing physical characteristics of the animal, diagrams or photographs, ear punching, fur clipping, applying stains, tattooing, transponders; uses and limitations of each method



	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know/understand suitable routines and husbandry practices concerning the maintenance and care for a range of laboratory animals.	1.1. Describe appropriate routines and husbandry practices for two different species. 1.2. Explain the importance of regular husbandry routines. 1.3. Define scientific and technical terms relating to the housing and care of laboratory animals.	Describe in detail the importance of regular husbandry routines.	Explain why routines are not identical for all species.
2	Know/understand the consequences for the animal resulting from inappropriate environmental conditions.	2.1. Identify appropriate environmental conditions for two different named species. 2.2. Describe the effects on the animals if appropriate environmental conditions are not maintained. 2.3. Know which Codes of Practice describe suitable environmental conditions for laboratory animals. 2.4. Know who to contact in the event of inappropriate environmental conditions being suspected or identified.	Explain how poor environmental conditions lead to poor animal welfare.	Explain, with examples, how poor environmental conditions lead to poor animal welfare.
3	Describe appropriate methods for identifying a range of animals.	3.1. Select appropriate methods for identifying laboratory animals given specific conditions. 3.2. Describe methods for identifying animals.	Describe, in detail, how the methods are applied and identify any particular welfare problems.	Justify the choice of method.

UNIT 3

TITLE	THE PRODUCTION OF LABORATORY ANIMALS		
OFQUAL NO:	T/602/5880	LEVEL	2
CREDIT VALUE	8 credits	Unit guided learning hours	4.5
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT 4 CU2,36		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of methods used in the production of animals for scientific purposes.</p> <p>This unit is designed to give learners an overview of the production of animals for scientific purposes.</p>		

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Know suitable methods for producing animals and managing colonies using database technology.	1.1. Describe methods for supplying laboratory animals. 1.2. Select suitable production methods given specific conditions. 1.3. Define scientific and technical terms relating to the production of laboratory animals.
2	Understand methods for the recording and retrieval of production information, including database systems.	2.1. Describe methods for the recording and retrieval of breeding data and stock records.

Unit contents and assessment

The production of laboratory animals

Definitions: colony, closed colony, monogamous pairs, harems, in-breeding, inbred strain, random-breeding, out-breeding, genetically altered, mutants, oestrous cycle, oestrus, post-partum oestrus, puberty, age at first mating, mating, dated mating, mating season, breeding season, ovulation, super-ovulation, fertilisation, implantation, placenta, embryo, embryo transfer, foetus, gestation, parturition, lactation, fostering, cross-fostering, weaning, pre-weaning mortality rate, economic breeding life, culling

Breeding data: breeding season, type of oestrous cycle, length of oestrous cycle, duration of oestrus, the detection of oestrus, mechanism of ovulation, gestation period, average litter size, recurrence of oestrus following parturition, birth, weanling, first mating, full-grown adults

Breeding systems: monogamous pairs, harems, arranged mating, factors affecting choice of system e.g. natural behaviour of animals, economic considerations, scientific needs

Record keeping: methods of record keeping, database systems, electronic storage/retrieval of breeding data, database colony management, economic management of colony, genetic status, legal requirements, identity and birth date, identities and birth dates of both parents, date(s) of mating(s), for each litter - date of birth, number born and sexes and bodyweights of offspring weaned, identity and fate of offspring

Future breeding stock: physical signs, health status, parents' breeding record, genotype

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know suitable methods for producing animals and managing colonies using database technology.	1.1. Describe methods for supplying laboratory animals. 1.2. Select suitable production methods given specific conditions. 1.3. Define scientific and technical terms relating to the production of laboratory animals.	Describe, in detail, methods for producing a stated species of laboratory animal.	Justify the choice of the production methods described.
2	Understand methods for the recording and retrieval of production information, including database systems.	2.1. Describe methods for the recording and retrieval of breeding data and stock records.	Describe, in detail, the types of information recorded and explain why this is essential for colony management.	Explain the advantages and disadvantages of the recording methods described.

UNIT 4

TITLE	LABORATORY ANIMAL NUTRITION		
OFQUAL NO:	A/602/5881	LEVEL	2
CREDIT VALUE	4 credits	Unit guided learning hours	3
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N CU2, 33, 34, 35		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of methods used for ensuring animals receive a balanced diet.</p> <p>This unit is designed to give learners an understanding of the methods used to ensure that food and water provisions maintain the highest standards of animal welfare.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know how water and a balanced diet are provided for laboratory animals.	1.1. Describe how a diet must be stored to ensure its quality when fed to laboratory animals. 1.2. Identify food pests and describe the potential damage they cause. 1.3. Describe methods for presenting good quality food and water to animals. 1.4. Define scientific and technical terms relating to the nutrition of laboratory animals.

Unit contents and assessment

Laboratory animal nutrition

Balanced diet: definition, ingredients/recipes, water

Provision of food: hoppers, baskets and open containers for foodstuffs in different physical forms, sizes and designs, number of animals, scientific requirements, animals in transit

Provision of water: bottles, automatic water systems, open bowls, troughs, importance of regular cleaning and water changing, mechanics of water bottles and bottle tops, correct filling of water bottles, animals in transit

Measuring food intakes: calculate food consumption, wastage

Food pests and contamination: moths, mites, weevils, beetles (including cockroaches) and moulds which may affect animal foodstuffs, signs of infestation, damage to nutritional quality, contamination via wild birds and rodents

Diet quality and storage: properties of ideal store, simple routines for protecting foodstuffs from contamination and deterioration, receipt and checking of new diet, rotating stock, expiry dates

Diet treatment: methods (autoclaving, irradiation), impact

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know how water and a balanced diet are provided for laboratory animals.	1.1. Describe how a diet must be stored to ensure its quality when fed to laboratory animals. 1.2. Identify food pests and describe the potential damage they cause. 1.3. Describe methods for presenting good quality food and water to animals. 1.4. Define scientific and technical terms relating to the nutrition of laboratory animals.	Explain how poor storage conditions can cause deterioration in laboratory diets.	Explain the impact of autoclave and irradiation treatment methods on laboratory animal diet.

UNIT 5

TITLE	INTRODUCTION TO LABORATORY ANIMAL SCIENCE ETHICS		
OFQUAL NO:	L/615/1145	LEVEL	2
CREDIT VALUE	6 credits	Unit guided learning hours	3.5
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)		O29N AT 6 CU2,36	
Location of the unit within the subject/sector classification system		Animal Technology	
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)		<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the ethical considerations of using animals for scientific purposes.</p> <p>The unit introduces ethical principles applied to animals used in research.</p>	

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Understand that there is a broad range of ethical, welfare and scientific perspectives on the use of animals in scientific procedures.	1.1. List arguments for and against the use of animals as research models. 1.2. State the 'Five Freedoms'.
2	Know how the concerns over the use of laboratory animals are minimised.	2.1. Explain the terms 'Reduction', 'Refinement' and 'Replacement'. 2.2. List the structure and function of the AWERB.

Unit contents and assessment

Introduction to laboratory animal science ethics

Ethical considerations: animal welfare, animal rights, benefits of, and arguments against, animal experimentation

Application of ethical theory: five freedoms, 3Rs, AWERB structure and role

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Understand that there is a broad range of ethical, welfare and scientific perspectives on the use of animals in scientific procedures.	1.1. List arguments for and against the use of animals as research models. 1.2. State the 'Five Freedoms'.	Give an example of the application of each of the five freedoms.	Compare the arguments for and against the use of animals as research models.
2	Know how the concerns over the use of laboratory animals are minimised.	2.1. Explain the terms 'Reduction', 'Refinement' and 'Replacement'. 2.2. List the structure and function of the AWERB.	Describe examples of the 3Rs in practice.	Describe the role of the AWERB in applying the 3Rs.

UNIT 6

TITLE	INTRODUCTION TO LABORATORY ANIMAL FACILITY LEGISLATION		
OFQUAL NO:	Y/615/1147	LEVEL	2
CREDIT VALUE	10 credits	Unit guided learning hours	6
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)		O29N AT 6 CU2,36	
Location of the unit within the subject/sector classification system		Animal Technology	
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)		<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the legislation controlling the use of animals for scientific purposes.</p> <p>This unit is designed as an introduction to the legislation that protects animals in research, including appropriate reasons for, and methods of, euthanasia. The unit also introduces the learner to legislation controlling safety evaluation studies.</p>	

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Identify the broad provisions of the legislation controlling the use of research animals.	1.1. Define the ASPA terms 'protected animal' and 'regulated procedure'. 1.2. Explain the purpose of the Procedure Establishment Licence, the Procedure Project Licence and the Procedure Individual Licence. 1.3. Explain the roles of individuals named in ASPA. 1.4. State the purpose of ASPA Schedule 1 and Schedule 2. 1.5. Give an example of the work covered by GLP.
2	Know appropriate methods of euthanasia.	2.1. Select and describe appropriate methods for the euthanasia of specified animals under specified conditions. 2.2. Describe methods for confirming death.

Unit contents and assessment

Introduction to laboratory animal facility legislation

LEGISLATION PROTECTING LABORATORY ANIMALS

Main provisions: ensure that protected animals are used for scientific procedures only if there is no alternative, ensure that the potential benefits resulting from the procedure justify the use of animals, avoid unnecessary suffering

Definitions: protected animal, regulated procedure, living

Legislative enforcement and responsibilities: Procedure Establishment Licence (PEL), Procedure Project Licence (PPL), Procedure Individual Licence (PIL or Personal Licence), Named Person Responsible for Compliance (NPRC), PPL holder, PIL holder, Named Animal Care and Welfare Officer (NACWO), Named Veterinary Surgeon (NVS), Named Training and Competency Officer (NTCO), Named Information Officer (NIO), Home Office Inspector (HOI), delegation, Schedules 1 & 2

Sources of information: Home Office publications e.g. Guidelines and Codes of Practice (www.homeoffice.gov.uk)

GOOD LABORATORY PRACTICE

GLP: outline when the GLP regulations are required, state the meaning of the terms Standard Operating Procedures, Study Plan, Study Director, raw data

EUTHANASIA

Reasons for killing experimental animals: ill health, stock control, scientific procedure, legislation, to eliminate suffering

Routes of administration: intravenous, intraperitoneal, inhalation, sub-cutaneous, per-cutaneous, oral; legal control

Techniques: physical methods, chemical methods, equipment, training, signs indicating death, confirmation of death, disposal of bodies

Factors affecting choice of method: statutory requirements, species, age and size of animal, number of animals to be killed, temperament of animal, skill of operator, availability of apparatus, safety of other animals and the operator, fate of the cadaver

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Identify the broad provisions of the legislation controlling the use of research animals.	1.1. Define the ASPA terms 'protected animal' and 'regulated procedure'. 1.2. Explain the purpose of the Procedure Establishment Licence, the Procedure Project Licence and the Procedure Individual Licence. 1.3. Explain the roles of individuals named in the legislation. 1.4. State the purpose of ASPA Schedule 1 and Schedule 2. 1.5. Give an example of the work covered by GLP.	Describe the purpose and use of the ASPA Code of Practice for the Housing and Care of Animals Bred, Supplied or Used for Scientific Purposes. Describe the purpose and use of GLP SOPs.	Describe how ASPA and GLP are applied in the workplace.
2	Know appropriate methods of euthanasia.	2.1. Select and describe appropriate methods for the euthanasia of specified animals under specified conditions. 2.2. Describe methods for confirming death.	Explain the factors that affect the choice of method of euthanasia in given situations.	Justify the choice of methods.

UNIT 7

TITLE	LABORATORY ANIMAL HEALTH AND HUSBANDRY		
OFQUAL NO:	J/602/5883	LEVEL	2
CREDIT VALUE	10 credits	Unit guided learning hours	4.5
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)		O29N AT3, 4, 9	
Location of the unit within the subject/sector classification system		Animal Technology	
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)		<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the theory supporting good animal husbandry practice.</p> <p>This unit is designed to give learners the opportunity to develop their knowledge of the theory supporting good animal husbandry practice.</p>	

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Know methods available to safely handle and sex a laboratory animal.	1.1. Select suitable methods for handling and determining the sex of a named species of laboratory animal. 1.2. Describe suitable methods for handling and determining the sex of a named species of laboratory animal. 1.3. Correctly identify the sex of the animal.
2	Know/understand methods to estimate the age of a named species of laboratory animal with reasonable accuracy.	2.1. Describe methods for determining the age, with reasonable accuracy, of a juvenile and adult animal of a named species of laboratory animal. 2.2. Estimate, with reasonable accuracy, the age of a juvenile and adult animal of a named species of laboratory animal.
3	Know/understand suitable procedures for the safe handling and restraint of a named species for common scientific procedures.	3.1. Describe suitable procedures for restraining a named species of a laboratory animal for common scientific and husbandry procedures. 3.2. Describe the use of appropriate procedures given specified conditions.
4	Identify signs of ill health in a named species and describe suitable remedial actions.	4.1. Describe the normal condition of a named species in rest and in movement. 4.2. Describe the process for examining an animal logically and thoroughly. 4.3. Give examples of common problems that may be found and describe suitable remedial actions including communication to appropriate individuals. 4.4. Describe signs that could indicate an animal is in pain and explain the role of analgesics in controlling pain in laboratory animals.

Unit contents and assessment

Laboratory animal health and husbandry

HANDLING LABORATORY SPECIES

Techniques: procedures and equipment for handling and restraining for common scientific procedures and detailed health checks

SEXING LABORATORY ANIMALS

Observable characteristics and techniques: procedures and equipment for sexing laboratory animals

ESTIMATING AGE

Observable characteristics: the appearance and behaviour of animals at key stages in their development

HEALTH CHECKS

Observations: signs of common disease, clinical signs, subsequent action

Measurements: weighing animals, taking body temperatures, purposes, accuracy and sensitivity of equipment, care and any necessary calibration of equipment, tare weighing, comparisons to expected values

Health checking: normal behaviour and appearance, observation at rest and in movement, detailed examination procedure, clinical signs, records and reporting, subsequent action and communication to appropriate individuals (e.g. Named Animal Care and Welfare Officer, Named Veterinary Surgeon, Procedure Individual License holder), further investigation

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know methods available to safely handle and sex a laboratory animal.	<p>1.1. Select suitable methods for handling and determining the sex of a named species of laboratory animal.</p> <p>1.2. Describe suitable methods for handling and determining the sex of a named species of laboratory animal.</p> <p>1.3. Correctly identify the sex of the animal.</p>	Describe, in detail, suitable methods for handling and determining the sex of a named species of laboratory animal.	Explain how good animal welfare is maintained at all times.
2	Know/understand methods to estimate the age of a named species of laboratory animal with reasonable accuracy.	<p>2.1. Describe methods for determining the age, with reasonable accuracy, of a juvenile and adult animal of a named species of laboratory animal.</p> <p>2.2. Estimate, with reasonable accuracy, the age of a juvenile and adult animal of a named species of laboratory animal.</p>	Describe the factors that limit the degree of accuracy in estimating the age of the animal without knowing its date of birth.	
3	Know/understand suitable procedures for the safe handling and restraint of a named species for common scientific procedures.	<p>3.1. Describe suitable procedures for restraining a named species of a laboratory animal for common scientific and husbandry procedures.</p> <p>3.2. Describe the use of appropriate procedures given specified conditions.</p>	<p>Describe, in detail, suitable procedures for restraining a named species of laboratory animal for common scientific and husbandry procedures.</p> <p>Discuss the use of appropriate procedures given specified conditions.</p>	

<p>4</p>	<p>Identify signs of ill health in a named species and describe suitable remedial actions.</p>	<p>4.1. Describe the normal condition of a named species in rest and in movement.</p> <p>4.2. Describe the process for examining an animal logically and thoroughly.</p> <p>4.3. Give examples of common problems that may be found and describe suitable remedial actions including communication to appropriate individuals.</p> <p>4.4. Describe signs that could indicate an animal is in pain and explain the role of analgesics in controlling pain in laboratory animals.</p>	<p>Describe, in detail, the process for examining an animal logically and thoroughly.</p> <p>Describe two diseases common to the named species, including the clinical signs.</p> <p>Describe, in detail, suitable remedial actions.</p>	<p>Discuss the impact of poor health on the animal and any scientific procedures.</p>
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UNIT 8

TITLE	LABORATORY ANIMAL BIOLOGY		
OFQUAL NO:	Y/602/6049	LEVEL	2
CREDIT VALUE	8 credits	Unit guided learning hours	6
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	N/A		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the underpinning knowledge and understanding of the biological principles supporting good animal husbandry practice.</p> <p>This unit is designed to introduce the learner to the biology and biological principles supporting good animal husbandry practice.</p>		

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Define the conditions necessary for life.	1.1. State the environmental conditions necessary for life. 1.2. State the processes carried out by living organisms.
2	Describe the structure, growth and organisation of cells.	2.1. Name the organelles found in a cell and describe the function of these organelles and the cell membrane. 2.2. Explain the importance of cell division. 2.3. For a named organ, list the tissues that make up that organ. 2.4. Identify two body systems.
3	List the anatomical and physiological features of an animal.	3.1. List the main anatomical and physiological features of an animal.
4	Explain how organ systems work together to make a co-ordinated response to keep an animal healthy.	4.1. Explain how a named feature contributes to the overall function(s) of the named body system.

Unit contents and assessment

Laboratory animal biology

CHARACTERISTICS OF LIVING ORGANISMS

Environmental conditions: specific temperature range, the presence of oxygen and carbon dioxide, water, inorganic and/or organic compounds, sunlight

Discuss living: nutrition, respiration, excretion, growth, reproduction, response to external stimuli

CELL BIOLOGY

Eukaryotic cell structure: function and appearance of organelles (cell membrane, cytoplasm, nucleus, mitochondria, inclusions e.g. fat, glycogen), compare animal and plant cells

Prokaryotic cell structure: cell wall, capsule, mesosome (membrane), chromosome, endospores

Microscopy: prepare slides, set up microscope, produce labelled diagrams of cells

Cell division: growth, repair, increase in cell size or number, volume, mass, surface area to volume ratio

Bacterial growth: growth rates, environmental factors, growth curves, reasons for variation in growth rates

CELLULAR SPECIALISATION AND ORGANISATION

Cell specialisation: epithelial, secretory, nerve, muscle

Tissues: structure and function of epithelial, connective, muscle, nerve

Organs: tissues and functions (e.g. structure and function of skin)

Body systems: integration of skeletal, digestive, respiratory, circulatory, excretory, reproductive, nervous, endocrine systems

SKELETAL SYSTEM

Structure and function: skull, vertebral column, rib cage, pelvic girdle and limbs, synovial joints, support, movement and protection

DIGESTIVE SYSTEM

Structure and function: alimentary canal, salivary glands, pancreas, liver

Nutrients: structure and function of carbohydrates, lipids, proteins, minerals, vitamins, water

Digestion: carbohydrates, lipids, proteins

LIVER AND SPLEEN

Functions of the liver: storage, secretion of bile, formation of urea, detoxification

Function of spleen: production, removal and storage of blood cells

CIRCULATORY SYSTEM

Structure and function: heart, arteries, capillaries, veins, plasma, erythrocytes, leucocytes, transport, defence

Lymphatic system: tissue fluid, lymph vessels, nodes

RESPIRATORY SYSTEM

Structure and function: thorax, trachea, lungs, diaphragm, rib cage, gaseous exchange, ventilation

Respiration: aerobic, anaerobic

URINARY SYSTEM

Structure and function: kidney, urethra, bladder, ureter, removal of waste products, water balance

Urine formation: ultrafiltration, reabsorption, glomerulus, proximal convoluted tubule, loop of Henle, distal convoluted tubule, collecting ducts

REPRODUCTIVE SYSTEM

Structure and function: testis, epididymis, vas deferens, seminal vesicle, prostate gland and penis, ovary, uterine tube, uterus, vagina, vulva

Characteristics and structure: ova, spermatozoa

Fertilisation: ovulation, sperm, oocyte, spermatozoa, zygote, cell division, differentiation

NERVOUS SYSTEM

Structure and function: brain and spinal cord, sensory receptor, sensory neuron, relay neuron, motor neuron and effector organ, reflex arc, control of voluntary movement, co-ordination of the activity of body systems, perception of stimuli, memory

ENDOCRINE SYSTEM

Structure and function: endocrine glands, hormones, circulatory system, target tissue

Examples: thyroid (thyroxine), parathyroid (parathyroid hormone), adrenal (adrenaline), pituitary (growth hormone), pancreas (insulin, glucagon), testes (testosterone), ovaries (oestrogen, progesterone)

HOMEOSTASIS

Homeostatic mechanisms: control of the internal environment, body fluids (e.g. blood glucose concentration), body temperature

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Define the conditions necessary for life.	1.1. State the environmental conditions necessary for life. 1.2. State the processes carried out by living organisms.	Explain why appropriate environmental conditions are important for the maintenance of life.	Explain, in detail with clear examples, why appropriate environmental conditions are important for the maintenance of life.
2	Describe the structure, growth and organisation of cells.	2.1. Name the organelles found in a cell and describe the function of these organelles and the cell membrane. 2.2. Explain the importance of cell division. 2.3. For a named organ, list the tissues that make up that organ. 2.4. Identify two body systems.	Describe how the structure of tissues is linked to their function.	Describe, in detail and with examples, how the structure of tissues is linked to their function.
3	List the anatomical and physiological features of an animal.	3.1. List the main anatomical and physiological features of an animal.	Link the structure of the two systems to their function in the body.	Describe, in detail, how the structure of the two systems is linked to their function in the body.
4	Explain how organ systems work together to make a coordinated response to keep an animal healthy.	4.1 Explain how a named feature contributes to the overall function(s) of named body systems.	Describe a coordinated response by an animal to a stimulus, including which tissues are involved.	Explain, with examples, what may happen to an animal if it is unable to maintain a coordinated response.

UNIT 9

TITLE	NUMERACY FOR ANIMAL TECHNOLOGISTS		
OFQUAL NO:	D/602/6053	LEVEL	2
CREDIT VALUE	4 credits	Unit guided learning hours	6
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	N/A		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and skills required to work effectively in the animal facility.</p> <p>This unit is designed to give the learner an understanding of the methods used to accurately perform a range of calculations required in the animal facility.</p>		

	Learning Outcomes The learner will:	Assessment Criteria The learner can:
1	Accurately carry out a range of calculations required in the animal facility.	1.1. Complete ten correct calculations, fully explained and covering addition, subtraction, multiplication and division of integers, decimals and fractions. 1.2. Appropriately use SI units.

Unit contents and assessment

Numeracy for Animal Technologists

Defines: index, power, reciprocal, integer, fraction, ratio, standard form

International System of Units (SI units): definitions, names and recommended symbols, prefixes (micro, milli, centi, kilo, mega) and the recommended symbols, derived units (density, velocity, acceleration, pressure)

Common mathematical instruments: ruler, dividers, protractor, set square, calculator, spreadsheet, gives answers to an appropriate number of significant figures

Ensures answers are reasonable: significant figures, questions the validity of any solution, estimates the approximate value of arithmetic expressions, repeats calculations where results do not agree with the approximation obtained

Performs calculations: addition, subtraction, multiplication, division of integers, decimals and fractions and simplifies the results; determines numbers of breeding pairs required in a breeding colony given defined circumstances; calculates gross and net pay including over-time; determines increase in pay after a specified pay rise; calculates pre-weaning mortality rates; calculates any one unknown value from given values for all others in a pre-weaning mortality rate calculation; calculates proportion of ingredients in a diet; calculates species specific administration and withdrawal volumes with reference to LASA Good Practice Guidelines (Administration and Withdrawal of Substances)

Formulae; calculating areas, volumes, solves problems within Animal Technology and expresses the result of calculations with the appropriate units (e.g. m², m³), stocking densities, fumigation of a room

Standard form: (e.g. 1.234 x 10³), counting blood cells or bacteria

Statistics: collects, tabulates and summarises statistical data and interprets it descriptively; collects data from practical work within Animal Technology; calculates the arithmetic mean of a set of data; defines frequency and relative frequency; determines, using a tally count, the frequency and the relative frequency of objects in each group; produces an appropriate diagram, graph or chart; describes the content of the diagram, graph or chart in a brief written summary

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Accurately carry out a range of calculations required in the animal facility.	1.1. Complete ten correct calculations, fully explained and covering addition, subtraction, multiplication and division of integers, decimals and fractions. 1.2. Appropriately use SI units.	Give three examples of calculations commonly used in the animal facility, stating the purpose of each calculation and showing the values and methods used and the results obtained.	Explain how the calculations support animal welfare, good science or the effective management of the facility.

UNIT 10

TITLE	COMMUNICATION FOR ANIMAL TECHNOLOGISTS		
OFQUAL NO:	Y/602/6052	LEVEL	2
CREDIT VALUE	4 credits	Unit guided learning hours	0
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	N/A		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the opportunity to demonstrate their ability to communicate effectively.</p> <p>This unit is designed to give the learner an understanding of the methods used to convey relevant animal facility information effectively.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Demonstrate effective communication skills under a range of conditions.	1.1. Select information from appropriate sources in answer to a query. 1.2. Using an appropriate style and format, produce a piece of written work to convey the key elements of the sourced information clearly and accurately with few grammatical or spelling errors.

Unit contents and assessment

Communication for Animal Technologists

Information sources: legislative, organisational, academic, professional, internet, books, journals, Named Information Officer, colleagues, availability, relevance, validity

Interprets and extrapolates: qualitative and quantitative data, understanding content, drawing appropriate conclusions, spreadsheets and data summarised in tables, graphs, charts and diagrams

- interprets information from industry specific sources (such as Home Office Codes of Practice)
- uses Home Office guidelines to calculate stocking densities
- calculates relative humidity
- identifies temperatures or relative humidity
- uses conversion tables between imperial and metric units

Conveys information: methods of communication (verbal, written) methods of presenting information (assignments, reports, newsletters, posters, presentations, letters, e-mails, messages, data entry, appropriate to audience) timeliness, permanence, accuracy, clarity, avoiding miscommunication, use of appropriate format, grammar and spelling, use of word processing (headers, footers, page numbering, grammar and spell checking and the importance of saving and backing up work), plagiarism, referencing, importance of effective communication (animal welfare, legislation, efficiency, professionalism, Culture of Care)

Use of diagrams, images, charts and graphs: fully labelled diagrams, line graphs, bar charts, pie charts, images and pictograms, appropriately used, coloured, positioned and sized

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Demonstrate effective communication skills under a range of conditions.	1.1. Select information from appropriate sources in answer to a query. 1.2. Using an appropriate style and format, produce a piece of written work to convey the key elements of the sourced information clearly and accurately with few grammatical or spelling errors.	Present work to a high standard with reference to at least three different sources of relevant information. Justify the use of the information sources.	Present work to a very high standard. Explain, with examples the importance of effective communication within the workplace.



*Contacts and further information
can be obtained from:*

IAT Education
c/o Registered Office
5 South Parade
Summertown
Oxford
OX2 7JL

Website: www.iateducation.co.uk
Email: info@iateducation.co.uk