

**LEVEL 3 TECHNICIAN'S CERTIFICATE
IN
ARBORICULTURE**

Customer Service Statement

ABC strives to provide a prompt, high quality service to enable its centres, in turn, to meet the needs of its customers. A full copy of ABC's Customer Service policy can be seen in the Directory or on the website. Any comments or suggestions are welcome.

Enquiries

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Background

ABC, its Portfolio and Qualifications

The Awarding Body Consortium (ABC) is approved by the Qualifications and Curriculum Authority (QCA) to offer qualifications throughout the United Kingdom. QCA is the regulatory body for public examinations and publicly funded qualifications and also has the authority to monitor awarding bodies through quality audits. ABC has offices in Chorley, Nottingham, Reading and Taunton. ABC's current portfolio contains qualifications accredited onto the National Qualifications Framework (NQF) ranging from Entry Level to Level 4. NQF qualifications are eligible for funding under the Learning and Skills Act 2000. More information on funding can be obtained from the Learning and Skills Council (LSC) – **www.lsc.gov.uk**

ABC specialise in developing Vocationally Related Qualifications (VRQs). These are designed to underpin much of the knowledge for the National Occupational Standards (NOS) and assist in the development of practical skills. In turn, NOS form the basis of National Vocational Qualifications (NVQs). Therefore, although VRQs have links with NVQs, they are not designed to deliver occupational competence and as such do not require delivery and assessment in the workplace. All ABC VRQs are mapped to the NOS for purposes of future accreditation of prior learning (APL) should candidates opt to achieve the NVQ at a later date.

ABC has also developed a small number of NVQs and general qualifications for the NQF, details of which can be found on ABC's website. In addition, ABC offers an accreditation service for ABC Awards, which can usually be funded through "other provision" via the LSC. All ABC Awards are quality assured to meet the specified standards through the moderation, reporting and review processes which apply to ABC's entire portfolio of qualifications. Further details can be found in section three of the Directory or on the website.

Centres offering ABC qualifications may be colleges, private training providers, community groups, adult education centres, schools, prisons and businesses.

ABC works closely with the relevant Sector Skills Council (SSC)/National Training Organisation (NTO) when developing a qualification for the NQF. A network of SSCs exists to lead the skills and productivity drive in industry recognised by employers. They bring together employers, trade unions and professional bodies working with the government to develop the skills that UK business needs. The Sector Skills Development Agency (SSDA) has been established to underpin the SSC network and promote effective working between sectors – **www.ssda.org.uk**

ABC has the support of Lantra for this particular qualification/these particular qualifications – **www.lantra.co.uk**

ABC VRQs are signposted for Key Skills or Basic Skills wherever possible. Whilst Key Skills are not a part of ABC VRQs, it is recognised that they are transferable skills that play an important role in developing personal effectiveness in adult and working life. Signposting illustrates which Key Skills may be realistically achieved through completion of this qualification; candidates may apply to other Key Skills awarding bodies for certification once they have achieved and been assessed in the relevant units.

ABC VRQs also provide opportunities for developing an understanding of the wider curriculum (spiritual, moral, ethical, social and cultural issues and an awareness of environmental issues, health and safety considerations and European developments). Each component of the wider curriculum is signposted as appropriate.

Finally, ABC qualifications are generally available throughout the UK, unless otherwise stated. Please note however that different regulations exist in Scotland. ABC provides all printed materials in English, however can provide materials in Welsh and/or Irish (Gaeilge) where requested and where appropriate.

Further information, policies, procedures and forms can be obtained from **www.abcawards.co.uk**

Centre Approval

Centres wishing to offer an ABC qualification require approval as a centre with the ABC in advance of submitting an application for scheme approval. Full details of registration policy and procedures are given in the current Directory, which is issued to the examinations office of all ABC approved centres, and on the website.

Scheme Approval

Centres should apply for approval prior to enrolling candidates in order to guarantee certification. Initially centres are given approval to offer a qualification on the basis of a written submission. Each submission may be forwarded to an external moderator for a paper review. If necessary the Moderator will make an approval visit to verify the accuracy of that submission. At this stage the External Moderator may request further documentation and advise the Centre of its next course of action.

Health and Safety

Centres are required to ensure that health and safety regulations are adhered to at all times with regard to the health and well being of all staff and candidates. Centres health and safety policies should be sent to the Awarding Body, together with details of training available for staff and candidates. In the assessment of a centre, the Moderator will give particular attention to health and safety practices/issues.

Staffing

It is expected that staff involved with the delivery of the course will be appropriately qualified to assess candidates against the standards. The ABC approval process requires prospective centres to provide names of the staff involved in delivery and assessment including their qualifications and relevant training/employment experience, plus staff development arrangements. Whilst these details are passed on to the External Moderator appointed by the Awarding Body, it is the Centre's responsibility to ensure tutors' qualifications are both bona fide and appropriate to the level of the qualification.

Regular training and advisory sessions should be arranged between distance learning colleges and their course advisors when guidance and instruction is given on the selection process. Course advisors are expected to make themselves aware of courses on basic skills development available in there are and should be regularly monitored to ensure they have a basic knowledge and understanding of the course and the suitability of applicants.

Evaluation and Review

There should be ongoing evaluation by the staff and candidates and this should take place in the following ways:

- Candidate self-evaluation
- Regular review of learning outcomes against agreed criteria
- Validation by suitably qualified and experienced internal assessor and internal moderator
- 'Mock' examinations set by the centre and designed to prepare the candidate for both the written and managerial examinations

Internal Moderation

ABC require centres to implement a programme of internal moderation to ensure that:

- Candidates gain access to fair and reliable assessment opportunities
- Everyone assesses to the same standards
- Assessment decisions of assessors are sampled and monitored to ensure consistency
- Assessors are supported with advice and guidance
- All work carried out is within agreed systems and procedures

Internal Moderators must not, under any circumstances, check their own assessment decisions.

Further guidance on Internal Moderation can be seen on the website.

External Moderation

ABC will appoint, train and allocate External Moderators to:

- Visit each centre on ABC's behalf, usually once per academic year
- Monitor and sample candidates' work to ensure that assessment decisions are fair, reliable, valid and consistent with required standards
- Liaise between centres and ABC to establish standardisation
- Establish goodwill and assist with any problems arising from the delivery of an ABC qualification

Further guidance on External Moderation can be seen on the website.

Accreditation of Prior Learning (APL)

ABC encourages its centres to recognise the previous achievements of candidates through APL. Prior achievements may have resulted from past or present employment, previous study or voluntary activities. Once the assessor is satisfied that the evidence is authentic and current, s/he should assess the evidence against the requirements of the ABC unit(s) in the normal manner. Any queries should be referred to the Internal Moderator.

Unit Design

Each unit contains:

Learning Outcomes: defines what the candidate needs to do.

Knowledge Requirements: defines what the candidate needs to know. The **minimum** requirements are outlined.

Assessment Guidance: explains how the assessment may be carried out, depth of coverage expected, what *should* be included and what *could* be included.

Diversity

ABC will endeavour to ensure that through its policies, procedures and actions all candidates entered for assessment are treated fairly and on an equal basis. All centres will be expected to have a clear commitment in support of this objective.

Access to ABC qualifications is open to all candidates irrespective of gender, ethnic origin, creed, employment status, nationality, sexual orientation, marital status or special assessment arrangements. Centres must ensure that no candidate is subjected to unfair discrimination on any of these grounds in relation to access to assessment and to the fairness of the assessment.

A copy of ABC's full policy can be seen in the Directory or on the website.

Level 3 Technician's Certificate in Arboriculture

QCA Accreditation No: 100/5067/X

Accreditation Start Date: 01/09/2005

Accreditation End Date: 31/08/2008

Certification End Date: 31/08/11

Introduction

The Level 3 Certificate in Arboriculture (Technician's Certificate) has been running for around fifteen years, first through the Arboricultural Association and then as an ABC qualification.

The qualification was introduced to provide a pathway from the RFS Level 2 Certificate through to the RFS Level 4 Professional Diploma.

Availability can be through colleges and accredited training organisations or by an independent study route.

The qualification is recognised by the industry as being a good intermediate stage and also is appropriate for those seeking Supervisor, Tree Inspector and Technician posts in the industry.

This qualification is an ideal step up to a related Level 4 qualification and then subsequently a foundation degree.

ABC's Partner for this Qualification

The partner for this qualification is the Arboricultural Association who originally administered the qualification. Members of the Association are involved by contract with ABC to provide the technical input, set questions and carry out assessments in the management exercises.

Aims

The qualification aims are:

1. To improve job prospects
2. To encourage knowledge and application of current arboricultural industry best practice
3. To encourage individuals to follow a programme of structured continuing professional development (CPD)
4. To facilitate access to higher-level management qualifications.

Outcomes

On completion of this award, it is envisaged that candidates will be able to:

Show knowledge of the arboricultural industry and its relationship to horticulture, forestry, urban forestry, dendrology, landscape architecture, and planning.

1. Demonstrate knowledge of plant morphology, anatomy, physiology, reproduction and growth. Show knowledge of the climatic factors that affect plant growth. Understand the importance of these scientific principles in the management of woody plants.
2. Demonstrate knowledge of soil formation and soil types. Understand the nutritional requirements of plants, soil water relationships in plants and soil management.
3. Appreciate the ecological importance of tree cover in the landscape.
4. Correctly identify a wide range of trees and shrubs found in the United Kingdom. Demonstrate knowledge of their aesthetic features, growth potential, growth requirements and limitations. Demonstrate knowledge of the principles of landscape design.
5. Demonstrate knowledge of the principles and practices of plant propagation. Demonstrate knowledge of the production of woody plants to meet British Standard specifications for nursery stock. Demonstrate knowledge of plant purchasing.
6. Demonstrate knowledge of the selection of suitable plant material and the establishment of woody plants in the landscape.
7. Inspect trees for condition, make risk assessment and recommend actions. Demonstrate knowledge for undertaking tree surveys with specified objectives. Make recommendations; prepare reports and plans following tree inspections or surveys. Show knowledge of estimating costs and pricing of contracts for tree work.
8. Recognise commonly occurring disorders, physiological and pathological problems of trees and shrubs. Recommend treatment or action to prevent or overcome these problems.
9. Demonstrate knowledge of the requirements for health and safety in all aspects of arboriculture.
10. Specify and supervise the full range of tree maintenance practices.
11. Demonstrate knowledge of Industry Best Practice in relation to safe and efficient use of arboricultural machinery and equipment. Know the criteria for the selection of equipment and machinery. Demonstrate knowledge of the maintenance and storage requirements of equipment and machinery.
12. Appreciate the principles of woodland management for a range of objectives.
13. Demonstrate knowledge of the preparation, manipulation and revision of tree inventories. Demonstrate knowledge of the importance of public relations and community involvement in tree management.
14. Demonstrate knowledge of the possible problems caused by trees when growing close to buildings or other artefacts. Make appropriate recommendations in such cases.

15. Demonstrate knowledge of the functions of a supervisor in a management role.
16. Demonstrate knowledge of business and finance principles.
17. Demonstrate knowledge of the statutes and common laws relating to all aspects of arboriculture.

Target Group

The programme is designed for:

- The individual who has been involved in the practical side of the industry and who wishes to progress into a more managerial role.
- Individuals working in related disciplines such as horticulture, forestry, countryside management, landscape architecture and planning.
- The award also gives the opportunity for Tree Officers, technicians and those involved in tree survey work to achieve a recognised vocational qualification.

Entry Requirements

Candidates entering the course will be expected to have attained ABC Level 2 Certificate in Arboriculture (in association with the Royal Forestry Society) or equivalent, or have relevant experience within the industry.

It is also expected that candidates will have the ability to produce a good standard of written work and be able to communicate effectively with colleagues and the general public.

Candidates entering via a self-study route must ensure that they are aware of the examination techniques required at this level.

Each centre is required to notify the awarding body of its policies on access and equality of opportunity. Within the parameters of these policies, a centre is expected to recruit with integrity on the basis of a candidate's ability to contribute to and successfully complete the qualification.

Progression Opportunities

This qualification provides suitable skills and experience to progress to Level 4 qualifications or higher within the industry sector, such as the RFS Diploma.

Qualification Structure

The ABC Level 3 Technician's Certificate in Arboriculture is made up of the following units:

- Unit 1 Plant function, growth and the soil environment (D/103/0942)*
- Unit 2 Woodland ecology and management (H/103/0943)*
- Unit 3 Plant supply and utilisation (K/103/0944)*
- Unit 4 Tree condition (M/103/0945)*

Unit 5 The management of trees in the environment (T/103/0946)*
Unit 6 Personnel and organisational management (A/103/0947)*
Unit 7 Business, finance and support (F/103/0948)*
Unit 8 Trees and the law (J/103/0949)*

*Numbers in brackets denote QCA Accreditation Numbers

These will be assessed either in the written examination or management exercises.

The qualification has been allocated 180 guided learning hours for completion.

The LSC definition of 'guided learning hours' is "all times when a member of staff is present to give specific guidance towards the learning aim being studied on a programme. This includes lectures, tutorials, and supervised study in, for example, open learning centres and learning workshops. It also includes time spent by staff assessing learners' achievements. It does not include time spent by staff in the day-to-day marking of assignments or homework where the learner is not present. It does not include hours where supervision or assistance is of a general nature and is not specific to the study of the learners"

Centres should bear this in mind when planning qualification delivery.

Qualification Delivery

Centres should adopt a delivery approach that supports both the vocational nature of the Level 3 Technician's Certificate in Arboriculture and the particular group of candidates. Units in the qualification contain both practical learning outcomes and (often) more theoretical knowledge requirements, so delivery should ensure appropriate association between theory and practice. The aims, aspirations and experience of the candidates should also be considered.

Delivery may be enhanced by:

- Liaising with employers with reference to delivery, work experience and/or resources
- Visits to appropriate places of interest
- The provision of information and guidance to candidates on the availability and type of employment the qualification may lead to and on the progression routes available for further education and training

Centres must ensure that adequate arrangements are in place for supporting candidates. This could be either through separate tutorial/assessment sessions or through the use of time within structured study sessions.

Resources

Access to sites with trees including urban, rural and woodland situations.

Assessment

Candidates must be successful in the following assessment components to achieve the ABC Level 3 Technician's Certificate in Arboriculture:

Unit 1 (Elements 1 and 2) - Plant function, growth and the soil environment.

Examination of 1hr 30mins duration: 4 questions choice of 3 from 4.

Unit 2 (Elements 1 and 2) – Woodland ecology and management.

A management exercise based on a woodland site to include a two- part scenario and a unit related oral with the examiner.

Exercise duration including oral 1hr 30mins.

Unit 3 (Elements 1 and 2) – Plant supply and utilisation.

A Plant Identification exercise based on the select list of plants (Appendix 1).Plus a unit related oral with the examiner.

Exercise duration including oral 1hr 30mins.

Unit 4 (Elements 1 and 2) – Tree condition.

A management exercise and an oral with the examiner.

Exercise duration 1hr 30mins.

Unit 5 (Elements 1 and 2) – The management of trees in the environment.

A management exercise and an oral with the examiner.

Exercise duration 1hr 30mins.

Unit 6 (Elements 1 and 2) – Personnel and organisational management.

Examination of 1hr 30mins duration. 4 questions with a choice of 3 from 4 to cover Unit 6 and Unit 7.

Unit 7 – Business, finance and support.

Examination of 1hr 30mins duration. 4 questions with a choice of 3 from 4 to cover Unit 6 and Unit 7.

Unit 8 – Trees and the law.

A devised case study to be read and responded to with a written brief on the appropriate responses to the scenario.

Duration for the case study of 1hr 30mins.

The examinations will be held on the same day on two occasions during the year to be determined by ABC, at various centres throughout England and Wales. The management exercises will only take place at one point in the year to be notified by ABC.

Note Accreditation of Prior Knowledge (APL)

For this qualification the assessors (ABC) will accept evidence of achievement in suitable related qualifications for those units assessed by means of a structured question paper or multi-choice questions.

Certification

Awarding is at Level 3.

The ABC will award candidates a grade according to the following scale, calculated on the basis of the average total achieved for both sections of the examination:

Pass	50-64%
Credit	65-74%
Distinction	75-100%

Full Certificates will show that the candidate has achieved the written paper in addition to the units.

Level 3 Technician's Certificate in Arboriculture

Qualification Content

Unit 1 Plant Function, Growth and the Soil Environment

Element 1 Plant Physiology and Function

Element Summary

This element covers plant processes and physiology for those involved in the management of woody specimens.

Learning Outcomes

Candidates will be expected to:

1. State how roots, stems and leaves interact and explain how the processes taking place within the plant are influenced by site and climatic conditions.
2. Describe how flowers, seeds, fruits and cones play a vital role in reproduction.
3. Explain how breeding techniques including micro-propagation and genetic manipulation can produce plants with specific characteristics.
4. Describe how mycorrhiza can be used to assist in the establishment and management of tree stock.

Knowledge Requirements:

Candidates should understand:

- The anatomy of roots, stems and leaves of woody plants including the wood structures associated with conifers and broadleaves.
- How these relate to the growth of the plant.
- The importance of transpiration, respiration, photosynthesis and osmosis to plant growth.
- How site conditions and influences can affect these processes.
- The principles of plant breeding including the role of flowers, fruits, cones and seed.
- The role of micro-propagation and genetic manipulation.
- The influence of climate and climatic change on plant growth and physiology both in the short and long term.

Assessment Guidance:

Examination of 1 hour 30 minutes covering both elements 1 and 2 of Unit 1. Candidates will answer 3 questions from a choice of 4.

Unit 1 Plant Function, Growth and the Soil Environment**Element 2 Soil Science and Management of Growth Media****Element Summary**

This element covers the principles of soil formation, types, degradation and pollution as well as analysis, amelioration and stabilization.

Learning Outcomes

Candidates will be expected to

1. Identify a range of soil types based on their material content, tactile properties and indicator plants.
2. Describe how to improving the quality of the planting medium by the use of fertilisers, ameliorants and additives.
3. State the implications and importance of carrying out soil testing for contaminants nutrient status and deficiencies.
4. Explain how soil water, moisture content water table level and and drainage can influence successful establishment and future growth of plants.
5. Describe how soil erosion and de-naturing can be caused and what methods can be used to alleviate problems including the storage and reuse of topsoil.

Knowledge Requirements:

Candidates should understand:

- How soil is formed including the characteristics of the main soil types.
- How to produce a profile pit and the identification of soil horizons.
- The implications from the profile including the presence of podzols and gleys.
- How to undertake soil analyses and the interpretation of results especially relating to deficiencies, contaminants and toxicity.
- How to improve soil conditions on urban and de-natured sites using amelioration techniques including additives, green manures, leguminous plants, macro and micro nutrients and proprietary composts .

Assessment Guidance:

Examination of 1 hour 30 minutes covering both elements 1 and 2 of Unit 1. Candidates will answer 3 questions from a choice of 4.

Unit 2 Woodland Ecology and Management

Element 1 Woodland Surveys and Management

Element Summary

This element covers woodland surveys and the production of work programmes and management plans for multi-use sites.

Learning Outcomes

Candidates will be expected to :

1. Carry out a woodland survey collecting information relating to the site including: flora and fauna, location, description, soil types, habitats, access, services etc.
2. Use survey information to produce 5 to 10 year work programmes and management strategies to meet identified objectives.
3. Produce outline medium or long term management plans to meet the requirements for a given site including a component for monitoring.
4. Describe the range of grants available and their application to woodland management.
5. State the implications for management of using woodlands for multi-purpose use and 'social forestry'.
6. Describe the techniques of woodland design that can be used to fit the area into the landscape and to fulfil its objectives.

Knowledge Requirements:

Candidates should understand:

- Woodland design principles including techniques for fitting the woodland into the landscape, edge detail, ride orientation and width, layouts to meet specified criteria and environmental impact.
- The component parts of woodland which are important to record in surveys especially flora, fauna, soil type, drainage, services and access including rights of way.
- Designations of a statutory and non statutory nature as appertaining to woodlands including Sites of Special Scientific Interest etc.
- The role of woodlands in respect of conservation, recreation, timber, landscape and amenity.
- Legal implications for woodland owners/managers for access and public safety.
- How short, medium and long term plans and strategies are produced and the link into the objectives for the site including a requirement for positive monitoring.
- How woodland design and layout including planting mixes can influence woodland management.
- Grants and financial assistance relating to woodland management.

Assessment Guidance:

A management exercise based on a woodland site to include a two- part scenario and a unit related oral with the examiner to cover both Element1 and 2 of Unit 2.

Exercise duration including oral 1hr 30mins.

Unit 2 Woodland Ecology and Management

Element 2 Woodland Ecology

Element Summary

This element covers the main woodland types encountered and their associated ecology.

Learning Outcomes

Candidates will be expected to :

1. Identify the specimens in the layers of woodland flora by common and botanical names.
2. State the main woodland types encountered in the four countries of the United Kingdom and the importance of these for habitat and wildlife.
3. Explain the role of woodlands for maintaining populations of plants and animals and how this fits in with size, linking, green corridors and 'island theory'.
4. Describe the range of fauna likely to be encountered in woodlands and techniques that could be used to verify this.
5. State how woodland flora, fauna and habitats are protected by a range of legislation.

Knowledge Requirements:

Candidates should understand:

- How to recognise levels/layers of flora in woodland vegetation communities and the species encountered in these zones.
- How woodland classification is related to the range of flora found.
- How to carry out habitat mapping and the relationship of this to managing woodlands.
- How a range of habitats are important for the ecology and dynamics of woodland.
- The importance of veteran trees for specialized and endangered flora and fauna.
- The legislation relating to woodlands including the protection of species and habitats including bats.

Assessment Guidance:

A management exercise based on a woodland site to include a two- part scenario and a unit related oral with the examiner to cover both Element1 and 2 of Unit 2.

Exercise duration including oral 1hr 30mins.

Unit 3 Plant Supply and Utilisation

Element 1 Plant Identification and Handling

Element Summary

This element covers the selection, recognition, handling, storage and utilisation of plant material for formal or informal landscape settings.

Learning Outcomes

Candidates will be expected to :

1. Identify by physical features a range of trees, shrubs and climbers from the list in Appendix 4.
2. State the sizes for a range of woody plant material as given in the BS Nursery Stock.
3. State and be able to prepare the specifications for the supply of nursery stock including plant handling, labelling, packaging, storage, transportation and receipt.
4. State how the size, form, shape and growth characteristics of plants can be used to produce planting schemes for a range of sites and situations.
5. State how plants are classified and labelled according to the codes of practice for plant nomenclature.

Knowledge Requirements:

Candidates should understand:

- The system for plant classification and plant nomenclature and its applications within the industry.
- How to identify plants using botanical features and characteristics based on the list in Appendix 4.
- The arboricultural significances of the plants listed in Appendix 4.
- How to select, lift, label, store , transport and take receipt of woody plant material with reference to industry guide lines and British standards.

Assessment Guidance:

Assessment covers both Element 1 and Element 2 of Unit 3. It involves a Plant Identification exercise based on the select list of plants (Appendix 4), plus a unit related oral with the examiner.

Exercise duration including oral 1hr 30mins.

Unit 3 Plant Supply and Utilisation

Element 2 Planting Systems and Resources

Element Summary

This element covers the assessment and preparation of planting sites, carrying out the principles of planting a range of sizes of woody plants. It also includes sources of financial aid for planting.

Learning Outcomes

Candidates will be expected to :

1. Carry out a pre-planting site assessment.
2. Describe methods and options of site preparation for planting in urban and rural situations.
3. State the planting techniques for woody plants including bare root and containerised (root wrapped) and of sizes from tubed seedling through to semi-mature and explain why particular sizes and specifications of plants are chosen.
4. Describe the methods of protection, support required for the material in 3 above including the benefits and drawbacks associated.
5. Identify sources and types of grant aid for both large and small scale planting schemes and describe conditions that apply to the range of grants.
6. State why it is important to specify after-care of plants and describe the methods that can be used including weed control and watering etc.

Knowledge Requirements:

Candidates should understand:

- How to carry out site assessments including arranging for soil sampling and analysis and the reasons for checking the area.(See also Unit 1 Element 2).
- What criteria apply to grant aid applications and what sources of funding there may be including the public and private sectors.
- How to prepare planting areas on a range of sites including the use of amelioration techniques, additives, nitrogen fixing pioneer species and the use of proprietary composts.
- Why after care is important and how this relates to weed control, watering, anti-transpirant sprays, nutrition, protection and support.

Assessment Guidance:

Assessment covers both Element 1 and Element 2 of Unit 3. It involves a Plant Identification exercise based on the select list of plants (Appendix 4), plus a unit related oral with the examiner.

Exercise duration including oral 1hr 30mins.

Unit 4 Tree Condition

Element 1 Tree Inspections and Surveys

Element Summary

This element covers the principles of inspecting and reporting on single and groups of trees using a range of techniques.

Learning Outcomes

Candidates will be expected to :

1. Carry out inspections or surveys on single specimen trees or groups of trees using Visual Tree Assessment (VTA) including recognition of pathological and biological problems.
2. Describe the range of equipment used for tree surveying including decay detection, height measurement and geographical positioning systems.
3. Use and interpret data from a range of decay investigative methods which may be 'invasive' or 'non-invasive'.
4. State the importance of categorising trees regarding failure risk and target especially highway trees.
5. Plot trees relative to fixed features or boundaries on scale drawings or sketch plans.
6. Record in a suitable format data obtained from tree surveys as hard copy or using data bases.
7. State the range of systems available to record and manipulate tree survey data.
8. Make recommendations as to the condition of the tree, life expectancy and work required as appropriate.
9. Apply tree valuation methods to trees for reports or legal proceedings.

Knowledge Requirements:

Candidates should understand:

- The range of equipment for undertaking tree surveys including measuring height decay detection and whole tree tomography.
- How to plot trees and transfer the information to scale plans and drawings.
- How to systematically carry out a visual tree assessment (VTA) and record the findings on an appropriate pro-forma.
- Why a priority or target risk system should be used when inspecting or surveying trees in particular locations.
- How to interpret data for checking the extent of decay in trees and use the information to make recommendations to colleagues.
- How to put a valuation on trees using set criteria based on systems such as thqt produced by Halliwell.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 4. It involves a management exercise and an oral with the examiner.
Exercise duration 1hr 30mins.

Unit 4 Tree Condition**Element 2 Tree Related Problems****Element Summary**

This element covers tree problems and disorders as listed in Appendix 6.

Learning Outcomes

Candidates will be expected to :

1. Recognise a range of pathogenic fungi, state their strategy for invasion, possible control measures and the implications for the tree. (See Appendix 6)
2. Recognise a range of pests and diseases (including viral and bacterial) which are liable to cause problems to trees (,See Appendix 6), and state control measures appropriate for the situation.
3. State how the life cycles of pests and diseases may affect their modes of attack and what action can be taken to reduce the risk of spread.
4. Identify damage caused by mammals, including vandalism, and state the range of controls available.
5. Explain the possible effects and remedial measures relating to air and soil pollution in urban and rural areas.

Knowledge Requirements:

Candidates should understand:

- How pathogenic fungi invade trees and which parts of the trees are vulnerable.
- How fungi reduce strength in trees and make them subsequently prone to failure. They should also know how to monitor trees and the appropriate action to take depending on the circumstances.
- The range of pests, viral and bacterial diseases liable to attack woody plants, how to recognise them, vulnerable species and possible control measures.
- The types of physiological disorders that can have an adverse effect on plant growth and appropriate subsequent remedial action.
- The range of mammalian pests (including man) that can injure trees, the type of damage and the possible preventative action.
- How air and soil pollution including climate change can affect the growth and functions of plants and what methods can be used to mitigate or encompass the problems.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 4. It involves a management exercise and an oral with the examiner.

Exercise duration 1hr 30mins.

Unit 5 The Management of Trees in the Environment

Element 1 Urban and Rural Trees

Element Summary

This element addresses the issues relating to trees in the rural and built-up environment.

Learning Outcomes

Candidates will be expected to :

1. Identify the economic, ecological, environmental and sociological issues relating to trees.
2. State how trees in towns and the countryside form an integral part of the landscape and how this is catered for in planning strategy and Planning Policy Guidance Notes (PPGNs).
3. State how the issues of trees and buildings can be addressed using British Standard 5837 'Trees in Relation to Construction' and NHBC Guidance documents.
4. State how different tree species react in terms of water demand, root systems and their zone of influence on soil, moisture and movement.
5. State the procedures to be followed to accommodate trees and buildings including assessment, protection, access and services (Also see 2 above).
6. Carry out tree surveys and make recommendations based on BS 5837.

Knowledge Requirements:

Candidates should understand:

- How trees and shrubs can benefit the environment and 'quality of life' particularly in urban situations because of their aesthetic and environmental benefits.
- How trees can be managed with particular regard to consultation with all interested parties and the implications of PPGNs.
- How the requirements of trees in gardens and open spaces and arboreta may differ from those in streets and in rural areas.
- Methods used to promote tree issues such as communication, community involvement, consultation and education including the National Curriculum.
- The implications of trees and vegetation near buildings with regard to direct and indirect damage, soil shrinkable and water demand.
- How the selection of foundation depths and distances from property can be assessed using National House Building Council criteria.
- How to reconcile the issues of integrating buildings with trees including assessment based on BS 5837:1991 'Trees in Relation to Construction', removal of existing trees and subsequent mitigation planting, storage of materials, access and services.
- Methods of protection for trees in development situations based on industry best practice.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 5. It involves a management exercise and an oral with the examiner.
Exercise duration 1hr 30mins.

Unit 5 The Management of Trees in the Environment

Element 2 Tree Maintenance

Element Summary

This element covers the principles of tree maintenance including tree rejuvenation and tree surgery techniques.

Learning Outcomes

Candidates will be expected to :

1. State the methods to be used to encourage root activity in compacted and poorly drained soils including the use of fertilizers and mycorrhiza.
2. Specify tree work in accordance with British Standard 3998:1989 'Recommendations for Tree Work'.
3. State how tree work should be scheduled to tie in with the physiology of the tree and commercial considerations and implications.
4. Explain how cavities can present failure points in the tree and what actions can be taken to deal with or retain the plant.
5. State the methods available to brace and prop trees and the implications from a legal, physiological and environmental standpoint.
6. State how tree pruning and felling techniques can be utilised in a range of work situations.
7. Explain methods for dealing with stumps and arisings from tree work, which are cost effective and environmentally beneficial.

Knowledge Requirements:

Candidates should understand:

- How aeration and compaction relief can encourage root activity and the equipment and ameliorants that can be used to this end.
- How the species, age class and structure of the tree need to be taken into account when planning tree surgery operations.
- The importance of BS 3998 for laying out the criteria for what the end result of tree surgery operations is to be.
- How tree work operations need to be timed to fit with the tree's activity cycle in order to minimise the effect on the tree's reserves and resources.
- How the size and position of cavities can weaken the tree's structure and make it vulnerable to failure. In addition what action can be taken to retain all or part of the tree.
- How the types of tree work specified in BS 3998 can be used to adapt trees to a range of situations i.e. tree size, weight distribution, proximity of services or artefacts.
- Methods of dealing with and/or removing stumps and arisings which are appropriate to the site and wildlife/ecological considerations such as bio-mass or niche habitats.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 5. It involves a management exercise and an oral with the examiner.

Exercise duration 1hr 30mins.

Unit 6 Personnel and Organisational Management

Element 1 Management and Supervision

Element Summary

This element covers the issues of management, supervisory roles, recruitment and staffing.

Learning Outcomes

Candidates will be expected to :

1. Describe the types of management structures in organisations and how these affect communications and efficiency.
2. Describe the main roles of a supervisor including leadership, standard setting, motivation, delegation and quality control.
3. Describe the type and range of records required especially those relating to training, work practices, disciplinary issues and equipment checks.
4. State the range of communication styles and methods and their application in the arboricultural industry.
5. Describe which legislative issues relating to staffing need to be taken into account including Equal Opportunities and Human Rights, especially in regard to selection and retention.
6. Describe the procedures involved in recruiting staff including the preparation of job and person specifications.

Knowledge Requirements:

Candidates should understand:

- How pyramidal and straight line systems function and their effectiveness in communications and control.
- The range of skills required by a supervisor/manager to carry out their role in the work place.
- How the supervisor can encourage people to get involved and be motivated by taking responsibility for their own work area and how disciplinary issues should be handled in line with organisational protocol including the use of motivational theory such as Maslow and John Adair.
- Why accurate records need to be kept and maintained especially those relating to training needs, qualifications obtained, equipment checks and monitoring. (see also Element 6.2 Health and Safety at Work).
- How a range of communication skills and systems can ensure a successful outcome in dealing with the public, colleagues, specialists and user groups.
- How employers, employees and the self employed are affected by equal opportunities, disability, access, criminal records and employment legislation including Contracts of Employment.
- The procedures involved in staff selection including job and person specifications, advertising and selection.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 6 and Unit 7. It involves an examination of 1hr 30mins duration. Four questions with a choice of 3 from 4.

Unit 6 Personnel and Organisational Management

Element 2 Health and Safety in Tree Work

Element Summary

This element covers the aspects of training and record keeping in relation to health and safety in arboriculture.

Learning Outcomes

Candidates will be expected to :

1. State the main items of legislation relating to Health and Safety in the work place including their implications for the supervisor/technical officer including Control of Substances hazardous to Health and Reporting of Injuries Diseases and Dangerous Occurrences Regulations.
2. State the significance of enabling acts and their links to Regulations and Directives.
3. State why appropriate training is important and how this links in to competencies and proficiency standards.
4. Carry out risk assessments and produce method statements.
5. Describe the processes involved in reporting and investigating accidents under the requisite legislation.
6. State the implications of tree access using rope and harness (working seat) as against the use of Mobile Elevating Work Platforms (MEWPS) and how this is affected by LOLER and Working at Height Regulations.
7. Describe the procedures for protecting staff and users of the highway in accordance with the New Roads and Street Works Act.
8. State the requirements for the use of 'Pesticides' in arboriculture with reference to the Certification requirements.
9. State the range of safety guides and competences relating to tree surgery work and how these relate to risk assessments etc.

Knowledge Requirements:

Candidates should understand:

- How E.C. Directives become Regulations and the link with the Health and Safety at Work etc. Act 1974.
- The main Acts and Regulations relating to Health and Safety in the work place including welfare of people and issues regarding equipment and machinery.
- How appropriate recognised training must be a part of staff welfare along with the need for detailed record keeping.
- The role of the Health and Safety Executive and the Inspectorate in relation to the enforcement of legislation.
- Safety in trees and methods of working which take into account methods of access to the tree and tree surgery operations in the tree including the application of current legislation.
- Why certification is required for the use of pesticides for safety of operatives, public and the environment.
- How site safety is maintained by the erection of signs, barriers and chevrons in accordance with the relevant legislation.
- The importance of training and record keeping for operations such as tree surgery at height, checking and maintaining equipment and the application of pesticides.
- Why staff involved in tree surgery operations need to be aware of the requirements of Regulations such as Provision and Use of Work Equipment (PUWER), Lower Operations and Lifting Equipment (LOLER) AND Working at Height.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 6 and Unit 7. It involves an examination of 1hr 30mins duration. Four questions with a choice of 3 from 4.

Unit 7 Business, Finance and Support

Unit Summary

This unit covers the administration and organisational support available to the industry.

Learning Outcomes

Candidates will be expected to :

1. State the role of the public, private and voluntary sectors in arboriculture and woodland management including government related bodies and agencies.
2. Identify the methods and contacts available to get technical information and advice including the developments in arboricultural research.
3. State the role of Lantra SSC (Sector Skills Council) and qualification awarding bodies in arboricultural education.
4. State the type of records that need to be kept relating to the finances and budgeting of an arboricultural unit or business.
5. State the reason for and the range of insurances available and required to practice arboriculture.
6. Identify the factors to take into account when selecting new equipment and machinery.
7. State the importance and application of resources in an organisation including staff, equipment and consumables.

Knowledge Requirements:

Candidates should understand:

- How government both central and local can influence arboricultural activity, including networking with countryside, environmental and conservation agencies.
- What sources of information and advice may be available within the industry and how research has advanced the technology in arboriculture.
- How the government recognises land based industries and their training requirements through the activities of Lantra SSC and Awarding Body qualifications.
- The requirement to keep records of financial activities including turnover, VAT and income tax in organisations.
- Why insurances are required to operate within the industry and the range available including Public Liability, Personal Accident, Professional Indemnity and Vehicles and Equipment.
- The importance of planning the replacement of high cost items of equipment and machinery to ensure value for money and cost effectiveness.
- The processes involved in selecting equipment and resources for an organisation.
- The allocation and control of resources including staff, equipment and consumables.

Assessment Guidance:

Assessment covers both Element 1 and 2 of Unit 6 and Unit 7. It involves an examination of 1hr 30mins duration. Four questions with a choice of 3 from 4.

Unit 8 Trees and the Law

Unit Summary

This unit covers range and application of legislation relating to arboriculture, woodland management and environmental protection

Learning Outcomes

Candidates will be expected to :

1. State how the Town and Country Planning Acts and sections relating to development, Tree Preservation Orders (TPOs) and Trees in Conservation Areas are administered including making and monitoring TPO's.
2. State how the Highways Acts and Miscellaneous Provisions are used with regard to trees and highway safety.
3. List the processes to undertake when applying to carry out work on protected trees including Felling Licences, Tree Preservation Orders, Conservation Areas and statutory designated sites.
4. State what legislation applies to protection of the environment including designated reserve areas, habitats and species especially when arboricultural operations are to be undertaken.
5. State the implications of Plant Health legislation and Plant Passports.
6. State what controls and legislation apply to the removal, carrying and disposal of arboricultural arisings.
7. Identify the regulations and legal requirements for the carriage and use of oils and fuels in arboriculture.
8. State what common laws may be involved in issues such as tree ownership, liability, nuisance and danger and how these can be used to support a legal case.

Knowledge Requirements:

Candidates should understand:

- What Town and Country Planning Legislation applies to : development control; Tree Preservation Orders and Trees within Conservation Areas.
- The powers available for inspection and dealing with dangerous trees under the Highways Act and Miscellaneous Provisions legislation.
- How European Union Directives for nature conservation are enshrined in United Kingdom Regulations and are linked to the setting up of designated protection areas for habitats and species.
- How the Badger Act, Countryside and Wildlife Act and the Countryside and Rights of Way Act have an influence on woodland management and arboricultural operations and what steps are necessary to conform with the legislation.
- How The Plant Health Acts and the operation of the 'Plant Passport' system can assist in the control of plant pests and diseases including restrictions on transportation of plants and timber.
- What legislation and regulations apply to waste carriage and disposal when applied to tree material and arisings.
- How the Petroleum Regulations and 'Waste Disposal' requirements affect the storage, carriage and disposal of fuels and oils used within the industry.
- How the 'common law' principle relates to trees and roots as nuisance or potential danger and how this is dealt with in the legal system.

Assessment Guidance:

A devised case study to be read and responded to with a written brief on the appropriate responses to the scenario.

Duration for the case study of 1hr 30mins.

Appendices

1 National Occupational Standards Mapping

For information purposes, this mapping shows the links to the national standards. Candidates completing this qualification may be able to use some of their evidence for APL against the associated NVQ; however this would be at the discretion of the NVQ Awarding Body.

2 Key Skills Signposting

For information purposes, this signposting shows the links to the Key Skills. Candidates completing this qualification may be able to use some of their evidence for APL against the associated Key Skill; however this would be at the discretion of the Key Skill Awarding Body.

3 Wider Curriculum Signposting

For information purposes, this signposting shows how the ABC Level 3 Technician's Certificate in Arboriculture provides opportunities for the candidate to develop an understanding of the wider curriculum (spiritual, moral, ethical, social and cultural issues and an awareness of environmental issues, health and safety considerations and European developments).

4 Useful Information

A list of books, references, articles and other information to aid candidates in their studies

5. Plant List

A list of plants by genus, species and cultivar.

6 Pests, Diseases and Disorders of Amenity Trees

A list of tree troubles which affect trees and shrubs in the United Kingdom.

7 Glossary and Acronyms

An explanation of some of the terms, phrases and abbreviations commonly used throughout ABC documentation

1 National Occupational Standards Mapping

The ABC Level 3 Technician's Certificate in Arboriculture is mapped to the following national standards:

Lantra Level 3 Treework (March 2002)

ABC Level 3 Technicians Certificate in Arboriculture		National Occupational Standards Lantra Level 3 Treework
Unit 1 Element 1	Plant Physiology and Function	T6.2, T33.1
Unit 1 Element 2	Soil Science and Management of Growth Media	T3.1, T33.1
Unit 2 Element 1	Woodland Surveys and Management	T3.1, T6.2, 5.3
Unit 2 Element 2	Woodland Ecology	No direct mapping
Unit 3 Element 1	Plant Identification and Handling	T6.1 (PC 1 and 4), T6.2, 5.1
Unit 3 Element 2	Planting Systems and Resources	T3.1, T5.1
Unit 4 Element 1	Tree Inspections and Surveys	T32.2 (PC 3,4, 5 and 7)
Unit 4 Element 2	Tree Related Problems	T32.2 (PC 5,7 and 8)
Unit 5 Element 1	Urban and Rural Trees	No direct mapping
Unit 5 Element 2	Tree Maintenance	T23.1 (PC2), T25 (PC 2 and 7, KR f and g) T25 (PC 2 and 7 KR f and g) T26.1 (PC 9), T31.1 (PC1), T33.1 (PC1 and 2)

Unit 6 Element 1	Management and Supervision	A1.1, C5.1 (PC1and 4), C5.3 (P7), D1.2 (PC1,3,7)
Unit 6 Element 2	Health and Safety in Tree Work	A1.2 (PC4 and 8), T29.1 (PC3), T31.1 (PC3 and 5), T34.1 (PC2), CU3.1(PC1), CU78.2 (PC1)
Unit 7	Business, Finance and Support	B1.1 (PC1 and 2), B1.2 (PC7), D1.1 (PC1)
Unit 8	Trees and the Law	CU78.1 (PC1), CU88.1 (PC8), T23.1 (PC4)

2 Key Skills Signposting

The ABC Level 3 Technician's Certificate in Arboriculture is mapped to the following Key Skills:

Level 3 Communication

Level 2 Application of Number

Level 3 Improving Own Learning and Performance

Level 3 Problem Solving

Communication Level 3		
Key Skill	ABC Unit	Signposting
C3.1a Contribute to a group discussion about a complex subject	All units	No mapping
C3.1b Make a presentation about a complex subject, using at least one image to illustrate complex points	All units	No mapping
C3.2 Read and synthesise information from two extended documents about a complex subject. One of these documents should include at least one image.	All units	Evidence could be generated when researching a topic related to the units
C3.3 Write two different types of documents about complex subjects. One piece of writing should be an extended document and include at least one image.	All units	Evidence could be generated when producing work on a topic related to the units

Application of Number Level 2		
Key Skill	ABC Unit	Signposting
N2.1 Interpret information from two different sources, including material containing a graph	Unit 2 only	Evidence could be generated when conducting and reporting on a woodland/tree survey
N2.2 Carry out calculations to do with: a amounts and sizes b scales and proportion c handling statistics d using formulae	Unit 2 only	Evidence could be generated when conducting and reporting on a woodland/tree survey
N2.3 Interpret the results of your calculations and present your findings. You must use at least one graph, one chart and one diagram	Unit 2 only	Evidence could be generated when conducting and reporting on a woodland/tree survey

Improving Own Learning and Performance Level 3		
Key Skill	ABC Unit	Signposting
LP3.1 Agree targets and plan how these will be met over an extended period of time, using support from appropriate people	All units	Evidence may be gathered agreeing targets and planning how to meet these
LP3.2 Take responsibility for your learning by using your plan, and seeking feedback and support from relevant sources, to help meet targets. Improve your performance by: <ul style="list-style-type: none"> • Studying a complex subject • Learning through a complex practical activity Further study or practical activity that involves independent learning	All units	Evidence may be gathered working towards targets.
LP3.3 Review progress on two occasions and establish evidence of achievements, including how you have used learning from other tasks to meet new demands LP3.3 Review progress on two occasions and establish evidence of achievements, including how you have used learning from other tasks to meet new demands	All units	Evidence may be gathered reviewing targets.

Problem Solving Level 3		
Key Skill	ABC Unit	Signposting
PS3.1 Explore a complex problem, come up with three options for solving it and justify the option selected for taking forward	Unit 4 only	Evidence may be generated when considering tree inspections and surveys
PS3.2 Plan and implement at least one option for solving the problem, review progress and revise your approach as necessary	Unit 4 only	Evidence may be generated when planning tree inspections and surveys
PS3.3 Apply agreed methods to check if the problem has been solved, describe the results and review your approach to problem solving	Unit 4 only	Evidence may be generated when reviewing tree inspections and surveys

3 Wider Curriculum Signposting

With regard to the enhancement of spiritual understanding, two definitions within the Oxford English dictionary state '*of the human spirit or soul, not physical or worldly*' and '*of the Church or religion*'. This qualification does not contribute to an understanding of spiritual issues.

The word 'Moral' can be defined as '*of or concerned with the goodness and badness of human character or with the principles of what is right and wrong in conduct*'. In the delivery of the qualification a tutor must undertake to instil in a student the difference between good and bad practice, most significantly in those practices relating directly to their employment. So in the context of the latter definition, an understanding of moral issues may be gained from this award.

A definition of 'Ethical' is given as '*morally correct, honourable*', and can be attributed to a Arboriculturalist, as nearly every activity that they will undertake as part of their working life will require their compliance with given procedures and processes. To integrate into a working environment, an individual will always be required to conform to accepted principles of conduct, professionally as well as personally, and the lessons learnt during this programme of study should stand them in good stead.

A definition of 'Social' is '*of the mutual relations of people or classes living in an organised community*'. There may be minimal understanding of social issues gained from working together as a team during delivery of the qualification.

'Cultural' can be defined as 'the customs and civilisation of a particular people or group'. Cultural awareness is present in this qualification, European developments in standardisation of pruning techniques and co-operation between European countries in advancement in arboriculture takes place.

Health and Safety issues run throughout the entire award and its importance should be emphasised at every opportunity. The importance of correct use of equipment, manual handling, safety of self and others, PPE, etc should become second nature to every student.

Environmental awareness runs throughout the award, in terms of safe disposal of waste products and recycling of products arising from the process of tree surgery operations. Discussions on the make-up of materials, resource availability and the impact on the environment of materials used may also further contribute to an understanding of environmental awareness.

4 Tree List

TREES - Broadleaf				
	Genus	Species	Sub species	Cultivar
1	Acer	campestre		
2	Acer	pseudoplatanus		
3	Acer	platanoides		
4	Acer	platanoides		
5	Aesculus	hippocastanum		
6	Aesculus	indica		
7	Ailanthus	altissima		
8	Alnus	glutinosa		
9	Alnus	cordata		
10	Arbutus	unedo		
11	Amelanchier	lamarckii		
12	Betula	pendula		
13	Betula	utilis		
14	Carpinus	betulus		
15	Castanea	sativa		
16	Catalpa	bignonioides		
17	Cercidiphyllum	japonicum		
18	Cercis	siliquastrum		
19	Corylus	avellana		
20	Corylus	colurna		
21	Crataegus	crus-galli		
22	Crataegus	monogyna		
23	Crataegus	laevigata		
24	Enkianthus	campanulatus		
25	Eucalyptus	gunnii		
26	Fagus	sylvatica		
27	Fraxinus	excelsior		
28	Fraxinus	ornus		
29	Fraxinus	excelsior		Jaspidea
30	Gleditsia	triacanthos		
31	Ilex	x altaclarensis		
32	Ilex	aquifolium		
33	Juglans	regia		
34	Liriodendron	tulipifera		
35	Liquidamber	styraciflua		
36	Malus			John Downie
37	Nothofagus	antarctica		
38	Ostrya	carpinifolia		
39	Parrotia	persica		
40	Platanus	x hispanica		
41	Platanus	orientalis		
42	Populus	alba		
43	Populus	nigra		
44	Populus	tremula		
45	Prunus	avium		

46	Prunus	padus		
47	Prunus	subhirtella		
48	Pterocarya	fraxinifolia		
49	Pyrus	salicifolia		
50	Quercus	petraea		
51	Quercus	robur		
52	Quercus	cerris		
53	Quercus	ilex		
54	Quercus	rubra		
55	Robinia	pseudoacacia		Frisia
56	Salix	caprea		
57	Salix	alba		
58	Salix	fragilis		
59	Sorbus	aria		
60	Sorbus	aucuparia		
61	Sorbus	intermedia		
62	Sorbus	torminalis		
63	Tilia	cordata		
64	Tilia	x europaea		
65	Tilia	platyphyllos		
66	Tilia	petiolaris		
67	Ulmus	procera		
68	Zelkova	carpinifolia		
TREES - Conifer				
69	Abies	grandis		
70	Abies	procera		
71	Calocedrus	decurrens		
72	Cedrus	altantica		
			ssp deodara	
			ssp libani	
73	Chamaecyparis	lawsoniana		
74	Cryptomeria	japonica		
75	x Cuprocyparis	leylandii		
76	Cupressus	macrocarpa		
77	Ginkgo	biloba		
78	Juniperus	communis		
79	Juniperus	sabina	var tamariscifolia	
80	Juniperus	virginiana		
81	Larix	decidua		
82	Larix	x eurolepis		
83	Larix	kaempferi		
84	Metasequoia	glyptostrobooides		
85	Picea	abies		
86	Picea	omorika		
87	Picea	sitchensis		
88	Pinus	nigra		
89	Pinus	sylvestris		
90	Pinus	wallichiana		
91	Pseudotsuga	menziesii		

92	Sciadopitis	verticillata		
93	Sequoia	sempervirens		
94	Sequoiadendron	giganteum		
95	Taxodium	distichum		
96	Taxus	baccata		
97	Thuja	plicata		
98	Tsuga	canadensis		
99	Tsuga	heterophylla		
SHRUBS				
100	Aucuba	japonica		
101	Berberis	darwinii		
102	Berberis	thunbergii		
103	Buddleja	alternifolia		
104	Buddleja	davidii		
105	Buxus	sempervirens		
106	Camellia	japonica		
107	Choisya	ternata		
108	Cornus	alba		
109	Cornus	mas		
110	Cornus	sanguinea		
111	Cotinus	coggygria		
112	Cotoneaster	horizontalis		
113	Cotoneaster	x watereri		
114	Cytisus	scoparius		
115	Eleagnus	x ebbingei		
116	Eleagnus	pungens		Maculata
117	Erica	arborea		
118	Escallonia	sp.		
119	Euonymus	alatus		
120	Euonymus	europaeus		
121	Forsythia	x intermedia		
122	Garrya	eliptica		
123	Gaultheria	shallon		
124	Griselinia	littoralis		
125	Hamamelis	sp.		
126	Hydrangea	petiolaris		
127	Hypericum	calycinum		
128	Jasminum	nudiflorum		
129	Leycestreria	formosa		
130	Ligustrum	ovalifolium		
131	Lonicera	nitida		
132	Lonicera	pileata		
133	Hippophae	rhamnoides		
134	Laurus	nobilis		
135	Magnolia	x soulangeana		
136	Magnolia	stellata		
137	Mahonia	aquifolium		
138	Mahonia	x media		
139	Myrtus	communis		

140	Olearia	x haastii		
141	Osmanthus	heterophyllus		
142	Osmanthus	delaveyii		
143	Pernettya	mucronata		
144	Philadelphus	coronarius		
145	Photinia	x fraseri		
146	Pieris	japonica		
147	Potentilla	fruticosa		
148	Prunus	laurocerasus		and cultivars
149	Prunus	lusitanica		
150	Prunus	spinosa		
151	Pyracantha			cultivars
152	Rhamnus	cathartica		
153	Rhododendron	ponticum		
154	Rhus	typhina		
155	Ribes	sanguineum		
156	Rosa	omiensis		
157	Rubus	fruticosus		
158	Rubus	cockburnianus		
159	Ruscus	aculeatus		
160	Sambucus	nigra		
161	Skimmia	japonica		
162	Stransvaesia	davidiana		
163	Symphoricarpus		var laevigatus	
164	Syringa	vulgaris		
165	Tamarix	pentandra		
166	Ulex	europaeus		
167	Viburnum	x bodnantense		
168	Viburnum	davidii		
169	Viburnum	lantana		
170	Viburnum	opulus		
171	Viburnum	tinus		
172	Vinca	major		
	CLIMBERS			
173	Actinidia	kolomikta		
174	Clematis	vitalba		
175	Jasminum	nudiflorum		
176	Hedera	helix		
177	Lonicera	periclymenum		
178	Parthenocissus	quinquifolia		
179	Parthenocissus	tricuspidata		
180	Wisteria	sinensis		

5 Useful Information

Reading List and Source of Reference Material

Below can be found a list of books, references, articles and other relevant information to aid candidates in their studies. The list is not exhaustive.

Those publications outlined in bold are recognised as particularly useful when studying for the qualification, and candidates should make reference to them. Some are available only from specialist booksellers who often attend arboricultural events, conferences etc

General

The many books published by the **International Society of Arboriculture (ISA)** may now be purchased directly from their website: www.isa-uki.org.

Candidates are advised that they are expected to have a working knowledge of topical arboricultural developments, research and problems, as reported in the industry's press.

Special attention is drawn to:

- The **Arboricultural Association's** series of publications and leaflets, obtainable from the head quarters at Ampfield.
- **The Tree Advisory Trust's (TAT)** publications, especially the series:
Arboriculture Research and Information Notes (ARINs)
Arboriculture Practice Notes (APNs)
Tree Damage Alerts (TDAs)
Available from the **Arboricultural Advisory and Information Service (AAIS)**, Alice Holt Lodge, Farnham, GU10 4LH, from whom a full list of these publications is also available
- **The Forestry Commission series:**
Research Information Notes (RINS)
Forestry Commission Practice Notes (FCPNs)
Forestry Commission Information Notes (FCINs)
Available, (as are all Forestry Commission Publications) from Forestry Commission Publications, PO Box 100, Fareham, Hampshire, PO14 2SX.
- *Arboricultural Journal* and *AA Newsletter* (Arboricultural Association, Ampfield)
- *Quarterly Journal of Forestry* (Royal Forestry Society, 102 High Street, Tring, Herts, HP23 4AF))
- *Forestry and British Timber*
- *Journal of Arboriculture, Arborists News and "Treeline"* (ISA)
- Items in *Horticulture Week* and other periodicals pertaining to the subject area

Attention must also be drawn to topics reported in the joint Five Yearly Forestry Commission/Arboricultural Association/Tree Advice Trust Conference Reports of 1990, 1995, (and 2000) as in:

Advances in Practical Arboriculture, Forestry Commission Bulletin 65, 1987
Research for Practical Arboriculture, Forestry Commission Bulletin 97, 1991
Arboricultural Practice Present and Future, Research for Amenity Trees No 6, 1997
DETR.

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6 Pests, Diseases and Disorders of Amenity Trees

The list below contains tree troubles which affect trees and shrubs in the United Kingdom, or in some cases, could foreseeably affect trees and shrubs. The term 'disorder' refers to non-biological problems. The term 'pest' refers to animal or insect related problems and 'disease' encompasses those that are caused by fungi, bacteria or virus.

DISORDERS

Nutrient deficiency – nitrogen, magnesium, potassium, iron and manganese
Lime induced chlorosis
Cold damage
Mechanical injury
Pollutants/contamination
Competition
Drought
Waterlogging
Climbing Plants
Planting losses
Snow and ice
Graft incompatibility
Storms
De-icing salts
Extremes of pH
Raised soil level
Herbicide damage
Compaction including iron pan

PESTS (animals/insects)

Adelges cooleyi and laccaris
Anoplophora glabripennis (threat from Asian longhorn beetle)
Aphids Beech Woolly, Cypress, Giant Willow, Green Spruce, and Juniper
Cossus cossus
Cryptococcus fagisuga
Dendroctonus micans
Gall causers – Andronicus, Cynips, Eriphyes, Taxomyia and Neuroterus
Hylensinus species
Lymantria dispar (threat from gypsy moth)
Myzus cerasi
Phytomyza ilicis
Pulvinaria regalis

Rhyacionia buoliana
Rhynchaenus fagi
Scolytus species
Sesia apiformis
Tortrix viridana
Zeuzera pyrina

Domestic animals - cattle, horses, sheep, etc
Rabbits and Hares
Grey Squirrels
Deer
Mice and voles

GENERAL (no known cause)

Bud proliferation of red horse chestnut
Fasciation
Prunus 'Kanzan' dieback

DISEASES

Apiognomonina veneta (Gnomonia platani)
Armillaria species
Bacterial wetwood
Bjerkandera adusta
Ceratocystis ulmi (Ophiostoma ulmi)
Chondrostereum purpureum
Collybia fusipes
Coriolus versicolor
Cryptostroma corticale
Daedaleopsis confragosa
Daldinia concentrica
Erwinia amylovora
Erwinia salicis
Fistulina hepatica
Fomes fomentarius
Ganoderma species
Grifola frondosa
Guignardia aesculi
Heterobasidion annosum
Hypholoma fasciculare
Inonotus dryadeus
Inonotus hispidus
Laetiporus sulphureus
Marssonina species
Melampsora species
Meripilus giganteus
Microsphaera alphitoides
Monilinia laxa
Nectria species
Perenniporia fraxinea
Phaeolus schweinitzii
Phellinus species
Pholiota squarrosa

Phytophthora species
Piptoporus betulinus
Polyporus squamosus
Pseudomonas syringae pv morsprunorum
Pseudomonas syringae ssp. Savastonio fraxini
Pseudotrametes gibbosa
Rhytisma acerinum
Rigidoporus ulmarius
Seiridium cardinale (Coryneum cardinale)
Sparassis crispa
Stereum species
Taphrina deformans
Taphrina species causing 'witches brooms'
Ustilina deusta
Venturia species
Verticillium dahliae
Virus diseases
Xanthomonas populi

7 Glossary and Acronyms

ABC

Awarding Body Consortium

Accreditation

The process through which the regulatory authorities (QCA) confirm that a qualification and the associated specification conform to the regulatory criteria

Accreditation of Prior Learning (APL)

The process of recognising a candidate's previous achievements or learning

Assessment

The process of making judgements about the extent to which a candidate's work meets the assessment criteria (requirements that must be met in order to achieve success, or a given grade) for a qualification or unit, or part of a unit.

Awarding Body

An organisation or consortium that awards qualifications

Basic Skills

Basic Skills refers to the ability to read, write and speak English/Welsh and use mathematics at a level necessary to function and progress at work and in society in general.

Centre

An organisation or consortium accountable to an awarding body for the assessment arrangements leading to a qualification or units

Centre Approval

A process through which a centre wishing to offer ABC's qualifications is confirmed as being able to maintain the required quality and consistency of assessment and comply with other expectations of the awarding body

External Assessment

A form of independent assessment where assessment tasks are set, and candidates' work assessed, by the awarding body

External Moderator

An individual appointed by the awarding body to ensure accurate and consistent standards of assessment, across centres and over time

Independent Assessment

Assessment of candidates' work that is carried out by assessors who do not have a vested interest in the outcome.

Internal Assessment

Assessment where assessment tasks are set, and candidates' work assessed, wholly within the candidate's centre, subject where appropriate to external moderation

Internal Moderator

An individual appointed by the centre to secure accurate and consistent standards of assessment, both between assessors operating within a centre and between centres offering the same award

Key Skills

General skills that apply across occupational and academic fields and assist in improving learning and performance

Knowledge Requirements

The part of the ABC qualification that the candidate needs to know

Learning and Skills Council (LSC)

The body responsible for funding and planning education and training for over 16-year-olds in England

Learning Outcomes

The part of the ABC qualification that the candidate needs to do

Level

The level at which a qualification is positioned in the National Qualifications Framework

Moderation

The process of checking that assessment standards have been applied correctly and consistently between assessors, between centres and over time, and making adjustments to results where required to compensate for any differences in standard that are encountered

National Occupational Standards (NOS)

Statements which describe the outcomes of competent work in an occupational field

National Qualifications Framework (NQF)

The framework used by the regulatory authorities to position qualifications in England, Wales and Northern Ireland

National Training Organisation (NTO)

An organisation charged by the government with improving the future competitiveness of the UK by increasing the level of knowledge and skills of the workers in its sector

National Vocational Qualification (NVQ)

NVQs are work-related, competence based qualifications that reflect the skills and knowledge needed to do a job effectively throughout the country. They represent the national standards recognised by employers

Qualifications and Curriculum Authority (QCA)

Government-designed statutory organisation required to establish national standards for qualifications in England and secure consistent compliance with them (the regulatory authorities in Wales and Northern Ireland are ACCAC and CCEA respectively)

Sector Skills Council (SSC)

A body recognised by the regulatory authorities as responsible for formulating and reviewing standards of occupational competence for an employment sector

Scheme Approval

A process through which a centre wishing to offer a particular qualification is confirmed as being able to maintain the required quality and consistency of assessment and has the correct resources, facilities and equipment specific to the qualification

Unit

The smallest part of a qualification that is (generally) capable of certification in its own right

Vocationally Related Qualification (VRQ)

VRQs are linked to NVQs but are different. They are designed to underpin much of the knowledge for the National Occupational Standards (NOS) and assist in the development of practical skills and do not have to be delivered in the workplace