

Unit 12: Understand and Apply the Principles of Horse Fitness

Unit code	R/601/0335
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to provide learners with an understanding of the principles of horse fitness and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

● Unit introduction

The effective management of horse fitness is an essential skill for all managers of horses in competitive environments.

Horse managers need to know and understand the requirements for the effective fitness and training of horses in their care, and to be able to plan and evaluate fitness programmes. This unit gives learners the knowledge to manage the horses in their care appropriately.

Learners will focus on the physiological effects of fitness and training on the horse's systems. The different physiological systems are considered within the context of the horse's stress and metabolic responses to fittening. They will examine how these physiological effects underpin the requirements for horse fitness preparation. Learners will also examine the practical requirements of early fitness preparations, including the need for preventative healthcare and fitness programmes required for an event and evaluate the methods used in terms of their usefulness in a variety of sporting disciplines. They will develop their understanding of the methods of monitoring and evaluating fitness which relate to the fitness preparation and programmes.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand physiological effects of fittening on the systems of the horse
- 2 Understand the requirements of horse fitness preparation
- 3 Be able to plan horse fitness programmes
- 4 Be able to monitor horse fitness.

Unit content

1 Understand physiological effects of fittening on the systems of the horse

Physiological effects: musculo-skeletal; respiratory; cardiovascular

Effects of physical stress on the horse: metabolism changes, cellular respiration, eg changes to heart rate and respiratory rate, homeostasis, thermoregulation, blood glucose regulation, calcium regulation

2 Understand the requirements of horse fitness preparation

Requirements of fitness preparation: getting up; nutrition; grooming; foot care, tack fitting, clipping and trimming; roughing off; health and safety

Health care including preventative treatments: possible health problems eg equine influenza, tetanus, worms; preventative healthcare eg vaccination, worming treatments, teeth check

3 Be able to plan horse fitness programmes

Planning and design fitness programmes: traditional methods eg use of roadwork, schooling, lungeing, horse walker, grid work, jumping, hill work, fast work, fartlek; interval training (speeds, repetitions, duration); non-traditional methods eg treadmills, swimming; fittening for a specific competition; compensation in plan for previous injuries or problems

Review fittening programmes: for different disciplines eg sports horses, riding club horses, endurance horses, hunters

4 Be able to monitor horse fitness

Monitoring fitness: interval training; use of heart rate monitor; recovery rates; weighing horses; temperature monitoring

Problems affecting the competition horse: eg dehydration, heatstroke, fatigue, muscle tremors, synchronous diaphragmatic flutters

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria			
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:	
P1 explain the physiological effects of training on the systems of the horse [IE]	M1 analyse the physiological and health effects of given horse fitness programmes	D1 comprehensively analyse physiological effects, nutritional, grooming and health factors of given horse fitness programmes	
P2 discuss the effects of physical stress on the horse			
P3 explain the processes of fittening and roughing off [CT]			
P4 explain the factors to consider when preparing a horse for a fittening programme to include: <ul style="list-style-type: none"> ◇ nutrition ◇ grooming ◇ foot care ◇ healthcare including preventative treatments 	M2 explain how the diet of a horse would be revised throughout a fittening programme		
P5 evaluate the use of different types of work used in a selected horse fitness programme			
P6 design a fitness training programme for a horse in work [IE, CT]	M3 review and revise a given fittening programme for a horse which incurs an injury		D2 evaluate in detail horse training methods and the fitness monitoring carried out, making valid recommendations for improvement.
P7 review a fittening programme [IE]			

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P8 discuss key indicators that are used to measure fitness in a horse	M4 demonstrate monitoring of horse recovery rate following exercise	
P9 use key indicators to assess the condition and fitness level of a horse. [EP]	M5 describe how problems that may affect the competition horse may be prevented and resolved.	

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers CT – creative thinkers	RL – reflective learners TW – team workers	SM – self-managers EP – effective participators
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Essential guidance for tutors

Delivery

Tutors delivering this unit have opportunities to use as wide a range of techniques as possible. Lectures, discussions, seminar presentations, site visits, supervised fitness and training practicals, internet and/or library-based research and the use of personal experience would all be suitable. Delivery should stimulate, motivate, educate and enthuse learners.

Work placements should be monitored regularly in order to ensure the quality of the learning experience. It would be beneficial if learners and supervisors were made aware of the requirements of this unit before any work-related activities are undertaken so that naturally occurring evidence can be collected at the time. For example, learners may have the opportunity to use fitness programmes. Assessors should complete observation records and/or witness statements as evidence of this. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

Whichever delivery methods are used, it is essential that tutors stress the importance of horse welfare and the need to manage the resource using legal methods.

Health and safety issues relating to working with and handling horses must be stressed and reinforced regularly, and risk assessments must be undertaken before any practical activities.

Tutors should consider integrating the delivery, private study and assessment for this unit with other relevant units that learners are taking as part of their programme of study.

The learning outcomes are likely to be delivered through formal lectures, discussion, site visits, supervised practical sessions and independent learner research. Learners will be aware of the importance of horse fitness and its role in the management of the horse. Visiting expert speakers could add to the relevance of the subject for learners. For example, a competition rider could talk about their work, the situations they face and the methods they use. Equally, visits to relevant competition centres would be appropriate.

Learning outcome 1 requires learners to be aware of the effects of fitness on the horse's systems and how physical stress can affect the horse. Extensive research will be required, using appropriate scientific texts and peer-reviewed articles and websites.

Learning outcome 2 covers preparation for fitness. It would be helpful if delivery is in an applied manner where learners are encouraged to relate the theory to practice. Research using a range of books and journals by well known equestrian competitors and grooms will give a useful insight into the methods used within the industry.

In learning outcome 3 learners will plan fitness programmes for different types of horses. Delivery should focus on the situations likely to be found in the workplace, with an emphasis on riding club as well as competition horses.

In learning outcome 4 learners move towards monitoring fitness and recognising the different methods available to do this. This learning outcome builds on the knowledge gained from study of the previous three learning outcomes. It will be appropriate for learners to take part in a practical sessions using equipment such as heart rate monitors and weigh tapes.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Theory: effects of fittening on the physiological systems and metabolism of the horse.
Assignment 1: Effects of Fittening on the Physiological Systems and Metabolism of the Horse (P1, P2, M1, D1) Tutor introduces the assignment.
Theory: preparation and planning of a fitness programme including healthcare and preventative treatments.
Assignment 2: Preparation and Planning of a Fittening Programme (P3, P4, P5, M2) Tutor introduces the assignment.
Theory: designing fitness programmes for horses competing in different disciplines, including conventional training.
Visit to racing yard to watch horses in work.
Theory: designing fitness programmes for horses competing in different disciplines, including interval training.
Theory: designing fitness programmes for horses competing in different disciplines, including non-traditional methods.
Visit to therapy centre to watch horses using a treadmill or swimming pool.
Assignment 3: Design a Fittening Programme for a Given Horse With a Stated Competitive Objective (P6, P7, M3, D2) Tutor introduces the assignment.
Theory: methods of monitoring fitness at any stage in a fitness programme.
Practical: using a heart rate monitor during exercise and measuring recovery rate after cessation of exercise.
Assignment 4: How to Quantify Fitness at Any Stage of a Fittening Programme (P8, P9, M4) Tutor introduces the assignment.
Theory: problems that affect the competition horse and how to overcome them.
Assignment 5: Problems That May Affect the Competition Horse and How to Overcome Them (M5) Tutor introduces the assignment.
Unit review.

Assessment

For P1, learners will explain the physiological effects of training on the systems of the horse. Learners must cover how heart rate, blood pressure, cardiac output and stroke volume are affected by fittening and exercise. P2 requires learners to discuss the effects of physical stress on the horse. Evidence could take the form of a pictorial presentation with notes, an annotated poster or a project.

In P3, learners should explain when and how a horse would be roughed off at the end of a competition season, or following an injury. P4 covers the factors involved in a fittening programme. Learners must explain the process of getting the horse up from grass, and the preparation needed to start a fitness training programme. Evidence should include details of diet, grooming, shoeing, tack fitting, clipping and trimming as a minimum. P5 must demonstrate an evaluation of different work types. Evidence for P3, P4 and P5 could be in the form of a training report.

For P6, learners need to design a fitness training programme to meet given objectives. Tutors should identify the objectives or agree these through discussion with learners. Evidence could be based on case studies. Where possible, to ensure assessment is fair, the size and complexity of the tasks should be the same for all learners. For P7 learners must include a review of a fittening programme, this could be the one developed for P6. Evidence for P6 and P7 could be in the form of a presentation or project that links to M3 or D2.

For P8 and P9, learners will discuss and use the key indicators that are used to measure fitness in a horse. Learners could explain how to measure fitness at any stage in an interval training programme. P8 could be assessed through short-answer questions or as part of a project that links to other criteria. Alternatively learners could produce an article for a specialist equestrian magazine.

Learners will need to demonstrate how to monitor the recovery rate of a horse following exercise. This could be assessed directly by the tutor during practical activities. If this format is used then suitable evidence from guided activities would be assessor observation records. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor. It is expected that learners will give due regard to health and safety and wear appropriate personal protective equipment (PPE).

For M1, learners are expected to analyse the physiological and health effects of given horse fitness programmes on selected systems of the horse. Learners must cover effects on the musculo-skeletal, respiratory and cardiovascular systems. For M2, learners will need to describe how the diet of a horse would be revised throughout a fittening programme. Evidence could be based on a case study or given scenario and may be in the same format as for P2. Learners should demonstrate a knowledge of the quantities, ratios and energy levels required in a competition horse's diet.

Evidence could take the form of a pictorial presentation with notes, an annotated poster or a project.

In M3, learners could be presented with a scenario in which a competition horse incurs a specific injury and they are required to revise its ITS fittening programme. Tutors should identify the fittening programme and scenario or agree it through discussion with learners. Where possible, to ensure assessment is fair, the size and complexity of the tasks should be the same for all learners. Evidence could be presented as a fittening programme or diary, giving learners the opportunity to suggest amendments to compensate for the injury.

For M4, learners need to demonstrate monitoring of horse recovery rate following exercise. This could be assessed directly by the tutor during practical activities. For M5, learners need to describe how problems that may affect the competition horse could be prevented and resolved. Evidence could take the form of short-answer questions or a presentation.

For D1, learners must analyse physiological effects of given horse fitness programmes. They must cover the nutritional, grooming and health factors associated with the given fitness programmes. Learners should discuss the effects on metabolism. Evidence could be in the form of a written assignment, presentation or project that links to P1 and M1.

In D2, learners should be asked to evaluate the use of different methods of training in a fittening programme and make valid recommendations for improvement. Assessment could be linked to P4 and be based on a case study.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, M1, D1	Effects of Fittening on the Physiological Systems and Metabolism of the Horse	Produce an essay on the effects of fittening on the physiological systems and metabolism of the horse.	Report.
P3, M2, P4, P5	Preparation and Planning of a Fittening Programme	Summarise the requirements of a fittening programme for the preparation for an eventer that is being brought up from grass.	Written summary of requirements, including a programme of healthcare and preventative treatments.
P6, P7, M3, D2	Design a Fittening Programme for a Given Horse With a Stated Competitive Objective	Design a fittening programme for a competition event.	Fittening programme. Diary or chart.
P8, P9, M4	How to Quantify Fitness at Any Stage of a Fittening Programme	Use a heart rate monitor during exercise and measure recovery rate after cessation of exercise. Assess and quantify fitness.	Practical demonstration. Oral questioning. Observation Record.
M5	Problems That May Affect the Competition Horse and How to Overcome Them	An endurance horse pulls up at a vet gate and is demonstrating signs of fatigue, heat exhaustion and synchronous diaphragmatic flutters. Explain the physiology of the condition, and how the horse should be managed.	Report including pictorial evidence as appropriate to illustrate points made.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Land-based sector suite. This unit has particular links with:

Level 2	Level 3
Introduction to Lungeing Horses	Understand the Principles of Horse Rehabilitation and Therapy
Introduction to Riding Horses on the Flat	Understand the Principles of Horse Behaviour and Welfare
Maintain Animal Health and Welfare	

Essential resources

Learners will need access to a range of horses for practical demonstration purposes, including some in regular work to enable their fitness to be evaluated.

Learners should be able to watch, or in some cases use, heart rate monitors and weigh tapes or weighbridges. Work experience may be beneficial to enable learners to monitor developments in a fast-moving sector. Organised trips to the yards of equestrian competitors or horse trials would greatly add relevance to delivery of this unit. Learners should be given the opportunity to access different facilities for fittening horses such as horse-walkers, swimming pools etc.

Tutors delivering this unit should have industry experience in the field and be educated to a level where they have sufficient applied understanding to be able to deliver the unit effectively.

Employer engagement and vocational contexts

This unit focuses on the principles of horse fitness, in particular the requirements for effective training and monitoring. Centres are encouraged to create and develop links with local horse racing yards and competition riders. Learners will benefit from guest lectures or visits to competitions or horse races to observe the fitness requirements first hand. Learners should be encouraged to undertake practical work experience in order to develop their practical horse fitting skills.

Indicative reading for learners

Textbooks

Brega J – *The Horse: Fitness and Competition* (J A Allen, 1996) ISBN 0851316220

Brega J – *The Horse: Physiology* (J A Allen, 1995) ISBN 0851316077

Bromiley M W – *Equine Injury, Therapy and Rehabilitation* (Blackwell Science, 2007) ISBN 1405150610

Hinchcliff K W, Kaneps A J and Geor R J – *Equine Exercise Physiology: The Science of Exercise in the Athletic Horse* (Saunders, 2007) ISBN 0702028576

Hodgson D R, and Rose R J – *The Athletic Horse: Principles and Practice of Equine Sports Medicine* (Saunders, 1994) ISBN 0721637590

Hourdebaigt J P – *Fitness Evaluation of the Horse* (John Wiley and Sons, 2008) ISBN 0470192291

McBane S – *Fitness in the Horse* (Crowood Press, 2002) ISBN 186126481X

Marlin D and Nankervis K – *Equine Exercise Physiology* (Blackwell Science, 2002) ISBN 0632055529

Pilliner P and Davies Z – *Equine Science, Health and Performance* (Blackwell Science, 1996) ISBN 0632039132

Reed H – *Stage Three: Riding and Stable Management* (Nova Publications, 1998) ISBN 0952585936

Scott M – *Equine Training Log and Health Care Diary* (MMTP, 2007) ISBN 0966267745

Magazines

British Eventing

Your Horse

Websites

www.aht.org.uk

Animal Health Trust

www.bef.co.uk

British Equestrian Federation

www.bhs.org.uk

British Horse Society

www.britishdressage.co.uk

British Dressage

www.britisheventing.com

British Eventing

www.britishshowjumping.co.uk

British Showjumping

www.endurancegb.co.uk

Endurance GB

www.horseandhound.co.uk

Horse and Hound

www.rvc.ac.uk

The Royal Veterinary College

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	explaining the physiological effects of fittening on the systems of the horse justifying the key requirements of fitness preparation designing a fitness training programme to meet given objectives describing the key indicators that are used to measure fitness in a horse
Creative thinkers	explaining when and how a horse would be roughed off designing a fitness training programme to meet given objectives
Effective participators	demonstrating how to monitor the recovery rate of a horse following exercise.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	outlining the problems that may affect the competition horse describing how problems that may affect the competition horse may be prevented or resolved
Creative thinkers	describing how the diet of a horse would be revised throughout a fittening programme devising a healthcare plan, including preventative treatments, to complement a fittening programme reviewing and revising a given fittening programme for a horse which incurs an injury
Reflective learners	analysing the effects of physical stress during fittening on the metabolism of the horse evaluating the use of different methods of training in a fittening programme.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Develop, present and communicate information	
Present information in ways that are fit for purpose and audience	designing fitness programmes for horses competing in different disciplines, including conventional training, interval training and non-traditional methods
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	monitoring fitness at any stage in a fitness programme using a heart rate monitor during exercise measuring recovery rate after cessation of exercise
English	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	investigating the effects of fittening on the physiological systems and metabolism of the horse
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	preparing and planning a fitness programme including healthcare and preventative treatments explaining the problems that may affect the competition horse and how to overcome them.