

**PHYSICAL EDUCATION 8666  
GCE AS Level  
FOR EXAMINATION IN 2008**

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# PHYSICAL EDUCATION

## GCE Advanced Subsidiary Level

### Syllabus 8666

*This syllabus is available for examination in November only.*

## CONTENTS

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	Page
Introduction	1
Aims	1
Assessment Objectives	1
Assessment	2
Curriculum Content	5
Reading List	11
Assessment Forms	13

## NOTE

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Copies of syllabuses, past papers and Examiners' reports are available on CD-ROM and can be ordered using the Publications Catalogue, which is available at [www.cie.org.uk](http://www.cie.org.uk) under 'Qualifications & Diplomas' – 'Order Publications'.



## **INTRODUCTION**

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This syllabus provides candidates with an opportunity to study both the practical and theoretical aspects of Physical Education. As well as fostering enjoyment in physical activity, it will encourage candidates to develop an understanding of the interaction between theory and practice by focusing on the performer and performance. It may be seen as a progression from IGCSE Physical Education, but there is no requirement that a candidate shall have studied Physical Education at IGCSE before starting this syllabus.

## **AIMS**

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In Advanced Subsidiary Level course based on this syllabus should:

- provide a knowledge and understanding of the conceptual basis, structure and function of a representative selection of physical education activities;
- develop understanding and problem-solving skills (interpretation and evaluation);
- develop planning and practical skills for effective performance;
- foster an ability to relate practice to theory and theory to practice;
- develop an understanding of the scientific, socio-cultural and environmental factors which influence physical education;
- provide an experience which is valuable both as a means of personal development and as a foundation for employment or more advanced study.

## **ASSESSMENT OBJECTIVES**

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Candidates will be expected to:

- 1 recall and apply key concepts, principles and subject knowledge;
- 2 demonstrate knowledge and understanding through effective planning, performance and evaluation;
- 3 describe, observe and evaluate relevant performance techniques and strategies;
- 4 interpret physical education information in written material, diagrams and photographs;
- 5 evaluate critically both practical and theoretical information associated with physical education;
- 6 present arguments clearly and with a logical structure in continuous prose.

# ASSESSMENT

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The syllabus has the following key features:

Component 1 is a written paper to be assessed externally in a three hour examination. It will consist of three sections:

*Section A:* Applied Anatomy and Physiology

*Section B:* Acquiring, Developing and Performing Movement Skills

*Section C:* Contemporary Studies in Physical Education and Sport

Component 2 is a Coursework component, in which candidates will follow a minimum of two activities from the activity profiles offered. This will be internally assessed and externally moderated by CIE.

Candidates enter for both components.

		Duration	Weighting
Component 1	Written	3 hours	70%
Component 2	Coursework		30%

## Specification Grid

Assessment Objectives	Component 1	Component 2
1	✓	✓
2		✓
3		✓
4	✓	
5	✓	✓
6	✓	

## Coursework

Candidates are assessed on their performance and its improvement in **two** chosen activities, from two different activity categories listed below.

They are also assessed on their ability to analyse and comment verbally on **one** of their chosen activities.

The assessment is divided and weighted as follows:

Performance and its improvement: 20%

Analysis and comment: 10%

Candidates should undertake a minimum of two practical activities chosen from the categories outlined below.

- |   |                     |   |
|---|---------------------|---|
| 1 | Athletic Activities | Track and Field Athletics, Weight Training, Cross Country Running |
| 2 | Combat Activities   | Judo  |
| 3 | Dance               | Various styles  |

Games Activities have been sub-divided.

4	Invasion Games	Association Football, Basketball, Goalball, Hockey, Netball, Rugby Union
5	Net/Wall Games	Badminton, Squash, Table Tennis, Tennis, Volleyball
6	Striking/Fielding Games	Cricket, Rounders, Softball
7	Target Activities	Archery, Golf, Shooting
8	Gymnastic Activities	Artistic Gymnastics (floor and vaulting), Figure Skating (individual), Rhythmic Gymnastics, Trampolining
9	Outdoor and Adventurous Activities	Canoeing, Mountain/Hill Walking, Campcraft or Hostelling, Horse Riding, Orienteering, Rock Climbing, Sailing, Skiing, Wind Surfing
10	Swimming	Swimming, Personal Survival, Life Saving.

### Performance and its improvement

The student should be aware of the correct techniques, methods and rules appropriate to his/her **two** chosen activities. He/she should be able to identify his/her strengths and areas for improvement and carry out a 10 week action plan for improvement. This action plan should not exceed 12 sides of A4.

### Analysis and comment

The student should be able to analyse and comment verbally on a skill being demonstrated from **one** of his/her chosen activities. He/she should identify the strengths and weaknesses shown in the demonstration and by applying theoretical knowledge, suggest an action plan for improvement. The verbal comments should last for about 3 minutes.

### Moderation

All Coursework is marked by the teacher and internally standardised by the Centre. Coursework mark sheets, video-recorded evidence of candidates' performance in practical activities, together with evidence of analysis and comment are then submitted to the CIE appointed Moderator.

Marks for each activity and for analysis and comment should be entered on the separate sheets provided, using one for each activity. The candidates' names should be entered on these sheets in rank order.

Marks and codes for both the assessed practical activities and analysis and comment should then be entered onto the **final** practical activity assessment form. Candidates' names should be entered here in **candidate number order**.

The purpose of the moderation is to ensure that the standard for the award of marks in Coursework is the same for each Centre and that each teacher has applied the standard appropriately across the range of candidates within the Centre.

Centres will be expected to provide recorded evidence of performance of a sample of five candidates from across the ability range in each of the practical activities offered by the Centre. If there are fewer than five candidates in any activity, they should all be sampled. This should include both samples of performance, and of verbal analysis and comment on one of the activities chosen by each candidate.

It is important that improvement is shown at this level. Students should assess their strengths and areas for improvement. They should follow an action plan and improvement programme. Videoing should take place at the end of the course. Their written action plan should form part of the evidence of their improvement.

# CURRICULUM CONTENT

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## Component 1

### SECTION A: APPLIED ANATOMY AND PHYSIOLOGY

#### The Skeletal System:

General overview of the skeletal system to include the functions of the skeleton, the axial and appendicular skeleton. This is meant as an introductory section to the course and will not be directly examined.

#### Joint type:

Definitions and examples of fibrous, cartilagenous and synovial joints. The typical structure and features of a synovial joint. The type of joint and the bones which articulate at the following joints: shoulder, elbow, radio-ulnar, wrist, hip, knee, ankle, spine (pivot, cartilaginous and gliding).

#### Movement type:

Types of movement which can occur at the above named joints to include: flexion, extension, plantar flexion, dorsi flexion, abduction, adduction, pronation, supination, elevation, depression, rotation, and circumduction.

#### Muscles:

Location and action of individual muscles. (Knowledge of origins and insertions is desirable but will not be examined.)

The following joints and muscles need to be covered:

- Shoulder:** deltoid, latissimus dorsi, pectoralis major, subscapularis, infraspinatus, teres major, teres minor
- Elbow:** biceps brachii, triceps brachii
- Radio-Ulnar:** supinator, pronator teres
- Wrist:** wrist extensors, wrist flexors
- Spine:** rectus abdominus, external obliques/internal obliques, erector spinae
- Hip:** iliopsoas, sartorius, gluteus maximus, medius and minimus, gracilis, adductor longus, magnus, and brevis
- Knee:** Biceps femoris, semi membranous, semitendinosus, rectus femoris, vastus lateralis, vastus medialis, vastus intermedius
- Ankle:** tibialis anterior, gastrocnemius, soleus

A knowledge that some muscles cause movement at more than one joint.

#### Functions of Muscles:

Function of muscles as agonists, antagonists, fixators and synergists.

#### Types of muscle contraction:

Concentric, eccentric, isometric, isokinetic.

#### Muscle fibre types:

Structure and function of slow oxidative, fast oxidative glycolytic, and fast glycolytic muscle fibre types.

**Movement analysis of sporting actions associated with each joint:**

Practical analysis of typical sporting actions associated with each joint, to include identification of joint, joint type, movement occurring, working muscles, functions of the muscles, type of contraction.

**Structure and function of the heart:**

Internal and external structure of the heart, to include the heart chambers and valves, all blood vessels attached to the heart, the heart wall, and pericardium.

Conduction system of the heart, cardiac cycle.

Definitions and relationship between cardiac output, stroke volume, heart rate. Differences in values at rest and during exercise. Regulation of heart rate to include, neural, hormonal, and intrinsic factors. Measurement of heart rate response to varying intensities of workload, heart rate response during recovery, with a graphical representation of data.

**Function of the vascular system:**

Pulmonary and systemic circulatory systems. Factors linked with venous return. Distribution of cardiac output at rest and during exercise, to include the vascular shunt mechanism, the role of the precapillary sphincters and the role of the vasomotor centre.

Blood flow, blood velocity, blood pressure and the effects of exercise on blood pressure. Oxygen and carbon dioxide transport.

**Structure and function of the respiratory system:**

Structure of the nasal passages, trachea, bronchii, bronchioles, and alveoli. Lobes of the lung and pleural membrane.

Mechanics of breathing at rest and during exercise. Respiratory muscles to include diaphragm, external intercostals, sternocleidomastoid, pectoralis minor, internal intercostals, and abdominal muscles.

Control of ventilation (neural and chemical).

Definitions, values and measurement of respiratory volumes at rest and during exercise. Effect of exercise on respiratory volumes and pulmonary ventilation. Gaseous exchange, partial pressures, and tissue respiration.

**SECTION B: ACQUIRING, DEVELOPING AND PERFORMING MOVEMENT SKILLS**

**Characteristics of a skilful performance:**

Learned, efficient, goal directed, follows technical model, fluent, aesthetically pleasing.

**Definition and characteristics of motor and perceptual skills:**

**Classification of skills:**

Placement of skills on continua to include: gross and fine: open and closed: discrete, serial and continuous, external and internally paced: simple or complex: high and low organisation: with examples.

**Definition and characteristics of abilities:**

Characteristics: innate, underlying and enduring traits.

Gross motor and psychomotor abilities with examples.

**Motor skill development:**

Knowledge of the progression from motor abilities to fundamental motor skills to sport specific skills. Awareness of influences of early experiences and environmental exposure.

**THEORIES RELATED TO THE LEARNING OF MOTOR SKILLS**

Description of the S/R bond and application of related theories.

Operant conditioning: shaping behaviour, the use of reinforcement, link to trial and error.

Associationist theories: linking of the S/R bond.

Cognitive theory: work of the Gestaltists; wholeness and insight learning.

Observational learning: the work of Bandura. The four elements: attention; retention; motor reproduction; motivation.

**Reinforcement:**

Definition and examples of positive reinforcement, negative reinforcement and punishment as methods of strengthening or weakening the S/R bond.

Ways of strengthening the S/R bond through repetition, satisfaction/annoyance, and through physical and mental preparedness.

**Theories related to motor and executive programmes:**

Definition as a generalised series of movements: creation of programmes in the long term memory. Awareness of the major programmes/sub-routines of a range of motor skills.

Open loop control: retrieval of programmes by making one decision, used in quick movements where there is no time for feedback, with examples.

Closed loop control: detection and correction of movements during the performance through the use of feedback, with examples.

Schema theory: A way of modifying the motor programme by the use of schemes or rules of information. Schmidt's sources of information as recall and recognition schema. Four rules of schema: knowledge of initial conditions; knowledge of response specifications; sensory consequences; movement outcomes. Examples of the application of the schema theory in teaching and coaching.

**Theory of information processing in the performance of motor skills:**

**Basic models of information processing:**

Display, sensory information, sense organs, perception, decision making, effector mechanism response and feedback. Use of practical examples to show evidence of understanding.

**Memory:**

Basic model of the memory process: selective attention; short term sensory store; short term memory; long term memory. Use of practical examples to show evidence of understanding of the use of memory in the performance of practical skills.

**Reaction time:**

Definitions of reaction time, movement time and response time. Importance of a short reaction time. Factors affecting reaction time including psychological refractory period in a range of sporting activities.

**Feedback:**

Importance and functions of feedback. Types of feedback to include: intrinsic and extrinsic; terminal and concurrent; positive and negative; knowledge of performance and knowledge of results. Use of practical examples to show how feedback can be used effectively to improve performance.

**Phases of learning movement skills:**

Cognitive, associative, autonomous phases of learning: characteristics of each phase and their practical implications.

**Transfer of learning:**

Definition of transfer of learning: types: including positive transfer, its practical application and ways of optimising its effect: negative transfer, its practical application and ways of limiting its effect: proactive and retroactive and bilateral transfer with practical examples.

**Motivation:**

Definition of motivation to include extrinsic and intrinsic motivation: practical examples to show the advantages and disadvantages of both methods: effect of extrinsic rewards on intrinsic motivation.

## **SECTION C: CONTEMPORARY STUDIES IN PHYSICAL EDUCATION AND SPORT**

### ***THE CONCEPTUAL BASIS OF PHYSICAL EDUCATION AND SPORT***

#### **Defining the field of study:**

Physical performance as it falls within such activity categories as play, physical recreation, sport and physical education. Recognition of the broader concepts of leisure and recreation, and the sub categories of outdoor recreation and outdoor education: identification and explanation of shared characteristics.

#### **Leisure and recreation:**

Identifying leisure activities and associated characteristics. Leisure as an activity and experience, in a cultural setting, as an economic product, as a form of social control, and as a basis for self realisation. Recreation as a positive aspect of leisure: active leisure: associations with privilege and purposefulness.

#### **Physical and outdoor recreation:**

Definition and characteristics of physical recreation in a leisure and cultural framework.

Definition and characteristics of outdoor recreation; appreciation of the natural environment; adventure and risk to the individual; respect for the countryside.

#### **Towards a concept of play:**

Definition and characteristics of play: freedom and time; space and spontaneity; enjoyment; intrinsic value; non serious and non productive assumptions.

Child at play: increasing mastery over reality.

Adult at play: escape from reality: stress release.

#### **Towards a concept of sport:**

Definitions and characteristics of sport;

Values such as sportsmanship and fair play: win and participation ethics;

Sport in society: the functional/desirable to dysfunctional/undesirable components;

Concepts of sport for all and excellence in sport;

Equal opportunity, provision and esteem;

Elitism.

#### **Physical education and outdoor education:**

Definitions and characteristics of physical education in schools.

Values: health and skill learning; preparation for active leisure and as a career; self realisation and socialisation.

Definitions and characteristics of outdoor education as part of physical education. Safety in natural situations: subjective and objective danger: real and perceived risk.

#### **Relationships between play, physical recreation, sport and physical education:**

Differences in emphasis of characteristics in different activities.

### ***ACHIEVING EXCELLENCE IN SPORT***

(relating to a country of your choice)

Policies, government initiatives;

Status of elite sport, professional approach;

Political views;

Importance of Olympic success;

Provision for excellence, facilities, coaches, science support;

Funding for excellence;

Administration, structure and organisation of sport.

**MASS PARTICIPATION IN SPORT**

(relating to a country of your choice)

Benefits of regular participation in sport;  
 Widening the base of the performance pyramid;  
 Initiatives to encourage mass participation;  
 Provision of facilities, for mass participation by private, public, or voluntary bodies;  
 Funding for mass participation;  
 Provision at grass roots level by National Governing Bodies and other agencies;  
 Attitudes to participation.

**FACTORS AFFECTING PARTICIPATION IN SPORT**

Socio-economic status;  
 Parents, siblings peer group;  
 Age;  
 Gender;  
 Ability/disability;  
 Race;  
 Religion;  
 Government/status of country.

**SPORTING ISSUES**

Sport and commercialism;  
 Links between sport and politics;  
 Sponsorship/advantages and disadvantages to the performer and sponsor;  
 Role of the media;  
 Ethics in sport/fair play, sportsmanship and gamesmanship;  
 Violence/by players and spectators; solutions to the problem;  
 Drugs in sport.

**Component 2**

**COURSEWORK**

During the course, candidates must follow a minimum of two activities from the following list:

1	Athletic Activities	Track and Field Athletics, Weight Training, Cross Country Running
2	Combat Activities	Judo
3	Dance	Various styles
4	Invasion Games	Association Football, Basketball, Goalball, Hockey, Netball, Rugby Union
5	Net/Wall Games	Badminton, Squash, Table Tennis, Tennis, Volleyball
6	Striking/Fielding Games	Cricket, Rounders, Softball
7	Target Activities	Archery, Golf, Shooting
8	Gymnastic Activities	Artistic Gymnastics (floor and vaulting), Figure Skating (individual), Rhythmic Gymnastics, Trampolining
9	Outdoor and Adventurous Activities	Canoeing, Mountain/Hill Walking, Campcraft or Hostelling, Horse Riding, Orienteering, Rock Climbing, Sailing, Skiing, Wind Surfing
10	Swimming	Swimming, Personal Survival, Life Saving.

Centres will arrange the practical activities to suit the particular abilities and interests of candidates, their own facilities, staff expertise and time available.

For each activity, candidates should be aware of:

- the techniques of the sport and their application in performance;
- training methods and training programmes;
- rules and organisation of the activity.

Final marks are submitted at the end of the course to represent candidates' performance in two activities, and their verbal analysis and comment on one of these activities. Marks should be received by CIE by mid-October for the November examination.

### **Guidance on the requirements for video evidence of coursework**

The videotape should ideally be in VHS format. DVD is acceptable.

Each activity should be between 5 and 10 minutes duration.

Up to 5 candidates should be identified by large numbered bibs or card numbers pinned back and front.

Candidates shown on the tape should be identified by their number on the accompanying Practical Activity Assessment Forms. The video ID number can be entered alongside the candidate number on the practical activity assessment form. The candidates' action plans (a single sheet is acceptable) should also accompany these sheets.

A running commentary, constantly identifying candidates, is also very helpful to the Moderator. Captions are helpful but not essential.

The video-recorded evidence for indoor activities should be shot in good light.

The use of white on yellow bibs should be avoided, as the numbers are difficult to read on a television screen.

Accompanying notes are useful, especially those giving the running order of the video. An accurate description of how well candidates are performing should be given because the marks of unseen candidates will be affected. If a candidate is off form the reasons should be stated.

For the analysis and comment section, candidates should be seen in a situation where they explain and analyse a skill being demonstrated by a colleague. The skill demonstrated should be isolated from the whole game situation.

The following documentation should be sent with the videotape:

MS1, Final Practical Activity Assessment Form, Individual Activity Assessment forms for each activity offered, Analysis and Comment Assessment Sheet, written action plans of the students who have been videoed in this aspect and any written evidence. These must reach CIE by mid-October for the November examination.

**There should be no need to submit more than one 3 hour videotape.**

## READING LIST

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Centres are advised to stock a selection of magazines/periodicals related to the sport activities in the practical options.

There is a Coursework Guidelines document to accompany the syllabus, giving details of assessment of the practical activities.

In the list below, asterisked items are particularly suitable for candidates as well as teachers.

### **Applied Anatomy and Physiology**

Bastian G. F. *An Illustrated Review of Anatomy and Physiology*, Harper Collins 1994

Carnell D., Ireland J., Jones C., Makreth K., Van Wely S. *Advanced PE for OCR AS*, Heinemann 2002

Clegg C. *Exercise Physiology and Functional Anatomy*, Feltham Press 1995

\* Davis R. J. et al. *Physical Education and the Study of Sport*, Mosby 1997

\* Davis R. J., Kimmitt T. and Auty M. *Physical Education in Theory and Practice*, Macmillan 1986

\* Honeybourne J. W., Hill M. and Moors H. *Advanced Physical Education and Sport*, Stanley Thornes 1996

Thompson C. *Manual of Structural Kinesiology*, Mosby 1989

\* Wesson K., Wiggins N., Thompson G. and Hartigan S. *Sport and PE: A Complete Guide To Advanced Level Study*, Hodder & Stoughton 1998.

### **Acquiring, Developing and Performing Movement Skills**

\* Beashel P. and Taylor J. *Advanced Studies in Physical Education and Sport*, Nelson 1996

Carnell D., Ireland J., Jones C., Makreth K., Van Wely S. *Advanced PE for OCR AS*, Heinemann 2002

\* Davis R.J., Bull C.R., Ruscoe J.V, and Ruscoe D. A. *Physical Education and the Study of Sport*, Mosby 1997

\* Davis R. J., Kimmitt T. and Auty M. *Physical Education in Theory and Practice*, Macmillan 1986

\* Honeybourne J. W., Hill M. and Moors H. *Advanced Physical Education and Sport*, Stanley Thornes 1996

\* Magill R. A. *Motor Learning Concepts and Applications*, Brown & Benchmark 1998

Schmidt R. A. *Motor Learning and Performance*, Human Kinetics 1991

\* Sharp B. *Acquiring Skill in Sport, Sports Dynamics* 1992

\* Wesson K., Wiggins N., Thompson G. and Hartigan S. *Sport and PE: A Complete Guide To Advanced Level Study*, Hodder & Stoughton 1998.

\* Woods B. *Applying Psychology To Sport*, Hodder & Stoughton 1998.

**Contemporary Studies in Physical Education and Sport**

Carnell D., Ireland J., Jones C., Makreth K., Van Wely S. *Advanced PE for OCR AS*, Heinemann 2002

Cashmore E. *Making Sense of Sport*, Routledge 1997

Coakley J. J. *Sport in Society: Issues and Controversies*, Mosby 1998

\* Coe S. et al. *More Than a Game*, BBC Books 1993

\* Davis R. J. et al. *Physical Education and the Study of Sport*, Mosby 1994

\* Honeybourne J. W., Hill M. and Moors H. *Advanced Physical Education and Sport*, Stanley Thornes 1996

\* Wesson K., Wiggins N., Thompson G. and Hartigan S. *Sport and PE: A Complete Guide To Advanced Level Study*, Hodder & Stoughton 1998.



PHYSICAL EDUCATION 8666 AS LEVEL 2008

Activity Category	Activity	Activity Codes
Athletic Activities	Track and Field Activities	Ath
	Weight Training	Wt
	Cross Country Running	Cc
Combat Activities	Judo	Ju
Dance Activities	Dance	Da
Invasion Games	Association Football	AF
	Basketball	Bas
	Goalball	Goa
	Hockey	Ho
	Netball	Ne
	Rugby Union	RU
Net/Wall Games	Badminton	Bad
	Squash	Sq
	Table Tennis	TT
	Tennis	Te
Striking/Fielding Games	Volleyball	Vo
	Cricket	Cr
	Rounders	Ro
	Softball	So
Target Activities	Archery	Ar
	Golf	Go
	Shooting	Sh
Gymnastic Activities	Artistic Gymnastics	AG
	Figure Skating	FS
	Rhythmic Gymnastics	RG
	Trampolining	Tr
Outdoor/Adventurous	Canoeing	Ca
	Mountain/Hill Walking	Mw
	Campcraft/Hostelling	CH
	Horse Riding	HR
	Orienteering	Or
	Rock Climbing	Rc
	Sailing	Sa
	Skiing	Sk
	Windsurfing	Ws
	Swimming Activities	Life Saving
Personal Survival		PS
Swimming		Sw







Activity Category	Activity	Activity Codes
Athletic Activities	Track and Field Activities	Ath
	Weight Training	Wt
	Cross Country Running	Cc
Combat Activities	Judo	Ju
Dance Activities	Dance	Da
Invasion Games	Association Football	AF
	Basketball	Bas
	Goalball	Goa
	Hockey	Ho
	Netball	Ne
	Rugby Union	RU
Net/Wall Games	Badminton	Bad
	Squash	Sq
	Table Tennis	TT
	Tennis	Te
	Volleyball	Vo
Striking/Fielding Games	Cricket	Cr
	Rounders	Ro
	Softball	So
Target Activities	Archery	Ar
	Golf	Go
	Shooting	Sh
Gymnastic Activities	Artistic Gymnastics	AG
	Figure Skating	FS
	Rhythmic Gymnastics	RG
	Trampolining	Tr
Outdoor/Adventurous	Canoeing	Ca
	Mountain/Hill Walking	Mw
	Campcraft/Hostelling	CH
	Horse Riding	HR
	Orienteering	Or
	Rock Climbing	Rc
	Sailing	Sa
	Skiing	Sk
	Windsurfing	Ws
Swimming Activities	Life Saving	LS
	Personal Survival	PS
	Swimming	Sw

Marks and codes for assessed practical activities and analysis and comment should be entered onto the Final Practical Activity Assessment Form and despatched to CIE, together with video evidence, written action plans, copies of individual activity sheets and 2 copies of the MS1 by mid-October.

Centres need to keep a copy of the final coursework marks.