GCSE Catch Up 2021 – What should you know when you return in September 2020? OCR Cambridge National Sports Science

This document is to help you understand what you should have covered during lock down – and to make some suggestions about what you should do if there are gaps in your knowledge

Learning Outcome 1: Understand different factors which influence the risk of injury	☺	😐	☹	What resources are available?
Extrinsic factors which can influence the risk of injury, i.e.				
• type of activity (e.g. contact sports present different injury risks from gymnastic activities				OCR Cambridge National Sport Science textbook Pages 1-7 OCR Cambridge National
• coaching/supervision, i.e. – poor/incorrect coaching techniques – ineffective communication skills – importance of adhering to rules and regulations				
• environmental factors, i.e. – weather – playing surface/performance area and surrounding area – other participants				
• equipment, i.e. – protective equipment (e.g. shin pads in football, gum shield in boxing, helmet in cycling, goggles in skiing) – performance equipment (e.g. hockey stick, cricket ball, rock climbing harness) – clothing/footwear suitable for playing surface/weather conditions/specific sport or activity				
• safety hazards, i.e. – risk assessments – safety checks – emergency action plans				
Intrinsic factors which can influence the risk of injury, i.e.	☺	😐	☹	
• physical preparation, i.e. – training – warm up – cool down – fitness levels – overuse – muscle imbalances				OCR Cambridge National Sport Science textbook Pages 8-15 OCR Cambridge National
• individual variables, i.e. – gender – age – flexibility – nutrition – sleep – previous/recurring injuries				
• psychological factors, i.e. –motivation-aggression-arousal/anxiety levels				
• sports injuries related to poor posture, i.e. -pelvic tilt-lordosis-kyphosis-round shoulder				
• posture and causes of poor posture, i.e.-				

• poor stance/gait (e.g. bending your knees or hunching your shoulders when standing) • sitting positions (e.g. slumping/slouching on the sofa rather than sitting upright) • physical defects (e.g. muscles weaken around an injured area)-lack of exercise (e.g. lack of core muscle strength means less support, being overweight puts strain on posture) • fatigue (e.g. tired muscles will be unable to support the skeleton properly) • emotional factors (e.g. having low self-esteem/lack of confidence can influence posture) • clothing/footwear (e.g. wearing shoes with high heels can affect posture)				

Learning Outcome 2: Understand how warm up and cool down routines can help to prevent injury

The physical benefits of a warm up, i.e.	☺	😐	☹	
• warming up muscles/preparing the body for physical activity • increase in body temperature • increase in heart rate • increase in flexibility of muscles and joints • increase in pliability of ligaments and tendons • increase in blood flow and oxygen to muscles • increase in the speed of muscle contraction				OCR Cambridge National Sport Science textbook Pages 16-20 OCR Cambridge National
The psychological benefits of a warm up, i.e.	☺	😐	☹	
• heighten or control arousal levels (e.g. 'get in the zone' or settle nerves) • improve concentration/focus • increase motivation • mental rehearsal				OCR Cambridge National Sport Science textbook Pages 16-20 OCR Cambridge National

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Key components of a warm up, i.e.	☺	😐	☹	
• pulse raising, i.e. exercises that slowly increase heart rate and body temperature (e.g. jogging, cycling, skipping) • mobility, i.e. exercises that take the joints through their full range of movement (ROM) (e.g. arm swings, hip circles) • dynamic movements (e.g. change of speed and direction) • stretching (e.g. developmental stretches, dynamic stretches linked to sport – 'open and close the gate' groin walk) • skill rehearsal phase, i.e. rehearsing common movement patterns and skills which will be used in the activity (e.g. dribbling drills for football, passing drills for netball)				OCR Cambridge National Sport Science textbook Pages 17 OCR Cambridge National
Physical benefits of a cool down, i.e.	☺	😐	☹	
• helps the body's transition back to a resting state • gradually lowers heart rate • gradually lowers temperature • circulates blood and oxygen • reduces breathing rate • removes waste products such as lactic acid • reduces the risk of muscle soreness and stiffness • aids recovery by stretching muscles, i.e. lengthening and strengthening muscles for next work-out/use				OCR Cambridge National Sport Science textbook Pages 18 OCR Cambridge National
Key components of a cool down, i.e.	☺	😐	☹	
• pulse lowering, i.e. exercises which gradually lower heart rate and reduce temperature (e.g. easy movements, light running, stretching) • stretching, i.e. maintenance stretches, static stretches (e.g. hamstring stretches)				OCR Cambridge National Sport Science textbook Pages 19 OCR Cambridge National

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Specific needs which a warm up and cool down must consider, i.e.	☺	😐	☹	
Characteristics of the individual/group, i.e. • size of group • age of participants • experience of participants • individual fitness levels • any medical conditions participants may have				OCR Cambridge National Sport Science textbook Pages 19-20 OCR Cambridge National
Suitability as preparation for a particular activity/sport				
Environmental factors (e.g. weather/temperature if outdoors, available facilities).				

Learning Outcome 3: Know how to respond to injuries within a sporting context

Acute and chronic injuries	☺	😐	☹	
Acute injuries, i.e. • caused as a result of a sudden trauma to the body (e.g. hard rugby tackle, being hit by a ball) • result in immediate pain, and usually swelling with a loss of function				OCR Cambridge National Sport Science textbook Page 20 OCR Cambridge National
Chronic injuries, i.e. • also known as overuse injuries and are a result of continuous stress on an area (e.g. Achilles tendonitis, shin splints or tennis elbow) • these injuries tend to develop gradually over a period of time				
Types, causes and treatment of common sports injuries, i.e.	☺	😐	☹	
• soft tissue injuries, i.e. sprains, strains ○ overuse injuries, i.e. tendonitis, tennis elbow, golfers elbow, shin splints				OCR Cambridge National Sport Science textbook Pages 22-23

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• fractures, i.e. open, closed • concussion, i.e. signs and symptoms of concussion • abrasions, i.e. grazes and cuts • contusions, i.e. bruises • blisters (e.g. blisters on the foot due to poorly fitting footwear) • cramp, i.e. painful sensations caused by muscle contractions or over shortening • injuries related to children (e.g. severs diseases, Osgood Schlatter's disease)				OCR Cambridge National
Respond to injuries and medical conditions in a sporting context, i.e.	☺	😐	☹	
• SALTAPS on-field assessment routine (See, Ask, Look, Touch, Active, Passive, Strength)				OCR Cambridge National Sport Science textbook Pages 24-26 OCR Cambridge National
• R.I.C.E. (Rest, Ice, Compress, Elevate)				
• stretching and massage				
• taping, bandaging, splints, slings				
• hot and cold treatments (e.g. heat pack, freeze spray)				
• action plan to respond to injuries and medical conditions in a sporting context i.e. emergency procedures				
Emergency Action Plans (EAP) in a sporting context:	☺	😐	☹	
• emergency personnel, i.e. first responder, first aider, coach • emergency communication, i.e. telephone, emergency numbers, emergency services • emergency equipment, i.e. first aid kits, evacuation chair.				OCR Cambridge National Sport Science textbook Pages 27-29 OCR Cambridge National

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Learning Outcome 4: Know how to respond to common medical conditions

The symptoms of common medical conditions, i.e.	☺	😐	☹	
• Asthma, i.e. coughing, wheezing, shortness of breath, tightness in the chest.				OCR Cambridge National Sport Science textbook Pages 30-31 OCR Cambridge National
• Diabetes, i.e. increased thirst, going to the toilet lots, extreme tiredness, and weight loss, differences between Type 1 (insulin-dependent) and Type 2 (non-insulin dependent)				
• Epilepsy, i.e. seizures				
How to respond to these common medical conditions, i.e.	☺	😐	☹	
• ensure awareness of any participants' medical conditions prior to commencing physical activity				OCR Cambridge National Sport Science textbook Pages 31-33 OCR Cambridge National
• Asthma, i.e. reassurance, inhaler, emergency services (if needed)				
• Diabetes, i.e. insulin (or glucose) hypoglycaemia (low blood sugar), give the individual sugar (e.g. fruit juice, sugary sweets)				
• Epilepsy, i.e. emergency care plans in place for the individual				
• when to refer the performer on to a professional and how to do so.				

What should I do to help me understand these topics?	**What else can I do to learn about OCR Cambridge National in Sport Science?**
1. Read through the information on each of these topics available 2. Complete Mind Maps or Revision Cards on each one 3. Get a family member or friend to test your knowledge on each of these	We strongly suggest you research using the OCR website the following units and how they link to the exam content.

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Also don't forget, we have also covered the principles of training and the effects of exercise on the body which is needed for the coursework you are completing and will be covered by an additional Checklist.

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Coursework Checklist- what you will need to know and include

This document is to help you understand what you will need to know in order to complete your coursework. The assignment briefs are attached which set out the scenario you will need to

complete. You can use either PowerPoint, word or posters to display the information.

Learning Outcome 1: Know about the nutrients needed for a healthy, balanced diet				What resources are available?
characteristics of a balanced diet, i.e.	☺	😐	☹	
• meets the nutritional requirements of an individual				OCR Cambridge National Sport Science textbook Pages 1-7 OCR Cambridge National
• includes foods from all of the food groups (e.g. meat and dairy, fruit and vegetables, fats and sugars)				
• contains a variety of foods				
• suits the needs/tastes of the individual (e.g. accounting for allergies/intolerance to some ingredients)				
what nutrients are (e.g. chemicals a living organism needs in order to live and grow) the role of nutrients in a healthy, balanced diet, i.e.	☺	😐	☹	
• carbohydrates (e.g. quick supply of energy)				OCR Cambridge National Sport Science textbook Pages 8-15 OCR Cambridge National
• fats (e.g. slower supply of energy, transport some vitamins around the body)				
• proteins (e.g. repair muscle damage)				
• fibre (e.g. helps maintain healthy bowels)				
• water (e.g. keeps the body hydrated)				
• vitamins and minerals (e.g. help strengthen bones, maintain a healthy immune system)				

Coursework Checklist- what you will need to know and include

food sources of nutrients, i.e.	☺	😐	☹	
• carbohydrates (e.g. pasta, potatoes)				OCR Cambridge National Sport Science textbook Pages 8-15 OCR Cambridge National
• fats (e.g. dairy products, fish)				
• proteins (e.g. meat, pulses)				
• fibre (e.g. cereals, wholemeal bread)				
• Vitamins and minerals (e.g. fresh fruit and vegetables).				

Learning Outcome 2: Understand the importance of nutrition in sport

The importance of nutrition before, during and after exercise, i.e.	☺	😐	☹	
• before (e.g. hydrate, provide energy source, quick energy boost)				OCR Cambridge National Sport Science textbook Pages 16-20 OCR Cambridge National
• during (e.g. stay hydrated, replenish carbohydrates if lengthy exercise)				
• after (e.g. rehydrate straight away, eat a meal containing carbohydrates and protein within 2 hours to aid recovery)				
The reasons for the varying dietary requirements of different activity types, i.e.	☺	😐	☹	
• endurance/aerobic activities (e.g. marathon running, cross country skiing)				OCR Cambridge National Sport Science textbook Pages 16-20 OCR Cambridge National
• carbohydrate loading, hydration				
• energy needed for long periods				
• high levels of hydration needed to sustain activity over long periods				

Coursework Checklist- what you will need to know and include

• short, intense/anaerobic activities (e.g. 400m swim, a game of basketball)				
• carbohydrates (not carbo-loading), low fat energy for short, sharp bursts of activity, aid recovery)				
• strength based activities (e.g. weightlifting) • – high in protein, 5-7 meals every day • – build muscle mass, limit excess body fat				
The use of dietary supplements, i.e	☺	😐	☹	
• definition of dietary supplements (e.g. products that provide nutrients which are either missing or being consumed in insufficient quantities)				OCR Cambridge National Sport Science textbook Pages 17 OCR Cambridge National
• types of dietary supplements used in sport (e.g. multi-vitamins, protein powders, herbs, creatine)				
• why they are used in sport (e.g. speed up recovery, increased energy, speed up the burn off of fat)				
• issues associated with the use of supplements (e.g. confusion over which are/are not allowed in sport, links to potential health risks/injuries).				

Coursework Checklist- what you will need to know and include

Learning Outcome 3: Know about the effects of a poor diet on sports performance and participation				
the definition of malnutrition	☺	😐	☹	
• (e.g. a condition which results from an unbalanced diet in which some nutrients are lacking, missing, taken in excess or taken in the wrong proportion)				OCR Cambridge National Sport Science textbook Page 20 OCR Cambridge National
Types, causes and treatment of common sports injuries, i.e. the effects of overeating on sports performance and participation, i.e.	☺	😐	☹	
• if you are overweight your fitness will deteriorate (e.g. your flexibility, agility and stamina will decrease)				OCR Cambridge National Sport Science textbook Pages 22-23 OCR Cambridge National
• you lose confidence and become anxious about participating				
• you can develop a range of illnesses (e.g. high blood pressure, arthritis) which prevent you from participating in certain activities				
• eating large amounts immediately before participating in a sports activity can make you feel sick during participation.				
The effects of under eating on sports performance and participation, i.e.	☺	😐	☹	
• you will have less energy (e.g. not taking in enough carbohydrates) and tire quickly				OCR Cambridge National Sport Science textbook Pages 24-26 OCR Cambridge National
• your muscles and bones weaken, increasing the risk of injury				
• your concentration becomes impaired				
• you may develop an eating disorder (e.g. anorexia) and train too hard leading to injury and/or illness				

Coursework Checklist- what you will need to know and include

• you may develop an illness which prevents you from participating (e.g. kidney infections)				
The effects of dehydration on sports performance and participation, i.e.	☺	😐	☹	
• you can overheat leading to heat stroke				OCR Cambridge National Sport Science textbook Pages 27-29 OCR Cambridge National
• your concentration becomes impaired				
• you will tire more quickly				
• you become ill during participation (e.g. vomiting).				

Learning Outcome 4: Be able to develop diet plans for performers

how to design a diet plan, i.e.	☺	😐	☹	
• gather details about the performer that the diet plan is for (e.g. age, gender, any allergies or religious				OCR Cambridge National Sport Science textbook Pages 30-31 OCR Cambridge National
• beliefs, food budget, cooking skill, the type of activity they perform in)				
• clarify the aims of the diet plan (e.g. to lose weight, to increase length of time for which they can train prior to taking part in an event)				
• set realistic goals which can be measured (e.g. to lose 2 pounds per week)				
• the time of the year (e.g. is the performer training for an event, is it off season, what fruit and vegetables are available at that time of year)				
• duration of the diet plan (e.g. suitable length to achieve goals)				
• suitability of diet plan (e.g. diet meets the needs of the performer, proportions of the various nutrients are appropriate)				

Coursework Checklist- what you will need to know and include

• organisation of diet plan (e.g. meals scheduled for set intervals, timing of a meal fits around other activities)				
How to evaluate the effectiveness of the diet plan, i.e.	☺	😐	☹	
• recording the outcomes objectively (e.g. measuring weight, diaries/journals of plan put into action)				OCR Cambridge National Sport Science textbook Pages 31-33 OCR Cambridge National
• recording the outcomes subjectively (e.g. interviewing performer - is training feeling easier?, Are you more tired after training?, Are you bored with eating the same things?)				
• improvement (e.g. increase the number of meals but reduce the portion size).				

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R042 Applying principles of training

This document is to help you understand what you should have covered during lock down – and to make some suggestions about what you should do if there are gaps in your knowledge

Learning Outcome 1: Know the principles of training in a sporting context				What resources are available?
The principles of training in a sporting context	☺	😐	☹	
• Specificity • Progression (Progressive Overload) • Reversibility/regression • Moderation • Variance				OCR Cambridge National Sport Science textbook Pages 36-41
• Applying the principles of training – FITTA • Frequency • Intensity • Time • Type • Adherence				

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Learning Outcome 2: Know how training methods target different fitness components				
Aerobic and Anaerobic Exercise	☺	😐	☹	
• Difference between aerobic and anaerobic exercise • Methods of training aerobically and anaerobically				OCR Cambridge National Sport Science textbook Pages 42-43
Components of Fitness	☺	😐	☹	
• Strength, • Power • Agility • Balance • Flexibility • Muscular Endurance • Cardiovascular Endurance				OCR Cambridge National Sport Science textbook Pages 43-45
Specific training methods for each of the fitness components	☺	😐	☹	
• Cardiovascular training (Continuous, Interval and Fartlek) • Resistance training • Power training • Flexibility training (Active stretching, Passive stretching, and Dynamic stretching) • Agility training • Balance training				OCR Cambridge National Sport Science textbook Pages 45-53

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Learning Outcome 3: Be able to conduct fitness tests				
Tests that assess fitness	☺	😐	☹	
• Validity • Maximal/sub-maximal tests • Protocols for each test • Reliability				OCR Cambridge National Sport Science textbook Pages 56-57
Tests for each component of fitness	☺	😐	☹	
• Strength tests (Burpee squat thrust and jump test, Squat test, the Wall squat sit test) • Power tests (Vertical jump test, Standing long jump test) • Agility tests (30 ft agility shuttle run test, Illinois agility run test) • Balance tests (Standing stork test) • Flexibility tests (Sit-and-reach test, Trunk flexion test) • Muscular Endurance tests (30-second sit-up test, One-minute press-up test) • Cardiovascular endurance tests (Cooper run, Harvard step test, Bleep test, Tri-level aerobic test)				OCR Cambridge National Sport Science textbook Pages 57-69
How to interpret the results of fitness tests	☺	😐	☹	
• Comparing to normative data • Making valid comparisons				OCR Cambridge National Sport Science textbook Pages 69

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Learning Outcome 4: Be able to develop fitness training programmes				
Design a fitness programme	☺	😐	☹	
• Considerations made when designing a fitness programme (e.g. what are the participant's fitness weaknesses?) • Gathering details about the person doing the training (e.g. name, age, gender) • Understanding and implementing a Physical Activity Readiness Questionnaire (PAR-Q) • Clarify the aims of the training programme (client progress review) • Set realistic goals that can be measured SMART Goals (Specific, Measurable, Achievable, Realistic, Time bound) • Duration of the training programme (short, medium and long-term goals) • Suitability of activities • Organisation of activities (Variance and Rest) • Adaptability • Progression (FITTA)				OCR Cambridge National Sport Science textbook Pages 72-76
Evaluate the effectiveness of the training programme	☺	😐	☹	
• Measurement and reflection • Improvement: Results – were the results of the programme acceptable? Boredom/variety – was any aspect of the programme boring or tedious? Intensity – was the programme too easy?				OCR Cambridge National Sport Science textbook Pages 76-77

GCSE Catch Up 2021 – What should you know when you return in September 2020? OCR Cambridge National Sports Science

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1. Read through the information on each of these topics available 2. Complete Mind Maps or Revision Cards on each one 3. Get a family member or friend to test your knowledge on each of these	We strongly suggest you research using the OCR website the following units and how they link to the exam content.

Also don't forget, we have also covered reducing the risk of injury unit and the body's response to physical activity unit which is needed for the coursework you are completing and will be covered by an additional Checklist.

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R043 The body's response to physical activity

This document is to help you understand what you should have covered during lock down – and to make some suggestions about what you should do if there are gaps in your knowledge

Learning Outcome 1: Know the key components of the musculo-skeletal and cardio-respiratory systems, their functions and roles				What resources are available?
Key components of the musculo-skeletal system	☺	😐	☹	
• Major bones • Skeletal muscle groups • Synovial joints (pivot, condyloid, saddle, gliding, ball and socket, hinge) • Connective tissue (cartilage, ligaments, tendons) • Functions of the musculo-skeletal system (support, movement, protection, blood cell production)				OCR Cambridge National Sport Science textbook Pages 81-87
Key components of the cardio-respiratory system and its function	☺	😐	☹	
• The heart • Respiratory system • Blood (plasma, red blood cells, white blood cells and platelets) • Blood vessels (arteries, veins, capillaries) • Functions of the cardio-respiratory system				OCR Cambridge National Sport Science textbook Pages 87-91

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Role of the musculo-skeletal system in producing movement	☺	😐	☹	
• Types of movement (flexion, extension, abduction, adduction, rotation, circumduction) • Functions of connective tissue (cartilage, ligaments, tendons) • Muscle contractions (isometric and isotonic – concentric/eccentric)				OCR Cambridge National Sport Science textbook Pages 91-93
Role of the cardio-respiratory system during physical activity	☺	😐	☹	
• Heart rate (radial pulse, carotid pulse) • Blood pressure (cardiac output, stroke volume, diastolic/systolic pressure) • Vascular shunt mechanism (vasoconstriction/vasodilation) • Breathing mechanism (inhalation/exhalation) • Internal respiration • Aerobic/Anaerobic respiration				OCR Cambridge National Sport Science textbook Pages 91-98
Learning Outcome 2: Understand the importance of the musculo-skeletal and cardio-respiratory systems in health and fitness				
Benefits of cardio-respiratory fitness in everyday life	☺	😐	☹	
• Reducing the risk of heart disease • Reducing the risk of obesity • Reducing the risk of cancer • Reducing the risk of strokes • Reducing stress				OCR Cambridge National Sport Science textbook Pages 101-103

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Benefits of muscular strength and flexibility	☺	😐	☹	
• Muscular strength (maximal, dynamic, explosive, static) • Flexibility • Completing everyday tasks with ease • Avoiding injury • Improving posture • Preventing joint problems and osteoporosis in later life				OCR Cambridge National Sport Science textbook Pages 103-105
Benefits of muscular endurance	☺	😐	☹	
• Increased stamina for work-based tasks • Improved sport skill performance				OCR Cambridge National Sport Science textbook Pages 105
Learning Outcome 3: Be able to assess the short-term effects of physical activity on the musculo-skeletal and cardio-respiratory systems				
Different short-term effects of physical activity on the musculo-skeletal and cardio-respiratory systems and reasons for these	☺	😐	☹	
• Changes in the range of movement around joints • Changes in heart rate, stroke volume and cardiac output • Changes to breathing rate • Changes in body temperature • Muscle fatigue				OCR Cambridge National Sport Science textbook Pages 107-108

Ways to measure and record the short-term effects of physical activity on the musculo-skeletal and cardio-respiratory systems	☺	😐	☹	
• Suitable activities to measure the short-term effects • Methods to measure the short-term effects • Recording the outcomes (objective/subjective data)				OCR Cambridge National Sport Science textbook Pages 108-109

Learning Outcome 4: Be able to assess the long-term effects of physical activity on the musculo-skeletal and cardio-respiratory systems

Long-term effects of physical activity on the musculo-skeletal and cardio-respiratory systems and reasons for these	☺	😐	☹	
• Changes in muscles size and strength • Changes in resting heart rate • Changes in training heart rate • Changes in heart rate recovery • Changes in flexibility • Changes in muscle recovery • Changes in lung capacity				OCR Cambridge National Sport Science textbook Pages 112-114
Ways to measure and record the long-term effects of physical activity on the musculo-skeletal and cardio-respiratory systems	☺	😐	☹	
• Suitable long-term activities to bring about adaptations • Methods to measure long-term effects • Recording the outcomes and subjective measures				OCR Cambridge National Sport Science textbook Pages 114-117

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