		Unit Description	Mandatory course key areas	Exemplification of key areas	Suggestion
		Cell Biology	2 DNA, genes and chromosomes.	Genes are located on chromosomes in the nucleus. Genes are made of DNA which carries the instructions to make proteins. Genes are passed on from parents to offspring. Each individual's DNA is unique.	Information on breeding programi farming.
			4 Properties of enzymes and their use in industries.	Enzymes are found in living cells. They are specific, speed up reactions in cells and remain unchanged by the reaction. Enzymes build-up and break-down molecules. The actual mechanism of how they do this is not required. Enzymes can be used in a range of biotechnology industries eg cheese	Linking dairy visits to enzymes ar production and or fruit in the juice from the pulp, and are also used
			5 Properties of microorganisms and their use in industries.	Properties of microorganisms include rapid growth, diverse use of food source and wide range of products. Examples of how some microorganisms work and are used in industrial processes, eg yeast in baking and brewing, bacteria for yoghurt, cheese and biofuel production.	Consider role of microorganisms yoghurt and cheese
			6 The effect of limiting factors on photosynthesis.	If any of the requirements (light, water, carbon dioxide or a suitable temperature) are low or missing, the photosynthesis rate is limited. By overcoming these limitations, faster growth rates can be achieved.	What do plants need and how do required by plants in the largest q crop productivity, reflective aspec
		Biology: Multicellular Organisms	1 Sexual and asexual reproduction and their importance for survival of species.	Sexual reproduction involves two parents. All of the offspring produced are different from each other. Asexual reproduction involves only one parent and all the offspring produced are identical to that parent. Sexual reproduction is important for introducing variation in a population and enables species to adapt to changing environmental conditions. Asexual reproduction does not produce variation but it allows populations to grow quickly.	Breeding programmes and develo conditions eg upland and lowland
4			2 Propagating and growing	Different methods to propagate plants, eg seeds, cuttings, bulbs, tubers and runners.	Look at how different crops grow tubers and the seed potato indust
Jational			3 Commercial use of plants.	Plants are grown to provide food, fuel, raw materials and medicines. They are also used for aesthetic reasons. Pharming as a means of genetically modifying plants to produce medicinal products.	Commerial growing of plants, pot
Z			4 Genetic information.	Our genes determine our features. As we inherit half of our DNA from our father and the other half from our mother this ensures variation. Basic monohybrid crosses showing how dominant characteristics are passed on from parents to the F1 generation.	Look at breeding programmes an with females. The characteristics characteristic are.
			5 Growth and development of different organisms.	The growth and development of different organisms can be influenced by different factors. Water, oxygen and warmth are important for the growth and development of plants. Humans need a balanced diet, water, minerals, vitamins and suitable conditions.	What the farmer needs to provide yeilds obtiained. What about anir depending on the season. Role o
		Biology: Life on Earth	2 Impact of population growth and natural hazards on biodiversity.	Human population growth has resulted in habitat destruction, deforestation, over- fishing, intensive agriculture, genetic pollution, climate change, acid rain, oil and chemical spills, sewage and litter. These environmental disruptions have had a negative impact on biodiversity. Natural hazards such as forest fires, earthquakes, tsunamis, floods and volcanic activity will also reduce biodiversity.	What is biodiversity and what exa For example hedges, beetle bank spreading times and precision ag climate change.
			3 Nitrogen cycle.	Nitrogen is essential for organisms to make proteins. It is recycled through a set of processes known as the nitrogen cycle. Bacteria and fungi are vital to the nitrogen cycle. The basic nitrogen cycle showing the stages and processes involved.	What is the nitrogen cycle, plantir
			4 Fertiliser design and environmental impact of fertilisers.	When crops are harvested, nitrogen is taken out of the cycle so needs to be replaced. Nitrogen can be added to the soil in the form of nitrate fertilisers, manure or compost.	Composition of fertilisers, NPK ar What is run off and how targeting manures/slurries. Organic source
	Biology	Cell Biology	6 Genetic engineering	Genetic information can be transferred from one cell to another naturally or by genetic engineering. Stages of genetic engineering to include identifying section of DNA that contains required gene from source chromosome, extracting required gene, inserting required gene into vector/bacterial plasmid, inserting plasmid into host cell and growing modified cells to produce a genetically modified (GM) organism Use of enzymes in this process.	Specialist farm session

s of what RHET can offer

mes/genetic lineages particularly in relation to dairy

nd cheese production. Linking enzymes in beer e industry (enzymes are used to increase juice yield for juice clarification)

on the farm - making silage, and in food production -

bes the farmer ensure these are provided. Nitrogen is quantity and is most frequently the limiting factor in cts of green leaves

opment of different lines adapted for different different

- tillering in cereals, runners in strawberries, potato try.

tato industry

nd how the farmer choices which semen to use with s they are looking for and what some of the dominant

e to grow a successful crop. The varieties used, the imals - what are they fed, how the diet varies of animal nutirionists.

amples are there of farmers working to restore habiats. ks, farm ponds. How is pollution minimised eg griculture. Development of new varieties to combat

ng of legumous plants, targeting fertiliser useage.

nd different compositions depending on the crop. g can reduce this. Other sources of nitrogen - straw, ces and inorganic sources.

		7 Photosynthesis	Photosynthesis is a two-stage process. 1. Light reactions: the light energy from the sun is trapped by chlorophyll in the chloroplasts and is converted into chemical energy in the form of ATP. Water is split to produce hydrogen and oxygen. Hydrogen attaches to hydrogen acceptor molecules. Excess oxygen diffuses from the cell. 2. (a) Carbon fixation: a series of enzyme-controlled reactions that use hydrogen and ATP (produced by light reactions) with carbon dioxide to produce sugar. (b) The chemical energy in sugar is available for respiration or can be converted into other substances such as starch (storage) and cellulose (structural). (c) Limiting factors: carbon dioxide concentration, light intensity and temperature, and their impact on photosynthesis and plant growth. Analysis of limiting factors graphs.	How technology is used to monito nitrogen in the plant. How the lim
	Biology: Multicellular Organisms	5 Variation and Inheritance	(a) Comparison of discrete and continuous variation. (b) Most features of an individual phenotype are polygenic and show continuous variation. (c) Genetic terms including gene, allele, phenotype, genotype, dominant, recessive, homozygous, heterozygous and P1, F1 and F2. Carry out monohybrid crosses from parents through to F2. Reasons why predicted ratios are not always achieved	Specialist farm session
tional 5	Biology: Life on Earth	1 Biodiversity and the distribution of life	(a) Biotic and abiotic factors affect biodiversity in an ecosystem. Human activities can also have an impact on biodiversity. (b) Competition for resources, disease, food, grazing and predation are biotic factors. Light intensity, moisture, pH and temperature are abiotic factors.	What is biodiversity and how can do to minimise disease in their cro flooding/drought impact on yeilds.
Na		2 Energy in ecosystems	(a) Definitions of other ecological terms, including species, population, producer, consumer, herbivore, carnivore and omnivore. (b) In transfers from one level to the next in a food chain, 90% of energy is lost as heat, movement or undigested materials. 10% is used for growth. (c) Definitions and comparisons of pyramids of biomass, energy and numbers. (d) Competition in ecosystems. Interspecific competition occurs when individuals of different species require similar resources in an ecosystem. Intraspecific competition occurs when individuals of the same species require the same resources. Intraspecific competition is therefore more intense than interspecific competition. (e) Nitrogen in ecosystems Plant proteins are produced using nitrogen from nitrates. The roles of nitrifying, denitrifying, root nodule and free-living nitrogen-fixing soil bacteria. Decomposers, such as fungi and bacteria, convert proteins and nitrogenous wastes to ammonium compounds These are converted to nitrites and then to nitrates. Animals obtain the nitrogen required to produce protein by consuming plants.	What are legumes, how to farmer Soil composition and why looking do decomposers have on the farm production of cereals and meat.
		5 Human impact on the environment	 (a) Increasing human population requires an increased food yield. (b) Fertilisers can leach into fresh water, increasing algal blooms. This reduces light levels, killing aquatic plants. These dead plants as well as dead algae become the food for bacteria, which increase greatly in number. The bacteria use up large quantities of oxygen, reducing the oxygen availability for other organisms. (c) Indicator species are species that by their presence or absence indicate environmental quality/levels of pollution. (d) Pesticides sprayed onto crops can accumulate in the bodies of organisms over time. As they are passed along food chains, toxicity increases and can reach lethal levels. (e) Biological control may be an alternative to the use of pesticides. GM crops may be an alternative to the use of fertilisers. 	What Scotlands' farmers produce fertilisers are used - how are thes reduce runoff around spreading ti maximise yeild and minimise loss beetle banks. Food security and
			levels. (e) Biological control may be an alternative to the use of pesticides. GM crops may be an alternative to the use of fertilisers.	

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or photosynthesis through utilising leaf colour, linked to iting factors graph functions in the field.
farmers help maintain it on farms. What do farmers ops, how do they control ph and how does
rs use legumes to increase the nitrogen in there soil? after the soil is top priority for the farmer. What role n eg manure, role of earthworms. Tropic levels for
e - yeilds of different crops. To get these yeilds se targeted (precision farming). What is being done to imings. What other technologies are being utilsed to ses. Examples of other methods of pest control eg use of GM to develop new varieities.

		Business in Action		1 Give an overview of how small businesses operate by: 1.1 Outlining reasons for individuals setting up in business 1.2 Describing skills and qualities of entrepreneurs when developing a business 1.3 Selecting a type of small business and outlining its features 1.4 Describing sources of business finance and support when setting up a small business 2 Give an overview of how small businesses satisfy customer needs by: 2.1 Stating the importance to a business of satisfying customer needs 2.2 Outlining how small businesses use market research information to satisfy the needs of customers 2.3 Describing promotional strategies used by small businesses 2.4 Describing quality measures used by small businesses	How does the farm operate as a b they produce the product the buye Business planning
National 4	Business	Influences on Business		1 Give an overview of key stakeholders in a small business and their influence on it by: 1.1 Identifying internal and external stakeholders in a small business 1.2 Describing the influences stakeholders can have on a small business 2 Make decisions on the running of a small business, taking account of internal influences by: 2.1 Interpreting a simple cash budget or breakeven chart in order to reach a decision 2.2 Interpreting a simple job costing statement from data provided in order to reach a decision 2.3 Outlining the purpose of training employees 2.4 Describing methods of motivating staff 3 Give an overview of external influences that affect a small business by: 3.1 Identifying the influences 3.2 Outlining the impact of influences on a small business 3.3 Describing a response to the influences by a small business	What are the external factors affe to Brexit. Does the farmer have a budget influenced by external fact
National 5	Business Management	Understanding Business		1 Give an account of the key objectives and activities of small and medium- sized business organisations by: 1.1 Outlining the role of business organisations in society 1.2 Outlining why customer satisfaction is crucial to the success of a business organisation 1.3 Outlining the objectives of business organisations in different sectors of the economy 2 Apply knowledge and understanding of factors that impact on the activities of small and medium-sized business organisations by: 2.1 Outlining how internal factors impact on business activity 2.2 Outlining how external factors impact on business activity 2.3 Examining the impact stakeholders have on business activity	Where in the chain does the farm to standard? Who are the stakeh external factors affecting the farm Does the farmer have any budget influenced by external factors iden
		Management of People and Finance		2 Apply knowledge and understanding of how the management of finance contributes to the success of small and medium sized organisations by: 2.1 Describing sources of finance and outlining their costs and benefits 2.2 Interpreting a breakeven chart 2.3 Interpreting a cash budget to identify cash flow issues and outlining appropriate solutions 2.4 Preparing a simple income (profit and loss) statement from data provided	Look at a farm budget - what nee the group take the information pro
		Nature's Chemistry	Fuels	Biomass, a source of biofuels, is plant-based material which can be burned to release energy. Biomass can also be converted to other usable forms of fuel. These include methane gas or fuels used for transportation such as ethanol and biodiesel.	If you have any farmers with biom Pros and cons on the system. W
			Plants to products	Plants are used to make a wide variety of products. How products are made from plants	Barley malting, beer production, g
National 4	Chemistry	Chemistry in Society	Fertilisers	Importance of fertilisers Three essential elements and percentage composition Natural and manmade fertilisers Environmental impact of fertilisers. The chemist has an important role in helping to make sure plants have the correct nutrients to ensure sufficient food production. There are three key elements which provide the nutrients required for plant growth: nitrogen, phosphorus and potassium. The % composition of an element in the fertiliser can be calculated. They are usually shown as percentage amounts on the side of fertiliser packaging. Fertilisers can be produced naturally or in laboratories by chemists using neutralisation reactions. The use of fertilisers may have an environmental impact. This should include the effect of fertilisers leeching into water courses.	Chemical make up of fertilisers. I detemined. Nutrient managemen farmers to look after their soils.

business - cash flow ; expenses and income. How do er is looking for. Do they carry out any promotion.
ecting the farm business from the price of feed through any budgets to share with the group. How is the stors identified.
a business sit - whats happens if the product is not up holders involved in the business? What are the h business from the price of feed through to Brexit. ts to share with the group. How is the budget entified.
eds to be considered. Fixed and varaible costs. Can ovided and prepare a profit and lost budget.
nass good way to showcase how the system works. /hat is grown and why for biomass use
grass to milk (conversion ratios)
How the nutritional make up of slurries/manures is nt plans. Role of soil testing and why it is benefical for

National 4		Engineering Contexts and Challenges		1 Investigate simple engineered objects, by: 1.1 Describing, using the systems approach, how some simple engineered objects work 1.2 Identifying their main subsystems 1.3 Producing system diagrams to show main sub-systems 1.4 Identifying basic energy transformations 2 Investigate engineering challenges and relate these to key engineering facts and ideas by: 2.1 Describing examples of applications of civil, mechanical, electrical and chemical engineering 2.2 Describing, in simple terms, examples of the varied roles of engineers in designing, implementing, testing and controlling complex systems 2.3 Modelling some aspect of a simple engineering by: 3.1 Describing examples of social and economic benefits of engineering 3.2 Describing examples of environmental benefits of engineering 3.3 Describing examples of environmental benefits of engineering 3.3 Describing simply some ways in which engineering solutions contribute to tackling climate change	Look at examples of farm enginee automatic feeding, use of robotics
	Science	Mechanisms and Structures		1 Investigate a range of simple mechanical and pneumatic systems by: 1.1 Producing diagrams of simple force systems 1.2 Describing, or producing diagrams of, a range of simple pneumatic systems 1.3 Describing, or producing diagrams of, a range of simple mechanical drive systems 1.4 Carrying out simple calculations involving energy, power and efficiency, using given formulae 2 Develop mechanical or pneumatic solutions to solve straightforward problems by: 2.1 Identifying key aspects of the problem 2.2 Applying basic knowledge of structures, pneumatics and/or mechanical drive systems 2.3 Simulating or building simple mechanical or pneumatic systems 2.4 Testing solutions against a specification	Close look at some of the equipm fertiliser spreader and pneumatic
National 5	Engineering	Engineering Contexts and Challenges		1 Investigate engineered objects by: 1.1 Describing, using the systems approach, how some engineered objects work 1.2 Identifying sub-systems and describing the function of each and how they interact 1.3 Producing system diagrams to show sub-systems 1.4 Carrying out energy audits 2 Investigate engineering challenges and relate these to key engineering concepts by: 2.1 Identifying and describing how several different branches of engineering contribute to solving an engineering challenge 2.2 Describing examples of the varied roles of engineers in designing, implementing, testing and controlling complex systems 2.3 Modelling some aspect (related to one branch of engineering) of a solution to an engineering challenge 2.4 Explaining how emerging technologies may provide improved solutions to engineering challenges 3 Describe some aspects of the impact of engineering by: 3.1 Describing examples of engineering 3.2 Describing some examples of environmental impacts of engineering 3.3 Describing some ways in which engineering solutions contribute to tackling climate change	Look at how farm equipment work and ask for solutions.
		Mechanisms and Structures		1 Investigate a range of mechanical and pneumatic systems by: 1.1 Describing or producing diagrams of a range of structures 1.2 Describing or producing diagrams of a range of pneumatic systems 1.3 Describing or producing diagrams of a range of mechanical drive systems 1.4 Carrying out calculations involving energy, work, power and efficiency using given formulae 2 Develop mechanical or pneumatic solutions to solve problems by: 2.1 Identifying key aspects of a problem 2.2 Applying knowledge and understanding of structures, pneumatics and/or mechanical drive systems 2.3 Designing, and simulating or building, mechanical or pneumatic systems 2.4 Testing and evaluating solutions against a specification	Tractor hydraulic systems and ho mechanical drive
		Environmental Science: Living Environment	1 Interdependence	This could cover feeding relationships, factors affecting ecosystems. This could include methods of sampling/measuring organisms and their environment.	Quadrat sampling, soil sampling

ering as case studies eg simple irrigation systems, s; How do these benefit the farmer nent on the farm and how it works eg pneumatic precise seeder ks and is designed. Pose problems which farm has ow they work drive versus a hydraulic drive and/or a

	3 Impact of population growth and natural hazards on biodiversity	Investigate population changes (eg humans, other species) and construct/interpret graphs/tables. Research impact of human-generated (eg acid rain, climate changes, over-fishing, deforestation) and natural (eg drought, flooding, tsunami, harsh winters, volcanic eruption) hazards on biodiversity. Analyse investigation reports, produce presentations on the effects. Investigate any biodiversity problem. Examples could include red deer, rhododendron, Japanese knotweed, grey squirrel culling	Case studies looking at impact of on farming and some of work beir
	5 Environmental impact of fertilisers.	Investigate the positive and negative impacts of fertilisers	Organic and inorganic fertilisers;
Environmental Science: Earth's Resources	1 Responsible use and conservation of non-renewable and renewable resources.	Investigate physical , biological , non-renewable and renewable resources and the differences between them. Investigate the responsible use of non-renewable and renewable resources. Investigate the conservation of non-renewable and renewable resources.	Visits to farms with wind turbines of generate.
	4 Risks and benefits of different energy sources, including those produced from	Research several different types of energy sources including biofuels. Visit eg nuclear power station, hydro producer, wind farm	Visits to farms with wind turbines generate. Oill seed rape and its u
Sustainablity	1 Sustainability of key natural resources and possible implications for human activity.	Investigate sustainability of key natural resources (eg food supply, water, energy supply) and possible implications for human activity.	Food security - what is it and why what can be done to improve food
	3 The role of agriculture in the production of food and raw material and its environmental impacts and sustainability	Investigate the positive and negative environmental impacts of various approaches in agriculture . Carry out an audit of personal food consumption. Research food labelling information. Visit agricultural shows. Visiting speakers from, eg supermarkets, farms.	How is food produced - visit a farr does it come from
Environmental Science: Living Environment	1 Investigating ecosystems and biodiversity	a. Ecological terms, to include habitat, community, biotic, abiotic, biodiversity, species, population, adaptation and competition. c. Quantitative techniques for sampling plants and animals to include quadrats and pitfall traps. Investigate biodiversity in terrestrial and aquatic ecosystems of national importance. Field trip/site visit. Carry out transect studies, including use of quadrats	Use of quadrats/transects across sampling.
	3 Human influences on biodiversity	a. Human activities which have a positive or negative effect on ecosystems, with a focus on species reduction or increase, extinction and loss of biodiversity. d. Conflicts between land and/ or water based activities and an environment of national importance. Investigate/research positive effects of human activities on biodiversity eg conservation, reintroductions. Investigate/research negative effects of human activities (eg pollution) on biodiversity/extinction. Research conflicts between activities and the environment eg between sporting estates and conservation, intensive agriculture and biodiversity. Carry out field visits, visiting speakers, debate issues of national importance.	Debates on conflicts between land biodiversity through farm visits an
Environmental Science: Earth's Resources	3 Hydrosphere	c. Uses of water, to include: industrial, domestic and agricultura l. d. Issues arising from availability of water resources in the UK, to include drought and flooding.	Role of water in farming. Majority it used for, how is it conserved an water use
	4 Biosphere	a. Oceanic and freshwater resources, to include economically important species. b. Terrestrial resources, to include economically important species. c. Energy from biological resources to include definition (biofuels are combustible biomass or fuels derived from biomass). The process of fermentation in formation of biofuels to include conditions required for formation of peat, (acidic and anaerobic) and methane as the primary biogas Investigate resources currently being exploited for human use eg fish, mammals, shellfish and seaweed. Investigate resources currently being exploited for human use eg domesticated and hunted animals, agricultural crops , forestry (native and planted). Investigate the uses of wood (hardwood and softwood). Visit forestry plantation. Investigate issues regarding the sources and use of biological resources including biofuels, eg peat, biogas, bioethanol.	Which species do we farm and wh maximise yeilds. Inputs to the sys

National 5

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droughts/flooding on yeilds. Impact of climate change ng done to develop new varieties

The role of both in the nutrient management plan.

or solar schemes; How do they work and what do they

or solar schemes; How do they work and what do they use as a biofuel.

is it important. What Scotland is self sufficient in, and d security

m or ask in a speaker. What do you eat and where

fields to demonstarte quantiative techniques for plant

d use; sport and conservation/ intensive agricultur and or classroom debates

of extracted water used for food production - what is what is the impact of drought/flooding on future

hy; How have these been developed over time to stem

		Environmental Science: Sustainability	2 Food	a. The impacts of increasing global population on food supplies. b. Strategies, in farming, for a secure food supply, to include intensive farming, GM crops and agrochemicals. c. Organic farming advantages and disadvantages. d. Strategies in freshwater and marine-based systems for a secure food supply, to include intensive fishing and alternative species. e. Fish conservation approaches, to include marine conservation areas, zoning and sustainable fishing methods. f. The environmental impact of food distribution — 'food miles' — to include the term carbon footprint. The term carbon neutral, including the impacts of carbon offsetting. g. National and European policies and legislation relating to food production.	What is food security and what ca pros and cons of GM, organic far food miles and how does this link packaging and why is food securi food production
			3 Water	b. Issues arising from water use: — thermal pollution, effluents — water abstraction and irrigation, may lead to low water levels in rivers — washing cooking, heating, sanitary may lead to water shortages in times of drought, may lead to water use restrictions — impacts on public health, contamination of water supplies, conservation and tourism and recreation. c. Sustainable approaches to water use, to include methods of water conservation.	How can agriculture be more wat distribution of farming practises.
			4 Energy	e. Social, economic and environmental impacts of climate change, including habitat loss, reduction in biodiversity, changes in species distribution, rising sea levels leading to flooding, loss of agricultural land and loss of business.	How will agriculture be inpacted be crop, expansion/retraction of grow
		Geography: Physical Environments		1 Use a limited range of mapping skills in geographical contexts in the United Kingdom by: 1.1 Interpreting geographical information from two sources, including a map, in order to describe any patterns which are found 1.2 Presenting geographical information in at least two straightforward ways, one of which must be related to a map 2 Draw on straightforward knowledge and understanding of physical environments and weather in the United Kingdom by: 2.1 Describing one key feature found in one landscape type in the United Kingdom 2.2 Explaining briefly the formation of one landscape feature found in the United Kingdom 2.3 Explaining briefly the factors affecting weather in the United Kingdom 2.4 Giving brief descriptions of the possible land uses and a brief explanation of a possible land use conflict for one landscape type in the United Kingdom	Look at OS maps of the farm and farming carried out. Are there an walking/motorbiking etc and how
National 4		Geography: Human Environments		1 Use a limited range of research skills applied to developed and developing countries by: 1.1 Collecting straightforward geographical information effectively in two ways 1.2 Interpreting geographical information from two sources in order to make straightforward comparisons 2 Draw on straightforward knowledge and understanding of human environments in developed and developing countries by: 2.1 Briefly describing a straightforward human development issue in a developed and a developing country 2.2 Briefly explaining the factors influencing population distribution and change in developed or developing countries 2.3 Briefly explaining land use change in an urban area and a rural area in a developed or a developing country	Look at the wider landscape roun is farming happening in this area production etc.
	Geography	Geography: Global Issues		1 Use a limited range of numerical and graphical information in the context of global geographical issues by: 1.1 Interpreting relevant numerical and graphical information from two sources 1.2 Evaluating numerical and graphical information to draw a straightforward conclusion based upon evidence 2 Draw on straightforward knowledge and understanding of significant global geographical issue 59 : 2.1 Describing key features of a significant global geographical issue 2.2 Briefly explaining the causes or effects of a global geographical issue 2.3 Briefly explaining the strategies adopted in response to a significant global geographical issue	Food production and Brexit - impl

can we do to make Scotland more food secure. The rming, agrochemicals and intensification. What are k to the carbon footprint. What can people look for on rity a global issue. Policies in place eg CAP covering

terwise? What is the impact of less water on the

by climate change? Development of new varieties of wing areas.

d highlight any key features. Link these to the type of ny land use conflicts eg shooting/conservation, does the farmer cope with these.

nd the farm. Why is the farm located where it is? Why Are there any other land uses - urban, energy

lications and global food production models

National 5		Geography: Physical Environments	1 Use a range of mapping skills in geographical contexts in the United Kingdom by: 1.1 Interpreting geographical information from two sources to explain in detail any patterns which are found; one of the sources must be a map and the other source must relate to the area shown on the map 1.2 Presenting geographical information, in detail, in at least two ways, one of which must be a map or a map based diagram 2 Draw on detailed knowledge and understanding of physical environments and weather in the United Kingdom by: 2.1 Describing, in detail, one key feature found in one landscape type in the United Kingdom 2.2 Explaining, in detail, the formation of one landscape feature found in the United Kingdom 2.4 Giving detailed descriptions of the possible land uses and a detailed explanation of a possible land use conflict and a possible solution for one landscape type in the United Kingdom	Soil testing; conductivity and dens Cross referencing OS maps to co tractors
		Geography: Global Issues	1 Use a range of numerical and graphical information in the context of global geographical issues by: 1.1 Interpreting detailed numerical and graphical information from at least two sources 1.2 Evaluating numerical and graphical information to draw a detailed conclusion based upon evidence 2 Draw on detailed knowledge and understanding of significant global geographical issues by: 2.1 Describing, in detail, key features of a significant global geographical issue 2.2 Explaining, in detail, the causes and effects of a global geographical issue 2.3 Explaining, in detail, the strategies adopted in response to a significant global geographical issue	Look at food supply chains. Analy produced in Scotland. Consider in ecomomy
		Health and Food Technology: Food for Health	1 Describe the relationship between health, food and nutrition by: 1.1 Outlining benefits to health of a balanced and varied diet 1.2 Describing current dietary advice 1.3 Describing the effects on health of the main nutrients 1.4 Describing the effects of diet-related conditions or diseases on health 2 Make a food product to meet dietary and health needs by: 2.1 Describing dietary and health needs of a specified individual or group of individuals 2.2 Selecting and using appropriate ingredients and cooking methods to make a food product to meet the dietary and health needs of specified individuals or groups of individuals	Relate the eatwell guide to Scottis
National 4	λ	Health and Food Technology: Food Product Development	1 Describe how food products are developed by: 1.1 Describing the functional properties of different ingredients in food products 1.2 Describing the stages of food product development 2 Develop a food product to meet specified needs by: 2.1 Generating ideas for food products that meet a specified need 2.2 Making a food product using safe and hygienic practices 2.3 Conducting basic sensory evaluations of the food product 2.4 Reflecting on how the food product meets the specified needs	Sensory local food taste testing. ways
	Technolog	Health and Food Technology: Contemporary Food Issues	1.1 Describing factors which may affect consumers' choice of food 1.2 Describing contemporary food issues which may affect consumers' choice of food 1.3 Identifying technological developments which may affect consumers' choice of food 1.4 Identifying organisations which protect the interest of consumers 1.5 Describing how information on food labels help consumers make informed choices	Discover seasonality and local pro
ß	Health and Food	Health and Food Technology: Food for Health	1 Explain the relationship between health, food, and nutrition by: 1.1 Describing benefits to health of a balanced and varied diet 1.2 Describing, in detail, current dietary advice 1.3 Explaining the function and effects on health of the main nutrients 1.4 Explaining the effects of diet-related conditions or diseases on health 2 Make and reflect on food products to meet dietary and health needs by: 2.1 Explaining dietary and health needs of a specified individual or group of individuals 2.2 Selecting and using appropriate ingredients and cooking methods to make a food product to meet the dietary and health needs of the specified individual or group of individuals 2.3 Explaining how the food product meets the dietary and health needs of the specified individual or group of the specified individual or group of the specified individuals 2.4 Explaining how the food product meets the dietary and health needs of the specified individual or group of the specified individuals or group of the specified individuals the specified individual or group of the specified individuals the specified individual or group of the specified individuals or group of the specified individuals the specified individual or group of the specified individuals the specified individual or group of the specified the	British pea flour, lentil growing, pla role of meat in the diet

sity to map fields and undertake correct management. nductivity maps and ph maps. Role of data on board
vse numerical and geographical information on food
mports and exports. Role of food in Scotlands
sn produce
Undertaking surveys and recording results in different
oduction
ace of pulses in the diet ; role of milk and alternatives;

National		Health and Food Technology: Food Product Development	1 Explain how food products are developed by: 1.1 Explaining the functional properties of different ingredients in food products 1.2 Explaining the stages of food product development 2 Develop a food product to meet specified needs by: 2.1 Undertaking investigations to generate ideas for a food product that meets specified needs 2.2 Making a prototype of a food product using safe and hygienic practices 2.3 Conducting sensory evaluations of the food product 2.4 Explaining how the food product meets the specified needs	Functional properties of different i Selected Pork etc
		Health and Food Technology: Contemporary Food Issues	Explain consumer food choices by: 1.1 Explaining factors which may affect consumers' choice of food 1.2 Explaining contemporary food issues which may affect consumers' choice of food 1.3 Describing technological developments which may affect consumers' choice of food 1.4 Describing how organisations protect the interest of consumers 1.5 Explaining how information on food labels help consumers make informed choices	Food labels : scotch beef/scotch la seasonality
National 4	Hospitality: Practical Cookery	Cookery Skills, Techniques and Processes	1 Use cookery skills, with minimal guidance, to prepare ingredients by: 1.1 Selecting and using equipment to weigh and measure ingredients accurately 1.2 Applying a range of food preparation techniques using appropriate equipment 1.3 Working safely and hygienically 2 Follow cookery processes, with minimal guidance, to produce dishes by: 2.1 Cooking prepared ingredients according to recipes 2.2 Controlling the stages of the cookery processes and testing food for readiness 2.3 Presenting and garnishing or decorating the dishes 2.4 Working safely and hygienically	RHET ingredients and cookery se
		Understanding and Using Ingredients	1 Apply an understanding of ingredients from a range of categories by: 1.1 Identifying ingredients and the categories to which they belong 1.2 Outlining and demonstrating safe and appropriate storage methods for ingredients 1.3 Describing current dietary advice relating to the use of ingredients 1.4 Outlining reasons for sourcing locally produced and seasonal ingredients 2 Use ingredients in the preparation of dishes by: 2.1 Selecting, preparing and/or cooking the ingredients, with minimal guidance, according to recipes 2.2 Selecting and preparing suitable garnishes and/or decorations for the dishes 2.3 Working safely and hygienically	RHET ingredients and cookery se
		Organisational Skills for Cooking	1 Select and follow recipes, with minimal guidance, to produce two dishes by: 1.1 Selecting suitable recipes for two dishes 1.2 Preparing the dishes according to the recipes 1.3 Evaluating the prepared dishes in terms of presentation, taste and texture 1.4 Working safely and hygienically 2 Implement a time plan, with minimal guidance, to produce two dishes by: 2.1 Requisitioning equipment and organising the work area 2.2 Carrying out the tasks according to the time plan 2.3 Working safely and hygienically	RHET ingredients and cookery se
		Cookery Skills, Techniques and Processes	1 Use cookery skills to prepare ingredients by: 1.1 Selecting and using equipment to weigh and measure ingredients accurately 1.2 Applying a range of food preparation techniques using appropriate equipment with precision 1.3 Working safely and hygienically 2 Follow cookery processes to produce dishes by: 2.1 Cooking prepared ingredients according to recipes 2.2 Controlling the stages of the cookery processes and testing food for readiness 2.3 Presenting and garnishing or decorating the dishes and, where appropriate, portioning them 2.4 Working safely and hygienically	Cooking with meat; cooking with c how to prepare these effectively.
National 5		Understanding and Using Ingredients	1 Apply an understanding of ingredients from a range of categories by: 1.1 Identifying a variety of ingredients and their characteristics 1.2 Describing and demonstrating safe and appropriate storage methods for ingredients 1.3 Describing how current dietary advice influences the selection, preparation and use of ingredients 1.4 Describing the importance of sourcing sustainable ingredients 2 Use ingredients in the preparation of dishes by: 2.1 Selecting, preparing and/or cooking the ingredients according to recipes 2.2 Demonstrating specialist garnishing and/or decorating techniques 2.3 Working safely and hygienically	Role of local food production and sourcing sustainable ingredients -

ngredients - Scotch beef v Imported, Specially
amb, specially selected pork ; cost, taste and
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ereals; cooking with potatoes - different types and
using ingredients in season. The importance of
examples of some sustainable systems

		Hospitality: Practical Cookery	Proficiently use a range of cookery skills, food preparation techniques and cookery processes when following recipes ; select and use ingredients to produce and garnish or decorate dishes develop an understanding of the characteristics of ingredients and an awareness of their sustainability ; develop an understanding of current dietary advice relating to the use of ingredients ; plan and produce meals and present them appropriately work safely and hygienically	Ingredient production, tasting wor
National 4	Mathematics	Lifeskills Mathematics: Managing Finance and Statistics	1 Use reasoning skills and financial skills linked to straightforward real-life contexts by: 1.1 Interpreting a situation involving finance and identifying an appropriate strategy 1.2 Using appropriate mathematical processes and/or calculations to determine a solution 1.3 Explaining a solution in relation to the context 2 Use reasoning skills and statistical skills linked to straightforward real-life contexts by: 2.1 Interpreting a situation involving data and identifying an appropriate strategy 2.2 Representing data appropriately 2.3 Interpreting and/or comparing data to draw conclusions	On farm budgeting; inputs/outputs livestock;
		Lifeskills Mathematics: Geometry and Measures	1 Use reasoning skills and measurement skills linked to straightforward real-life contexts by: 1.1 Interpreting a situation involving measurement and identifying an appropriate strategy 1.2 Using appropriate mathematical processes and/or calculations to determine a solution 1.3 Explaining a solution in relation to the context 2 Use reasoning skills and geometric skills linked to straightforward real-life contexts by: 2.1 Interpreting a situation involving geometry and identifying an appropriate strategy 2.2 Using appropriate mathematical processes and/or calculations to determine a solution 2.3 Explaining a solution in relation to the context	Measuring field boundaries and carequired; measuring growth rates
National 5	Lifeskills	Lifeskills Mathematics: Managing Finance and Statistics	1 Use reasoning skills and financial skills linked to real-life contexts by: 1.1 Analysing a situation involving finance and identifying a valid strategy 1.2 Using appropriate mathematical processes and/or calculations to determine a solution 1.3 Justifying a solution in relation to the context 2 Use reasoning skills and statistical skills linked to real-life contexts by: 2.1 Analysing a situation involving data and identifying a valid strategy 2.2 Representing data appropriately 2.3 Using statistics to interpret data, compare data and draw conclusions	Yeild probabilities ; market prices
		Lifeskills Mathematics: Geometry and Measures	1 Use reasoning skills and measurement skills linked to real-life contexts by: 1.1 Analysing a situation involving measurement and identifying a valid strategy 1.2 Using appropriate mathematical processes and/or calculations to determine a solution 1.3 Justifying a solution in relation to the context 2 Use reasoning skills and geometric skills linked to real-life contexts by: 2.1 Analysing a situation involving geometry and identifying a valid strategy 2.2 Using appropriate mathematical processes and/or calculations to determine a solution 2.3 Justifying a solution in relation to the context	Measuring doses for livestock; plo

rkshops and cookery with local food.

ts ; yeilds ; fertiliser applications ; weight gain in

calculating hectarage; linking hectarage to seeds

locally and globally and profit margins

otting weight gains