City & Guilds Level 2 Award in Sustainability and the Green Environment

Candidate name: C&G reg:

Start date: Assessor:



Candidate Registration

Your Full Name (as you would like it on your certificate)		Company Name	
Your Address		Company Address	
Date of Birth		National Insurance Number (if funded)	
Home Telephone Number		Work Telephone Number	
Personal Mobile		Work Mobile	
Personal Email		Work Email	
Qualification	L2 (201) C&G Sustainability	Purchase Order or Reference Number	

Please fill this in & return to your assessor or to the email address below.

accounts@she-knows.com

City and Guilds requires SHE Knows, as an approved centre, to keep your details for 3 years after you have qualified. We do not use these details for marketing purposes.

Equal Opportunities Policy

SHE Knows, Health and Safety believes that equality of opportunity is fundamental to the development of an environment in which those who work or study can achieve their full potential. The pursuit of equality means that all forms of unfair discrimination will be challenged in whatever form they arise. We believe that inequality can arise across the whole range of our activities – in staff recruitment, selection, dismissal, and resources as well as in our NVQ, training and short course activities. The use of language, gestures and other forms of symbolic behaviour can also threaten equality.

SHE Knows, Health and Safety wishes to ensure that individual potential can be encouraged and that staff and candidates can act with confidence, competence and with open and critical minds.

We will pursue, not only the letter of the law, but the spirit of the law in relation to disability, race, colour, ethnic origin, sexuality, gender, or marital status.

All managers, staff, and candidates of SHE Knows Health and Safety will be responsible for ensuring that their actions are carried out in the spirit of this policy.

All those involved in guidance, assessment and verification processes will be responsible for ensuring that equal opportunities issues are addressed in relation to those processes.

All marketing and other published materials will reflect this policy.

SHE Knows, Health and Safety will maintain processes for the monitoring of this policy and will ensure that the issue is a standing item at all standardisation meetings.

The policy will be reviewed on a regular basis.

SHE Knows Health and Safety will look to monitor, race, gender, and disability in relation to staff and candidate profiles and within the confines of its client base, will take positive action where necessary to redress any inequality.

Centre Appeals Procedure

It is the policy of SHE Knows, Health and Safety to ensure fair, objective, and honest assessment of all our candidates.

However, in the unlikely event that a candidate claims that their assessment has been unfair, a first stage appeal may be lodged on the grounds of one or more of the following criteria:

- ✓ Equal Opportunity
- ✓ Clash of personality
- ✓ An unreasonable change in timings or an unrealistic venue
- ✓ Disagreement on claimed competence
- ✓ Receipt of negative feedback

Other reasonable grounds for appeal may be accepted at the discretion of the Centre Co-ordinator.

The first stage appeal should be made in writing to the Candidate's Internal Quality Assurance within fourteen working days of the assessment. The IQA will reply, confirming receipt of the appeal within three (3) working days, and will investigate the complaint. The findings of the investigation will be communicated by the IQA in writing to the candidate within seven (7) working days of acknowledging receipt. If the complaint is upheld, re-assessment will be carried out at no additional cost by an alternative Assessor appointed by the IQA & the Centre Co-ordinator.

If the first stage appeal is unsuccessful, the Candidate may submit a second stage appeal to the Lead Quality Assessor within seven (7) working days of receipt of the outcome of the first stage appeal. The procedure will follow the same timescales as for a first stage appeal and if upheld, re-assessment will be carried out at no additional cost by an alternative Assessor appointed by the Centre Co-ordinator.

If the Candidate wishes to take the appeal beyond the Centre, an appeal should be made in writing to the EQA at the time of his/her next visit to the Centre. No fee will be charged at this stage. The EQA may wish to refer the matter to the Chief Quality Assessor for technical evaluation or for additional comments. If the Chief QA is subsequently unable to conclude the matter satisfactorily, the candidate may appeal directly to the Awarding Body. A fee for handling such appeals will be charged to the Candidate, which will be refunded if the appeal is upheld.

Competency Analysis/Knowledge Gap Analysis

Check the listed tasks or responsibilities below and gauge your knowledge and understanding of each unit as Low, Medium, or High. This will allow you to direct your learning energy to those areas needed the most.

Units of Learning – Unit 201: Sustainability and the Green Environment

	Activity	Low	Med	High
1	Defining and categorising the environment			
	United Nations Sustainable Development Goals			
	Defining parts of the environment			
	Categories of the environment			
2	Components of the environment hand how they can be changed			
	Abiotic and Biotic components of the environment			
	Characterising ecosystems			
	Impacts on the environment			
	Natural and man made impacts on the environment			
3	Sustainability – definition and its three pillars			
	Defining Sustainability			
	Defining the three pillars – Social, Environment & Economic			
	Listing Basic needs			
	Defining resources			
	Damaging and protecting resources (harm and depletion)			
	Resource Protection			
4	Actors and influencers in sustainability and green technologies			
	Who is responsible for, influences, & implements sustainability & sustainable developments?			
	Government legislation and regulations			
	Government Agencies			
	Non-Government Organisations (NGOs)			
	Influencers and personal responsibility			
	Green Technologies			
5	Greenhouse gases and global warming			
	The main greenhouse gases			
	Carbon equivalents			
	The greenhouse effect & Global Warming			
6	The sources of greenhouse gases and targets for reduction			
	Natural sources of greenhouse gases			

	Human sources of greenhouse gases			
	Ways to reduce greenhouse gas emissions			
	Carbon capture			
7	What net zero carbon emissions are, and how this is measured and modelled			
	History of carbon emissions			
	How are carbon emissions measured?			
	How are carbon emissions modelled?			
	Defining net zero carbon emissions			
8	Planning carbon reductions as they relate to net zero			
	History of carbon foot printing			
	What carbon footprint means			
	Carbon scoping			
	Planning for net zero			
9	National and international policy on net zero			
	Role of the IPCC			
	Local, regional, and national policy			
	Sector commitments to net zero			

Now you have identified the areas which are Low, Medium, and High you are ready to begin your learning journey.

- ✓ **High** – You may wish to read through the information quickly to check there are no new areas of knowledge you could use in your work. You may find the activities and knowledge assessment easier in these areas.
- ✓ **Medium** – Read all the information well and ensure you gain a detailed understanding of new areas to you. Complete the activities in detail for those areas you are unsure of.
- ✓ **Low** – Focus your learning energies in these areas. Read the information carefully, complete the activities, and ask for assessor support if you have difficulty. Ensure you have all the knowledge needed before progressing onto the candidate knowledge assessment pack.

Sub-Category 1 – Defining & Categorising the Environment

United Nations Sustainable Development Goals

The 2030 Agenda for Sustainable Development (https://sdgs.un.org/goals), adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.

At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries – developed and developing – in a global partnership.

Work started on the goals in 1992, and we can view them as a way for humans and the planet to develop in a sustainable way – this whole unit is about exploring what that means.

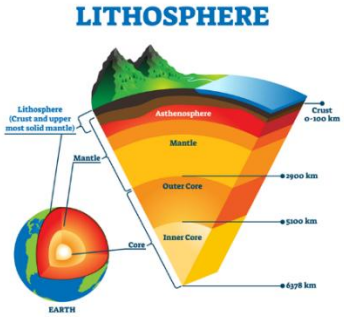
Look at the goals and watch the video linked below – **where do you think the environment fits into the UN sustainability goals? Why you think the goals are important for the environment?** Make notes for discussion with your assessor.

The video: https://youtu.be/0XTBYMfZyrM?si=pPhSaIG0s77NWn2A

Defining parts of the environment

The environment of the planet can be split into four main parts:

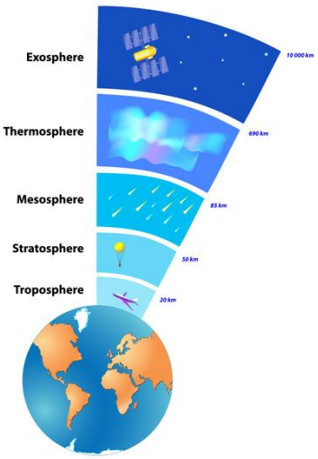
- ✓ **Rocks** (lithosphere)
- ✓ **Air** (atmosphere)
- ✓ **Animals**, plants, microbes, soils (biosphere)
- ✓ **Water** (hydrosphere)



Lithosphere (Rocks)

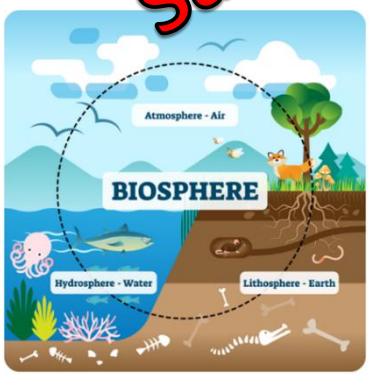
The lithosphere is the Earth's upper crust and mantle, the uppermost solid Earth layer. The lithosphere is made up of tectonic plates, which are basically the continents of the planet.

Atmosphere (Air)



Earth's atmosphere stretches from the surface of the planet up to as far as 10,000 kilometres (6,214 miles) above. After that, the atmosphere blends into space.

While oxygen is necessary for most life on Earth, the majority of Earth's atmosphere is not oxygen. Earth's atmosphere is composed of about 78% nitrogen, 21% oxygen, 0.9% argon and 0.1% other gases. Trace amounts of carbon dioxide, methane, water vapour and neon are some of the other gases that make up the remaining 0.1%.

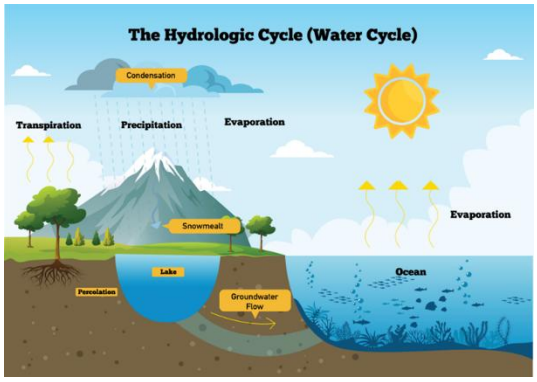


Biosphere (Animals, plants, microbes, soil)

The biosphere is made up of the parts of Earth where life exists. It extends from the deepest root systems of trees to the dark environment of ocean trenches, to lush rainforests and high mountain tops. It contains all the ecosystems in which life exists, habitats such as fresh/sea water, forest/woodlands, wetlands, shrublands or deserts.

Hydrosphere (Water)

A hydrosphere is the total amount of water on a planet. It includes water that is on the surface of the planet, underground and in the air. A planet's hydrosphere can be liquid, vapour, or ice.



Sub-Category 2
Components of the Environment & How They Can be Changed

Abiotic and biotic components of the environment

Abiotic means…
Physical, rather than biological things; components that are not derived from living organisms.

Abiotic components can be further divided into:
- ✓ Climatic factors, such as rain, temperature, and wind
- ✓ Edaphic factors, such as soil, pH, minerals, and salinity

Biotic means…
The living things in the environment.

An **ecosystem**…
Is made up of **biotic components** that exist in a space which is characterised by its abiotic components. The biotic components (living things) evolve to adapt to the abiotic components (temperature, sunlight, humidity, etc) and can influence them. For example, worms in soil are dependent on the structure, temperature, and water content of the soil, and over time they help to create organic matter that impacts soil structure, temperature, and water content.

Biotic components can be further described as
- ✓ Producers (e.g. green plants),
- ✓ Consumers (e.g. animals) and
- ✓ Decomposers (e.g. bacteria and fungi)

Note:
Archaea are microorganisms which are similar to bacteria in size and simplicity of structure, but radically different in molecular organisation. Protists are single-celled organisms of the kingdom Protista, such as protozoan or simple alga

The Three Pillars of Sustainability

The **three pillars of sustainability** are:

1) **Economic** viability (referring to **economic development**, job creation, and making sure every worker is kept safe, treated fairly, and paid a living wage)
2) **Social** equity (Ensuring everyone's **basic rights and needs** are met)
3) **Environmenta**l protection (focusing on the **well-being of the environment**, e.g. clean water, air quality and biodiversity)

It is important to consider how these three pillars together because being sustainable in only one or two pillars does not provide overall sustainability. For example, protecting an environment so that the ecosystems can be sustained will not work if the actions taken to protect it reduce the economic viability of the local community.

Similarly, protecting a community by providing industrial manufacturing jobs might be sustainable economically, but if the industry pollutes the local water resource, then the community (society) will not be able to exist and the whole development will not be maintained (sustainable).

The three pillars of sustainability, sustainable development and achieving a balance between the three pillars can be explored by watching the following videos. While watching the videos, think about the terms **Acceptable**, **Equitable** and **Viable**. What do they mean for sustainable development? Who decides where the balance lies? How can the balance be measured and controlled?

www.youtube.com/watch?v=ijSSe66865w www.youtube.com/watch?v=IgPxLMRk28I www.youtube.com/watch?v=bD-zH_4RbyM

Sub-Category 4 – Actors & Influencers in Sustainability & Green Technologies

Who is responsible for, influences and implements sustainability and sustainable development?

The simple answer is that everyone is responsible for sustainability, but we can think about the following categories:

- ✓ Government legislation
- ✓ Government organisations – Environment Agency/Natural Resources Wales/Scottish Environmental Protection Agency
- ✓ Non-government organisations
- ✓ Private sector
- ✓ Communities
- ✓ Influencers and personal responsibility

Government legislation and regulation

The government has many pieces of legislation and regulations in place that have an impact on sustainability. Some examples of these are:

- ✓ Environment Act (2021)
- ✓ Hazardous Waste Regulations (2005/2016 amend)
- ✓ The Waste Electrical and Electronic Equipment Recycling (WEEE) (2007)
- ✓ Environmental Permitting Regulations (2010)
- ✓ The Agriculture Act (2020)

Refer to **Handout 2: UK government legislation and regulations relating to sustainability** for details.

Government agencies

There are three Agencies that look after environmental protection and sustainability by applying and policing government legislation and regulation.

1. **The Environment Agency** (EA)

Established in 1996 to protect and improve the environment in England, it has around 10,600 employees. Its head office is in Bristol and there is another office in London. They are responsible for:

- ✓ Regulating major industries and waste
- ✓ Treatment of contaminated land
- ✓ Water quality and resources
- ✓ Fisheries
- ✓ Inland river, estuary, and harbour navigations
- ✓ Conservation and ecology.

They are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries, and the sea.

Communities

When referring to communities, this means villages, towns, and cities where people live and work together. **A sustainable community is one that is built or modified to promote sustainable living**.

There are many actions that can be taken at a community level by businesses, volunteer groups, and those living in the community to improve environmental sustainability. Examples of these are:

- ✓ Planting trees/hedges
- ✓ Reducing the use of plastics
- ✓ Protecting or preserving natural environments
- ✓ Recycling
- ✓ Reducing air/water pollution

We must also consider initiatives that focus on the current and future needs of a group of people in a defined area or region. They can give voice to the people who live within the communities on what happens in their communities. Local authorities and action groups can provide a frame for those voices and a means of delivery.

The following websites are useful:

Sustainable communities support in the UK	Definition of sustainable communities	UK sustainable communities strategy and support
https://sustainablecommunities.uk	https://sustain.org/about/what-is-a-sustainable-community/	www.local.gov.uk/sustainable-community-strategies-and-local-development-frameworks

Influencers and personal responsibility

In recent years, the influence of personalities on Instagram, TikTok, Facebook, etc is fast growing and changing. Influencers now play a significant role in promoting sustainable lifestyles and encouraging eco-friendly practices. This is particularly relevant in the younger demographic, who see these influencers as role models. From raising awareness about environmental issues, to promoting sustainable products, influencers are using their platform to educate and inform and reach a wide audience through the means of Social Media.

Visit the following link to see a list of some interesting UK sustainability influencers:
https://ethicallykate.com/blog/uk-sustainable-bloggers-to-follow

Carbon Scoping

Carbon footprints need to be calculated in the same way across all sectors. A standardised way of calculating carbon footprints means that carbon consumption can be compared within sectors (for example, by different steel works, different glass-making factories, or different insurance providers).

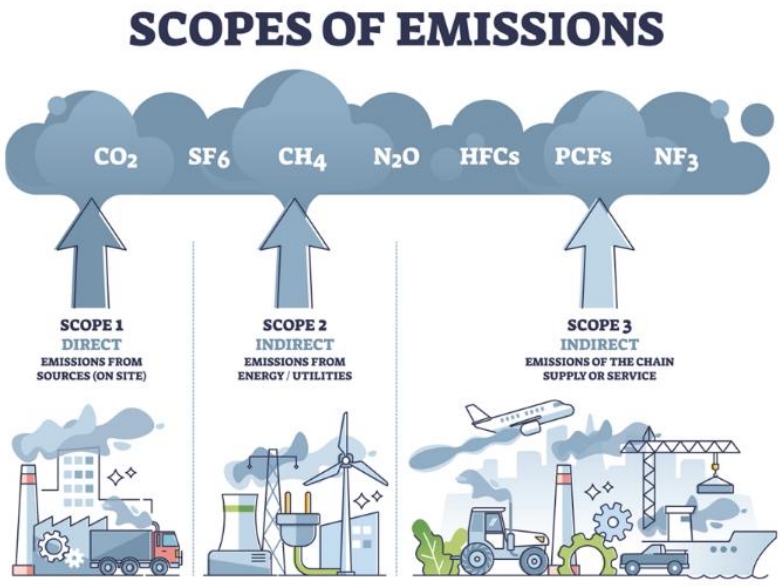
It also means that carbon consumption can be compared between sectors (for example, comparing the carbon consumption of agriculture versus the carbon consumption of food processing).

The framework for calculating the carbon consumption by everyone in every business and organisation is called **carbon scoping**. There are three carbon scopes that are used for calculating carbon consumption:

1) **Scope 1** covers **direct emissions** from owned or controlled sources. For example, if a business has office buildings or factories, the emissions generated by these facilities would fall into this category. The same goes for any company-owned vehicles.

2) **Scope 2** covers **indirect emissions** from the generation of purchased electricity, steam, heating, and cooling consumed. This includes the emissions generated from the usage of electricity in the buildings that an organisation owns or occupies.

3) **Scope 3** covers all **other indirect emissions** that occur within an organisation's wider value chain. We can think of these as upstream (for example, the mining of metals that are then transported as supplies to make steel in a steelworks) and downstream (for example, how the steel is worked after it is sold by the steelworks to a customer)



NOTE: Scope 3 is generally the most difficult category for accurate data collection, as the activities are typically further along the supply chain, where the reporting company may not have direct contact with the suppliers, and don't have control over the customers. Examples include emissions generated from business travel and commuting and the emissions generated during the usage phase of a product.

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