# Example learning outcomes aligned with competencies for sustainable development

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## Introduction

The following example learning outcomes have been extracted from: [QAA Education for Sustainable Development Guidance](https://www.qaa.ac.uk/the-quality-code/education-for-sustainable-development) (2021) pages 23-31.

SD – sustainable development.

## Systems thinking competency

A student with systems thinking competency can:

### Knowledge

* Describe the relationships between environmental, social, and economic systems, at scales from local to global level.
* Identify the tensions between the 17 SDGs and recognise their interconnections.
* Recognise that a collective effort is not necessarily just a simple sum of each individual's effort but is likely to be more complex and have multiple drivers that may be personal, political, or communal.
* Identify that positive or negative environmental change may arise from economic growth.
* Describe how power structures and political systems influence sustainable development.

### Skills

* Recognise and understand relationships.
* Analyse complex systems.
* Consider how a system's constituent parts interact and operate at different scales and across time.
* Work with interconnectedness and complexity in a systemic context, synthesising diverse information and data to offer a range of potential solutions.
* Identify the interactions between social, economic, and environmental systems.
* Assess a problem from different scales and perspectives.

### Attributes and values

* Think systemically, in terms of recognising connections and interactions between factors, and understand that actions often have multiple consequences.
* Deal with and manage uncertainty.
* Appreciate the root causes of unsustainable development including environmental, social, and economic actions, and their links to cultural considerations.
* Identify the factors that have the biggest potential for driving constructive change.

## Futures thinking (anticipatory) competency

A student with futures thinking competency can:

### Knowledge

* Identify the risks associated with complex systems that can lead to unintended consequences or negative cumulative effects.
* Evaluate the impacts and interconnections between the activities of different generations, demographic groups, and cultures, recognising that there may be tensions and competing factors between them.
* Identify the causes and possible solutions to inequity at intragenerational and intergenerational global levels.
* Identify those natural systems have non-negotiable limits and may become unstable or collapse if subjected to excessive pressures or changes.
* Identify risks and uncertainties associated with the transformation of the natural environment.
* Identify the need for decisions about natural resources to involve judgements, not just about economic viability but about risks to future ecological, social, or cultural wellbeing.

### Skills

* Generate and evaluate different approaches to SD and assess their likely impact, within the context of their own discipline/subject.
* Use historical knowledge and an understanding of the consequences of past actions to envision how futures may be shaped.
* Develop, understand, and evaluate multiple outcomes.
* Create their own visions for the future.
* Apply the precautionary principle.
* Assess the consequences of actions.
* Evaluate risks and their potential impacts.
* Identify future scenarios and use them to inform decision making.
* Use backcasting skills - starting with defining a desirable future and working backwards to identify policies and programmes that will connect that to the present.
* Use forecasting skills - looking at past trends and present conditions to extrapolate anticipated future outcomes.

### Attributes and values

* Be flexible, resourceful, and adaptable to fit changing and/or unforeseen circumstances if it is likely to have a positive outcome for SD.
* Imagine and envision sustainable futures.
* Consider the impacts, both positive and negative, of heritage and cultures when planning for the future.
* Apply an awareness of intergenerational fairness to decisions and planning.
* Be prepared to learn from others and consider their perspectives.
* Learn to unlearn when situations and contexts demand alternative solutions.
* Demonstrate an open mindset to new approaches to problem solving.

## Critical thinking competency

A student with critical thinking competency can:

### Knowledge

* Draw upon scientific evidence and scholarly research to develop.
* understanding of SD and the impact of human activity upon it.
* Identify the rationale for encouraging behavioural change, where existing practices are shown to have a negative impact on the human and natural environment.
* Identify change makers who have made positive contributions and draw upon their practices to enhance understanding.

### Skills

* Present a simplified view of a concept.
* Identify and formulate critical questions and problems.
* Assess new information and continuously incorporate it into existing models as they develop.
* Critically assess and analyse SD issues within the context of their own discipline/ subject area or future profession/career intentions.
* Analyse, synthesise and evaluate data and information and reach well-reasoned conclusions and solutions, testing them against relevant criteria and standards.
* Differentiate evidence-based conclusions from opinion and conjecture.

### Attributes and values

* Demonstrate the capacity for independent, evidence-based integrated thinking as the foundation for developing their personal ethical code.
* Evaluate the consequences of their own actions and of collective actions.
* Reflect on their own values, perceptions, and actions, comparing and contrasting them to others who may have influence.
* Take an evidence-based position in the SD discourse.
* Recognise their assumptions and evaluate the potential implications and consequences of them.

## Strategic thinking competency

A student with strategic thinking competency can:

### Knowledge

* Identify the root causes of unsustainable development, including environmental, social, and economic actions.
* Understand how emotional and cognitive awareness can influence decision making.
* Identify then enact changes to actions or behaviours where existing practices have a negative impact.
* Appreciate how aspects of their own discipline contribute positively or negatively to SD.
* Understand the risks and uncertainties associated with the transformation of the natural environment.

### Skills

* Link the environmental, social, and economic actions to cultural considerations.
* Evaluate the impact of and connections between the activities of different generations, demographic groups, and cultures, recognising that there may be competing factors between them.
* Identify SD strategies to facilitate and mediate progressive discussions among interested parties (stakeholders) to help resolve dilemmas and conflicts.
* Develop and implement innovative actions that further SD at the local level and beyond.
* Use planning and assessment tools to identify and address SD challenges and opportunities.

### Attributes and values

* Practise decision-making and analyse consequences of decisions made.
* Undertake reflection on actions and behaviours.
* Integrate thinking as a foundation for developing their personal ethical code.
* Demonstrate flexibility and resourcefulness and adapt a
* problem-solving mindset to fit changing or unforeseen circumstances.
* Demonstrate a commitment to lifelong learning.

## Collaboration competency

A student with collaboration competency can:

### Knowledge

* Understand the value of collaborating with others offering different knowledge, views, and experiences.
* Identify and critique differing approaches to collaboration.
* Recognise group management strategies.
* Recognise verbal and non-verbal communication skills and their role in group cohesion.
* Recognise the goals, skills and needs of others as part of successful collaboration.

### Skills

* Communicate effectively through listening, clarity of expression and constructive inquiry.
* Engage in interdisciplinary discussion to inform their thinking about sustainable futures and seek holistic, creative solutions to problems.
* Identify the importance of encouraging and enabling individuals and organisations to work together to create new knowledge.
* Clearly communicate complex SD issues to others.
* Facilitate and mediate progressive discussions among interested parties (stakeholders) to help resolve dilemmas and conflicts.
* Listen actively and critically.
* Connect, adapt, and synthesise what they learn.
* Address conflict and develop mediation skills.
* Utilise appropriate leadership styles.

### Attributes and values

* Learn from others including peers, professionals, expert groups, and communities.
* Deal with conflicts in a group.
* Facilitate collaborative and participatory problem solving.
* Assist others through peer learning.
* Question norms, practices, and opinions.
* Understand and respect the needs, perspectives, and actions of others.
* Empathise with the views and experiences of others.
* Collaborate equitably across gender, ethnicity, and other groups.

## Integrated problem-solving competency

A student with integrated problem-solving competency can:

### Knowledge

* Describe the potential for their discipline to interconnect with other disciplines.
* or areas of expertise and make creative leaps forward.
* Describe how aspects of their own area of study contribute to SD and connects to the UN SDGs.
* Appreciate research methods from different disciplines.
* Understands the academic norms of a discipline and explore disciplinary integrity.

### Skills

* Use and apply established frameworks and methodologies for analysing the impact(s) of a behaviour or process, utilising the skills and expertise developed through their own area(s) of study.
* Apply different problem-solving frameworks to complex SD problems.
* Develop viable, inclusive, and equitable solutions.
* Effectively engage with real-life problems relevant to sustainable development.
* Combine different sources and types of evidence, drawing from different.
* disciplines, to view and address a problem.

### Attributes and values

* Utilise appropriate competencies to identify and solve problems.
* Communicate effectively with others to identify solutions to complex problems.
* Listen critically when presented with alternative ideas or frameworks, systems, and ideas.
* Work effectively in multidisciplinary and interdisciplinary groups.
* Consider academic norms and ways of thinking across different disciplines and subject areas, bringing them into play as appropriate.

## Self-awareness competency

A student with self-awareness competency can:

### Knowledge

* Identify and evaluate their own competences and learning needs.
* Understand their own heritages and cultures.
* Identify the importance of empowering individuals and organisations to
* work collaboratively.
* Understand how power structures and political systems influence SD.
* Identify the wide range of human cultures in existence and understand both the benefits and the challenges that these cultures present for SD.

### Skills

* Employ leadership for SD by challenging assumptions and negotiating alternatives to unsustainable current practices, especially within their own discipline or subject area.
* Actively implement or contribute to changes that promote SD within the scope of their own learning experience and study environment.
* Take responsibility for their own learning and skills development.
* Facilitate and mediate progressive discussions among stakeholders to resolve dilemmas and conflicts.

### Attributes and values

* Clarify their own views on ways that SD can be achieved in different local and global communities and circumstances.
* Access and engage with their own and other cultures and heritages.
* Maintain healthy mental and emotional state and be aware of their mental and emotional health, in particular to:
  + reflect on their own values, perceptions, and actions.
  + reflect on their own role in the local community and global society.
  + continually evaluate and further motivate their actions.
  + be aware of and engage with their own emotions.
  + make meaning in the work they do.

## Normative competency

A student with normative competency can:

### Knowledge

* Identify the wide range of human cultures in existence, and understand both the benefits and the challenges that these cultures present in terms of SD.
* Demonstrate that both unsustainable and sustainable practices take place in an evolving context, necessitating adaptability in policy and planning responses.
* Identify the interactions between human communities and ecological systems and be able to assess the potential impacts upon each other.
* Identify ethical questions and use ethical frameworks.
* Identify practical interventions for sustainability challenges.

### Skills

* Tackle and negotiate SD conflicts with an awareness of different perspectives and motivations.
* Identify the opportunities to support and develop a progressive and resilient culture that encourages citizens, professions, and institutions to put learning into practice.
* Debate and explore fairness and justice, including social justice.
* Develop alternative solutions that provide new opportunities for engagement with SD.

### Attributes and values

* Negotiate SD values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions.
* Understand and reflect on the norms and values that underlie one's actions.
* Engage with and understand different world views.
* Appreciate, critique and value different cultural contexts.



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