SDG indicator metadata

(Harmonized metadata template - format version 1.1)

0. Indicator information (SDG_INDICATOR_INFO)

0.a. Goal (SDG_GOAL)

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

0.b. Target (SDG_TARGET)

Target 12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

0.c. Indicator (SDG_INDICATOR)

Indicator 12.8.1: Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

0.d. Series (SDG_SERIES_DESCR)

SE_GCEDESD_CUR - Extent to which global citizenship education and education for sustainable development are mainstreamed in curricula [4.7.1,12.8.1,13.3.1]

SE_GCEDESD_NEP - Extent to which global citizenship education and education for sustainable development are mainstreamed in national education policies [4.7.1,12.8.1,13.3.1]

SE_GCEDESD_SAS - Extent to which global citizenship education and education for sustainable development are mainstreamed in student assessment [4.7.1,12.8.1,13.3.1]

SE_GCEDESD_TED - Extent to which global citizenship education and education for sustainable development are mainstreamed in teacher education [4.7.1,12.8.1,13.3.1]

SE_SGE_BIODIV - Score on greening education in biodiversity [4.7.1,12.8.1,13.3.1]

SE_SGE_CLIMCH - Score on greening education in climate change [4.7.1,12.8.1,13.3.1]

SE_SGE_ENVSUST - Score on greening education in environment and sustainability [4.7.1,12.8.1,13.3.1]

SE_SGE_OVERALL - Score on greening education in environment and sustainability, climate change, and biodiversity [4.7.1,12.8.1,13.3.1]

0.e. Metadata update (META_LAST_UPDATE)

2026-03-27

0.f. Related indicators (SDG_RELATED_INDICATORS)

12.8.1 and 13.3.1

0.g. International organisations(s) responsible for global monitoring (SDG_CUSTODIAN_AGENCIES)

UNESCO Education Sector, Division for Peace and Sustainable Development, Section of Education for Sustainable Development (UNESCO-ED/PSD/ESD)

UNESCO Institute for Statistics (UNESCO-UIS)

Global Education Monitoring Report

1. Data reporter (CONTACT)

1.a. Organisation (CONTACT_ORGANISATION)

UNESCO Education Sector, Division for Peace and Sustainable Development, Section of Education for Sustainable Development (UNESCO-ED/PSD/ESD), UNESCO Institute for Statistics (UNESCO-UIS), and Global Education Monitoring Report.

2. Definition, concepts, and classifications (IND_DEF_CON_CLASS)

2.a. Definition and concepts (STAT_CONC_DEF)

Definition:
Indicator 4.7.1/12.8.1/13.3.1 measures the extent to which countries mainstream Global Citizenship Education (GCED) and Education for Sustainable Development (ESD) in their education systems. This is an indicator of characteristics of different aspects of education systems: education policies, curricula, teacher education and student assessment as reported by government officials, ideally following consultation with other government ministries, national human rights institutes, the education sector and civil society organizations. It measures government intentions and not necessarily what is implemented in practice in schools and classrooms.

For each of the four components of the indicator (policies, curricula, teacher education, and student assessment), a number of criteria are measured, which are then combined to give a single score between zero and one for each component. (See methodology section for full details).

The indicator and its methodology have been reviewed and endorsed by UNESCO's Education Data and Statistics Commission (EDSC) (former TCG), which is responsible for the development and maintenance of the thematic indicator framework for the follow-up and review of SDG 4. The EDSC also has an interest in education-related indicators in other SDGs, including global indicators 12.8.1 and 13.3.1. The EDSC is composed of 28 regionally representative experts from UNESCO Member States (nominated by the respective geographic groups of UNESCO) as per the revised Terms of Reference (November 2023), as well as international and regional partners and civil society. The UNESCO Institute for Statistics acts as the Secretariat.

Concepts:
Global Citizenship Education (GCED) and Education for Sustainable Development (ESD) nurture respect for all, build a sense of belonging to a common humanity, foster responsibility for a shared planet, and help learners become responsible and active global citizens and proactive contributors to a more peaceful, tolerant, inclusive, secure and sustainable world. They aim to empower learners of all ages to address and resolve local and global challenges and to take informed decisions and actions for environmental integrity, economic viability and a just society for present and future generations, while respecting cultural diversity.

2.b. Unit of measure (UNIT_MEASURE)

For Survey Index (between 0.000 and 1.000).
For Greening Curriculum Index (between 0 and 100).
For reporting on harmonised scale, 0-100 range values will be used.

2.c. Classifications (CLASS_SYSTEM)

Not applicable

3. Data source type and data collection method (SRC_TYPE_COLL_METHOD)

3.a. Data sources (SOURCE_TYPE)

Survey

For the time period 2017-2020, responses to the quadrennial reporting by UNESCO Member States on the implementation of the 1974 *Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms*. The last round of reporting took place in 2020-21. The results were published in the Global SDG Indicator Database in July and September 2021. In November 2023, the 1974 Recommendation was superseded by the 2023 Recommendation on Education for Peace, Human Rights and Sustainable Development. The first reporting on the new Recommendation will take place in 2026-2027 covering the period 2024-2026. It will be one data source for the global indicator. In 2024 a short, one-off survey is being considered by UNESCO to collect data for the global indicator covering the time period 2021-2023. (See methodology section for details of questions asked).

Greening

To measure the extent to which green content is integrated in the official intended curriculum of primary and (lower) secondary education, two types of documents were analysed to create a country's Greening Curriculum Indicator (GCI) score: 1) **national curriculum frameworks** and 2) **subject curricula documents** from science and social science subjects taught in grades 3, 6, and 9. The terms curriculum or syllabus here should be distinguished from related terms such as textbook, lesson plan, and teaching guidelines. A database of over 1,700 curriculum documents has been compiled for the 2025 data release.

National curriculum frameworks (NCFs)

NCFs are defined as national-level policy documents that overview a country's educational goals and priorities and set forth key parameters of the country's official intended curriculum. NCFs are written and approved by the relevant ministry of education or another officially designated body. A comprehensive NCF: 1) delineates the aims of the curriculum at various stages of schooling; 2) explains the educational philosophy underlying the curriculum and approaches to teaching, learning, and assessment that align with that philosophy; 3) describes curricular structures; 4) assigns names to subject/learning areas; 5) allocates time to each subject (or group of subjects) in each grade level (or set of grades); 6) provides guidelines to curriculum developers, teacher trainers, and textbook writers; 7) prescribes curricular standards and mechanisms for inspection and monitoring; and 8) refers to learning assessments to be conducted (UNESCO-IBE, 2017a; UNESCO-IBE, 2017b).

To be considered an NCF for the purposes of the GCI, the document has to:

- Be written by the ministry of education or other official designated body.
- Cover primary, lower secondary, or upper secondary levels of formal education (categories 1, 2, and 3 according to the International Standard Classification of Education or ISCED).[1]
- Have a title or opening matter that describes the document as a National Curriculum Framework.
- Include content that aligns with the sections outlined in the document definitions above.

In cases where an NCF matching the above criteria was not identified, other documents containing similar content to an NCF were considered for inclusion. For example:

- The introductory or front matter of document(s) specifying the content of subject curricula similarly to an NCF.
- Laws or regulations passed by legislative or executive bodies that specify curricular structures and contents of a national education system along the lines of an NCF.
- Official websites of national governments or subnational political units that present in a similar manner to an NCF.

Subject curricula

Subject curricula or subject syllabi are defined as subject- and grade-specific documents that include most or all of the following information: 1) a general rationale for the teaching of the subject; 2) the intended aims and learning outcomes; 3) clearly defined content areas (topics and themes) to be included in the teaching of each subject; and 4) ideally, a weekly, monthly, or yearly timetable allocating instructional time to each topic/subject, pedagogical considerations, and possibly assessment guidelines. The name given to such documents varies by language – for example, "programme" (French), "Lehrplan" (German), "programma" (Italian), "plan de estudios"

[1] See https://uis.unesco.org/en/topic/international-standard-classification-education-isced

(Spanish) and “almanhaj” (Arabic) – and may have slightly different connotations. There are no international guidelines for subject curricula, partly because they reflect national traditions in the development and implementation of the official curriculum, the extent of teacher and school autonomy, and patterns of pre-service and in-service teacher training.
Subject curricula were included for subjects in two broad knowledge domains: science and social science. Curricula for up to four subjects in each knowledge domain (thus up to eight subjects in total) were included at each grade level (3, 6, and 9) in each country or sub-national jurisdiction. Table 1 lists the typical subjects found in each knowledge domain internationally. Many countries organize instruction in a single general science and/or social science subject (more common in grades 3 and 6), rather than numerous specialized subjects (more common in grade 9). Some countries teach interdisciplinary subjects such as environmental education (EE) or education for sustainable development (ESD) or special hybrid subjects that combine science and social science content. Such interdisciplinary or hybrid subjects were included among the up to eight subjects per grade level.

Table 1: List of typical science, social science and EE/ESD subjects included in GCI calculations

Science Subjects	Social Science Subjects	EE/ESD subjects
• General Science • Applied Science / Technology • Earth Science • Life Science • Physical Science	• General Social Science • Geography • History • Civics/Citizenship • Economics • Religious, Moral, and Philosophy • Cultural and Art Studies	• Environmental Education • Environmental Education / Education for Sustainable Development • Environmental and Outdoor Education • Sustainability

Note. The number of science subjects never exceeded four subjects in any country, so all science subjects were collected for the countries included in the sample. Any curricula related to EE or ESD were also collected. In total, 17 countries had EE/ESD specific curricula.

Green keywords
A set of 13 green keywords were defined in relation to four themes: environment, sustainability, climate change, and biodiversity (see Table 2).

Table 2: List of green keywords used in the analysis

Themes	Keywords		Total number of keywords
Environment and sustainability	• environmental* • sustainability	• greening • “sustainable development”	4
Climate change	• “climate change” • “global warming” • “greenhouse gas*"	• "climate justice" • “renewable energy”	5
Biodiversity	• biodiversity • ecosystem*	• extinction* • invasive species	4
Total			13

All keywords were translated into 40 languages and then validated by language proficient experts. The keyword searches are carried out using a bespoke Python application.

3.b. Data collection method (COLL_METHOD)

Survey
Responses are submitted by national governments, typically by officials in Ministries of Education. Respondents are asked to consult widely across other government ministries, with national human rights institutes, the education sector and civil society organizations in compiling their responses. Respondents are also asked to submit supporting evidence in the form of documents or links (e.g. to education policies or laws, curricula, etc.), which will be made publicly available in UNESCO's Observatory on the Right to Education.

Greening
National curriculum frameworks
NCF documents are identified by searching ministry of education websites, as well as databases such as UNESCO IIEP Planipolis, UNESCO International Institute for Educational Planning (IIEP), Siteal, UNESCO Regional Comparative and Explanatory Study (ERCE), Eurydice, Organization for Economic Cooperation and Development (OECD) Policy Outlook, and the Educational Media Research (Edumeres), as well as consulting country experts.

Subject curricula
Subject curricula are included for subjects in two broad knowledge domains: science and social science. Curricula for up to four subjects in each knowledge domain (thus up to eight subjects in total) are included at each grade level (3, 6, and 9) in each country or sub-national jurisdiction. Table 1 above lists the typical subjects found in each knowledge domain internationally. Many countries organize instruction in a single general science and/or social science subject (more common in grades 3 and 6), rather than numerous specialized subjects (more common in grade 9). Some countries teach interdisciplinary subjects on environmental education (EE) or education for sustainable development (ESD) or special hybrid subjects that combine science and social science content. Such interdisciplinary or hybrid subjects are included among the up to eight subjects per grade level.

Subject curricula documents are identified through a range of sources, including through manually reviewing ministry of education websites and searching archives of recent curriculum studies. National Commissions for UNESCO also provided subject curricula following a request by the UNESCO International Bureau of Education and UNESCO headquarters. In cases where these methods do not yield the relevant subject curricula, additional documents are collected through consultation with country education experts.

3.c. Data collection calendar (FREQ_COLL)

Survey
2020-21 round (covering 2017-2020) completed in April 2020. Next round foreseen in 2024 (covering 2021-2023). Data for the period 2024-2026 are expected to be collected in 2026-2027, as the first reporting on the 2023 Recommendation on Education for Peace, Human Rights and Sustainable Development.

Greening
Data collection is expected to be annual. The collection of 2025 data was carried out between 2023 and 2024.

3.d. Data release calendar (REL_CAL_POLICY)

Survey
Q2 and Q3 of 2021 (from 2020-21 reporting round). 2025 (for 2024 reporting round).

Greening
2025 (for 2023-24 data).

3.e. Data providers (DATA_SOURCE)

Survey

Requests for reports are submitted to Ministers Responsible for Relations with UNESCO who are typically Education Ministers. Reports are usually completed by government officials in Ministries of Education. Countries are requested to consult widely before submitting their reports. To assist with this, requests for reports are also copied to NGOs in official partnership with UNESCO and the Office of the High Commissioner for Human Rights (OHCHR).

Greening
Data were provided by the UNESCO ESD Section and the Monitoring and Evaluating Climate Communication and Education (MECCE) Project.

3.f. Data compilers (COMPILING_ORG)

Survey
UNESCO's Sections for Education for Sustainable Development and Global Citizenship and Peace Education.

Greening
Global Education Monitoring Report and the Monitoring and Evaluating Climate Communication and Education (MECCE) Project.

3.g. Institutional mandate (INST_MANDATE)

Survey
In 1974, UNESCO Member States adopted the *Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms*, which encapsulates many of the aims of SDG targets 4.7, 12.8 and 13.3. Every four years, countries report on the implementation of the Recommendation. This well-established formal mechanism is the data source for indicator 4.7.1/12.8.1/13.3.1. The seventh quadrennial reporting round took place in 2020-2021.

Greening
During the UN Transforming Education Summit (November 16-19, 2022), which sought to mobilize solutions to accelerate national and international efforts to achieve ADG 4, participants agreed to seven global initiatives, one of which is "Greening Education: to get every learner climate ready." UNESCO established the Greening Education Partnership in 2022, which prioritized the greening of schools, curricula, teacher training and system capacities and communities. In December 2022 the SDG 4 High-level Steering Committee met in Paris and decided to "add indicators for…greening education and requested that its Data and Monitoring Technical Committee…develop a methodology for these indicators…" The Steering committee also mandated UIS and the GEM Report to develop benchmark indicators on greening education.

4. Other methodological considerations (OTHER_METHOD)

4.a. Rationale (RATIONALE)

In order to achieve SDG targets 4.7, 12.8 and 13.3, it is necessary for governments to ensure that ESD and GCED and their sub-themes are fully integrated in all aspects of their education systems. Students will not achieve the desired learning outcomes if Education for Sustainable Development (ESD) and Global Citizenship Education (GCED) have not been identified as priorities in education policies or laws, if curricula do not specifically include the themes and sub-themes of ESD and GCED, and if teachers are not trained to teach these topics across the curriculum.

This indicator aims to give a simple assessment of whether the basic infrastructure exists that would allow countries to deliver quality ESD and GCED to learners, to ensure their populations have adequate information on sustainable development and lifestyles in harmony with nature. Appropriate education policies, curricula, teacher education, and student assessment are key aspects of national commitment and effort to implement GCED and ESD effectively and to provide a conducive learning environment.

Survey
Each component of the indicator is assessed on a scale of zero to one. The closer to one the value, the better mainstreamed are ESD and GCED in that component. By presenting results separately for each component, governments will be able to identify in which areas more efforts may be needed.

Greening
Greening related to environment, sustainability, climate change and biodiversity (SDG indicator 13.3.1) is captured under the component "Curricula" of the indicator. The measurement of greening follows a specific computation method and is presented separately. The goal is to assess the extent to which green content (related to environment, sustainability, climate and biodiversity) is prioritized and integrated into national curriculum policy frameworks and science and social science subject curricula (syllabi) in grades 3, 6, and 9.

4.b. Comment and limitations (REC_USE_LIM)

Survey
The indicator is based on self-reporting by government officials. However, countries are asked to provide supporting evidence in the form of documents or links (e.g. education policies or laws, curricula, etc.) to back up their responses. In addition, UNESCO compares responses with available information from alternative sources and, if appropriate, raises queries with national respondents. At the end of the reporting cycle, country responses and the supporting documents will be made publicly available.

Greening
The greening indicator analyses the content of official policy and curriculum documents for themes related to sustainability, environment, climate change and biodiversity to determine the extent to which relevant green content is prioritized. As it is based on counts of keywords, it does not capture how these keywords are used.

4.c. Method of computation (DATA_COMP)

Survey
Information collected with the questionnaire for monitoring the implementation by UNESCO Member States of the 1974 *Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms* and from 2026, the 2023 *Recommendation on Education for Peace, Human Rights and Sustainable Development* is used for the construction of the global indicator. For each of the four components of the indicator (policies, curricula, teacher education, and student assessment), a number of criteria are measured, which are then combined to give a single score between zero and one for each component. Only information for primary and secondary education are used for calculation of indicator 4.7.1/12.8.1/13.3.1.

(a) Laws and policies

The following questions are used to calculate the policies component of the indicator:

A2: Please indicate which global citizenship education (GCED) and education for sustainable development) ESD themes are covered in national or sub-national laws, legislation or legal frameworks on education.

There are eight GCED/ESD themes (cultural diversity and tolerance, gender equality, human rights, peace and non-violence, climate change, environmental sustainability, human survival and well-being, and sustainable consumption and production) and two levels of government (national and sub-national) = 16 responses.

Response categories are no = 0, yes = 1, unknown, which is treated as zero, and not applicable, which is ignored. Blanks are also treated as zeros.

If more than half of responses are unknown or blank the question score is not calculated.

Note that 'not applicable' is used where only one level of government is responsible for education.

Question score = simple mean of the 0 and 1 scores, excluding not applicables (i.e., if eight of the 16 responses are 'not applicable', the sum of the 0 and 1 scores is divided by 8 to get the mean and not by 16).

A4. Please indicate which GCED and ESD themes are covered in national or sub-national education policies, frameworks or strategic objectives.

There are eight GCED/ESD themes (cultural diversity and tolerance, gender equality, human rights, peace and non-violence, climate change, environmental sustainability, human survival and well-being, and sustainable consumption and production) = 8 responses.
Response categories are no = 0, yes = 1, and unknown (treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

A5. Please indicate whether national or sub-national education policies, frameworks or strategic objectives on education provide a mandate to integrate GCED and ESD.

There are two levels of government (national, sub-national) and five areas of integration (curricula, learning objectives, textbooks, teacher education, and student assessment) = 10 responses.
Response categories are no = 0, yes = 1, unknown (treated as zero), and not applicable, which is ignored. Blanks are also treated as zeros.
If more than half of responses excluding not applicables are unknown or blank, the question score is not calculated.
Note that 'not applicable' is used where only one level of government is responsible for education.

Question score = simple mean of the 0 and 1 scores, excluding not applicables (i.e., if five of the 10 responses are 'not applicable', the sum of the 0 and 1 scores is divided by 5 to get the mean and not by 10).

E1a. Based on your responses to questions in the previous section (laws and policies) please indicate to what extent global citizenship education (GCED) and education for sustainable development (ESD) are mainstreamed[2] *in education laws and policies in your country.*

There are two levels of government (national, sub-national) = 2 responses.
Response categories are not at all = 0, partially = 1, extensively = 2, unknown (treated as zero), and not applicable, which is ignored. Blanks are also treated as zeros.
If more than half of responses excluding not applicables are unknown or blank, the question score is not calculated.
Note that 'not applicable' is used where only one level of government is responsible for education.

Question score = half the simple mean of the 0, 1 and 2 scores, excluding not applicables (i.e., if one of the two responses is 'not applicable', the sum of the 0, 1 and 2 scores is divided by 2 to get half the mean and not by 4). The score is half the mean in order to ensure it lies between 0 and 1 as do the scores for the other three questions in this section.

Policy component score = simple mean of the scores for questions A2, A4, A5 and E1a. Where a question score could not be calculated because too many responses were unknown or blank, the component score is not calculated and is reported as not available.

(b) Curricula

[2] GCED and ESD are mainstreamed if they or their themes and sub-themes are mentioned explicitly in relevant documents and are expected to be implemented by the relevant authorities (e.g. Ministries, regional or local education authorities), educational institutions (e.g. schools, colleges and universities), and/or education professionals (e.g. teachers and lecturers), as appropriate.

The following questions are used to calculate the curricula component of the indicator:

B2: Please indicate which global citizenship education (GCED) and education for sustainable development (ESD) themes are taught as part of the curriculum.

There are eight GCED/ESD themes (cultural diversity and tolerance, gender equality, human rights, peace and non-violence, climate change, environmental sustainability, human survival and well-being, and sustainable consumption and production) = 8 responses.
Response categories are no = 0, yes = 1, and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

B3. Please indicate in which subjects or fields of study GCED and ESD are taught in primary and secondary education.

There are eight GCED/ESD themes (cultural diversity and tolerance, gender equality, human rights, peace and non-violence, climate change, environmental sustainability, human survival and well-being, and sustainable consumption and production) and twelve subjects in which they may be taught (arts; civics, civil or citizenship education; ethics/moral studies; geography; health, physical education and sports; history; languages; mathematics; religious education; science; social studies and integrated studies) = 96 responses.
Response categories are no = 0, yes = 1, and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank the question score is not calculated.
Note that responses to 'other subjects, please specify' in the question are ignored. If appropriate, during quality assurance answers in this category may be recoded to one of the other 12 subjects.

Question score = simple mean of the 0 and 1 scores.

B4. Please indicate the approaches used to teach GCED and ESD in primary and secondary education.

There are four teaching approaches (GCED/ESD as separate subjects, cross-curricular, integrated, whole school) = 4 responses
Response categories are no = 0, yes = 1, and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

E1b. Based on your responses to questions in the previous section (curricula) please indicate to what extent global citizenship education (GCED) and education for sustainable development (ESD) are mainstreamed[3] *in curricula in your country.*

There are two levels of government (national, sub-national) = 2 responses.
Response categories are not at all = 0, partially = 1, extensively = 2, unknown (treated as zero), and not applicable, which is ignored. Blanks are also treated as zeros.
If more than half of responses excluding 'not applicables' are unknown or blank, the question score is not calculated.

[3] GCED and ESD are mainstreamed if they or their themes and sub-themes are mentioned explicitly in relevant documents and are expected to be implemented by the relevant authorities (e.g. Ministries, regional or local education authorities), educational institutions (e.g. schools, colleges and universities), and/or education professionals (e.g. teachers and lecturers), as appropriate.

Note that 'not applicable' is used where only one level of government is responsible for education.

Question score = half the simple mean of the 0, 1 and 2 scores, excluding 'not applicables' (i.e., if one of the two responses is 'not applicable', the sum of the 0, 1 and 2 scores is divided by 2 to get half the mean and not by 4). The score is half the mean in order to ensure it lies between 0 and 1, as do the scores for the other three questions in this section.

Curricula component score = simple mean of the scores for questions B2, B3, B4 and E1b. Where a question score could not be calculated because too many responses were unknown or blank, the component score is not calculated and is reported as not available.

(c) Teacher education

The following questions are used to calculate the teacher education component of the indicator:

C2: Please indicate whether teachers, trainers and educators are trained to teach global citizenship education (GCED) and education for sustainable development (ESD) during initial or pre-service training and/or through continuing professional development.

There are two types of training (initial/pre-service and continuing professional development) and two types of teachers (of selected subjects in which ESD/GCED are typically taught, and of other subjects) = 4 responses.
Response categories are no = 0, yes = 1, and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

C3. Please indicate on which GCED and ESD themes pre-service or in-service training is available for teachers, trainers and educators.

There are eight GCED/ESD themes (cultural diversity and tolerance, gender equality, human rights, peace and non-violence, climate change, environmental sustainability, human survival and well-being, and sustainable consumption and production) = 8 responses.
Response categories are no = 0, yes = 1 and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

C4. Please indicate whether teachers, trainers and educators are trained to teach the following dimensions of learning in GCED and ESD.

There are four learning dimensions (knowledge, skills, values, and attitudes/behaviours) = 4 responses.
Response categories are no = 0, yes = 1, and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

C5. Please indicate whether teachers, trainers and educators are trained to use the following approaches to teach GCED and ESD in primary and secondary education.

There are four teaching approaches (GCED/ESD as separate subjects, cross-curricular, integrated, whole school) = 4 responses.

Response categories are no = 0, yes = 1 and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

E1c. Based on your responses to questions in the previous section (teacher education), please indicate to what extent global citizenship education (GCED) and education for sustainable development (ESD) are mainstreamed[4] *in teacher education in your country.*

There are two levels of government (national, sub-national) = 2 responses.
Response categories are not at all = 0, partially = 1, extensively = 2, unknown (treated as zero), and not applicable (which is ignored). Blanks are also treated as zeros.
If more than half of responses excluding 'not applicables' are unknown or blank, the question score is not calculated.
Note that 'not applicable' is used where only one level of government is responsible for education.

Question score = half the simple mean of the 0, 1 and 2 scores, excluding 'not applicables' (i.e., if one of the two responses is 'not applicable', the sum of the 0, 1 and 2 scores is divided by 2 to get half the mean and not by 4). The score is half the mean in order to ensure it lies between 0 and 1, as do the scores for the other three questions in this section.

Teacher education component score = simple mean of the scores for questions C2, C3, C4, C5 and E1c. Where component question score could not be calculated because too many responses were unknown or blank, the component score is not calculated and is reported as not available.

(d) Student assessment

The following questions are used to calculate the student assessment component of the indicator:

D2: Please indicate whether the global citizenship education (GCED) and education for sustainable development (ESD) themes below are generally included in student assessments or examinations.

There are eight GCED/ESD themes (cultural diversity and tolerance, gender equality, human rights, peace and non-violence, climate change, environmental sustainability, human survival and well-being, and sustainable consumption and production) = 8 responses.
Response categories are no = 0, yes = 1 and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

D3. Please indicate which of the dimensions of learning in GCED and ESD below are generally included in student assessments or examinations.

There are four learning dimensions (knowledge, skills, values, and attitudes/behaviours) = 4 responses.
Response categories are no = 0, yes = 1 and unknown, which is treated as zero. Blanks are also treated as zeros.
If more than half of responses are unknown or blank, the question score is not calculated.

Question score = simple mean of the 0 and 1 scores.

[4] GCED and ESD are mainstreamed if they or their themes and sub-themes are mentioned explicitly in relevant documents and are expected to be implemented by the relevant authorities (e.g. Ministries, regional or local education authorities), educational institutions (e.g. schools, colleges and universities) and/or education professionals (e.g. teachers and lecturers), as appropriate.

E1d. Based on your responses to questions in the previous section (student assessment), please indicate to what extent global citizenship education (GCED) and education for sustainable development (ESD) are mainstreamed[5] *in student assessment in your country.*

There are two levels of government (national, sub-national) = 2 responses.
Response categories are not at all = 0, partially = 1, extensively = 2, unknown (treated as zero), and not applicable, which is ignored. Blanks are also treated as zeros.
If more than half of responses excluding 'not applicables' are unknown or blank, the question score is not calculated.
Note that 'not applicable' is used where only one level of government is responsible for education.

Question score = half the simple mean of the 0, 1 and 2 scores, excluding 'not applicables' (i.e., if one of the two responses is 'not applicable', the sum of the 0, 1 and 2 scores is divided by 2 to get half the mean and not by 4). The score is half the mean in order to ensure it lies between 0 and 1, as do the scores for the other three questions in this section.

Student assessment component score = simple mean of the scores for questions D2, D3 and E1d. Where component question score could not be calculated because too many responses were unknown or blank, the component score is not calculated and is reported as not available.

The component scores all lie between zero and one and are presented as a dashboard of four scores. They are not combined to create a single overall score for the indicator. The higher the score, the more GCED and ESD are mainstreamed in the given component. In this way, users can make a simple assessment in which component area more efforts may be needed.

Greening

(b) Curricula

Document preparation
All collected documents are added to a single database in a standardized fashion. Documents are downloaded if found online and converted to PDF if in another format. In many cases, subject curricula are part of a larger document, in which case, relevant subject- and grade-specific material are extracted into separate documents. Documents in the database are named using the following protocol:
"country_state/province_documenttype_region_year_language_grade_knowledgedomain"
Information about each document is stored in a database (one row per document), including document title, year of publication, subject, author, source, and language.
For documents in languages for which there are fewer than three documents in that language (Burmese, Norwegian, Swedish, and Urdu), the documents are machine translated into English using Google Translate.

Keyword selection and analysis
The GCI measures the inclusion of green content in four document types (NCF, grade 3 subject curricula, grade 6 subject curricula, and grade 9 subject curricula). It counts the presence of 13 keywords corresponding to three themes of Environment/Sustainability, Climate Change, and Biodiversity. The selected keywords: 1) best represent the theme, 2) can be translated into all relevant languages, and 3) are sufficiently prevalent in the analysed documents to provide data for measuring components of the GCI (see Table 2 above). Additional sources such as recent UNESCO studies of greening education and the Greening Education Partnership curriculum guidance were also used to identify relevant green keywords.

[5] GCED and ESD are mainstreamed if they or their themes and sub-themes are mentioned explicitly in relevant documents and are expected to be implemented by the relevant authorities (e.g. Ministries, regional or local education authorities), educational institutions (e.g. schools, colleges and universities) and/or education professionals (e.g. teachers and lecturers) as appropriate.

Each keyword includes its plural and singular as well as the many forms the word may take depending on the language.[6] Some languages and/or countries employ distinctive language/culture-specific keywords to capture a theme. Thus, each theme includes space for a culture- or language-specific keyword to be added, if appropriate.[7] The keywords and their translations into 40 languages are reviewed and validated by native speaking experts who are familiar with greening education concepts.

A Python-based application is used to bulk process text files and identify keywords in documents in all the required languages. To be read by the Python application, all the text documents are converted to UTF-8 text format and stored in a local folder. The Python application also requires a two-column spreadsheet with columns for "File Name" and "Language" and a second spreadsheet with columns for “Keyword” and the keyword’s “Language.” These files and the folder location are then loaded into the Python application. The application uses the language file to determine which column from the keyword file to utilize in searching for keywords for each text file. The application then counts relevant keywords in every document (NCF and subject curricula) in the specified language. After completing the keyword search processing, the application outputs a spreadsheet file that contains a row for each curriculum document and columns for every keyword.[8] This output file becomes the raw data used in the calculation of the GCI.

Calculation of the greening curriculum indicator
After the prevalence of each keyword in each document is determined, keyword counts are compiled into an output spreadsheet which is then used to calculate a country’s GCI score. The following specific steps are taken to calculate a country’s GCI score:

Phase 1) Development of standardized keyword counts
The analysis of the green content of each country’s NCFs and subject curricula is done at the country level.

- For the NCF and each grade level (3, 6, and 9), the frequency of keywords belonging to the themes of Environment/Sustainability, Climate Change, and Biodiversity is calculated by summing up the counts of the keywords.
- To account for varying document lengths, the number of keywords is standardized for each theme by dividing the keywords counts in that country’s theme with the total number of words in the country’s documents.
- This standardized number is then multiplied by 1 million to transform the result into a number that is more easily interpreted (i.e., not a very small decimal). The result is a keyword count per million words for each theme at each grade level and NCF for each country. The standardization calculation is as follows:
    - 1,000,000*(Keywords in that theme for a country) / (Total words in documents for that country)

Phase 2) Transformation of standardized keyword counts into an ordinal scale
The distribution of these standardized numbers presents a statistical challenge since it is both zero bounded[9] and has a long tail.[10]

[6] Different forms of the word are included only due to genders, definite articles, etc. but not when they change the meaning or part of speech.
[7] For example, in China the phrase ‘ecological civilization’ is now being used much more frequently than ‘sustainable development’ or ‘environmental.’ In Japan, the term ‘sustainable societies’ is becoming more prevalent than the term ‘sustainable development.’ At this point in time, no culture- or language-specific keywords are included in the GCI.
[8] To determine the accuracy of the counts generated by the Python program, a validation exercise was carried out in October 2024 by sampling 30 documents in English, Spanish, Arabic and French, the four most prevalent languages. A three-way comparison of results from NVivo (the software used for all related UNESCO consultancies), Python, and manual counts identified several minor issues (e.g., keywords split across lines or the lack of a definite article in the Arabic keyword list), which were immediately corrected in the Python program and the keyword list. Since then, the Python program has been reviewed by several experts and undergone further refinements to ensure its counting accuracy is comparable to NVivo and manual counting.
[9] While there are many documents lacking any keywords related to Environment/Sustainability, Climate Change and Biodiversity, there are no documents with a negative number of keywords. Such a situation represents a zero-bounded distribution and creates a lopsided and non-normal distribution.
[10] While more than half the document types have less than 120 standardized keywords in a theme, they range to over 9,000 (75+ times as much as the median). Log transformations are conceptually useful when dealing with such data. For example, going from 0 to 50 standardized keywords is more significant than going from 1000 to 1050 standardized keywords.

- To create a more normal distribution, the standardized numbers are transformed into an ordinal scale ranging from 0 to 10 in the following way:
    - If there are no keywords, the score is 0, otherwise it ranges from 1 to 10 using a ½ life logarithmic transformation.[11]
    - For the Environment/Sustainability 'core' theme, the maximum score of 10 is achieved with 10,000 standardized keywords. The following formulas are used:
        - >10,000 standardized keywords are assigned a score of 10,
        - <=20 standardized keywords are assigned a score of 1,
        - 0 standardized keywords are assigned a score of 0,
        - Otherwise, 10-log.5(#/10,000)
        - Result multiplied by 10
    - For the Climate Change and Biodiversity themes, the maximum score of 10 is achieved with 5,000 standardized keywords, given that these keywords are used less commonly. The following formulas are used:
        - >5,000 standardized keywords are assigned a score of 10,
        - <=10 standardized keywords are assigned a score of 1,
        - 0 standardized keywords are assigned a score of 0,
        - Otherwise, 10-log.5(#/5,000)
        - Result multiplied by 10

Phase 3) Calculating GCIs for federated countries
To calculate the GCI for federated countries (e.g., Australia, Canada, Switzerland, United Kingdom), all of the above mentioned steps are carried out for each sub-national jurisdiction, which results in a number of (sub-national) GCIs. The sub-national GCI scores for the country are then averaged into a national GCI score. The data for all federated countries are then added to the dataset produced in Phase 1.

Phase 4) Final calculation of the GCI
At this point, each country has either three or four document-specific scores (ranging from 0 to 10) for each of the three themes (i.e., 9 or 12 total scores, since countries are included if they have at least 3 of the 4 main document types (NCF, grade 3 subject curricula, grade 6 subject curricula, and grade 9 subject curricula).

- Within each of the Environment/Sustainability, Climate Change, and Biodiversity themes, the three grade level scores and the NCF score are averaged together (i.e., each contributes ¼ of the total score per theme in a country). For countries with only three document types, the same procedure is done but each document score contributes ⅓ of the total theme-focused score.
- A single overall GCI score is now calculated based on a weighted mean, with the Environment/Sustainability core theme weighted 50% and the Climate Change and Biodiversity themes each weighted at 25%.

4.d. Validation (DATA_VALIDATION)

Survey
Responses are reviewed by UNESCO for consistency and credibility and, if necessary, queries are raised with national respondents. Where feasible, reference is made to national documents and links supplied by respondents and to available alternative sources of information.

Any proposed changes in response values in the questionnaire as a result of quality assurance procedures are communicated and verified with countries by UNESCO. Final results are shared before publication by UNESCO with the national data providers and with national SDG indicator focal points where they exist.

4.e. Adjustments (ADJUSTMENT)

Survey

[11] This means that for each time the standardized counts are halved, the score goes down by 1. So, for example, if 10,000 standardized references is a score of 10, 5,000 is a score of 9, 2,500 is a score of 8, and so on.

The only adjustments made are where question response categories are not valid and responses between different questions are inconsistent. In those circumstances, proposed changes are communicated to and verified with countries.

4.f. Treatment of missing values (i) at country level and (ii) at regional level (IMPUTATION)

Survey
At country level: A small number of missing values – unknown responses and/or blanks – are treated as zeros in the calculation of the question scores. Where they represent more than 50% of the responses to a single question, the component score is not calculated. In such cases, the component score is reported as not available when results are disseminated.
At regional level: Regional values are not calculated.

Greening
As previously noted, the GCI aligns with commitments made by parties to the UN Framework Convention on Climate Change (UN, 1992), by UN Member States in the 2030 Agenda for Sustainable Development (UN, 2015), and by attendees to the UN Transforming Education Summit (UN, 2022; 2023). As such, the focus of document compilation is all 193 UN Member States as well as 3 additional entities (i.e., Cook Islands, Niue, and Palestine), which are parties to the UNFCCC. Among these 196 possible countries, inclusion in the GCI is dependent on whether a sufficiently complete set of documents for that country has been compiled. A sufficient set of documents means having at least three of the following four types of documents that meet the previously outlined criteria:

- Grade 3 subject curricula
- Grade 6 subject curricula
- Grade 9 subject curricula
- National Curriculum Framework (NCF)

A special notation (i.e., "Qualifier of Data-Partial Data") is placed in the database to indicate cases where the GCI was calculated based on three of the four document types. When missing document types are obtained, a revised GCI score based on a complete set of document types is calculated for the bi-annual data releases.

4.g. Regional aggregations (REG_AGG)

Regional aggregates are not calculated.

4.h. Methods and guidance available to countries for the compilation of the data at the national level (DOC_METHOD)

Survey
- Countries wishing to calculate this indicator for themselves should follow the steps described in section 4.c. Method of computation above.
- The questionnaires for the monitoring of the implementation of UNESCO Recommendations are approved by the Member States of the Executive Board of UNESCO. The questionnaire contains guidelines for completion and a glossary of key terms. In addition, UNESCO provides direct support to Member States in completing the questionnaire and responds to queries in a timely manner.

4.i. Quality management (QUALITY_MGMNT)

None related to the processing of qualitative data collected principally for non-statistical purposes.

4.j Quality assurance (QUALITY_ASSURE)

- UNESCO reviews country responses for consistency and credibility and, if necessary, raises queries with national respondents. To assist with this, countries are asked to provide, in addition to completed questionnaires, supporting evidence of their responses in the form of documents or links (e.g. to education policies, laws, curricula, etc.). These will be made publicly available during 2022 along with completed questionnaires. UNESCO also takes into account alternative sources of information, where available. These may include national responses to similar intergovernmental consultation processes, such as the Council of Europe's consultations on the Charter on Education for Democratic Citizenship and Human Rights Education, the UN Economic Commission for Europe's consultations on the Strategy for Education for Sustainable Development, or other information on education for sustainable development (ESD) and global citizenship education (GCED) in countries' national education systems.
- Any proposed changes to response values in the questionnaire as a result of quality assurance procedures are communicated to and verified with countries by UNESCO. Final results are shared before publication by UNESCO with the national data providers and SDG indicator focal points.
- Regarding greening, keywords and their translations were reviewed by native speakers who were also familiar with greening concepts. Documents were reviewed against a set of criteria before being included for analysis.

  Before data release and addition to the global SDG indicators database, the indicator's values and notes on methodology are submitted to National Statistical Offices, Ministries of Education or other relevant agencies in individual countries for their review and feedback.

4.k Quality assessment (QUALITY_ASSMNT)

None related to the processing of qualitative data collected principally for non-statistical purposes.

5. Data availability and disaggregation (COVERAGE)

Survey
Data availability: During the last consultation on the implementation of the 1974 Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms carried out in 2020-2021, 75 countries provided reports: Central and Southern Asia (4), Eastern and South-Eastern Asia (7), Europe and Northern America (32), Latin America and the Caribbean (10), Northern Africa and Western Asia (14), Oceania (2), and sub-Saharan Africa (6).

Time series: The first data are available for the time period 2017-2020 (as a single time point). Data for the period 2021-2023 (from UNESCO one-off survey conducted in 2024) are expected in 2025. Data for the period 2024-2026 from the first reporting on the 2023 Recommendation on Education for Peace, Human Rights and Sustainable Development will be collected in 2026-2027.

Disaggregation: None

Greening
Data currently available refer to 2023-2024.

6. Comparability / deviation from international standards (COMPARABILITY)

Sources of discrepancies: There should be no difference as the indicator values are calculated from the responses submitted by countries. If any changes are proposed to responses as a result of quality assurance procedures, these are communicated to and verified with countries.

7. References and Documentation (OTHER_DOC)

URL:

- http://uis.unesco.org/; https://databrowser.uis.unesco.org/
- https://www.unesco.org/en/sustainable-development/education
- https://www.unesco.org/gem-report/en
- https://tcg.uis.unesco.org/wp-content/uploads/sites/4/2025/02/EDSC.11.3.4.GCI-Methods.pdf

References:

Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms.

Recommendation on Education for Peace, Human Rights and Sustainable Development.