

SDG Goal 4	Quality education
SDG Target 4.1	By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
SDG Indicator 4.1.1	Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
Time series	Children and youths with a minimum proficiency in reading or mathematics

1. General information on the time series

- Date of national metadata: 19 May 2022
- National data: <http://sdg-indicators.de/4-1-1/>
- Definition: The time series measures the proportion of children who have at least a minimum proficiency level in certain subjects at a particular education level.
- Disaggregation: educational level; subject

2. Comparability with the UN metadata

- Date of UN metadata: March 2022
- UN metadata: <https://unstats.un.org/sdgs/metadata/files/Metadata-04-01-01.pdf>
- The time series is compliant with the UN metadata.

3. Data description

- To evaluate the skills at the end of primary education the results of the Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Study (TIMSS) by the International Association for the Evaluation of Educational Achievement (IEA) are incorporated. A minimum level is set at competence level "Low" of the test.

PIRLS is a quinquennial cross-national survey of reading comprehension abilities of children at the fourth grade. It has been introduced in 2001 and has covered 50 countries in its last round in 2016. TIMSS is a quadrennial cross-national survey of mathematical and scientific knowledge of children at the fourth grade. It has been introduced in 1995 and has covered 64 countries in its last round in 2019.

For the evaluation of skills at the end of lower secondary, the results of the Programme for International Student Assessment (PISA) by the OECD are incorporated. Above minimum is the percentage of students who have achieved the minimum standards which is Level 2 in case of PISA.

PISA is a triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students in 72 countries around the globe in a two-hour test in science, mathematics, reading, collaborative problem solving and financial literacy. The data used for the time series is taken from the reading part and the mathematics part of the test.

4. Access to data source

- PISA Results:
https://www.oecd-ilibrary.org/education/pisa_19963777
- TIMSS: Trends in International Mathematics and Science Study:
<https://timssandpirls.bc.edu/timss-landing.html>
- PIRLS: Progress in International Reading Literacy Study:
<https://timssandpirls.bc.edu/pirls-landing.html>

5. Metadata on source data

- PIRLS Assessment framework:
<https://timssandpirls.bc.edu/pirls2016/framework.html>
- TIMSS Assessment framework:
<https://timssandpirls.bc.edu/timss2015/frameworks.html>
- PISA – Technical Report:
<https://www.oecd.org/pisa/publications/>

6. Timeliness and frequency

- Timeliness: t + 12 months
- Frequency: PISA: Every 3 years; TIMMS: Every 4 years; PIRLS: Every 5 years

7. Calculation method

- Unit of measurement: Percentage
- Calculation:

$$\text{Children and youth with a minimum proficiency}_{i,k} = \frac{\text{Children at the end of education level } i \text{ achieving at least the minimum level in skill } k \text{ [number]}}{\text{Total children at the end of education level } i \text{ [number]}} \cdot 100 [\%]$$

$i \in \{\text{primary; lower secondary}\}$

$k \in \{\text{PIRLS literacy; TIMMS mathematics; PISA reading; PISA maths}\}$