

Document for Professors

This document serves as an introduction to the blended learning unit. It will go over the individual units and topics to expand them with, as well as a recommended schedule and what to do if you encounter any problems with the webtool. Any materials you can use in your lessons, i.e., worksheets for rotation learning and questions for the “students teach other students” exercise, can be found in the folder labeled “materials”.

Units

Unit 1a

This unit takes approximately 15 to 20 minutes to complete. It serves as an introduction to administrative levels and aims to improve the students’ mental maps.

It is made up of five pages:

Page	Content	Description
Page 1	Worldmap	Students need to select the countries Germany, Kenya and South Africa on the map.
Page 2	Area & Population	Students need to order the respective countries by area and by population.
Page 3	Area & Population - Solution	Students are given information about the true area and population of the respective countries.
Page 4	Administrative Boundaries	Students need to assign the different administrative
Page 5	Administrative Boundaries - Solution	Students are given information about the level of detail and the administrative boundaries used in the following units.

A good topic to expand upon would be the level of detail of spatial units. This would further improve the students’ understanding of spatial aggregation and lead to new insights in following units.

Knowledge on this topic can be gained from the following sources:

[1] [Countries - The World Factbook](https://www.cia.gov/the-world-factbook/countries/) (https://www.cia.gov/the-world-factbook/countries/)

[2] [Map Scale | National Geographic Society](https://education.nationalgeographic.org/resource/map-scale)
(https://education.nationalgeographic.org/resource/map-scale)

[3] [map scale https://geogra.uah.es/patxi/gisweb/SDEModule/SDE_Theory_maps.htm](https://geogra.uah.es/patxi/gisweb/SDEModule/SDE_Theory_maps.htm)

Unit 1b

This unit takes approximately 10 minutes to complete. It serves as an introduction to unstandardized and standardized values as well as different types of diagrams and how they are used in maps.

It is made up of six pages:

Page	Content	Description
Page 1	Absolute & relative	Students need to select whether the statement given describes a relative or an absolute value.
Page 2	Absolute & relative - Solution	Students are given information about standardized and unstandardized values.
Page 3	Charts	Students need to assign chart names to the corresponding charts.
Page 4	Charts - Solution	Students are given information about how to work with charts.
Page 5	Charts in maps	Students need to select the right answer about what is shown in a map.
Page 6	Charts in maps - Solution	Students are to recall what they learned in the unit.

A good topic to expand upon would be the visualization of absolute values in maps. It is important for students to understand that absolute values can only be shown through symbols and that there are different choices when doing so.

Knowledge on this topic can be gained from the following sources:

[1] [MAPPING GUIDE](#)

(https://www.espon.eu/sites/default/files/attachments/MAPPING_GUIDE_EXTERNAL.pdf)

[2] [1.4 Map Interpretation – Introduction to Human Geography](#)

(<https://pressbooks.pub/humangeography/chapter/1-4/>)

[3] [Online interactive thematic mapping: Applications and techniques for socio-economic research](#)

(https://www.researchgate.net/publication/295684412_Online_interactive_thematic_mapping_Applications_and_techniques_for_socio-economic_research)

Unit 2

This unit takes approximately 25 to 30 minutes to complete. It serves as an introduction to population pyramids as a means to show both standardized and unstandardized values in a map, as well as to improve students' mental maps by making them create a synthetic map.

It is made up of four pages and a multiple-choice test:

Page	Content	Description
Page 1	General Information	Students are given information about population pyramids and the demographic transition.
Page 2	Continents	Students need to assign the population pyramid of Africa and Europe to their respective continents by clicking a map.
Page 3	Germany, Kenya, South Africa	Students need to assign the population pyramid of Germany, Kenya, South Africa to their respective countries by clicking a map.
Page 4	Countries in Africa and Europe	Students need to assign the stage of the population pyramids of all African and European countries to their respective country by clicking a map.
MCT	MCT Population Pyramids	Students need to recapitulate information they learned on page 4 and think about risks and chances of demographic transition, as well as advantages of population pyramids.

A good topic to expand upon would be chances and risks of demographic transition. A phenomenon can be better evaluated if its meaning is clear.

Knowledge on this topic can be gained from the following sources:

[1][Population Pyramid](https://www.populationpyramid.net/) <https://www.populationpyramid.net/>

[2][The causes and consequences of demographic transition | Harvard edu](https://dash.harvard.edu/bitstream/handle/1/33730183/6431162.pdf?sequence=1&isAllowed=y#:~:text=The%20demographic%20transition%20leads%20to%20population%20to%20its%20equilibrium%20size)
(<https://dash.harvard.edu/bitstream/handle/1/33730183/6431162.pdf?sequence=1&isAllowed=y#:~:text=The%20demographic%20transition%20leads%20to%20population%20to%20its%20equilibrium%20size>)

[3][Population pyramids - GEOGRAPHY MYP/GCSE/DP](https://www.jkgeography.com/population-pyramids.html)
(<https://www.jkgeography.com/population-pyramids.html>)

Unit 3a

This unit takes approximately 10 minutes to complete. It serves as an introduction to the Sustainable Development Goal 1.2.1 and different measures of poverty.

It is made up of four pages and a multiple-choice test:

Page	Content	Description
Page 1	Gini Coefficient and Total Population in Germany	Students are given information about the Gini coefficient and the total population of Germany in the form of a map.
Page 2	Poverty in Germany	Students need to pick the right color scale and values of a choropleth map showing poverty in Germany.
Page 3	Gini Coefficient and Total Population in Kenya	Students are given information about the Gini coefficient and the total population of Kenya in the form of a map.
Page 4	Poverty in Kenya	Students need to pick the right color scale and values of a choropleth map showing poverty in Kenya.
Page 5	Gini Coefficient and Total Population in South Africa	Students are given information about the Gini coefficient and the total population of South Africa in the form of a map.
Page 6	Poverty in South Africa	Students need to pick the right color scale and values of a choropleth map showing poverty in South Africa.
MCT	Charts in maps	Students need to recapitulate information they learned in the last unit and use their knowledge of different ways to measure poverty.

A good topic to expand upon would be other indicators of poverty. A comparison between different indicators leads to deeper understanding of which population groups live in poverty.

Knowledge on this topic can be gained from the following sources:

[1][1.2.1 Proportion of Population Living Below the National Poverty Line - Global SDG Indicator Platform](https://sdg.tracking-progress.org/indicator/1-2-1-proportion-of-population-living-below-the-national-poverty-line-2/) (<https://sdg.tracking-progress.org/indicator/1-2-1-proportion-of-population-living-below-the-national-poverty-line-2/>)

[2][Gini Index Explained and Gini Co-efficients Around the World](https://www.investopedia.com/terms/g/gini-index.asp)
(<https://www.investopedia.com/terms/g/gini-index.asp>)

[3][Poverty : Development news, research, data | World Bank](https://www.worldbank.org/en/topic/poverty)
(<https://www.worldbank.org/en/topic/poverty>)

Unit 3b

This unit takes approximately 10 to 15 minutes to complete. It serves as an introduction to the Sustainable Development Goal 4.2.2.

It is made up of four pages and a multiple choice test:

Page	Content	Description
Page 1	Education in Germany	Students need to select the areas with the highest and lowest rate of pre-primary attendance.
Page 2	Education in Germany - Solution	A choropleth map with the real number of children taking part in pre-primary education is shown.
Page 3	Education in Kenya	Students need to select the areas with the highest and lowest rate of pre-primary attendance.
Page 4	Education in Kenya - Solution	A choropleth map with the real number of children taking part in pre-primary education is shown.
Page 5	Education in South Africa	Students need to select the areas with the highest and lowest rate of pre-primary attendance.
Page 6	Education in South Africa - Solution	A choropleth map with the real number of children taking part in pre-primary education is shown.
MCT	Charts in maps	Students need to recapitulate information they learned in the last unit and use their knowledge of the level of detail and the SDG indicator 4.2.2

A good topic to expand upon would be the rate of completion of a secondary school. A comparison between those starting education leads to a deeper understanding of a child's chance of upward mobility in each country.

Knowledge on this topic can be gained from the following sources:

[1][4.2.2 Participation Rate in Organized Learning - Global SDG Indicator Platform](https://sdg.tracking-progress.org/indicator/4-2-2-participation-rate-in-organized-learning/)
(<https://sdg.tracking-progress.org/indicator/4-2-2-participation-rate-in-organized-learning/>)

[2][175 million children are not enrolled in pre-primary education – UNICEF](https://www.unicef.org/press-releases/175-million-children-are-not-enrolled-pre-primary-education-unicef)
(<https://www.unicef.org/press-releases/175-million-children-are-not-enrolled-pre-primary-education-unicef>)

Unit 4

This unit takes approximately 15 minutes to complete. It serves as an introduction to correlation and regression.

It is made up of two pages and a multiple-choice test:

Page	Content	Description
Page 1	Statistical Parameters	Students can explore the statistical interdependencies of the dataset.
Page 2	Education in Germany - Solution	A choropleth map with the real number of children taking part in pre-primary education and the proportion of the population living in poverty is shown. Students are to switch between both maps and try to observe spatial patterns.
MCT	Charts in maps	Students need to recapitulate information they learned in the last unit and use their knowledge of basic statistical variables.

A good topic to expand upon would be other ways of showing correlation.

Knowledge on this topic can be gained from the following sources:

[1][11. Correlation and regression](https://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one/11-correlation-and-regression) (<https://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one/11-correlation-and-regression>)

[2] [What is Regression? Definition, Calculation, and Example](https://www.investopedia.com/terms/r/regression.asp)
(<https://www.investopedia.com/terms/r/regression.asp>)

[3] [Covariance: Formula, Definition, Types, and Examples](https://www.investopedia.com/terms/c/covariance.asp)
<https://www.investopedia.com/terms/c/covariance.asp>

Errors

If you encounter any technical difficulties, please reload the page. But be aware that any inputs or progress does get lost in this process. Although the tool is responsive in design, some errors might occur. Using a window size of 1920 x 1080 px is recommended.

Schedule

While you can of course structure your lessons however you want, here is a recommendation on our part.

Schedule for a blended learning unit
Introductory event
Unit 1a – Mental maps (E-Learning) Unit 1a – Basic statistics (E-Learning)
Rotation learning
Presentation results of the topic specialists and Unit 2 – Population pyramids afterwards (E-Learning)
Unit 3a – SDG indicator 1.2.1 (E-Learning) Unit 3b – SDG indicator 4.2.2 (E-Learning)
“Students teach other students” (Each student is given a question they will have to present to their group members)
Lecture on correlation

Unit 4 – Correlation (E-Learning)
Q&A Lesson