UN Global Goals and Local Action

Assessment Type	Recommended Grade Level	MYP Criterion Level
Real-life Application of Mathematics	Grade 9 (MYP4) Standard	MYP3

MYP Assessment Criteria
Criterion C: Communicating
Criterion D: Applying mathematics in real-life contexts

MYP Command Terms Used
identify, select, organize, analyze, deduce, suggest, explain

MYP Global Context
Globalization and sustainability

MYP Key Concept
Relationships

MYP Related Concepts
Representation, Generalization

MYP Branch of Mathematics
Reasoning with Data

MYP Topics and Skills
- Sampling Techniques
- Lines of best fit
- Correlation, qualitative handling
- Graphical representations

Prior Knowledge Needed
- Data collection
- Reading data
- Basic statistics

Assessment Description

The UN's Sustainable Development Goals were developed as a shared vision for peace and prosperity that the world's nations have unified around. While the goals are made for a global scale, these issues can and should be tackled locally. In this assessment, students will write a report where they choose one of the development goals, research and collect online data about it, develop the relevant graphical representations, and propose an idea or solution to be implemented locally to address a problem they have identified.

Materials Needed

A computer/tablet to do research and type the report.

Task-specific instructions / Recommendations

It is imperative that students know how to conduct research and be able to read complex datasets. Make sure students have been adequately prepared to create the necessary graphs and representations with the data through tools they will use such as Excel or Google Sheets.

Assessment Criterion C: *Communicating*

	Achievement Level Descriptor (MYP3)	Task Specific Descriptor
0	The student **does not** reach a standard described by any of the descriptors below.	
1-2	The student is able to: i. use **limited** mathematical language ii. use **limited forms** of mathematical representation to present information iii. *(not demonstrated at this level)* iv. communicate through lines of reasoning that are **difficult to interpret** v. *(not demonstrated at this level)*.	The student is able to: i. **use** a limited amount of mathematical vocabulary and notation in the plan ii. **use** at least one form of representation, such as equations, calculations, tables, or explanations with errors that can distort the information being presented iii. *(not demonstrated at this level)* iv. **present** arguments that are difficult to understand v. *(not demonstrated at this level).*
3-4	The student is able to: i. use **some appropriate** mathematical language ii. use **appropriate forms** of mathematical representation to present information **adequately** iii. *(not demonstrated at this level)* iv. communicate through lines of reasoning that are **able to be understood**, although these are **not always clear** v. **adequately organize** information using a logical structure.	The student is able to: i. **use** some appropriate amount of mathematical vocabulary and notation in the plan ii. **use** at least two forms of representation, such as equations, calculations, tables, or explanations, with limited errors that don't distort the information being presented iii. *(not demonstrated at this level)* iv. **present** arguments that can generally be understood, however are not always clear v. **organize** the report in a logical structure and **construct** a somewhat complete bibliography.
5-6	The student is able to: i. **usually** use **appropriate** mathematical language ii. **usually** use **appropriate forms** of mathematical representation to present information **correctly** iii. move between different forms of mathematical representation **with some success** iv. communicate through lines of reasoning that are clear although **not always coherent or complete** v. **present** work that is **usually organized** using a logical structure.	The student is able to: i. usually **use** an appropriate amount of mathematical vocabulary and notation in the plan ii. **use** at least three different forms of representations, such as equations, calculations, tables, and explanations correctly iii. **use** the different forms of representation in a way so that they sometimes reinforce each other iv. **present** arguments that are clear to read, but not always coherent or complete v. **organize** the report in a usually consistent and logical structure and **construct** a mostly complete bibliography.
7-8	The student is able to: i. **consistently** use **appropriate** mathematical language ii. use **appropriate forms** of mathematical representation to **consistently** present information **correctly** iii. move **effectively** between different forms of mathematical representation iv. communicate through lines of reasoning that are **complete and coherent** v. present work that is **consistently organized** using a logical structure.	The student is able to: i. consistently **use** appropriate mathematical vocabulary and notation in the plan ii. **use** at least four different forms of representations, such as equations, calculations, tables, and explanations, consistently and correctly iii. **use** the different forms of representation in a way so that they effectively reinforce each other iv. **present** clear arguments that are consistently complete and coherent v. **organize** the report in a consistent and logical structure and **construct** a complete bibliography.

Assessment Criterion D: *Applying mathematics in real-life contexts*

	Achievement Level Descriptor (MYP3)	Task Specific Descriptor
0	The student **does not** reach a standard described by any of the descriptors below.	
1-2	The student is able to: i. identify **some** of the elements of the authentic real-life situation ii. apply mathematical strategies to **find a solution** to the authentic real-life situation, **with limited success** iii. *(not demonstrated at this level)* iv. *(not demonstrated at this level)* v. *(not demonstrated at this level)*.	The student is able to: i. **identify** only one of the four main elements required for the report. ii. **analyze**, but with some errors, the data as presented and **deduce** a somewhat accurate conclusion. iii. *(not demonstrated at this level)* iv. *(not demonstrated at this level)* v. *(not demonstrated at this level)*
3-4	The student is able to: i. identify the **relevant** elements of the authentic real-life situation ii. select, **with some success, adequate** mathematical strategies to model the authentic real-life situation iii. apply mathematical strategies to **reach a solution** to the authentic real-life situation iv. *(not demonstrated at this level)* v. **describe** whether the solution makes sense in the context of the authentic real-life situation.	The student is able to: i. **identify** two of the four main elements required for the report. ii. **select** adequate ways to organize the data so that it somewhat conveys the issue or allows for a proper analysis. iii. **analyze** the data as presented in order to **deduce** a conclusion. iv. *(not demonstrated at this level)* v. **describe** why the stated solution could help solve the problem in the community.
5-6	The student is able to: i. identify the **relevant** elements of the authentic real-life situation ii. select **adequate** mathematical strategies to model the authentic real-life situation iii. apply the selected mathematical strategies to **reach a valid solution** to the authentic real-life situation iv. **describe** the degree of accuracy of the solution v. **discuss** whether the solution makes sense in the context of the authentic real-life situation.	The student is able to: i. **identify** three of the four main elements required for the report. ii. **select** adequate ways to **organize** the data so that it conveys the issue and allows for a proper analysis. iii. **analyze** the data as presented to **deduce** a valid conclusion and as a result **suggest** an idea or solution that **may** help solve the problem locally in the community. iv. **describe** the likelihood that the solution could help solve the problem in your community. v. **discuss**, in some detail, why the stated solution could help solve the problem in the community.
7-8	The student is able to: i. identify the **relevant** elements of the authentic real-life situation ii. select **appropriate** mathematical strategies to model the authentic real-life situation iii. apply the selected mathematical strategies to **reach a correct solution** iv. **explain** the degree of accuracy of the solution v. **explain** whether the solution makes sense in the context of the authentic real-life situation.	The student is able to: i. **identify** all four of the main elements required for the report. ii. **select** appropriate ways to **organize** the data so that it conveys the issue and allows for a proper analysis. iii. **analyze** the data as presented to **deduce** an accurate conclusion and as a result **suggest** an idea or solution that would most likely help solve the problem locally in the community. iv. **explain**, with detail, the likelihood that the solution could help solve the problem in your community. v. **explain**, in detail, why the stated solution could help solve the problem in the community.

Introduction

You are a Service as Action Group member at the school, which is launching a new service program. This program aims to research and propose local solutions for the United Nation's 17 Sustainable Development Goals. As a group member, you have been assigned to conduct research, analyze relevant data, and create a report identifying a problem related to one of the UN's Sustainable Development Goals.

In this report, you should also suggest an idea or solution for the community to address that problem. You can use tools such as Gapminder to learn more about indicators and World Bank Open Data to collect your data. Remember the Service as Action Group's motto: think globally, act locally.

Important Links

Link to UN Sustainable Development Goals:
https://sdgs.un.org/goals

Link to Gapminder:
https://www.gapminder.org/

Link to World Bank Open Data:
https://data.worldbank.org/

Tasks

In your report, you will need to make sure you address the following:

- **Identify** the following in an introduction to the report:
  - A sustainable development goal on which the report is focused.
  - An aim for this project.
  - The rationale of the project.
  - A dataset or multiple datasets you will use to conduct an analysis.

[D: 1-8, i]

- With your dataset, **select** appropriate ways to **organize** the data so that it conveys the issue and allows for a proper analysis. The following are some options you can choose from, but not limited to:
  - stem-and-leaf diagram
  - five-point summary
  - box-and-whisker diagram
  - frequency graph
  - cumulative frequency curve
  - box plot
  - histogram
  - lines of best fit

[D: 1-8, ii]

- **Analyze** the data from how you presented it and deduce conclusions about the problem. As part of your analysis, make sure to include critical relevant points such as the following:
  - sampling techniques
  - outliers
  - correlation

[D: 1-8, iii]

- **Suggest** an idea or solution for your community that can help address this problem.

[D: 1-8, iii]

- **Explain**, with detail, the likelihood that the solution could help solve the problem in your community.

[D: 1-8, iv]

- **Explain**, with detail, why the solution you stated could help solve the problem in your community.

[D: 1-8, v]

Make sure that in your report, you do the following to communicate properly:

- **Use** appropriate mathematical language and notation consistently.

[C: 1-8, i]

- **Use** at least four of calculations, diagrams, tables, graphs, explanations, etc. in such a way that they effectively reinforce each other.

[C: 1-8, ii-iii]

- **Explain** your thinking and answers in such a way that they are complete and coherent.

[C: 1-8, iv]

- **Organize** your report in a consistent and logical structure and construct a complete bibliography.

[C: 1-8, v]

Note:
The report should have 2-4 pages of writing. This does not include the data and any visuals, such as graphs, which can extend the length of this project by a lot more.