Problem Statement

This method is used in order to understand a problem deeply and to analyze it (break it down into smaller parts). This helps students understand that problem breakdown (identify a user and his/her needs/wants) may lead to finding solutions more easily, as solving smaller problems individually leads to solving the bigger problem. Two options are offered in this method (1) in which the students consider the problem from a general perspective and (2) in which the students focus on their personal perspective or on another very specific perspective by undertaking a role. In addition to this principle, this activity supports Learning Through dialogue and Interaction, and Learning through Thinking.

Expected Outcomes – students will:

- ✓ Be able able to explore problems in depth.
- ✓ Be able to break down problems to smaller problems.
- ✓ Be able able to set criteria for categorizing problems based on significance.
- ✓ Be able to be actively involved in a debate (show active listening to others and building arguments to support their opinion)

Timing

The timing of this activity is dependent on many factors: experience, classroom culture, and how you implement it, etc., the minimum amount of time you should plan for 40 minutes.

Material

This working method can be implemented in-person or in a blended format, if you choose.

Offline	Blended
Create one large visual space (Board or large paper) to collect small group (or plenary) ideas.	Create an Padlet account. Create a Padlet for step 2 and 3 Provide a tablet/laptop for each group **More info on the tools?**

Prepare yourself

Offline:

Draw three rectangular areas on the visual board and color code them.
Use Red for high significance problems, Blue for medium significance problems and Green for low significance problems.

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Blended:

- Create a Padlet with three columns:
- Red for high significance problems
- Blue for medium significance problems
- Green for low significance problems.
- Enable the option to vote on the Padlet in the settings.

Step-by-step or course

Begin by deciding the problem or issue you wish to work with. We suggest you consider the following:

- Students' prior knowledge and experiences
- Students' cultural and social background
- Local elements (e.g. historical background, economy elements, landmarks, etc)

The Problem Statement is a tool for analyzing and categorizing a problem into smaller problems.

Select a complex problem that incorporates several parameters so that they can be broken down to smaller problems (try the "Bullseye working method" for that). For example, select news posts which can be directly related to SDGs (e.g., household heating, school hygiene policy, preservation of sea life). Also, you may select a picture (photograph) from the news as a trigger.

1. Preparation

You will need at least 10-15 minutes for this step. Depending on the other methods you involve you might need about 30-40 minutes to complete.

Select the problem you want to work with.

- You may optionally introduce it using a story (See Story as a Concept introduction Working Method).
- You may optionally work further on the problem with the Problem Tree Analysis Working Method.
- You may optionally follow the Empathy Map Working method to analyze the problem in depth from a character's perspective.

You can find them here.

Alternatively, you may discuss the problem or follow other approaches for assisting the students understand the problem.

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Suggestion: we suggest that you make use of the optional working methods mentioned above in that specific order for better learning outcomes.

2. Small groups

You will need at least 15 minutes for this step.

Form small groups of 2-4 students. Each group takes 10 minutes to complete the task.

OPTION 1:

Use the visual space and give the following instructions to the students:

Consider the analysis of the problem up to now and all the involved characters (directly or indirectly). Form sentences as follows and post them on the space.

"_____ faces _____ problem because ____".

"_____ needs _____ because _____"

OPTION 2:

Instead of the above instructions you can focus on a more personal perspective of examining a problem. Form sentences as follows and post them on the space. Select a role (or you may assign roles) connected to the problem and fill the sentences in considering that role. For example, in a deforestation problem, undertake the role of a wild animal living in that forest.

"As WHO I want WHAT so that WHY" (X needs Y because Z)

"As WHO I need WHAT so that WHY"

OPTIONS 1 and 2:

Ask them to position their posts in one of the three designated areas according to the significance of the problem on the Padlet or on the white board.

Give them 5 minutes to complete.

Suggestion 1: you may break down the activity into two activities. First ask the students to create problem statements and then ask them to categorize them. This would be better for younger students.

Suggestion 2: you may use additional sentence structures, also including solutions/impacts of the problem. For example, "_____ solution may affect _____". For this it would be better to use a second visual space.

3. Plenary

You will need at least 10 minutes for this step.

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In plenary, read out loud the posts and incorporate a voting mechanism with raising hands for categorizing the statements in matters of significance or let them vote on the Padlet.

Encourage debate by asking them to justify their choices, disagree on the significance of their statements, formulate arguments to persuade the rest of the class, etc.

Ask the students how they feel about the complexity of the problem after clearly stating it and breaking it down to smaller ones. What is their perspective about the problem? How clear are the reasons why does the problem exists? How does this problem make the character facing it feel? Which are the needs of the character? Which are the burdens and the frustrations the character faces? Is the problem easier now or not? Why? Are you ready to think about how to solve it?

4. Consider next steps

After completing the previous steps, your students should have gained new insights on a given problem. For example, try the **"I used to think and now I think"** working method +URL to verify that this is the case.

Use the new insights as a foundation for building smaller projects, addressing only some of the problem statements that were brought up (e.g. the most significant or the more realistic to solve. For example, if energy consumption is mentioned as part of the global warming problem, the students can work towards changes they can make at home or school to enhance responsible energy consumption).

5. Bring it Home

Based on the smaller projects you may involve the families. For example, if responsible energy consumption is the project to be implemented, the students may be asked to apply their decisions at home and measure their impact with the help of their families. Then they can share their insights in class.

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