TEMPLATE for the TEACHERS

★ **Name of the project:**
Poetry Inspired By Math

★ **Subjects covered from STEAM areas:**
Mathematics, language, science

★ **Target group (age range and size of the group)**
14-18, individual activity, whole class

★ **Duration of the activity:**
One workshop in school, 45 minutes

★ **Keywords**:
Mathematics, poetry, stem, inspiration

★ **Key sentence describing context of the activity, followed by short description (200 words):**

To write a mathematical poem, students need to profoundly understand mathematical concepts. This task requires to make poems inspired by mathematics. Metaphors should connect real life with mathematics. For example, the sin function could represent ups and downs in life, or parallel lines could represent two life paths that never meet.

★ **Description of the activity environment, including the list of materials and tools needed:**
The workshop is held in the classroom, there is no need for the materials and tools, except that teacher need to prepare mathematical poems, as an illustration examples for students.

★ **Step by step, detailed description of the activity, including teaching and learning strategies.**

The first step in this workshop is promoting mathematical poetry, where students are introduced to the concept of mathematical poetry. It starts with inspirational stories of famous mathematicians and their reflections on the connection between mathematics and poetry. After creating a relaxed atmosphere in the classroom, we introduce students to various forms of mathematical poetry together with instructions on how to write mathematical poems, where strategies were illustrated with examples. Two main categories are poems with mathematical structures and poems that used mathematical language and metaphors. For the illustrations of mathematical forms, one can chose Fib-type poetry and geometrical shaped poems. Besides specific forms, you can explore poems inspired by mathematics. Among the examples that we presented to the students were: "Pi" by Nobel Prize Winner Wislawa Szymborska or "Euclid alone has looked on Beauty bare" by Edna St. Vincent Millay. After that, students have time to start

writing their own poems.
At the end of the lesson students read their own poems.

★ **Learning objectives/competencies:**
The described activities could be useful for illustrating advanced mathematical ideas to students, cultivating critical thinking, or just refreshing the learning experience and teaching mathematics in innovative ways. Strategies considered several steps: illustrating mathematical poetry with adequate examples, encouraging students to connect mathematics they know to other aspects of reality or imagination through their own examples, motivate students to write poems related to mathematics, and promoting students' work through different channels such as social media or public events. Transfer between two different domains, poetry and mathematics is very useful for developing students' knowledge. Students significantly change their perspectives of mathematics with this approach. While looking for adequate metaphors, students actively revise mathematics which supports better understanding.

★ **Evaluation/Assessment guidelines**
Evaluation can be done through peer discussion. Students read their poems and together with the teacher and other students they discuss and analyze the connection with mathematics in the used metaphors.

★ **Lessons learned:**
The proposed workshop helps students to observe mathematical content from another aspects. Poetry and mathematics are not a very common combination, but it is very inspiring and motivating to students to connect mathematical content with the situations or emotions.

★ **Additional information/Links:**

"Pi" by Nobel Prize Winner Wislawa Szymborska
"Euclid alone has looked on Beauty bare" by Edna St. Vincent Millay
https://poetrywithmathematics.blogspot.com/

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