**Modern approach to Extracurricular Mathematical Education.**

*Halyna Hodovana, Kharkiv National Karazin University, Kharkiv, Ukraine;*

*Children and Youth Center for Creative Activities №1 of Kharkiv Municipal Council, Kharkiv, Ukraine;*

*Mykhailo Krasnovskyi, [National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine.](https://www.google.com.ua/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=2ahUKEwixpZ-KsOjdAhWGCywKHSQ5C6gQFjABegQIBxAB&url=https%3A%2F%2Fwww.kpi.kharkov.ua%2Feng%2F&usg=AOvVaw0HXzUeguTFsgvnRiHPxaPA)*

*“It is always possible to rewrite any textbook of mathematics*

*as a set of intriguing problems.” Raymond M. Sullivan*

STEM (Science, Technology, Engineering, Mathematics) education is the corner stone of the future of our society. Mathematics is a language of STEM to say the least. Therefore, it is critically important to learn mathematics as early as possible. Extra curriculum options, e.g. community centers, non-credit classes at universities and colleges etc., seem to be more flexible.

Too frequently formal education represents mathematics as a boring and formal set of rules and formulae. Just to the contrary, Junior Karazin University and Kharkiv Municipal Centre mathematical groups use an interactive approach to apply mathematics to our everyday life. Children of 6-12 years old, parents and teachers work together solving problems, preparing presentations for scientific fair, discovering an exciting world of mathematics.

Here are several examples:

* **Sweet Mathematics.** All problems are about, candies, cookies, and chocolate minibars. It’s much easier to weigh teddy-bears if a piece of chocolate is stuffed into one of the toys. An equation can be solved if we know a candy weight and need to find a sugar cube weight.

A small standard cube of sugar of 1 cm edge helps to calculate a rectangle area or a parallelepiped volume. Kids eat sweets at the end. It helps them to understand the concepts much better.

* **“Geometry around us.”** Elementary school students work together with their parents. They organize a special interactive scientific fair, prepare their demonstrations and presentations. Such active learning process provides students with an opportunity to see the harmony and beauty of geometry.
* **“Pi day.”** The international “Pi Day” is celebrated every March 14th. In USA a date is always written in the Month-Day-Year format. Thus, 3.14 means both first three digits of the number and March 14th. The number is pronounced the same way as “Pie.” So, it sounds like “Pie Day”, and we have another reason to bake and eat pies, preferably of a perfect round shape.
* **“My dreams about space”.** Space travel, spaceships, planetary, stellar, galactic motion. Elementary problems about space velocities, distances and time allow students to imagine the enormous scale of Cosmos.

All necessary materials of the activities about can be found on the website [www.2x2.org.ua](http://www.2x2.org.ua) , and can be used at both elementary school and extra curriculum activity groups.