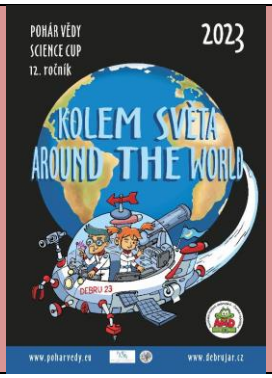
**SCIENCE CUP – AROUND THE WORLD 2023**

**Category 4 – High School**

**3rd round – March – deadline 31. 3. 2023 23:59**




# Introduction

Dear competitors, two thirds of the first part of the competition are over, we are excited about many great solutions of the second round of the Science Cup - Around the World 2023. The trip to South and North America went well for most of the teams, we loved the original headbands, stunning sombreros and various traditional and non-traditional musical instruments and we were really happy about the original experiments, observations and measurements with lemons, oranges, coffee, corn, colorful carnival experiments and also astonishing inventions and discoveries. Now the challenges of the final third round of the first part of the competition await you as we head to Europe and, of course, to the Czech Republic. Before you start, as usual, let's remind the most important information.

Solutions must be submitted no later than 23:59 on the last day of the round.

The solution must be uploaded to your category's Google Classroom by the required deadline as a single PDF file of no more than 10 MB in size. All contents of the file (text, sketches, photographs) must not exceed 3 A4 pages and be easily readable (simple font, minimum font size 11). In case you do not meet the deadline, format or scope of the work, your solution will be penalized with a loss of 20 points.

And finally, ONLY a table or bench of approximately 1 x 1.5 m in size and the surrounding area of 10 cm will be available to the team for their presentation of each round of the competition in the finals. No other space will possible to be used.

We look forward to seeing your solutions of the third round.

Your Science Cup 2023 team - Jít'a H., Katka, Jít'a S., Naďa, and David

## 1. Creative part (20 %)

The European continent and its islands are home to 46 independent states. 209 different languages from 6 language families are spoken here.
All countries except the Vatican are members of the United Nations; all countries except the Vatican, Belarus, Kazakhstan, and Russia are members of the Council of Europe; and 27 countries are part of the EU.

*Source: https://cs.wikipedia.org/wiki/Evropa*

Choose one of the following three creative team tasks offered, describe your process of making it and document your activity with your own pictures or photos.

- Your team has already demonstrated many physical and chemical skills. Gastronomy, however, also is "physics and chemistry." Choose a team specialty (cold = not cooked or baked) typical of any European country and prepare it for tasting. In case of promotion to the final, please take into account that due to the temperature and the chemicals on the stalls there will only be a demonstration, not a tasting.
- Many European capitals are characterized by their buildings (Eiffel Tower, Atomium, Colosseum,...). Present one of them by your own 2D or 3D model made of any material.
- European flags and coats of arms are very colorful. Design a flag and coat of arms for your team and explain to us why it looks the way it looks.

As this is the third time we are meeting, we would like to know who is "hiding" under your original team names, so in this round document your whole team along with your product. We look forward to seeing photos of the teams with your products.

## 2. Experimental part (40 %)

Choose one experiment that would take you either to Greece, France, Italy, Sweden, Spain or the Czech Republic.

Greece and Spain are among the biggest producers of olives and olive oil, France has a worldwide reputation for products such as cheese and wine, Italy is famous for its pasta and tomato products, the focus of the Swedish economy is logging and wood processing, but you can also head to Billund in Sweden for LEGO bricks. And we will leave the Czech Republic's topic up to you, so you can explore it for yourself.


*https://www.kostickylega.cz/blog/svetove-rekordy-lego-staveb*

*Did you know that the Guinness Book of World Records is full of records in which LEGO bricks play a major role? The main battles between builders are undoubtedly for the tallest building. The very first officially recorded record dates back to 1980. Back then, a tower 13.1 meters high was built in the British*

*town of Milton Keynes. This record has been gradually broken over the years and the Czech Republic has not been left out. In 2012, you could have watched a tower made of 450,000 blocks being built in Prague. The tower eventually grew to an impressive height of 32.5 meters and rightfully entered the record book. But as they say, all records are meant to be broken. The Czech Republic held the top position only until 2016, when a tower 35.5 meters high was built in Legoland, Germany.*

Make a physical or chemical experiment in which either an olive, grapes, cheese, pasta, tomatoes, wood, LEGO bricks, or your chosen delicacy or product typical of the countries listed above plays the main role. The other tools and materials are entirely up to you this time, with the bonus points to reward minimalism (0 - 2 other things + 5 points 3 - 5 other things +2 points, more than 5 things 0 extra points). Complete the experiment with your own pictures or photos.

*Source: https://science.wonderhowto.com/how-to/suck-up-wine-with-cherry-271739/*

Or you can choose the Czech Republic and the conditions are the same. Just to clarify, in the Experiment section you choose one experiment from anycountries listed, including the Czech Republic.

Make a physical or chemical experiment in which the main role is played by a delicacy or thing typical of the Czech Republic. The other gadgets are entirely up to you, but we reward minimalism with bonus points (0 - 2 other gadgets + 5 points 3 - 5 other gadgets +2 points, more than 5 gadgets 0 extra points). Complete the experiment with your own pictures or photos.

In both cases, whether you have chosen the Czech Republic or another of the above-mentioned European countries, do not forget to list the necessary tools and materials and quantify their number, describe the procedure and especially explain the experiment.

## 3. Practical part (40 %)

In the practical part we will combine theory, practice and observation or measurement.

We stay with Greece, France, Italy, Sweden, Spain or the Czech Republic, as in the creative and experimental part. You can choose a typical delicacy, a famous scientist, a patent, or an event typical for the country. This time, however, you have three related tasks.

Depending on the choice of the main material or event for the practical part, which must be typical of the country:

- find out 3 interesting facts about the material, delicacy, patent or event
- make and describe physical or chemical observations or measurements using the material/food (observe/measure volume, density, pH, determine the center of gravity, etc.)
- from your observations or measurements, draw correct conclusions



*Source: https://vida.cz/vida-na-doma*

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Describe the solution procedure of each task, the results of your team work, and any additional information, and document them with photos.

The solution can be handed in only before the deadline. Only the solutions fulfilling all the requisites given in the propositions will be judged without any point loss.

If you have any questions, you can ask a category consultant in your country:
Czech Republic and Slovakia: Naďa Zíková – zikova@icpf.cas.cz and Jitka Soukupová – jitule.sk@seznam.cz
Turkey: Basriye Öngel – basriye.korkmaz@gmail.com