



Celebration of International Day of Mathematics 2021

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At its 40th General Conference in November 2019, UNESCO proclaimed 14 March as the International Day of Mathematics. In 2020, more than 1000 celebrations in over 110 countries have been announced, as well as official launches at UNESCO and the Next Einstein Forum. Many of these events have been cancelled due to the COVID-19 epidemic. However, this great mobilization is a testament to the enthusiasm generated by this initiative.

One of the aims of the International Day of Mathematics (IDM) is to convey the love of mathematics to young people and the messages that mathematics is everywhere and that it is useful and beautiful. In this time of pandemic, the theme chosen for IDM 2021 is:

Mathematics for a Better World

It is expected that public gatherings will still be banned in March 2021. For this reason, the organising committee wants to promote celebrations in the classrooms. Teachers are invited to:

- Explain to their class that the planet is celebrating the International Day of Mathematics and explore the theme on the site: <https://betterworld.idm314.org/>
- Carry out classroom enrichment activities around the theme, for example by using the material proposed on the website in several languages: <https://www.idm314.org/organize.html>,
- Register their activities on the site so that they appear on the IDM site map,
- Visit <http://www.idm314.org> and share photos or videos of their activities on the site and on social networks,
- Take part in the poster competition for IMD2021: <https://www.idm314.org/2021-poster-challenge.html>,
- Participate to the live coverage of March 14 (similar to <https://www.idm314.org/launch-2020.html>),
- Subscribe to the IMD newsletter to receive all the information in the run-up to IMD 2021: <https://www.idm314.org/about.html>,
- The [logo](#) already exists in 23 languages and more will be added as and when requested.

The Organizing Committee requests the assistance of UNESCO's Education Sector to reach out to all schools affiliated to UNESCO and invite them to celebrate IDM 2021 and subsequent IDMs. As 14 March 2021 is a Sunday, it is understood that many schools will choose to celebrate on Friday 12 March 2021 or Monday 15 March 2021.

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Some examples of thematic activities:

1. Fair sharing:

How can inheritance assets be divided equitably if not all heirs have the same preferences? How can household chores or other types of chores be shared fairly when the people who do the chores do not have the same dislikes? All these problems are part of the *theory of fair division* for which the mathematical field of game theory offers amusing solutions, the most famous example of which is the [fair cake-cutting](#) problem.

2. Modelling the spread of an epidemic:

The population is divided into four compartments: the susceptible, the infected, the recovered and the dead. The rules by which individuals move from one compartment to another are modelled. By simulating the model, the evolution of the epidemic can then be predicted.

3. Group screening:

To contain an epidemic, you have to test, test, test, which requires a lot of resources. A simple way to save on testing is to test mixtures of samples from subgroups of individuals. As soon as the test is negative on a mixture, all individuals in the subgroup are known to be negative. Otherwise, each individual in the subgroup is tested individually. This method involves dividing the samples in half and doing two rounds of testing. You can do better with only one round of testing! The activity will explore how.

4. And other activities that are simultaneously fun and mathematically instructive