THE SWEDISH MASS EXPERIMENTS

Since 2009, the Swedish non-profit organisation **VA – Public & Science** has been coordinating an annual citizen science project for schools as part of the European Researchers' Night.

Vetenskap & Allmänhet

VA – PUBLIC & SCIENCE

The Swedish Mass Experiments
A win-win for students, scientists and society

Through this citizen science initiative, thousands of Swedish students have been helping researchers gather huge amounts of data, while at the same time enjoying the opportunity to engage in real research. From the teachers' point of view, the mass experiments provide them with material and methods based upon state-of-the-art research to integrate into the curriculum.

The mass experiments efficiently link education to research, establishing valuable contacts with researchers and giving students insights into research methods and scientific thinking.

Many aspects are taken into account in the selection of the experiment, such as feasibility, ethics and integrity, and that the experiment ideally should address topics relevant to the students' everyday lives. The key principle is that the students participate as research assistants and not research subjects.

VA assists the researcher in designing and optimising the experiment to yield high quality data for the researcher while at the same time providing an engaging experience for the students.

Instructions and teachers' manuals are jointly developed by the researcher and VA and researchers also communicate directly with teachers and students via Twitter, Facebook and Instagram.

Tasks carried out by students are generally based around documenting their observations – for example taking photographs or measuring temperature – under the supervision of their teachers.

The researcher analyses the data collected by the students and, in collaboration with VA, writes a popular science report on the results. Research papers on a number of the experiments have been published in well-renowned peer-reviewed journals.

2009 – THE CLASSROOM ENVIRONMENT EXPERIMENT

Using a simple method, classes helped scientists measure the concentration of carbon dioxide in Scandinavian classrooms at the end of the school day.

2010 – THE ACOUSTIC EXPERIMENT

The purpose of this experiment was to study the acoustic environment in Swedish classrooms by letting participating students listen to speech with and without background noise.

Persson Waye, K., Magnusson, L., Fredriksson, S. et al. (2015), *'A Screening Approach for Classroom Acoustics Using Web-Based Listening Tests and Subjective Ratings'*, PLoS ONE 10(1): e0116572. doi:10.1371/journal.pone.0116572

2011 – THE BEST-BEFORE DATE EXPERIMENT

More than 1,800 students measured the temperature in their refrigerators at home and recorded the best-before date on the food stored in the refrigerators.

Marklinder, I., Eriksson, M. K. (2015), *'Best-before date – food storage temperatures recorded by Swedish students'*, British Food Journal, 117:6.

2012 – THE RISK PICTURE

The 2012 experiment was about exploring which environments children and youth perceive to be the most hazardous. More than





700 students took photographs and described what they considered to be hazardous.

Wall, E. (2014), *'Visualizing risk: using participatory photography to explore individuals' sense-making of risk'*, Journal of Risk Research, ahead-of-print (2014): 1–17.

2013 – THE AUTUMN EXPERIMENT

By picking out a tree and then documenting the changes in its foliage, 10,000 students helped scientists study the autumn leaf development in deciduous trees. Part of the experiment was about studying the genes of aspen trees; another part was about developing methods to observe the autumn development through satellite imagery, and a third part was to analyse the effects of climate change by comparing present observations to historical data.

2014 – THE VEGETABLE EXPERIMENT

More than 5,500 students helped scientists study the consumption of fruit and vegetables among Swedish students. The students documented their intake of fruit and vegetables during 24 hours.

2015 – THE TEA BAG EXPERIMENT

In the Tea Bag Experiment, scientists were helped by 250 school classes in studying the decomposition of organic material in soil and how this process is affected by climate change. Using a newly developed standardised method, the students buried a set of tea bags before the summer break and then dug the tea bags up when school started again in the autumn.

2016 – THE BULLETIN BOARD

What is the function of the physical bulletin board in the digital age? By documenting and classifying the contents of bulletin boards across the whole of Sweden, over 1,500 students assisted researchers in exploring this question.

2017 – THE NEWS EVALUATOR

Using a newly developed digital tool, 6,000 students helped researchers investigate the credibility of their digital newsfeeds. As well as contributing to research, the experiment was designed to teach young people how to assess information according to scientifically proven methods.

2018 – THE LADYBIRD EXPERIMENT

By photographing ladybirds in the wild, students will help train a computer programme to identify different species of ladybirds.

→ **For more information, please see:**
www.v-a.se/mass-experiments

VA – PUBLIC & SCIENCE IS A SWEDISH NON-PROFIT ORGANISATION THAT PROMOTES DIALOGUE AND OPENNESS BETWEEN RESEARCHERS AND THE PUBLIC.

We work to create new and engaging forms of dialogue about research. We are also developing new knowledge on the relationship between research and society through surveys and studies. Our members consist of some 80 organisations, authorities, companies and associations. In addition, we have a number of individual members.

If you would like more information about us and our work, please email us at **info@v-a.se**, or get in touch via Twitter/Facebook/Instagram: **vetenskapoallm**
Read more at **www.v-a.se/in-english/**