



## EUROSTRONOMIA 2017-2020

### Stratosphere Project

As the launch event for our new Erasmus+ Project , “Eurostronomia”, a group of pupils from the Mallinckrodt-Gymnasium planned an unusual scientific experiment: a Mallinckröte (a green turtle) – the school mascot – was to be attached to a weather balloon and sent 35 kilometres up into the stratosphere. Once there, it would take thrilling photographs and collect data about altitude, air pressure, air temperature and humidity levels.



To carry out this experiment, not only did the team need to identify and understand the basic scientific principles of physics governing a flight into the stratosphere, they also needed to select, source, build and test the equipment required to carry out this experiment. This included calculating the amount of helium required for the balloon, estimating the length of the flight and analysing the data collected. The meteorological conditions and the operation of the data loggers and GPS trackers needed to be understood. In addition, team members required a good level of technical knowledge and competence to use software programs to analyse the data collected.

On 22 December 2017, the last day of school before the start of the Christmas holidays, everything was ready and the Mallinckrodt turtle lifted off from the school playground en route to the stratosphere. As our data loggers show, the turtle reached the dizzy heights of 37 kilometres above sea level; it experienced temperatures as low as -63C and humidity levels of 0.1%. Air pressure dropped to 1/500 of sea level pressure. Thanks to the jetstream, the mascot reached speeds of 300km/h. After exploding in the stratosphere due to the reduced atmospheric pressure, the turtle was safely recovered from Mitgenfeld, 300 km from Dortmund, by members of the Mallinckrodt team.

Whereas the space pioneer collected valuable data during the mission, it was unfortunate that the video recording was unsuccessful-



On the next attempt, and all on the Astronomy Team are convinced that there will be a next attempt, we will ensure that the equipment is fully functional.

