

# GROWING VEGETABLES IN SPACE

STUDENT RESEARCH PROJECT  
BY THE EDITH STEIN SCHOOL



**V3PO**

VEGETATIVE  
VERMEHRUNGSFÄHIGKEIT  
VON PFLANZEN IM ORBIT

EDITH  
RAVENSBURG  
STEIN  
& AULENDORF  
SCHULE

## OUR RESEARCH PROJECT

Is it possible to grow vegetables or fruit on a space station? In the future, will it be possible to supply astronauts on long missions with fresh food?

In scientific terms, the question is this: Is vegetative plant propagation possible under conditions of weightlessness?

We aim to get to the bottom of this question.

To do so, we will carry out an experiment on the International Space Station (ISS). Prior to launch, we will put plant cuttings into small experiment containers made by Intransyx containing nutrient agar. The containers have been used in the past for other biological experiments on the ISS. We are particularly interested in seeing if and how the cuttings form roots and leaves.

To ensure that our experiment is properly conducted, we are currently working on developing an appropriate experimental design for the ISS. In other words, using the test containers and taking into consideration environmental conditions on the ISS, we are working on a method to create the optimum growing conditions for the plant cuttings during the 30 days of the mission.

## OUR GOALS

We will send our research project to the International Space Station (ISS) so that it can be carried out under actual conditions in space, which would produce valuable scientific data and insights.

In 2016, we would like to enter our research project in the youth research competition, Jugend forscht, Germany's most well-known science contest for young people.

For more details, go to  
[www.sciencestarter.de/v3po](http://www.sciencestarter.de/v3po)



## RESEARCH TEAM

Ours is the first German student project accepted to the NASA training program. We – Maria Koch, Raphael Schilling and David Geray – are 12<sup>th</sup> grade students at the Agricultural Scientific School, part of the Edith Stein School in Ravensburg & Aulendorf, Germany.

Our research has received assistance from agricultural engineer Brigitte Schürmann. She is a teacher at the Edith Stein School and acts as project manager for our research. Since 2007, she has helped oversee a total of six groups of students in the Jugend forscht competition. As a horticultural scientist, she is closely connected with this topic and provides content and organizational support.

Dipl. Engineer Christian Bruderrek, project manager for Life Science Experiments in Space, handles all of the technical aspects associated with the organization and coordination essential to the success of the mission. Christian is supported by Maria Birelem and Constantin Winter. All three engineers assist with V3PO in their spare time!



Image rights: Jesper Reis



Image rights: Jesper Reis



**THE FOLLOWING SPONSORS  
ARE COMING ALONG ON THE TRIP  
INTO SPACE**



Supported by:



Federal Ministry  
for Economic Affairs  
and Energy

on the basis of a decision  
by the German Bundestag



Scientific and financial support from BASF



**CONTACT**

**Edith Stein School Ravensburg & Aulendorf**  
Domestic and Agricultural, Industrial and Business School  
St.-Martinus-Strasse 77  
88212 Ravensburg - Telephone: 0751/368-201  
Fax: 0751/368-218 - info@ess-rv.de  
School Manager: Peter Greiner

**School Board**  
District Office  
Friedenstrasse 6 - 88212 Ravensburg  
Telephone: 0751-850 - ira@landkreis-ravensburg.de

**READY FOR LIFTOFF!**

We will mention every sponsor by name in our subsequent film about the mission!

**DONATION ACCOUNT:**

Accountholder: Förderer der Edith-Stein-Schule  
[Supporters of the Edith Stein School]  
Kreissparkasse Ravensburg  
(BLZ [Bank routing number] 650 501 10)  
IBAN: DE92 6505 0110 0048 7639 14  
Account number: 48 763 914

(Purpose: V3PO + Name and address for donation receipt)