

# Astrobotany Challenge

Take some inspiration from these plants... why might they be useful to grow in space? Would there be challenges to growing them?

Each of the plants you see below have been grown in space! Some were grown for nutrition, some for wellbeing, and others were experiments to try out new methods of harvesting plants.



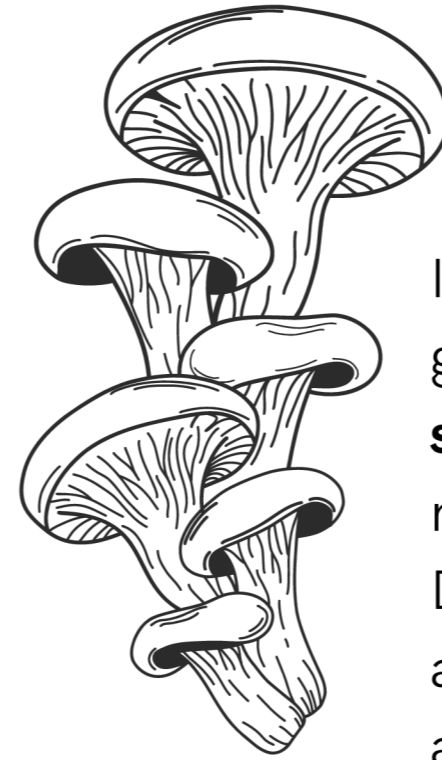
## Zinnia Flower

The challenging process of growing Zinnias on the International Space Station helped scientists back on Earth to better understand how plants grow in microgravity. **Flowering plants** like these are also chosen for their beauty, which helps to **uplift the mood** of the astronauts.



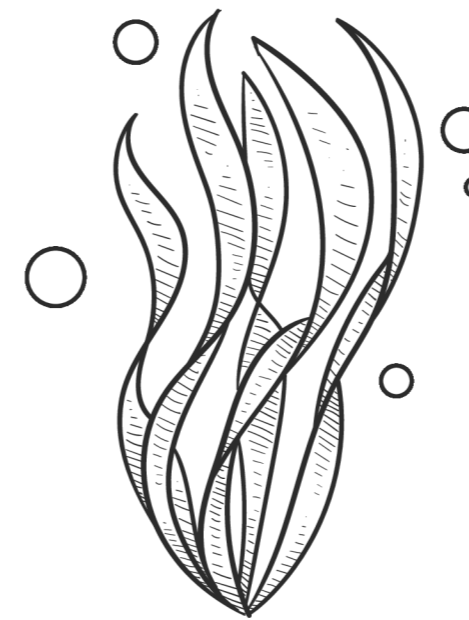
## Sweet Basil

JAXA Astronaut Soichi Noguchi grew two types of basil on the International Space Station using a **water culture** instead of soil. The water was enriched with **fertilisers** including phosphorus, nitrogen and potassium. Basil plants offer **flavour and freshness** to food for astronauts on long-duration missions.



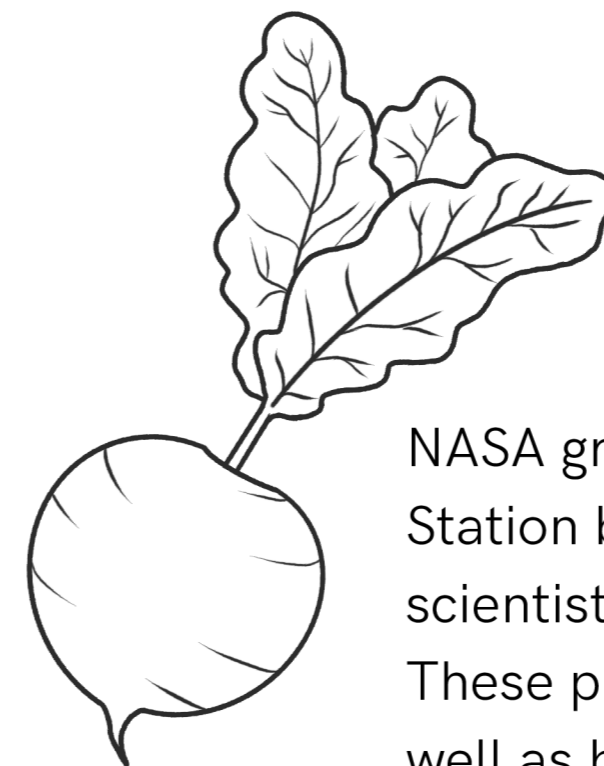
## Oyster Mushrooms

In April 2025, Astronauts on SpaceX's Fram2 mission attempted to grow mushrooms in orbit for the first time. A small box containing **substrate** (the material used to grow mushrooms) and **mycelium** (the root-like structure of the fungus) was stowed on board SpaceX's Dragon capsule for the four-day mission. Because mushrooms have a **short growth time** and **don't need to be cooked**, they may be useful as a food source for long missions.



## Spirulina

NASA and ESA have conducted many studies on spirulina as plant food suitable for space travel. Spirulina, **grown in water**, is a rich source of beta carotene (which helps to improve eyesight), has a very **high natural protein** content, and is high in iron and folic acid.



## Radish

NASA grew radishes on the International Space Station because they are well understood by scientists and **reach maturity in just 27 days**. These plants are also **nutritious and edible**, as well as being genetically similar to Arabidopsis, a small flowering plant related to cabbage.