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# Review

## What is it like on the Moon

- Craters
- No air
- Temperature  $100^{\circ}$
- Doesn't produce light
- Mountain
- Flats (sea)

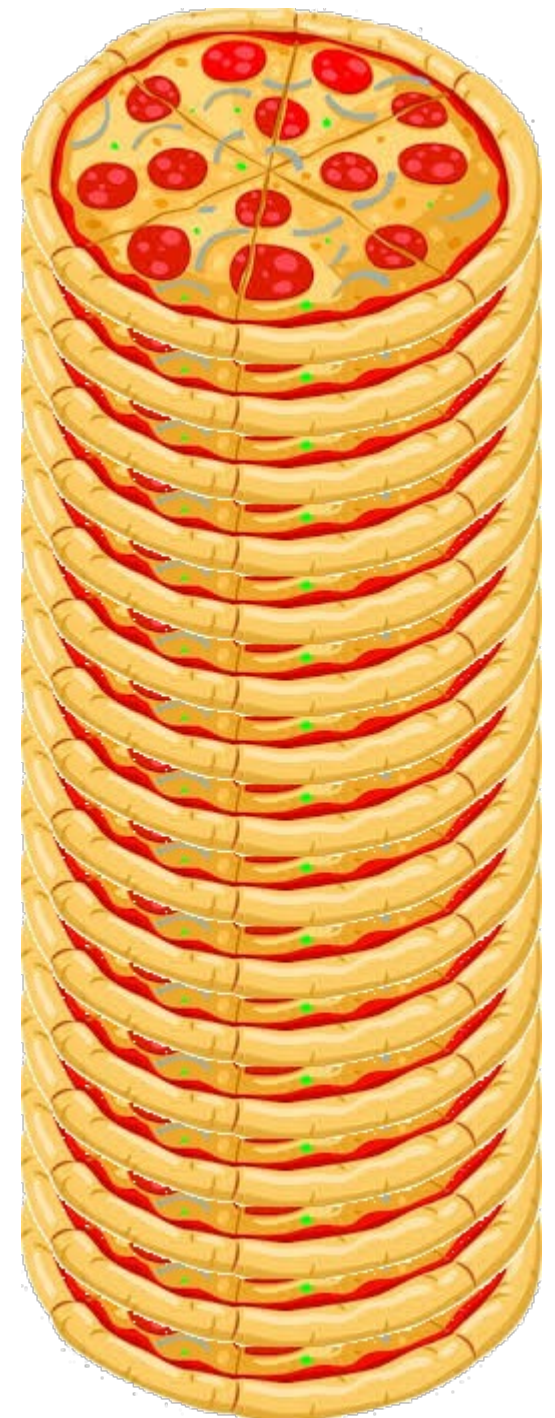
## What we need to live on the Moon

- Shelter
- Power
- ✓ Food
- Water
- Communications
- Tools / eqp
- Transport
- Air

# Review

## Food

- We need food to survive
  - 1.7kg per day for an adult!
- Very expensive to send food to the moon!
  - Thousands of dollars to send one pizza!



# Review

## Food

- Better to grow our food on the moon!



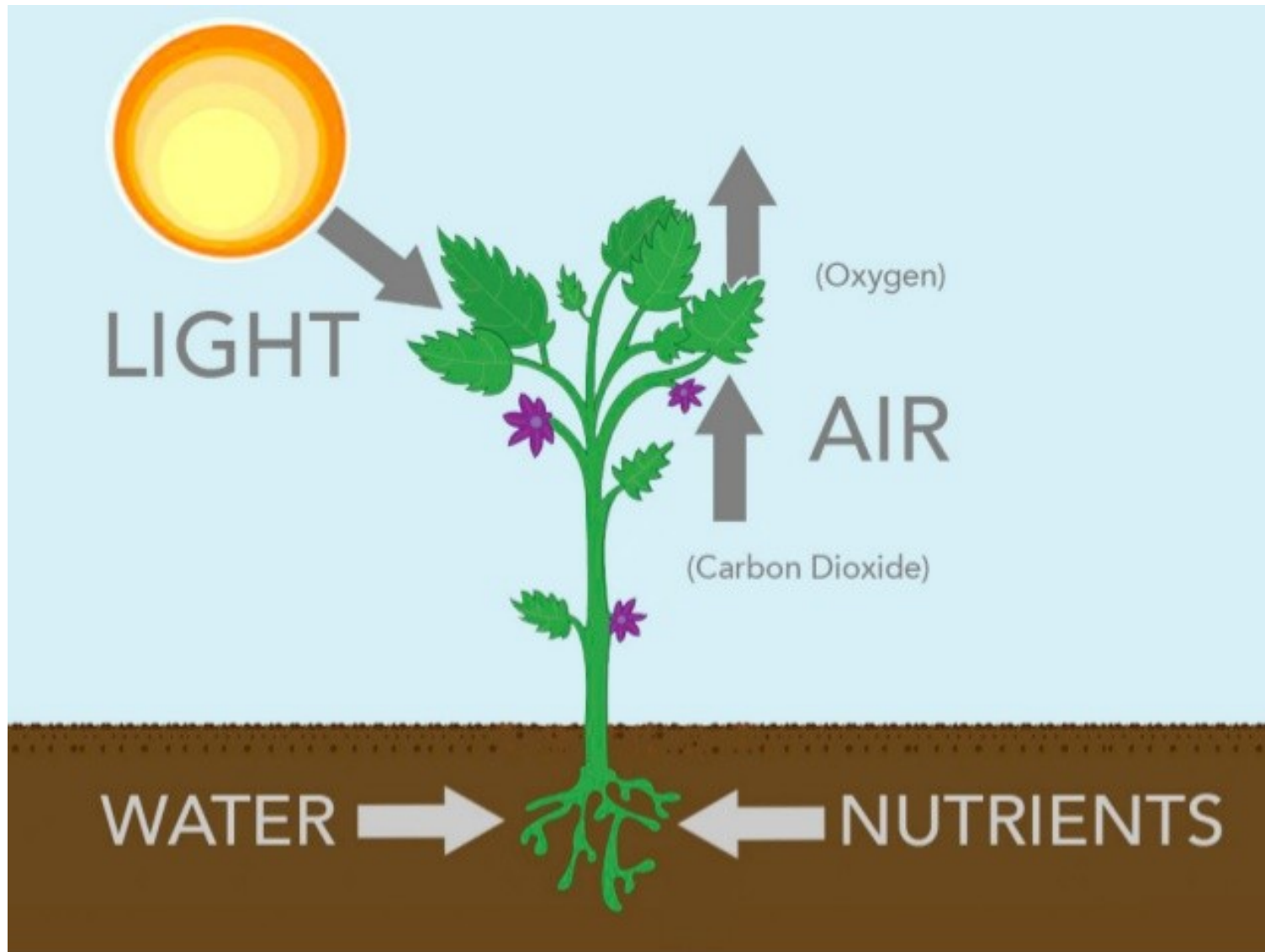
Astronaut Peggy Whitson harvests cabbage aboard the International Space Station



Space farm in development

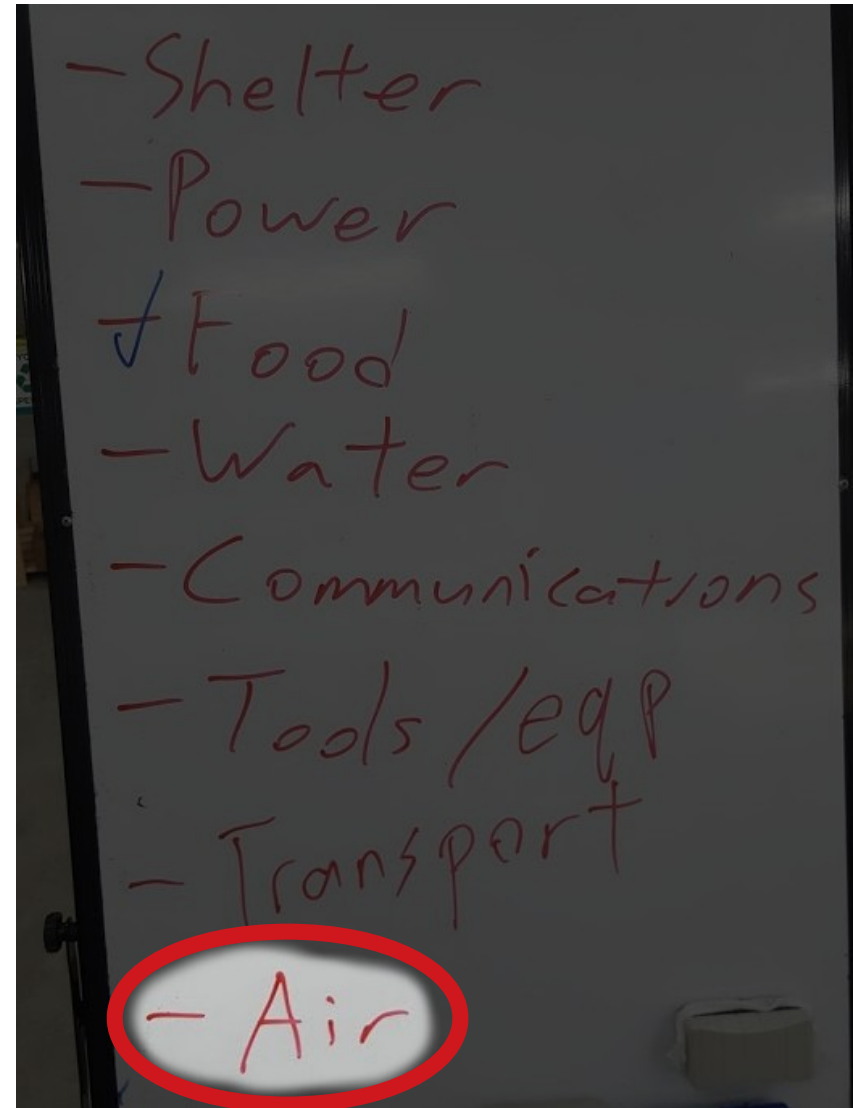
# Review

What plants need to grow

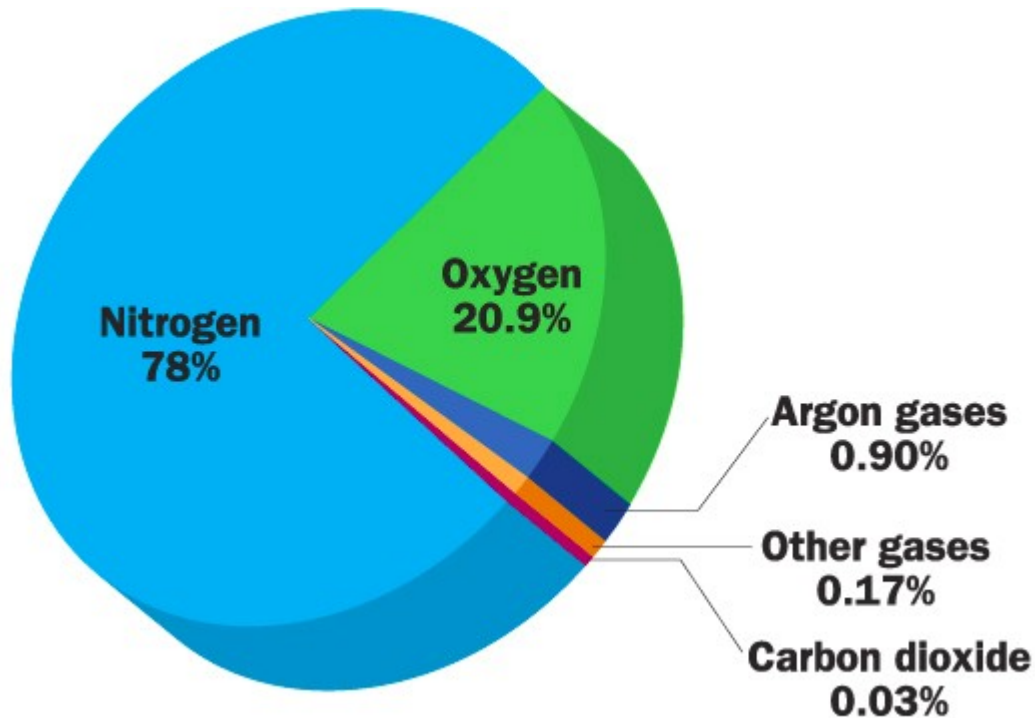


# Plan for Today!

- Learn about Air!
- Experiment:
  - Making oxygen
- Lego:
  - Build our rocket module
  - Build our oxygen plant

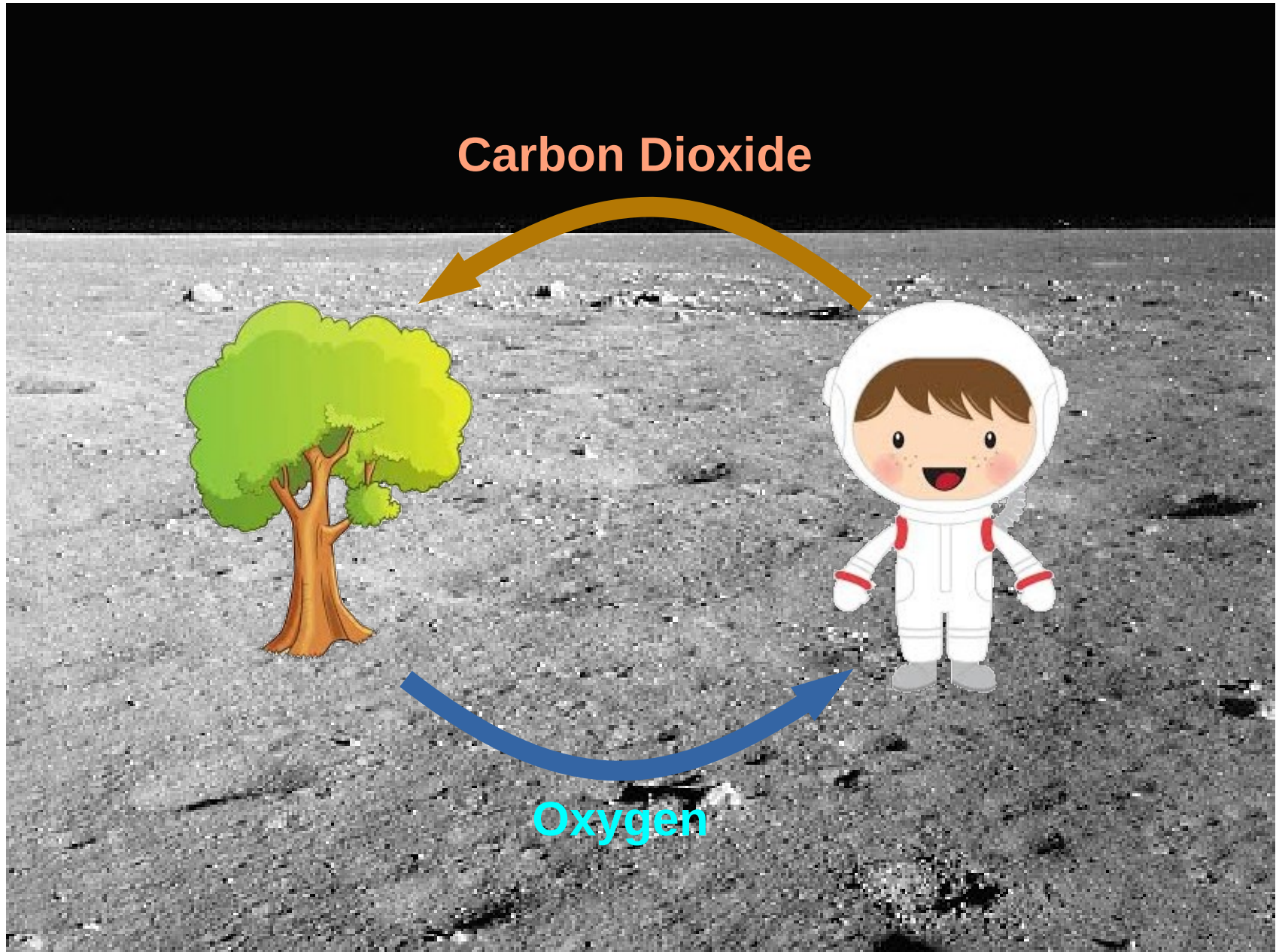


# What is Air?



- Mixture of different gasses
  - Oxygen (humans need this!)
  - Carbon dioxide (plants need this!)
  - Nitrogen, Argon, Others (Don't do much)

# Oxygen Cycle





# Research Time!

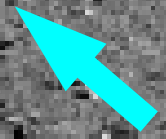
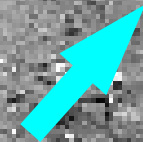
- How can astronauts get the oxygen they need?
- Search online
- Share with everyone!



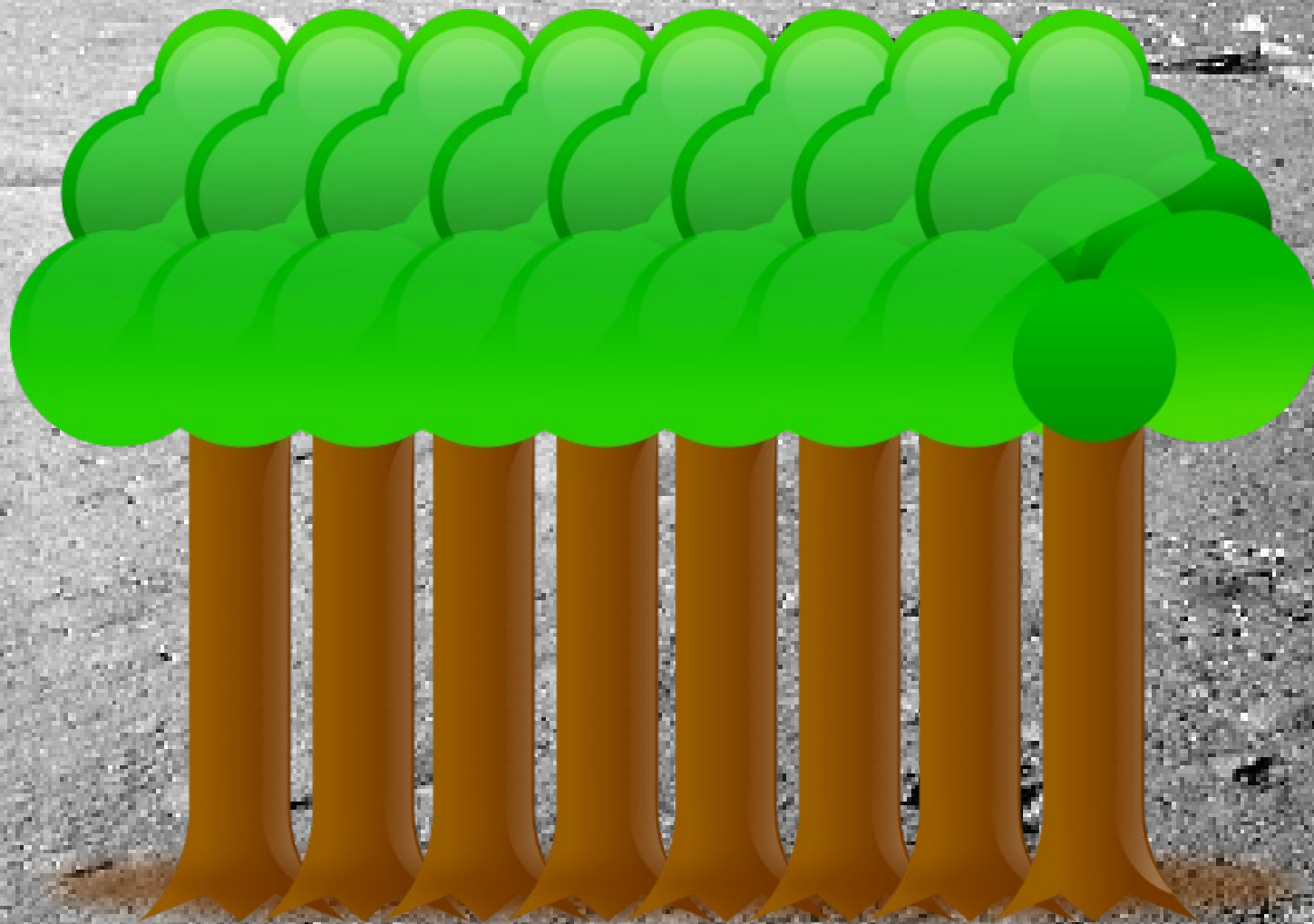
# Getting Oxygen

Many ways...

- From plants
- Carry oxygen in tanks
- Make it from water



# Getting Oxygen From Plants



- Need a lot of plants to produce enough oxygen!



# Carry Oxygen into Space



Oxygen Tank used in the Apollo missions

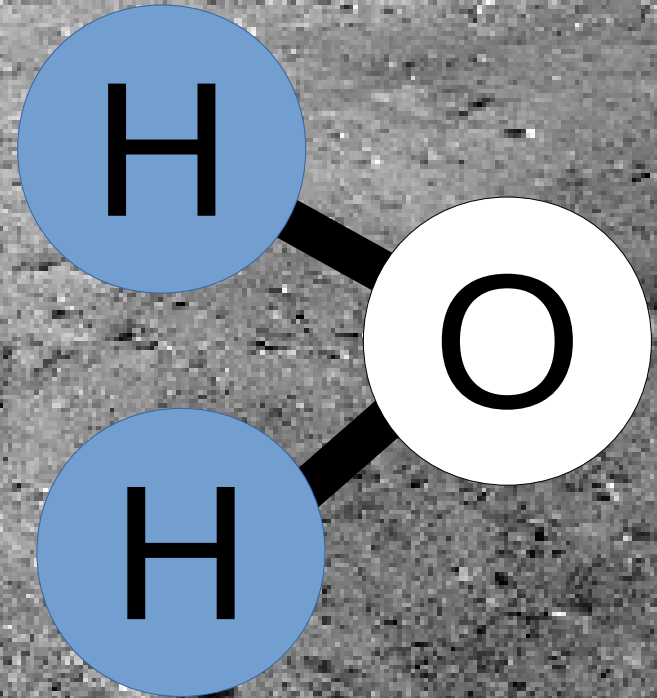
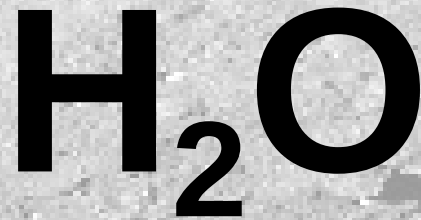
- Used in the past
- Need a big heavy tank



Oxygen tank used by divers

# Make Oxygen From Water

- Water is made of hydrogen and oxygen

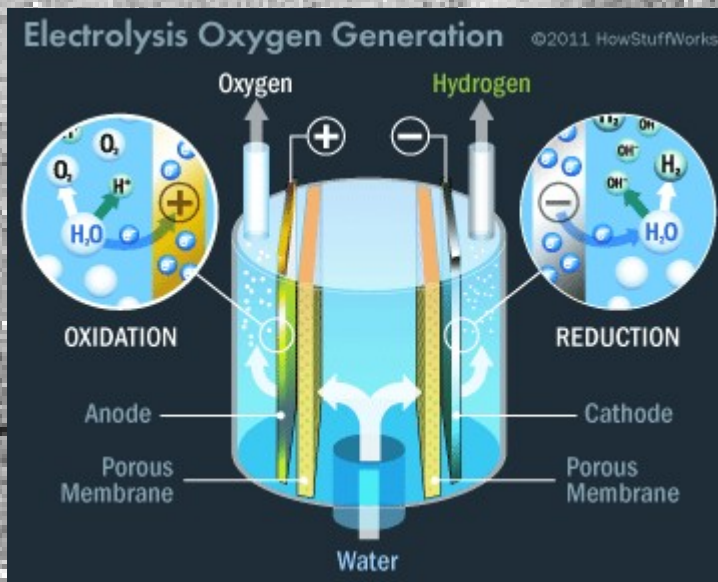


# Make Oxygen From Water

- Can split water into hydrogen and oxygen using electricity
- This is called “Electrolysis”



Elektron system on the International Space Station



**Experiment Time!**

# The Future!

- Plants that grows fast and take up less space



High tech farms that can grow plants faster and using less space



Spirulina Algae grows fast, produces lots of oxygen, and can be eaten!



# Time to Build!



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