



A POSTERIORI
Play · Experience · Learn

Review

What is it like on the Moon

- Craters
- No air
- Temperature ^{-173°C to 127°C} ~~100°C~~
- 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!
- Better to grow our own!



Astronaut Peggy Whitson harvests cabbage aboard the International Space Station



Our own Chinese Spinach growing in our center under artificial light!

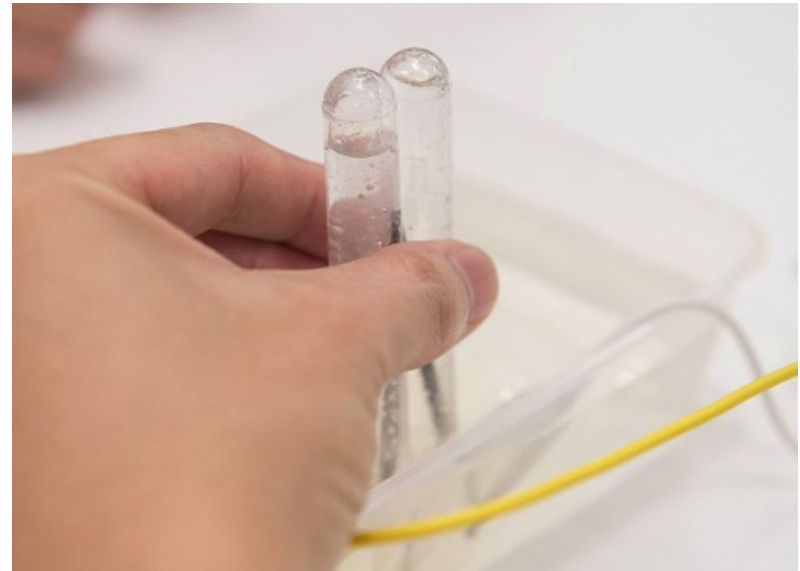
Review

Air

- Mixture of Oxygen, Carbon Dioxide, Nitrogen
- Humans need Oxygen
- Can make oxygen and hydrogen from water!



**Elektron system on the
International Space Station**

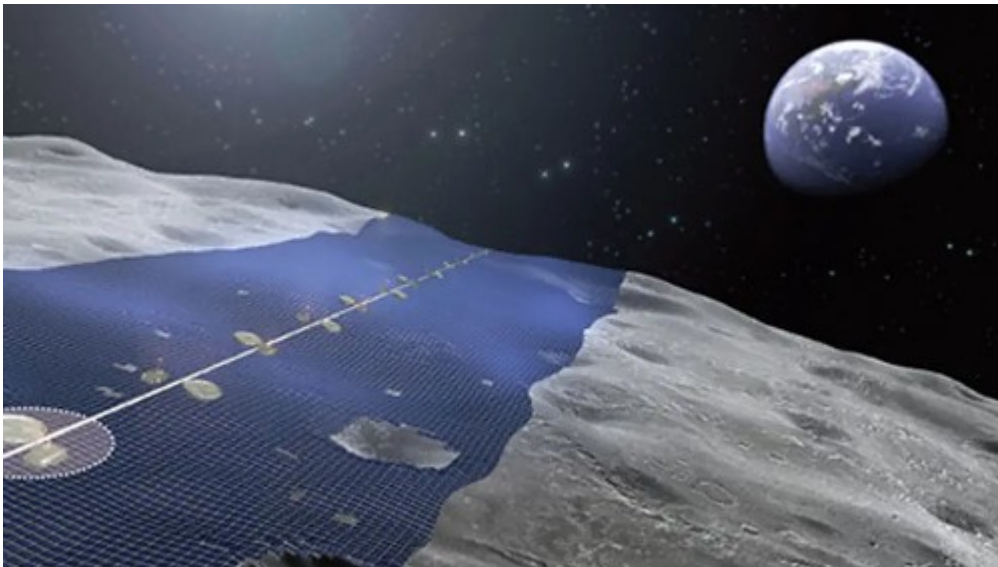


**Making Hydrogen and
Oxygen in our center**

Review

Power

- Need power for lights, making oxygen, temperature control, grow food, etc
- Can get lots of power from the sun!

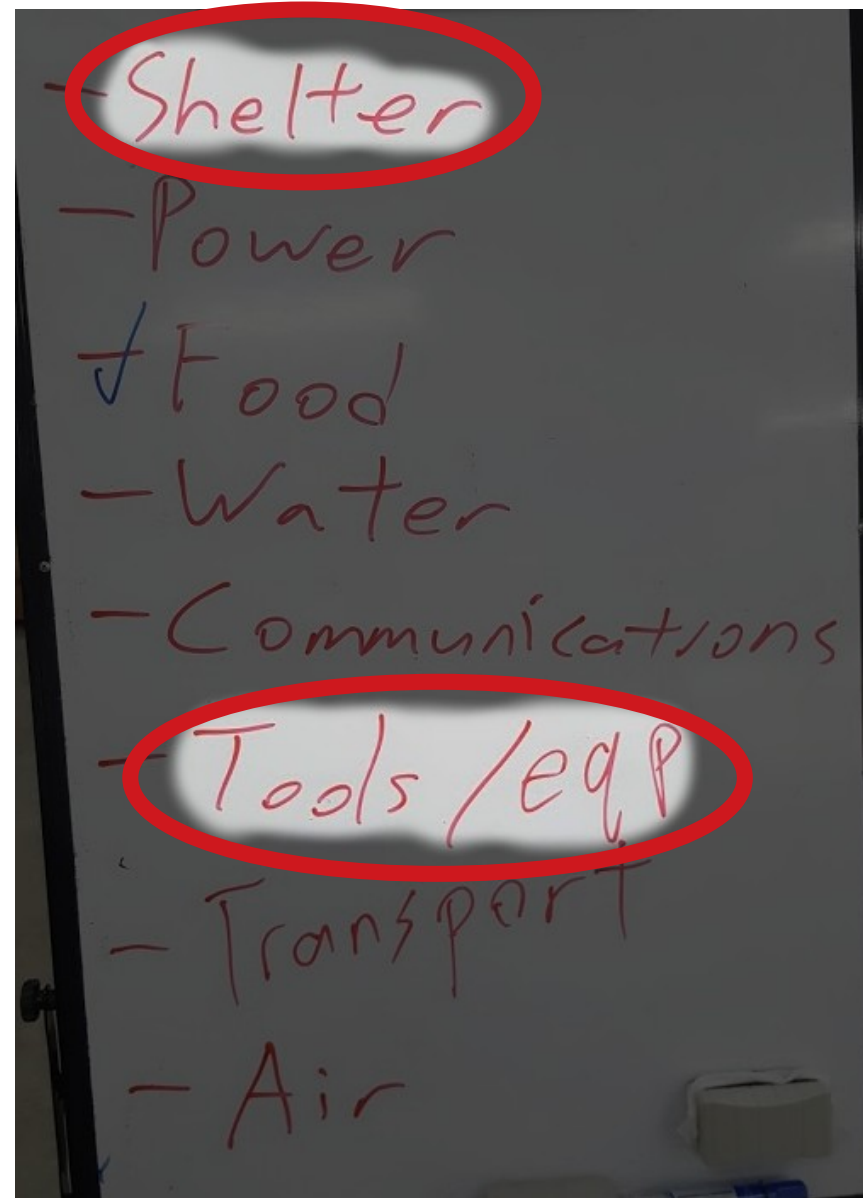


Possible solar panels on the moon

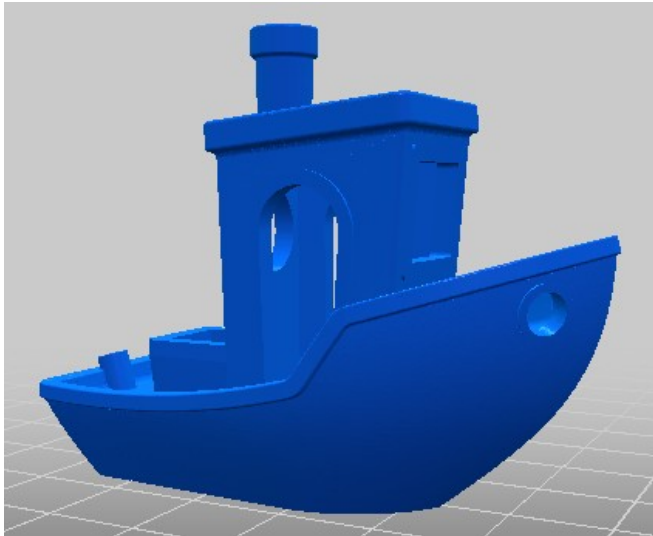


Plan for Today!

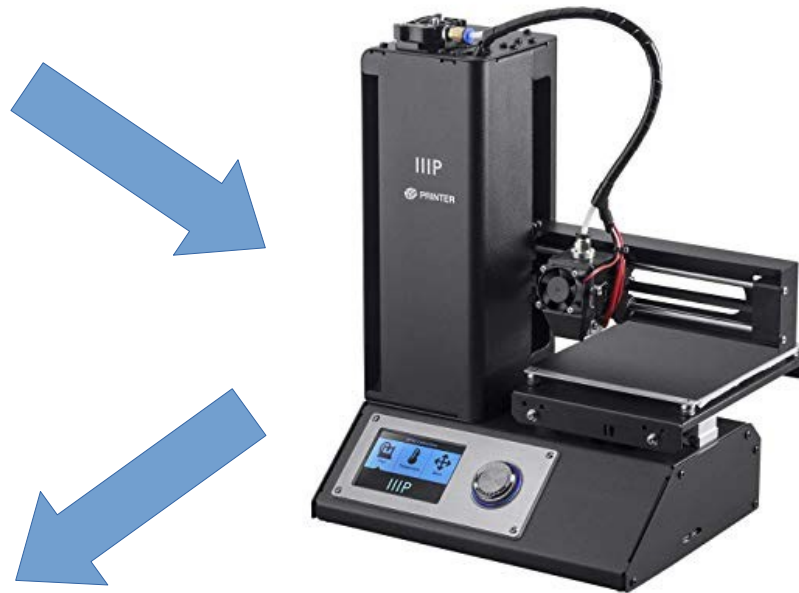
- Learn about 3D printing!
- Experiment:
 - 3D Printing tools
- Lego:
 - Build our moon base!



What is 3D Printing?

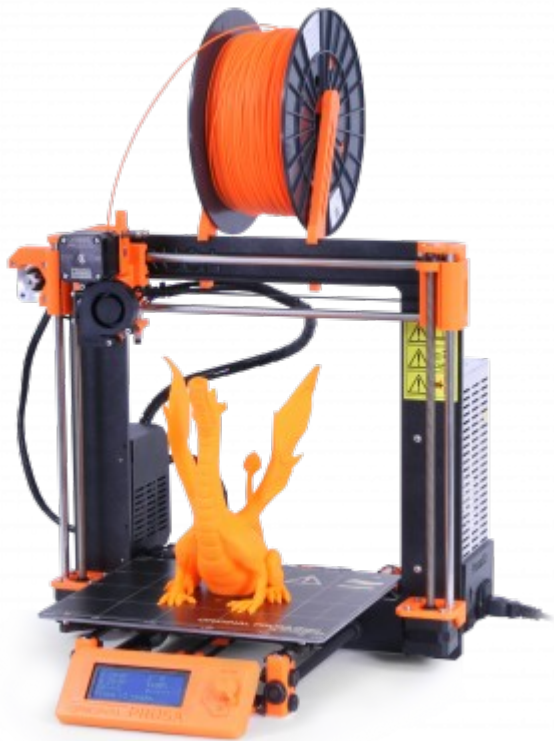


- Design object using a computer

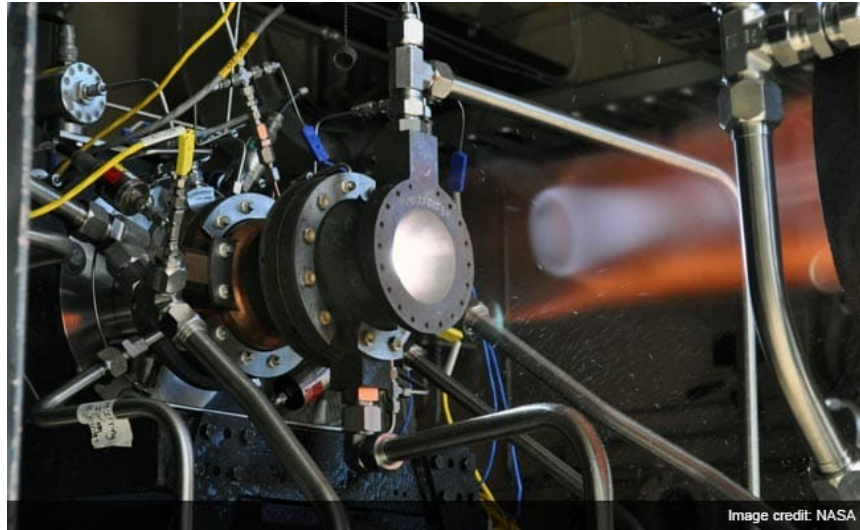


- 3D Printer uses raw materials to build in 3D

What can we print in 3D?



Plastic
(Most common)

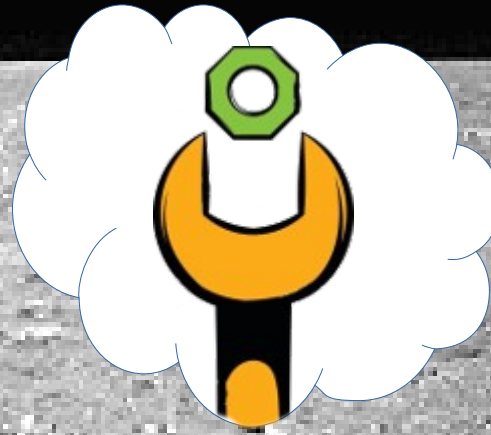
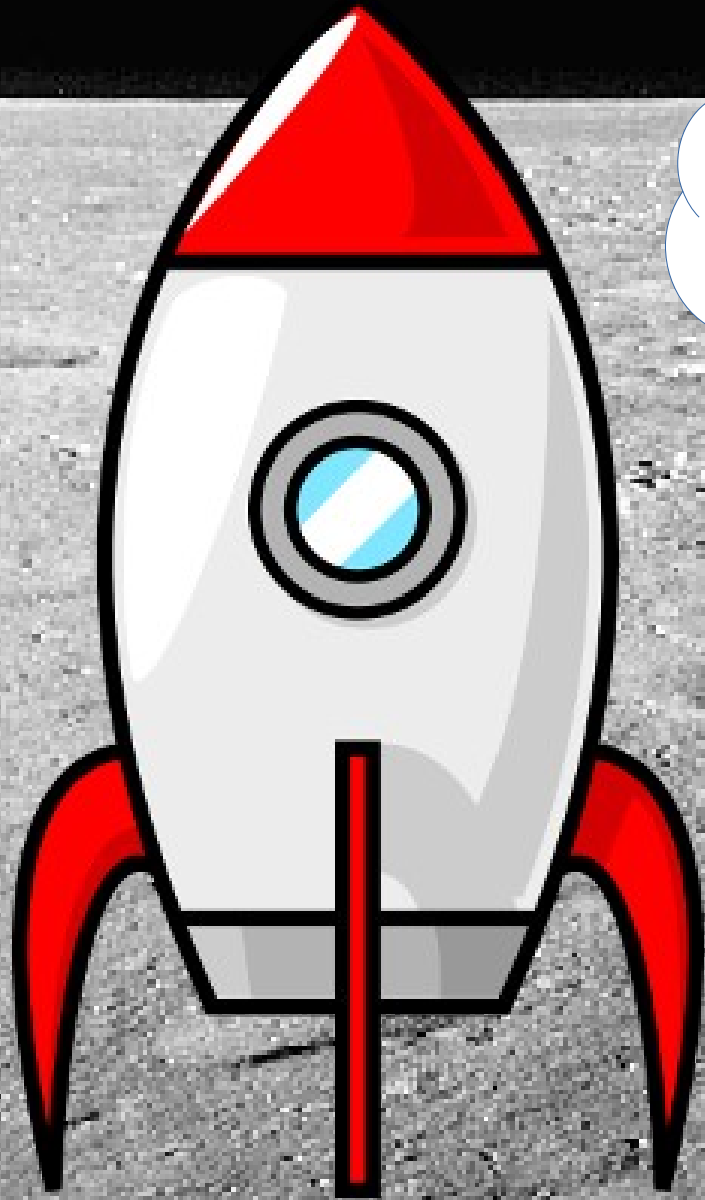


Rocket Engines



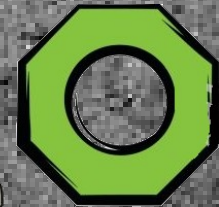
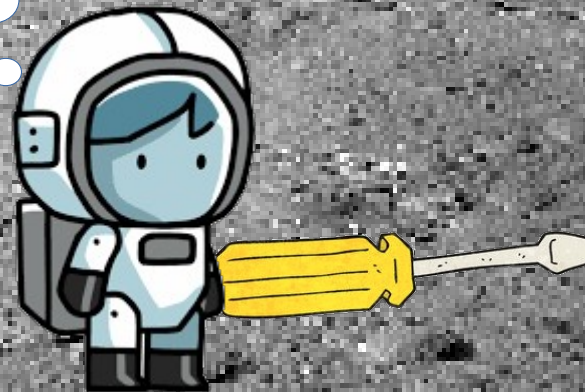
Houses

Why 3D Print?



Wrong Tool!

Time to make a trip
back to earth?



3D Printed Parts in Space



Tools



Parts (Adapter for oxygen generation system)



Medical Supplies
(Finger Splint)

Video

3D Printing Revolution Moves From Earth Into
Space

Why 3D Print?



I think I need
a bigger
rocket...



Video

3D Printing A Lunar Base

Experiment Time!

Time to Build!



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