SPACE EXPLORERS

Moon Base Challenge

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The Moon Base Challenge

- Design and build a model of a future Moon base
- Materials to get you started are included in your welcome pack
- The maximum team size is 5 people
- You'll be competing against other schools for the chance to win a prize

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Design Brief

- Within the next few years, NASA's Artemis Missions will see humans return to the Moon for the first time in over 50 years. While these will be short visits to begin with, future missions could see astronauts spend longer on the Moon, and eventually they will need to build a permanent base of operations on the surface. Your challenge is to design that base.

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Design Brief

You will need to think about...

- How many astronauts will call your base home?
- Where will they live, sleep and work?
- How will they be supplied with food, water and oxygen?
- How will they stay in contact with Earth?
- How will they generate power?
- How will your base protect astronauts from the dangers of space?

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Judging Criteria

- Initial designs
- Final drawn design
- Problem solving
- Use of materials
- Final model / prototype
- Challenges you overcame
- Meeting the design brief
- Inclusion of a mechanical or electrical system
- Wow factor

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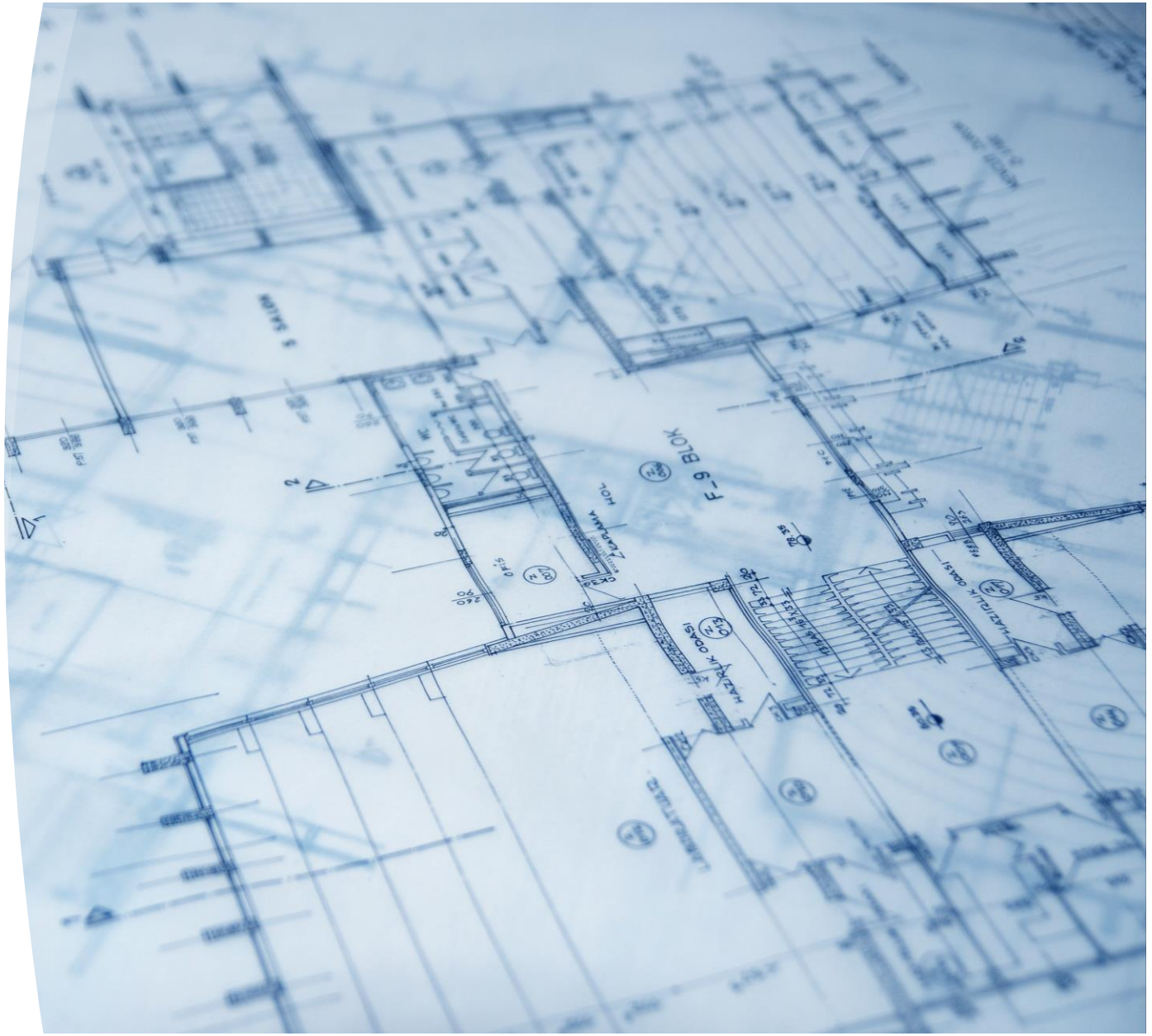
Designing and Planning

- What **problem** does the product solve?
- What is the **use** of the product?
- Who is the **user** of the product and what are their needs?



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What do we know about structures?

- How many examples of structures can you think of?
- What makes a strong structure?

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Shell Structures

- Hollow structure with a thin, curved outer layer
- Examples include igloos and the Syndey Opera House

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Frame Structures

- Structure with parts joined together
- Examples include climbing frames and the Eiffel Tower

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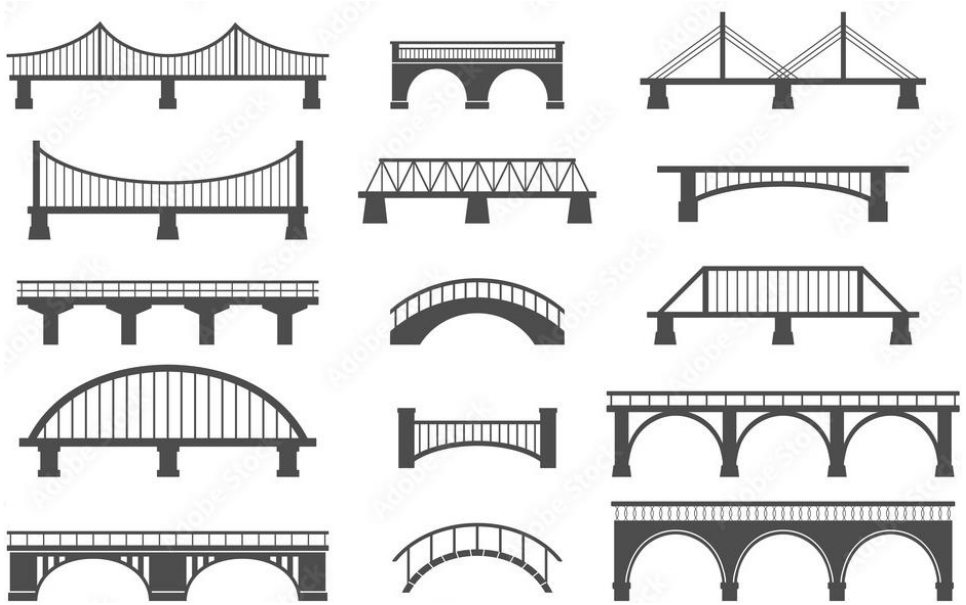
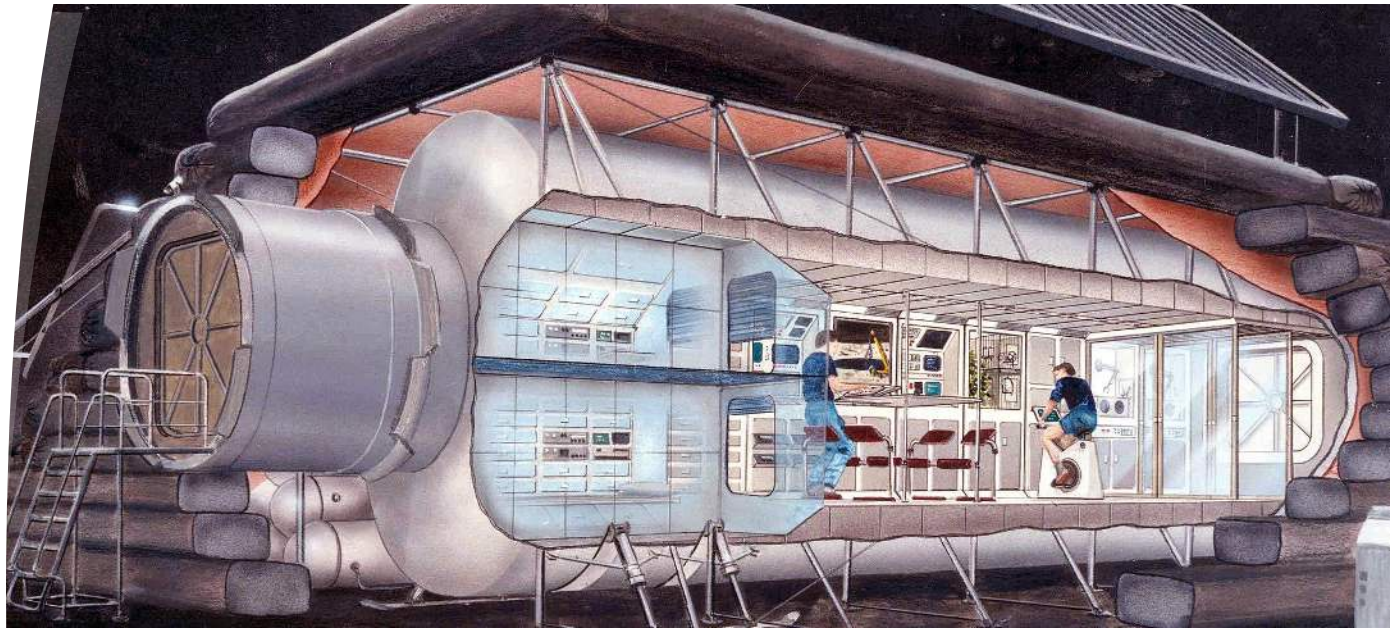
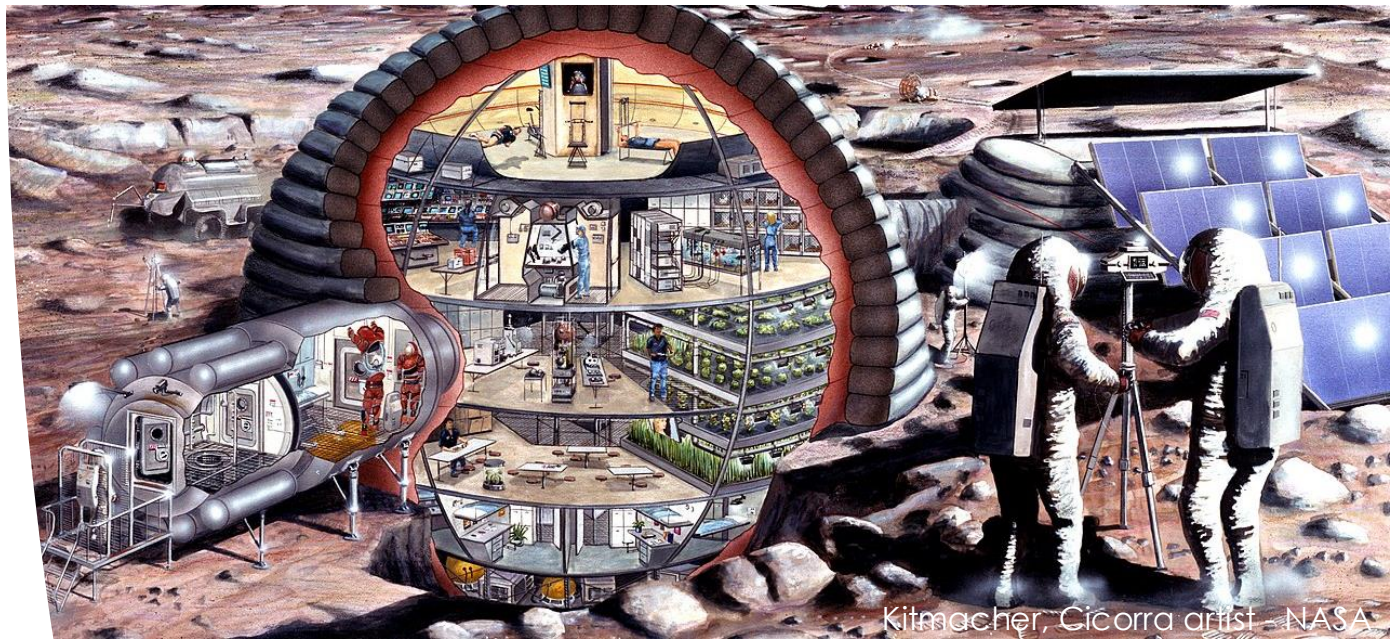
Strong Shapes

- How many shapes can you spot in these bridges?



Example Moon Base Designs





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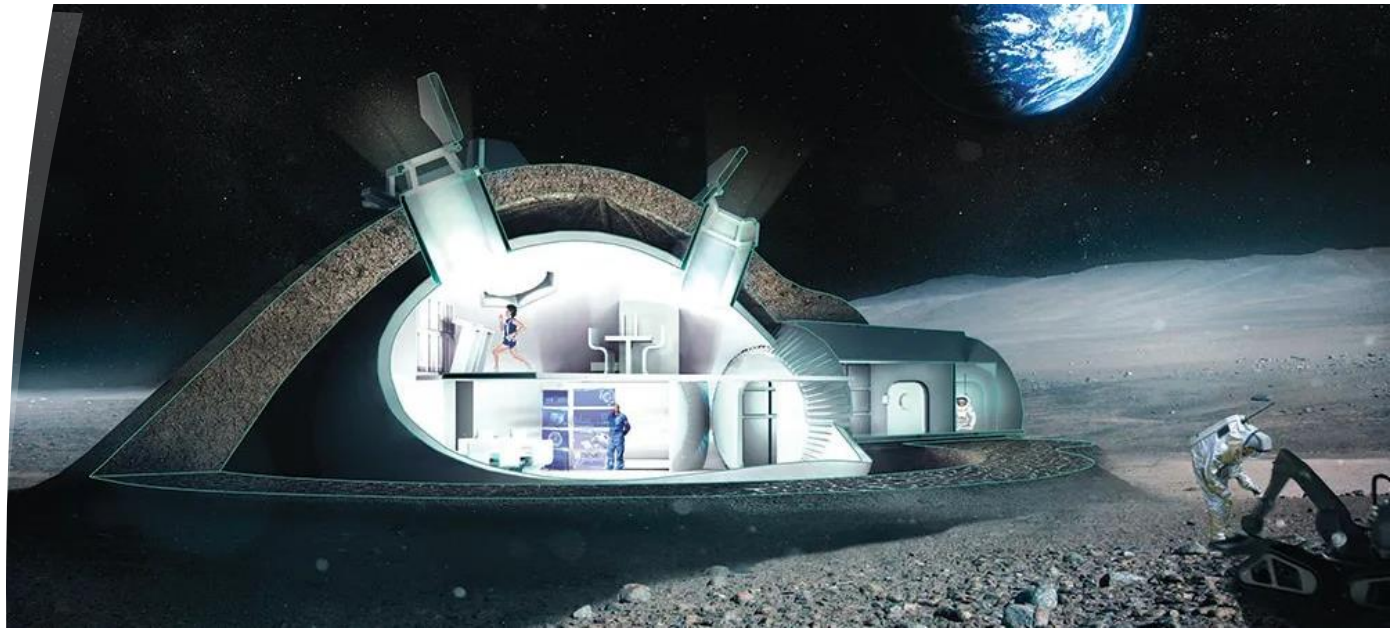
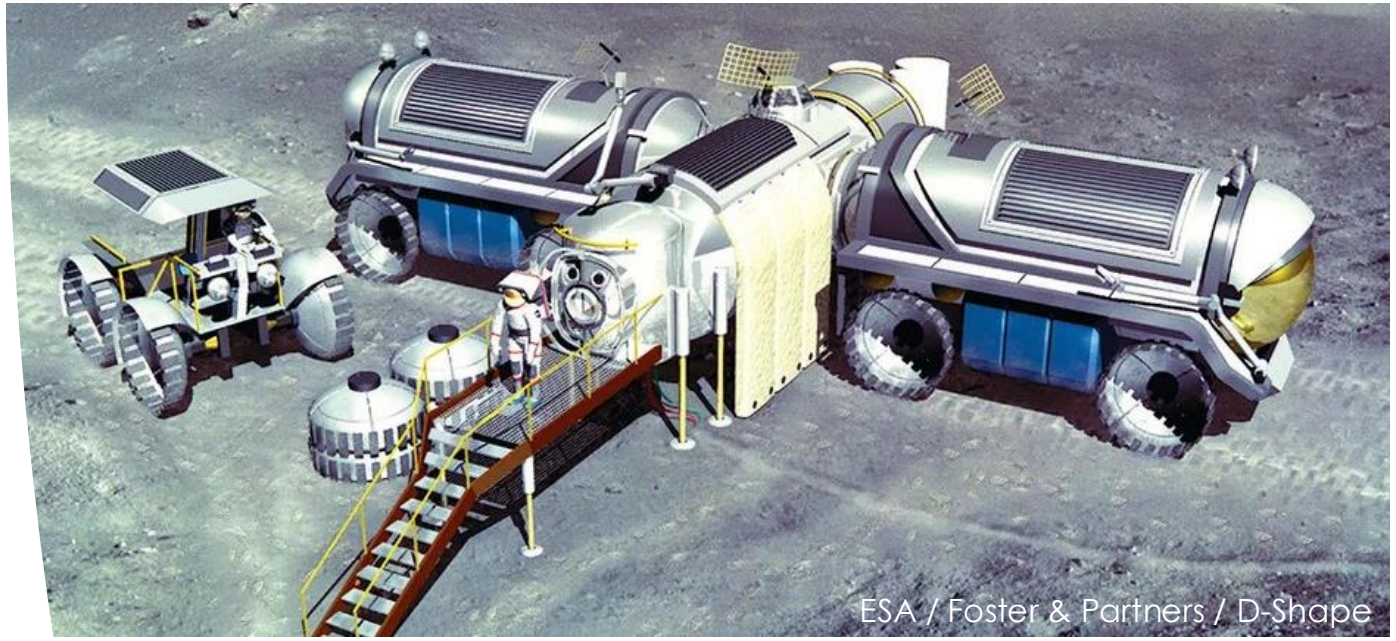
Example Moon Base Designs





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Example Moon Base Designs

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Designing and Planning

- Draw and label 2 initial designs
- Discuss in your teams what works and what doesn't in these designs
- Draw and label 1 final design, taking the best bits from your earlier designs

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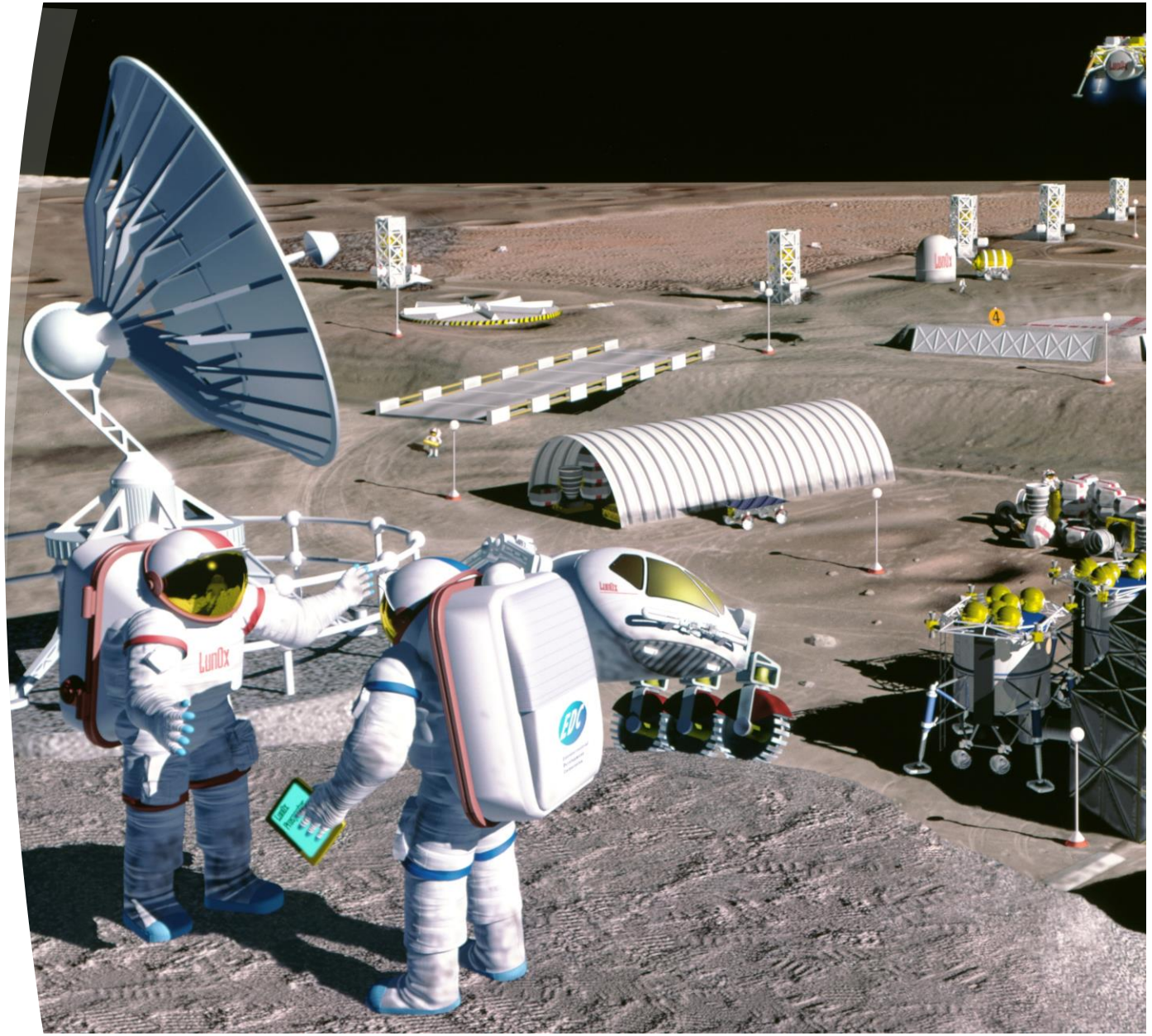
Make

- Build a model of your base, based on your final drawn design
- You can always make changes as you go!



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Evaluate

- Complete your submission form
- Think about:
  - What worked?
  - What didn't work?
  - What challenges did you face and how did you solve them?
  - What would you do differently next time?

Good luck!

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