Middle School Education:

Real Space Science for students

Prepared for AMEC 2006

Mars Society Australia

Mark Gargano

ASTA, STAWA, MSA, AIAA (Education Affiliate)

Secondary Educator (Physics/Science)

St Joseph's School, Northam

Year Ten Coordinator-Science, S & E and T & E Coordinator,

Integrated Science (Space Science) syllabus & course committee

(new Year 11 & 12 Course for WA in 2008)

MSA-Education Officer

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Promotion of the future

- Develop an interest and appreciation for the Scientific process.
- Promote Science, Engineering and Technology as exciting career possibilities.
- Maintain and increase numbers of students taking Senior School and Tertiary Science subjects and courses.
- Clever Country-declining numbers of students taking up Science, Mathematics options beyond Year Ten.

Professional development

CONSTAWA

CONASTA

ASSC

CEO HOD/HOLA Days

St Joseph's School Astronomy Club

Space Science elective

Articles in the Avon Valley Advocate

Space Science and MSA related

St Joseph's School Space Science

Knowledge through experiences

Gravity Discovery Centre, Southern Cross Cosmos Centre, Perth Observatory, SciTech, Horizon

Astronomy field nights

Rocket launching

Student presentation nights-at school and other venues

Projects and Investigation focussed

Research and development

Middle School Research Projects

Rocket design, construction and testing

Remote rover design

Space suit testing

History of Australia's involvement in space

Hydroponic food growth

Sustainable living off world

WW2 German rocket design

Importance of a planet-moon relationship and the relevance for exo-solar planet discoveries

Mars Analogue Research Station

Mars Analogue Research Station Information Powerpoint

by GEORGIA BOWEN

- Providing Opportunities for Discovery


MARS
THE
Mars
Analogue
Research
Station
MARS

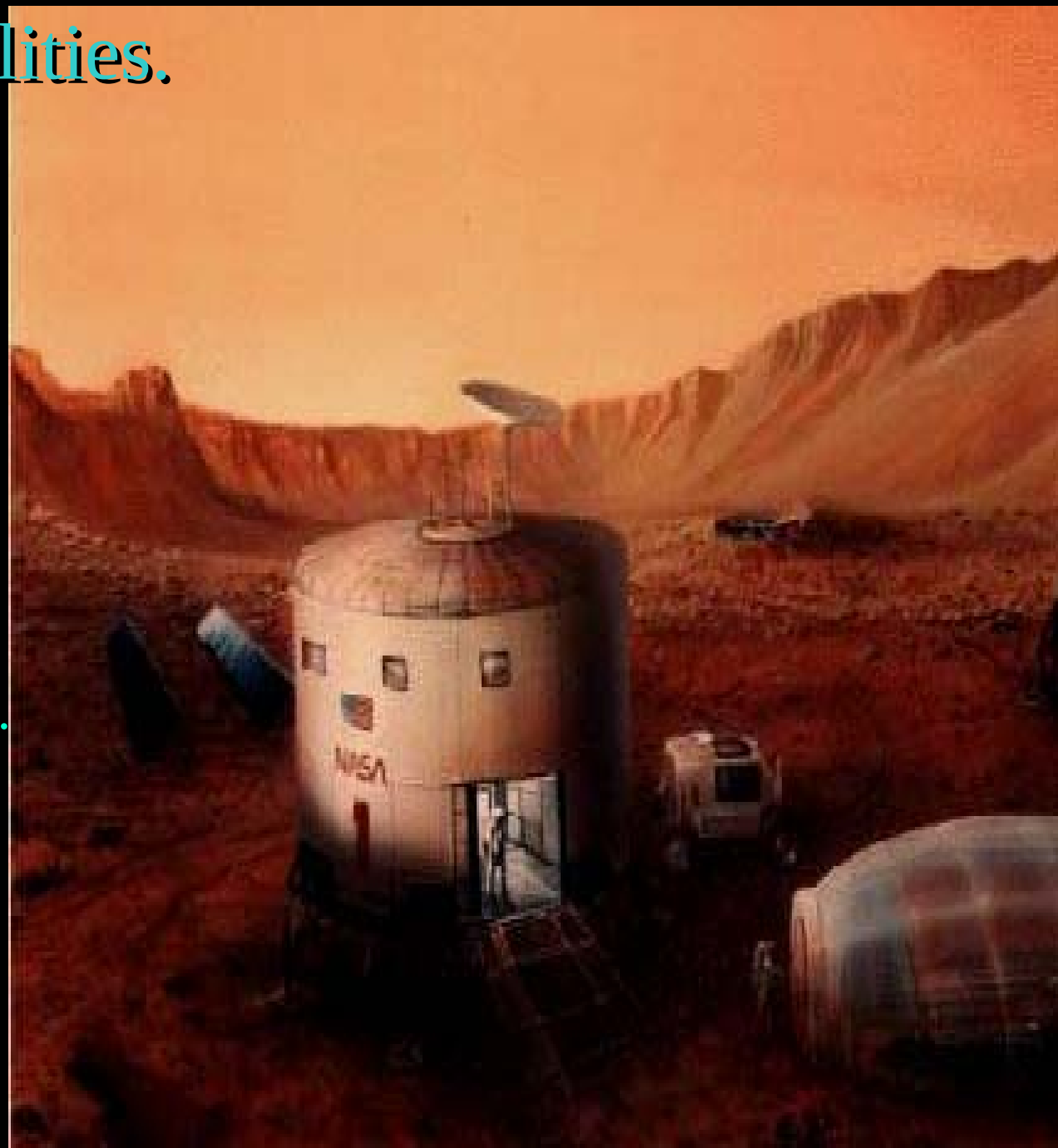
Exciting possibilities.

•Publicity for the Mars Society Australia.

Practices and trials.

A hands-on display of science, technology and engineering possibilities.

Testing the boundaries of equipment and crew ability.



Inside the Mars Analogue Research Station

•Experimenting with technology, environment and settings within the station.

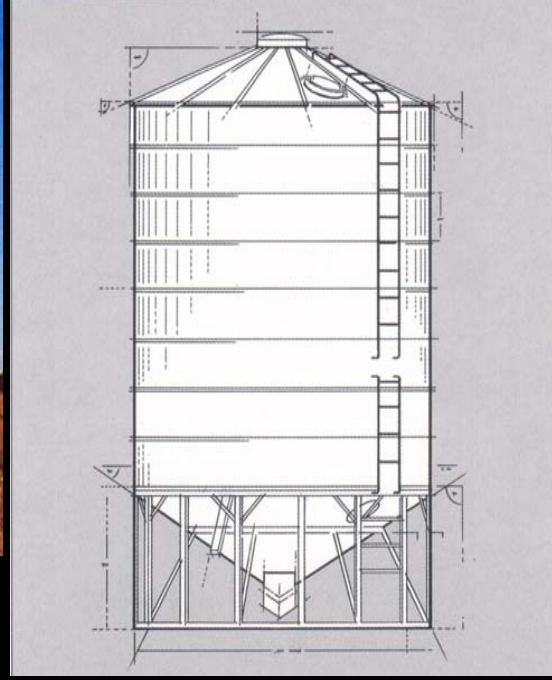
•Testing individual parts of the station to make sure conditions are optimal.

•Monitoring results to make the changes.

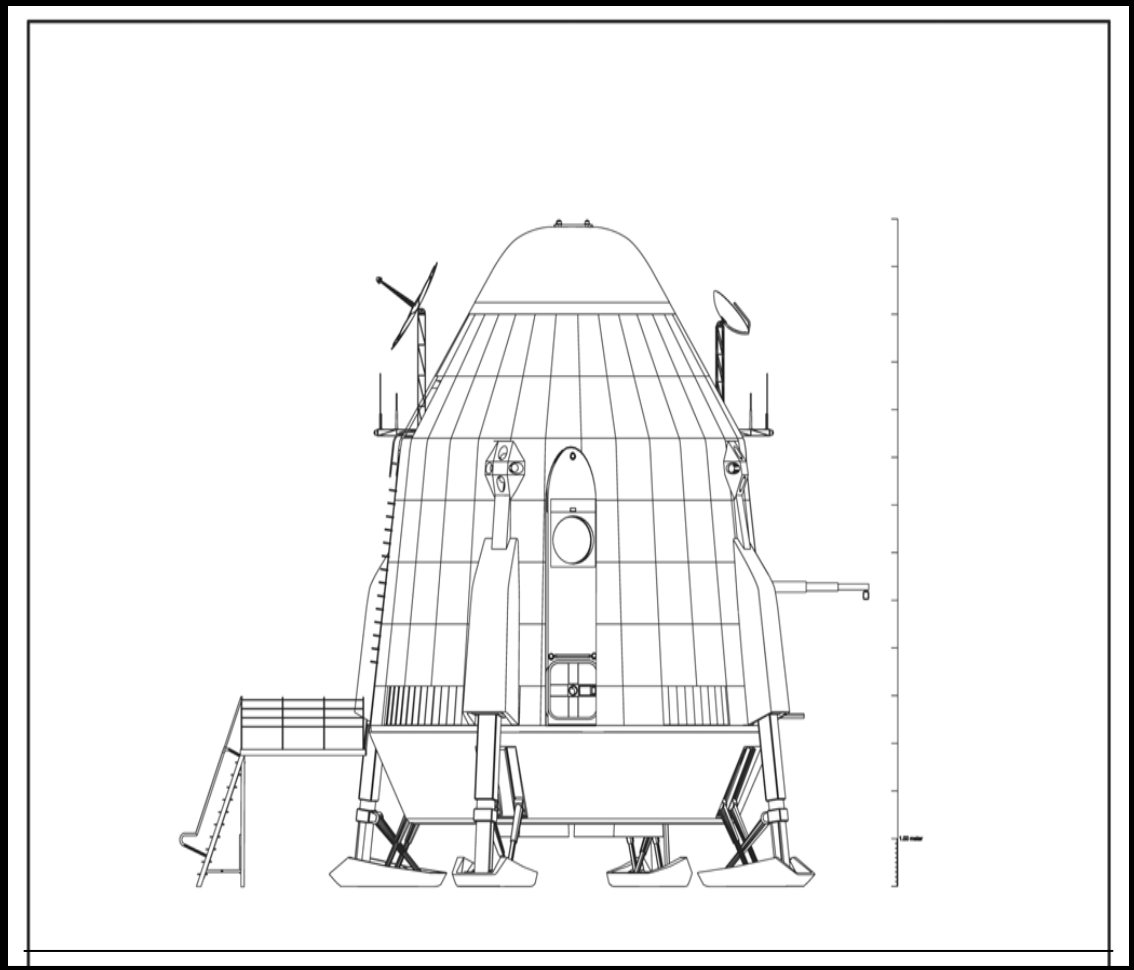
•Managing the different situations that arise, and planning for future experiments that will need to take place and fully prepared for.

The Grain Silo Approach

- Readily available
- Familiar
- Practicality of structure



Mars Station Layout Diagrams.

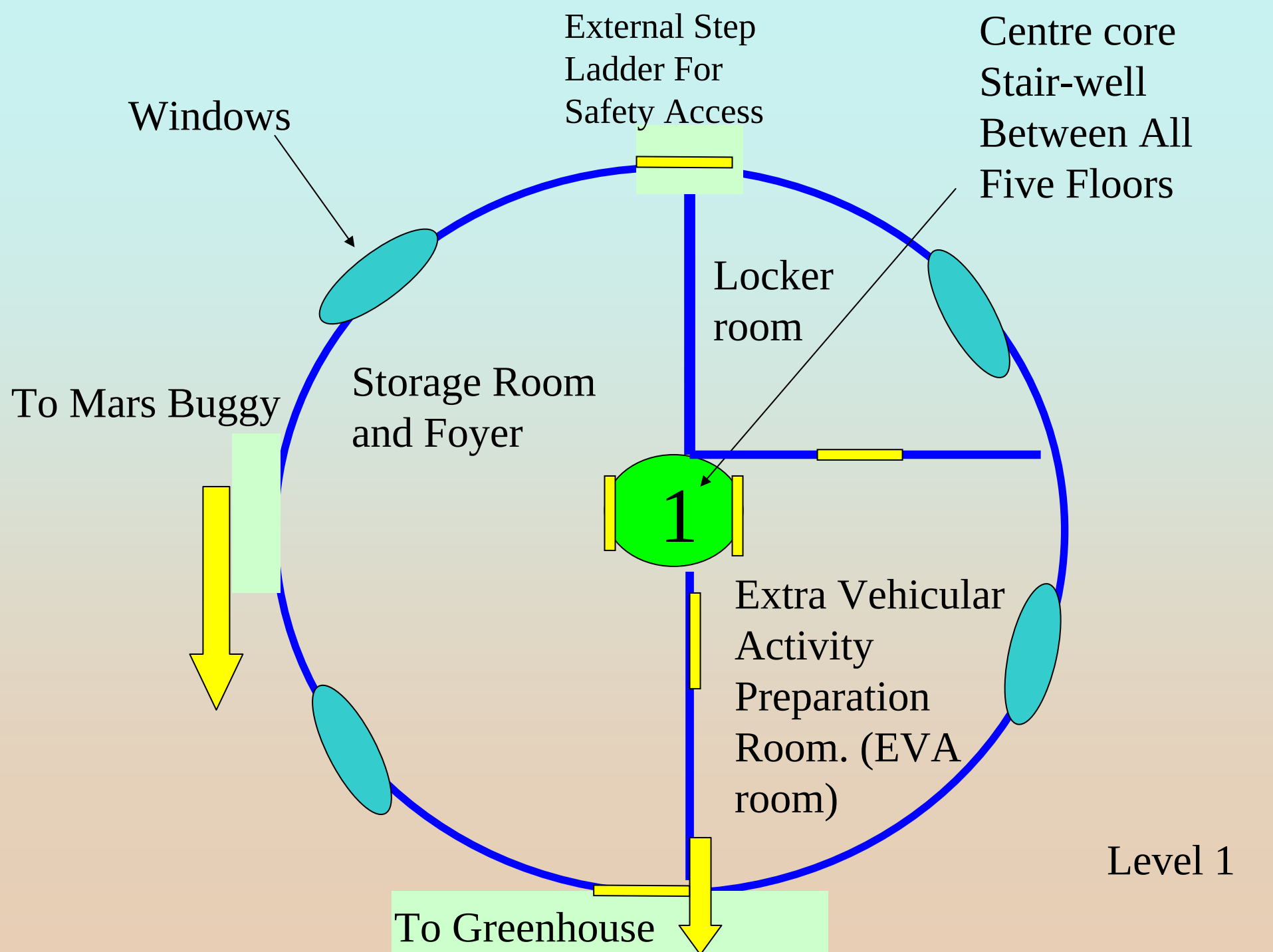


A Rough Example of the exterior of the Mars Analogue Research Station.

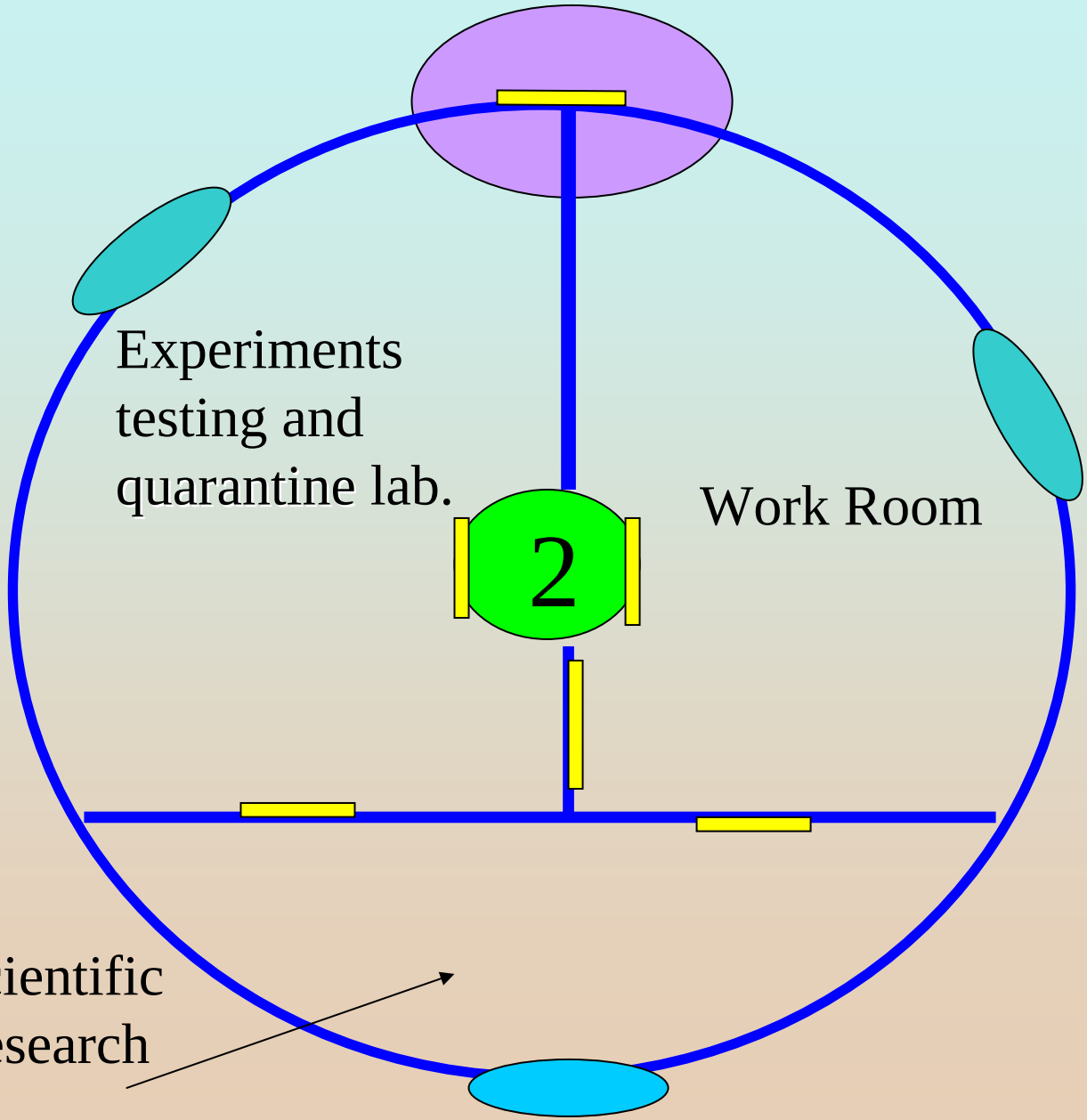
The General Grain Silo Designs…Inside The Station:

- **Roughly $18,000 for an unmodified silo that would meet our size requirements.**

- **15-20 metres in height.**
- **9.5 metres in length.**

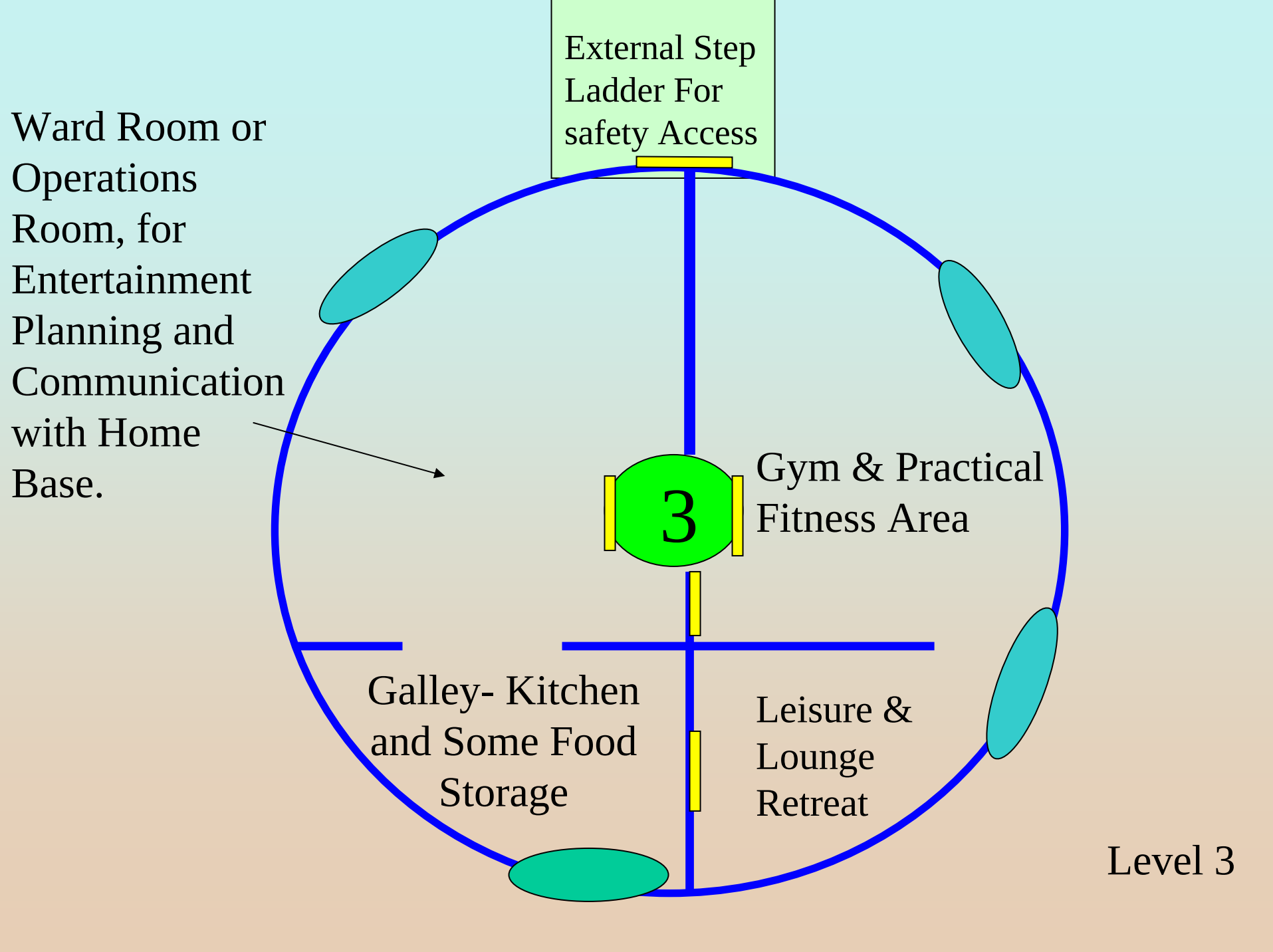

External Step Ladder For Safety Access
Centre core Stair-well Between All Five Floors
Windows
Locker room
To Mars Buggy
Storage Room and Foyer
1
Extra Vehicular Activity Preparation Room. (EVA room)
Level 1
To Greenhouse

Airlock and entry hatch.



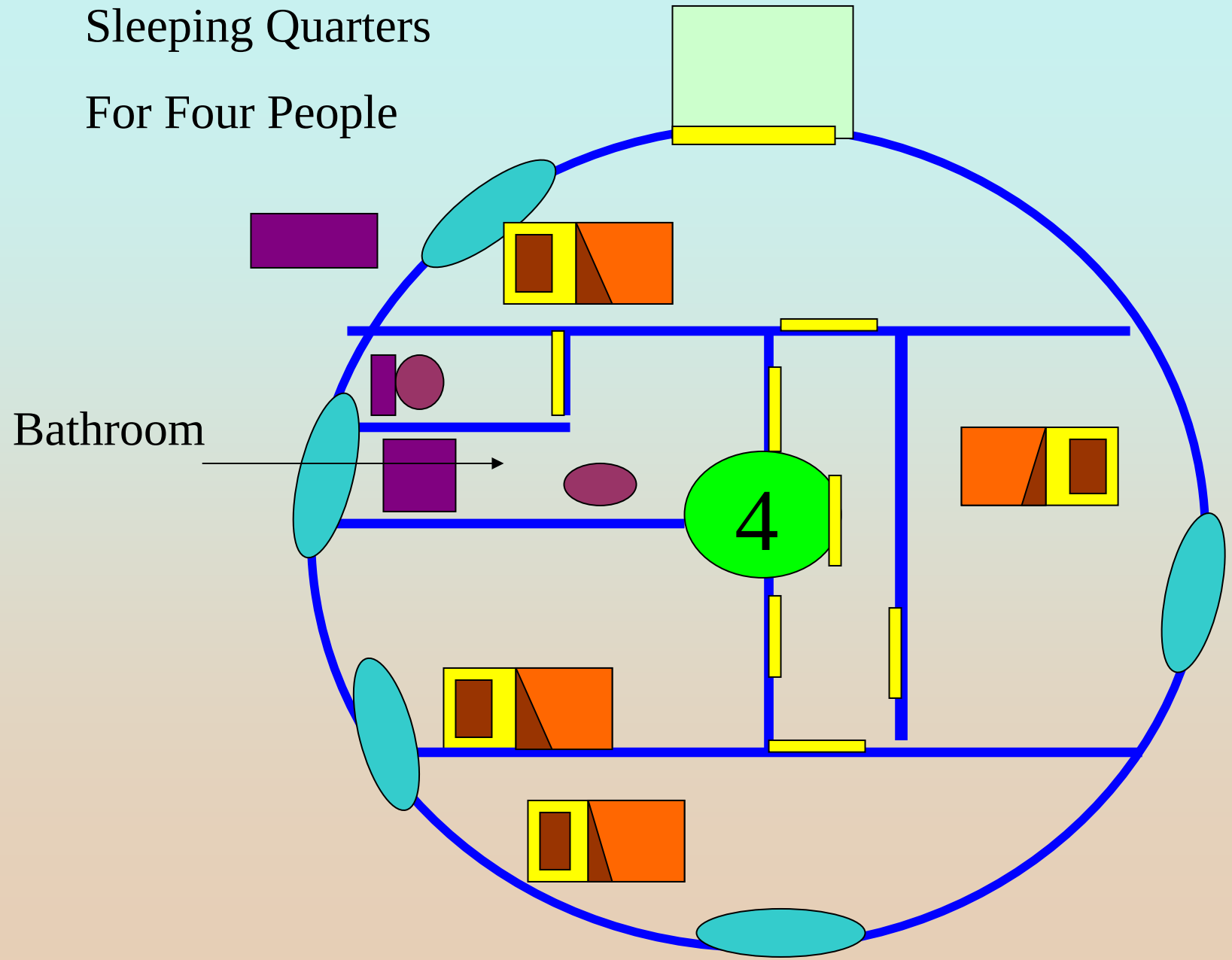
Laboratory- Scientific
Testing and Research
Facilities

Level 2


External Step Ladder For safety Access
Ward Room or Operations Room, for Entertainment Planning and Communication with Home Base.
3
Gym & Practical Fitness Area
Galley- Kitchen and Some Food Storage
Leisure & Lounge Retreat
Level 3

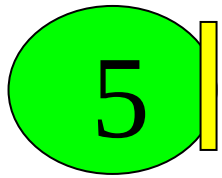
Sleeping Quarters

For Four People



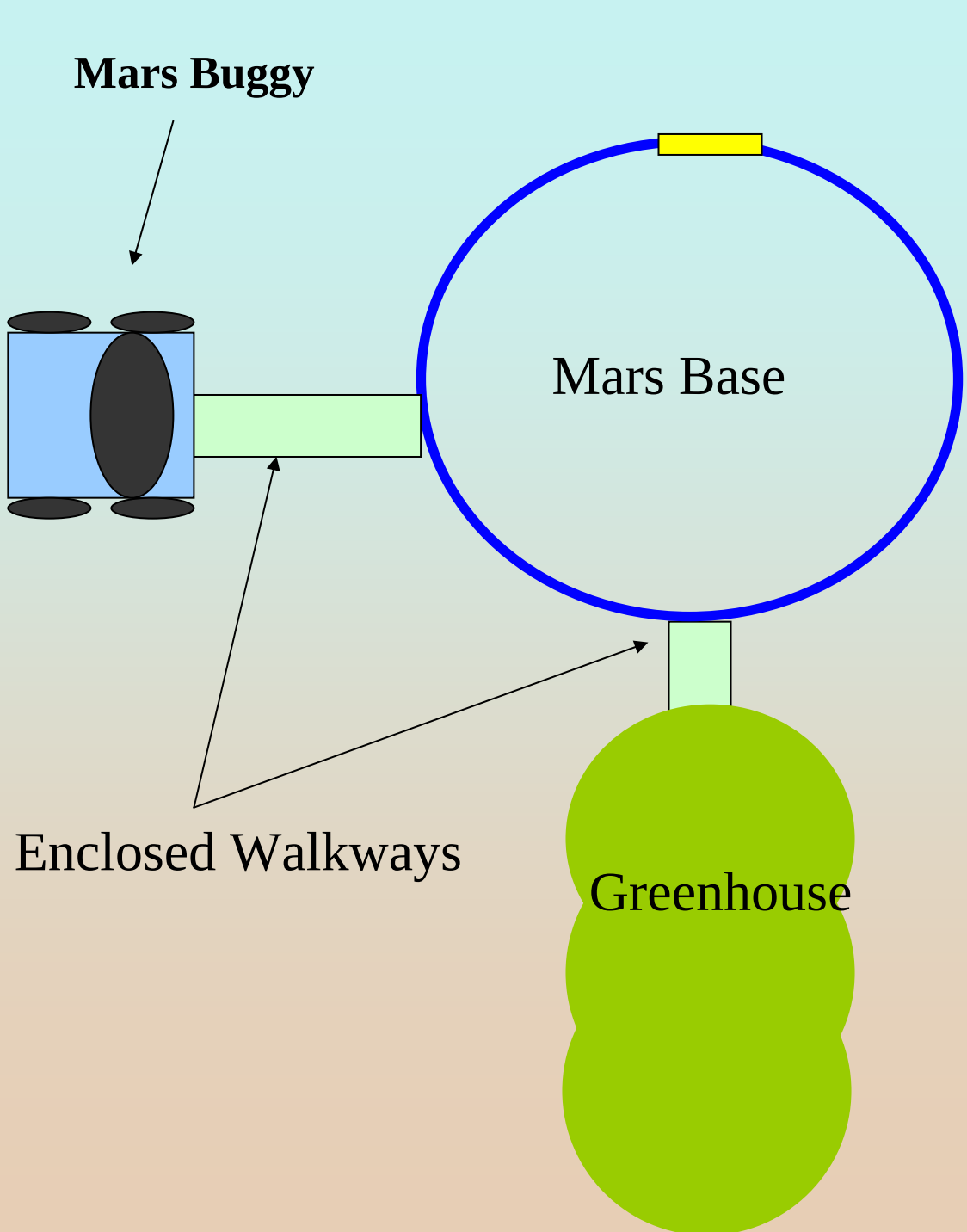
Level 4

Telescope, Astronomy Loft and Observatory Centre.



Level 5

Overall Layout: Birds Eye View



Advantages and Educational Programmes

- **Schools**
- **University**
- **Playing**
- **Learning**

Location…

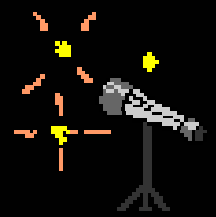
The Avon Valley

- Local
- Accessible and close to the Perth metropolitan area.
- Pollution Considerations
- Weather

When?

…2009

By 2010 this lecture could be taking place in the conference room of the Mars Analogue Research station itself.




Thank you for your time and attention.
Are there any questions regarding the MARS?

References:

- www.heatheranimations.com
- http://www.kepler.com.br/ingles/graos_aeracao.asp?lingua=I
- info@nelsonsilos.com
- www.moylangrainsilos.com