**Problem Definition Template**

**Need Statement**

During a three-year mission, an eight-person crew would accumulate over 12 thousand kg of inorganic waste, or trash, which is a huge problem. If the issue is not addressed as soon as possible, we humans might cause some permanent damage to the environment on Mars.

**Goal**

Find an efficient and reliable way to recycle and reuse the waste on Mars.

**Objectives**

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| --- | --- | --- |
| **Objective** | **Basis for measurement** | **Units** |
| Must be reliable | The endurance of the solution, how many years can it last | Year |
| Must not be too expensive | The cost to implement the solution | Canadian dollars |
| Must minimize the emission | How much chemical the solution might emit |  |
| Must be able to be built by no more than eight people | Number of people that required for the workload | Number of people |

**Constraints**

* Solutions must be completed within one week
* Solutions must not burn anything without proper collection on Mars
* Solutions must not cost too much money
* Solutions must not be too complicated to implement

**Possible Solutions**

1. Reuse part of the materials and make at least one rover for collecting waste, and help explore other areas on Mars.
2. Use the waste to build more habitats for a larger community