

## Example Descriptions from 2018 Teams.

Please write a general description of your system, including what you believe makes it innovative/unique from other designs. This is NOT a scored section.

- **Example 1**
  - [University's] design is based on Archimedes' Screw, drilling at an angle to pull overburden up from the test bed. When ready to drill for ice, the system rotates back perpendicular to the test bed. Their system uses AC current to power the drill, which combines two augers and a sheath to separate ice into a hopper for melting.
  
- **Example #2**
  - [University's] system has two main components: an auger and a heat probe. The auger will create a hole in the regolith and drop a casing to maintain hole stability. The heat probe is then dropped into the hole to melt and extract water.
  
- **Example #3**
  - [University's] system will drill into the overburden and ice. Once there, an umbrella-like heating element will begin to expand from the auger, allowing the team to melt all of the ice surrounding the drill bit. The water is then pumped out for vaporization and collection.
  
- **Example #4**
  - [University's] digging design incorporates a custom collapsible slide, linear rails, a ball screw, a force sensor, a high torque motor and an overburden removal auger. Their design features an actuated heating cylinder as well as a peristaltic pump for water extraction.
  
- **Example #5**
  - [University's prototype] uses an Archimedes screw inspired drill to bore through regolith and into the subsurface ice. The ice chips are collected within the auger casing, and the entire drill is moved into a heating chamber to melt the chips and collect the water. Previous drill locations are marked with caps, which should help prevent sublimation on Mars.
  
- **Example #6**
  - [University's] design features a single all-in-one heating/water extraction bit which rams into the substrate until it reaches the ice. The bit is then heated to melt the ice to water, which travels up the probe to a steaming chamber for vaporization, then to a condensing/retrieval chamber for collection.