

Mars Biodome Project

DUE ?(TBD) 2017

A descriptions, diagrams, and graphs of the characteristics of the ecosystem that will be within the bio-dome.

1. Type of biome
 - a. Topography (latitude, sunlight availability, altitude)
 - b. Temperature
 - c. Precipitation
 - d. Justification for the choices made

2. A complete list of organisms that will be in the bio-dome population
 - a. The list is appropriate and can be justified based on the Mars “biome” location.
 - b. Includes organisms from all trophic levels
 - c. Identifies the keystone species and their importance

3. A description of the species interactions that exist between organisms in the ecosystem
 - a. Defines and provides an example of the following species interactions:
 - i. Mutualism
 - ii. Commensalism
 - iii. Competition
 - iv. Parasitism, Predation, Herbivory

4. A description of how succession will be used to develop the ecosystem
 - a. Justifies either primary and secondary succession
 - b. Describes the steps that will be used justifying each step.

5. Describes the population sizes for 5 of the included species based on the carrying capacity of the bio-dome.
 - a. Relates the population size to the space requirements of each species and energy found at each level within the ecosystem

6. A description of how energy flows through the ecosystem
 - a. A complete food web
 - i. Arrows show energy flow
 - b. An energy pyramid
 - i. Includes 10% rule

7. Diagrams showing the cycling of matter in the bio-dome
 - a. Carbon cycle
 - i. Includes photosynthesis, cellular respiration, and carbon stores
 - b. Nitrogen cycle
 - i. Includes both the processes of nitrification and denitrification

Each section will be worth 4 points on the following scale:

4 – Outstanding: The students used a well created website and verbal descriptions to demonstrate an in depth understanding of the topic and how it relates to their Mars Bio-dome.

3- Good: The students used a website and verbal descriptions to demonstrate understanding of the topic and how it relates to their Mars Bio-dome.

2 – Acceptable: The students' website or verbal descriptions show some understanding but it is clear there are gaps in the understanding of the topic and how it relates to the Mars Bio-dome.

1 – Poor: The students' website or verbal descriptions show limited understanding of the topic and how it relates to the Mars Bio-dome.

0 – Missing: There was no website or verbal descriptions of the topic or how it relates to the Mars Bio-dome.

Total Points: 28 summative.