

S.no around the
settlement which
gives much security

[Business](#), [Management](#)



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SETTLEMENTPROJECT BY 1. UPANSHU. C

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M IX/B The name which we chose for our project is UTOPIA SETTLEMENT. The settlement also has many advanced features which will be discussed later. Our settlement has a complete spherical shape. It has many lasers which help in security. It also has many solar panels around the settlement which gives much security and energy for our settlement. It also has a docking sector which is in the middle of our settlement.

The settlement also contains some more sectors. 1. Residential sector 2. Docking sector 3. Agricultural sector 4. Water management sector 5. Industrial sector 6. Security sector 7.

Waste management sector These 7 sectors will be built in a big sphere. Each sector will have its own style. ACKNOWLEDGEMENT A place with no vegetation, atmosphere, air and no inhabitation is called space. NASA- National Aeronautics and Space Administration of U. S. A manages space related programmes ; example : manages satellites, space stations, rockets , rovers etc . Every year it conducts many programmes to bring out the talent of students regarding space ; We thank NASA a lot for giving us such a golden opportunity for proving ourselves.

How a man constructs a colony in space is the key motto of the contest NASA AMES SPACE SETTLEMENT. We thank our Principal Jyothirmayee Madam, Dean Ravi Kiran Sir, Academic Dean Naveen Sir, Physics Jagan Sir, Computer Expert Mahalaxmi Madam. WHAT IS A SPACE SETTLEMENT? A space settlement is nothing but making a space colony on orbit of a planet for human beings to live in. The earth is insufficient for the growing population so, some people must be sent to this settlement . Global warming and green house effect may be other reasons for construction of this settlement. LOCATION The location of our settlement is in the orbit of Mars. Mars has climate which is similar to that of earth . so formation of climate is possible in this settlement.

We selected Mars orbit because it contains water in frozen state. So in our point of view Mars orbit is the best place for constructing the settlement. STRUCTURE Compared to Earth space has more pressure.

So to bare the pressure we need a curved shape. Sphere has more curved surface than any other shape. So we planned to make the settlement in a spherical shape. Sphere can sustain much pressure because of its curvature. Sphere has many lines of symmetry so it is suitable for space.

For the production of artificial gravity (centrifugal force) an object needs to be rotated. Sphere can be rotated easily. SIDE VIEW TOP VIEW BOTTOM

VIEW DEFENCE MATERIALS

REQUIRED ALUMINIUM POTASSIUM TITANIUM Aluminum and titanium can be used for metal required construction. Potassium can be used for insulation and air tight. PHASES PHASE-1: Constructing the sphere. PHASE-2:

Make the sphere move in the orbit. PHASE-3: constructing the inner colony. SYMMETRY Symmetry is required for the objects in space.

Our settlement has an infinite lines of symmetry. We can draw a line of symmetry in any direction. TIME PERIOD PHASE-1 It must take less than 2 years. PHASE-2 It takes approximately 5 to 6 days. PHASE-3 It takes approximately 8 to 9 years. ARTIFICIAL GRAVITY Centrifugal force is being used in the project because we are going to construct the settlement in a sphere. Sphere can be rotated easily and it has evenly distributed surface area.

The formula which is used is. Area of circle which we have decided is
 2650000 m^3 THRUSTERS Thrusters are very useful for us
 to move the settlement in the space. The settlement has to be
 moved because it should not crash with the mars. USAGE OF
 SETTLEMENT 1. Residential:- $40\% \times 2650000 = 40/100 \times 2650000 =$
 1060000 m^3 2. Agriculture:- $30\% \times 2650000 = 30/100 \times 2650000 =$
 795000 m^3 .

Water storage:- $15\% \times 2650000 = 15/100 \times 2650000 = 397500 \text{ m}^3$ 4. Industries:-
 $3\% \times 2650000 = 3/100 \times 2650000 = 795000 \text{ m}^3$ 5. Waste management:-
 $5\% \times 2650000 = 5/100 \times 2650000 = 132500 \text{ m}^3$ 6.

Security:- $5\% \times 2650000 = 5/100 \times 2650000 = 132500 \text{ m}^3$ 7. Docking:-
 $2\% \times 2650000 = 2/100 \times 2650000 = 53000 \text{ m}^3$ INTERIOR DESIGN There are 6
 sectors divided into residencies, agriculture, waste recycling, water storage,
 security and industries. DOCKING Docking is the very important sector in
 our settlement. The docking sector will be in the middle of the settlement
 because it has to control the whole settlement.

RESIDENCIES There are villas, houses and normal apartments. There are 1
 BHK, 2BHK, 3BHK, apartments. 2 BHK houses are 1111sqfts, 1BHK houses are
 1000sqft, and 3BHK houses are 12000sqfts.

There are large rooms. People can live happily. AGRICULTURE Agriculture
 is important for human beings to survive. It provides us food.

Food is essential to lead a life. Plants are planted in soil brought from earth. The water recycled in the wastage unit is supplied by pipes. The manure from recycling section is also used. The plants require sunlight for photosynthesis. The sunlight is prepared artificially with the neon light. Neon light is prepared by the tube lights. **WATER STORAGE** Water is the essential thing for a living organism.

Our project gets water from the moon craters, asteroids and neutralization. Drinking water is obtained by reverse osmosis purifiers. The water is recycled in waste management. **INDUSTRIES** Industries are being used extensively used in the earth. In our settlement we have used some industries in our settlement. The industries which we use should be very modern.

There are approximately 7 to 8 industries in our settlement. We have to use very less industries as we have to use many people in the settlement. The industries are used for clothing, food manufacturing, etc. **SECURITY** Robots have metal scanners which can scan from far away distances.

It can also fire bullets in case of emergency. **WASTE MANAGEMENT** Liquid waste is purified in the waste management sector. It uses the process which is used in earth. The liquid is then again purified by reverse osmosis purifiers. Solid waste is made into manure and used in the agricultural sector.

Metal and plastic waste is recycled. **FIRE PROTECTION** As water is less in the settlement we used the fire extinguisher in the settlement. The robots in our settlement have fire extinguishers CO₂ tanks in their mouth so that in

emergency they can use it very rapidly. Carbon dioxide is used to extinguish electric fires. ELECTRICITY Power is the main source of energy in the settlement. To get power in bikes, trucks and cars we use solar energy. Solar energy is used because there is direct contact with Solar energy is used because there is direct contact with the sun.

TRANSPORT There are bikes and cars operated by battery. To reduce pollution there is no use of fuel consumption. HOSPITALS The hospitals in the settlement are very modern.

There are robots which will operate the patients. The inside of the hospitals are also very modern. COOKING We will use induction stoves, ovens, cookers, etc.

we will use this because to reduce fire accidents. In our settlement we decided to reduce the fire accidents. So we thought to use these fire free devices. DEFENCE In space defense is the main problem. As meteorites and asteroids keep on moving. There is a chance to be hit by the asteroids and meteorites. So, we have lasers to shoot asteroids and protect our settlement. EDUCATION Education helps the people to become wise and smart.

It also helps the people to achieve their goals. Education in the settlement is very unique and different. The robots help the teachers to teach and students to understand well and learn very easily.

LIFE STYLELife style of the settlement is also very unique. They wear modern clothes. They also use digital clothes. The clothes are manufactured in the industries.

PRODUCING OXYGENProduction of oxygen is a tough task. It is prepared from the electrolysis and some formulas. Those formulas are, $\text{H}_2\text{O} (\text{l}) \rightarrow \text{H}_2 (\text{g}) + \frac{1}{2} \text{O}_2 (\text{g})$
 $\text{CO}_2 (\text{g}) \rightarrow \text{CO} (\text{g}) + \frac{1}{2} \text{O}_2 (\text{g})$
 $2\text{CO}_2 (\text{g}) \rightarrow 2\text{CO} (\text{g}) + \text{O}_2 (\text{g})$
 $\text{CO}_2 (\text{g}) + 2\text{H}_2 (\text{g}) \rightarrow \text{CH}_4 (\text{g}) + \text{O}_2 (\text{g})$
FORMULA FOR ELECTROLYSIS: $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
 The oxygen used up by humans is converted into carbon dioxide. The carbon dioxide is used by the plants in the process of photosynthesis. In the process we will also obtain oxygen. Like this the oxygen and carbon dioxide are reused every time.

FORMATION OF WATERWater is the essential compound required for living organism. Water is prepared from the breakage of asteroids and a large amount of water is obtained by the Mars as it contains large amount of frozen water. There are also some formulas, $\text{CO}_2 (\text{g}) + 4\text{H}_2\text{O} (\text{g}) \rightarrow \text{CH}_4 (\text{g}) + 2\text{H}_2\text{O} (\text{g}) + \text{Energy}$
 $2\text{H}_2\text{O} (\text{g}) \rightarrow 2\text{H}_2 (\text{g}) + \text{O}_2 (\text{g})$
 $\text{CO}_2 (\text{g}) + 2\text{H}_2 (\text{g}) + \text{Energy} \rightarrow \text{CH}_4 (\text{g}) + \text{O}_2 (\text{g})$
 $\text{CH}_4 (\text{g}) + 2\text{O}_2 \rightarrow \text{CO}_2 (\text{g}) + 2\text{H}_2\text{O} (\text{g})$
 $\text{CO}_2 (\text{g}) + \text{H}_2 (\text{g}) \rightarrow \text{CO} (\text{g}) + \text{H}_2\text{O} (\text{g})$
 $\text{CO}_2 + 2\text{H}_2 \rightarrow \text{CO} + \text{H}_2\text{O}$
 The water is then recycled and cleaned. Drinking water is obtained by R.

O purifiers. ASSEMBLYThe legislative assembly or the government is much important for us. The use of government is to ensure the correct ruling in the settlement. There is a supreme court in the residencies sector. The Supreme Court has all the powers in its hand.

It ensures the main and big problems of the people. There is also a normal court which solves the problems which the police cannot solve. A person can go to the normal court without any resections, but cannot go into the Supreme Court. The police are very strict in the settlement. They check each and every person who comes into the settlement. BUSINESS Business is the main source of income for people. Business man can establish their company in the residential sector. The business men who want to do most important industrialization can take the permission from the Supreme Court and can establish their company.

The people who cannot effort establishing a company can work in the company of other people. ECONOMICS Economics in our settlement is very different. We use a cashless and digital way to do transactions. There is no chance of accepting money. If a police finds money in any citizens home he has a right to cease the currency.

POPULATION OF SETTLEMENT In our settlement we choose a maximum value of 50, 000 people. The people can increase and decrease up to 200-300. The visitors who come will have separate rooms. They are allowed for a small time. BIBLIOGRAPHY All images are taken from "GOOGLE".

The pictures of settlement are designed by our own.