

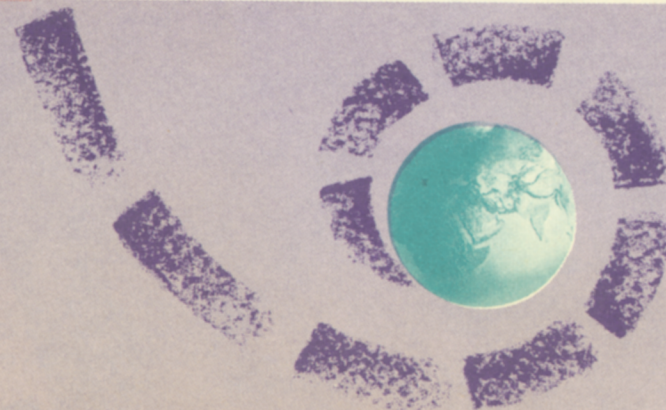
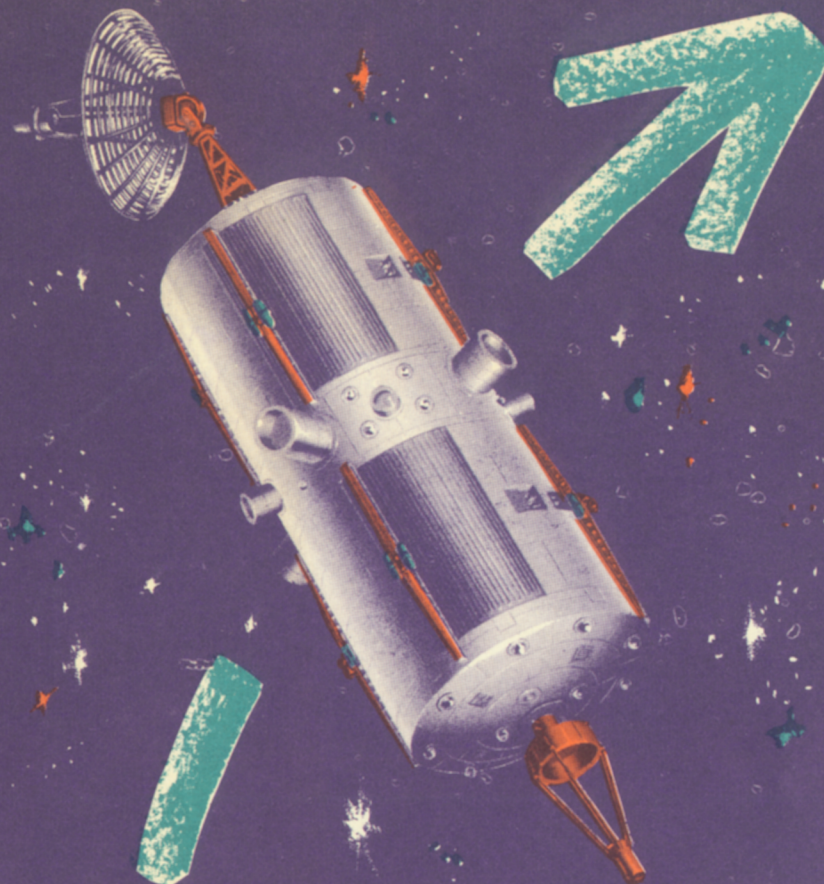
SPACE TALK GLOSSARY

- EQUATORIAL ORBIT** ----- an orbit that lies directly over the equator at all times.
- POLAR ORBIT** ----- an orbit that goes directly over the North and South Poles.
- UNIVERSAL TIME** ----- the local civil time at the meridian of Greenwich, England.
- ROTOVATOR** ----- a cylindrical compartment that will permit going from a rotating frame to a stationary frame much as an elevator goes from one level to another. (4 will be required for the Space Station)
- MONOPROPELLANT** ----- a mixture of fuel and oxidizer as one liquid that can be burned with proper ignition. Less explosive than some separated mixtures. Eliminates need for two tanks, pumps and valves and mixture gages. Rockets in rotating parts of observatory use this.
- SPAXI** ----- a space taxi used to transport personnel and cargo from interplanetary vehicles to Space Station and vice versa.
- TERRESTRIAL** ----- pertaining to Earth.
- CELESTIAL** ----- pertaining to all the Universe around Earth.
- ORBIT** ----- the path of an object around a celestial body.
- RADOPT** ----- a combination optical telescope and a radio telescope.
- GEOCENTRIC ORBIT** ----- the path of an object (in this case the Space Station) around Earth.
- AIR LOCK** ----- a chamber that can be pressurized or depressurized to permit going in and out of the space observatory.
- REGENERATOR** ----- a compact system whereby the waste materials (air, liquid and solids) are reclaimed and used over again. One function is an airconditioner.
- ORBITING VELOCITY** ----- Speed an object must have to orbit at a given distance from a celestial object.
- STAGES I AND II** ----- sections or boosters of a rocket which when emptied of propellant are dropped.
- WEIGHTLESSNESS** ----- the feeling of falling; of having no weight. A state in which the effects of gravity are nullified.
- TELEMETERING** ----- the technique of recording or viewing distant happenings; taking instrument readings at a distance by electronic means.

operation manual for your

Revell
Authentic Kit

SPACE
STATION



INTRODUCTION

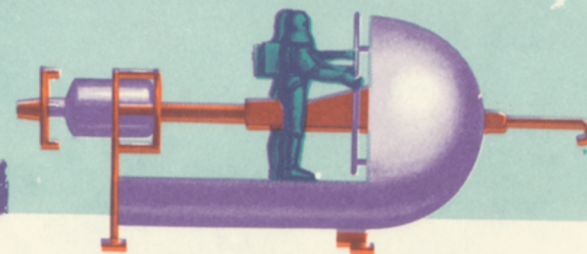
Here is the Operations Manual for your Manned Space Station. Use it to learn all about your laboratory—how it is assembled in orbit, how it works, and its purpose. As Laboratory Director be sure your crew is also familiar with its contents. Keep your Operations Manual within reach at all times, for your use (and your crew's), when you take turns to relax and sleep. The success of the scientific research of your Space Station depends on YOUR capable direction in all the work your crew is doing.



PURPOSE

The purpose of the orbiting Space Station is for **PEACEFUL RESEARCH** of the Universe and the advancement of Space Travel. Some of the areas it covers are:

1. It is an astronomical observatory above Earth's atmosphere for studying the Sun, the planets, other small objects within the solar system, and the stars outside our solar system.
2. It is a weather reconnaissance and prediction center over the surface of Earth.
3. It is a base of operations for manned and unmanned research space flights.
4. It is a facility for relaying communications in interplanetary space or from point to point on Earth.
5. It is a data source for information on radiation intensity, magnetic and electrical field changes.
6. It is a geographic measurement center for mapping Earth . . . its shape, continental lines, icecaps, waterways and possibly currents, and general global changes.
7. It is a unique photographic unit for astronomical and Earth sources.



YOUR STRANGE NEW WORLD ON THE SPACE STATION

The Space Station provides living and laboratory facilities for 20 crew members for many years.

SIZE:

Your world now is about 80 feet long, not including the radio-optical (RADOPT) telescope on one end and the optical telescope on the other. The diameter is about 36 feet. The Space Station orbits like the Moon . . . it keeps the terrestrial end facing Earth at all times.

GRAVITY:

In the hub and the observation ends there is no feeling of gravity . . . you are weightless. **HOLD ON TO RAILINGS WHEN MOVING FROM PLACE TO PLACE.** Rotation of laboratory section and living quarters section produces a sense of gravity. These two sections rotate in opposite directions to maintain stability in the satellite.

If you weighed 100 pounds on Earth, you will weigh 25 pounds on the first floor—on the second floor you will weigh 12.5 pounds.

TIME:

On the Space Station there is no day or night. Time is clocked with Universal Time (U. T.) 0001 to 2400 hours. Your day will function by the clock and not by the rising and setting Sun. Many times a year the Space Station will be eclipsed by Earth.

ATMOSPHERE:

It is maintained at a condition comparable to Earth's atmosphere at an altitude of 20,000 feet with a slight increase in oxygen content. The pressure acting on the personnel is about half the pressure at sea level.

CHECK ATMOSPHERE SUPPLY AND REGENERATION SYSTEM OFTEN. CHECK AMOUNT OF OXYGEN.

The structure of the satellite is designed for this pressure.

DO NOT LET IT EXCEED THIS VALUE.

LABORATORY QUARTERS

CELESTIAL OBSERVATION ROOM
TERRESTRIAL OBSERVATION ROOM
COMPUTER
COMMUNICATIONS
PHOTO LAB
REGENERATION SYSTEM
DISPENSARY
CHEMISTRY AND METALLURGY LAB
MACHINE SHOP

DIRECTION OF ROTATION OF
LABORATORY SECTION— $2\frac{1}{2}$
REVOLUTIONS PER MINUTE

PERSONNEL EXIT AND
ENTRANCE TUBES

MAIN LANDING TUBES

ROTOVATOR

ORBIT ADJUSTMENT
ROCKETS

EXTERNAL BRACING

FIRST FLOOR

SECOND FLOOR

TERRESTRIAL SECTION

TELESCOPE



RADOPT

CELESTIAL
SECTION

TEMPERATURE
CONTROL
ELEMENTS

GYRO
CONTROL CENTER

INTERNAL STRUCTURE

SPIN ROCKETS

DIRECTION OF ROTATION
OF LIVING SECTION— $2\frac{1}{2}$
REVOLUTIONS PER MINUTE

LIVING QUARTERS

SLEEPING QUARTERS FOR 23
(CREW OF 19 PLUS 4 VISITORS)

DINING AREA

DISPENSARY

LIBRARY

AUDITORIUM (INCLUDING BOTANICAL GARDEN)

REGENERATION SYSTEM

ORBIT FOR THE SPACE STATION

The Space Station is designed to operate at any altitude above 1000 miles. The recommended orbits are shown in the table below.

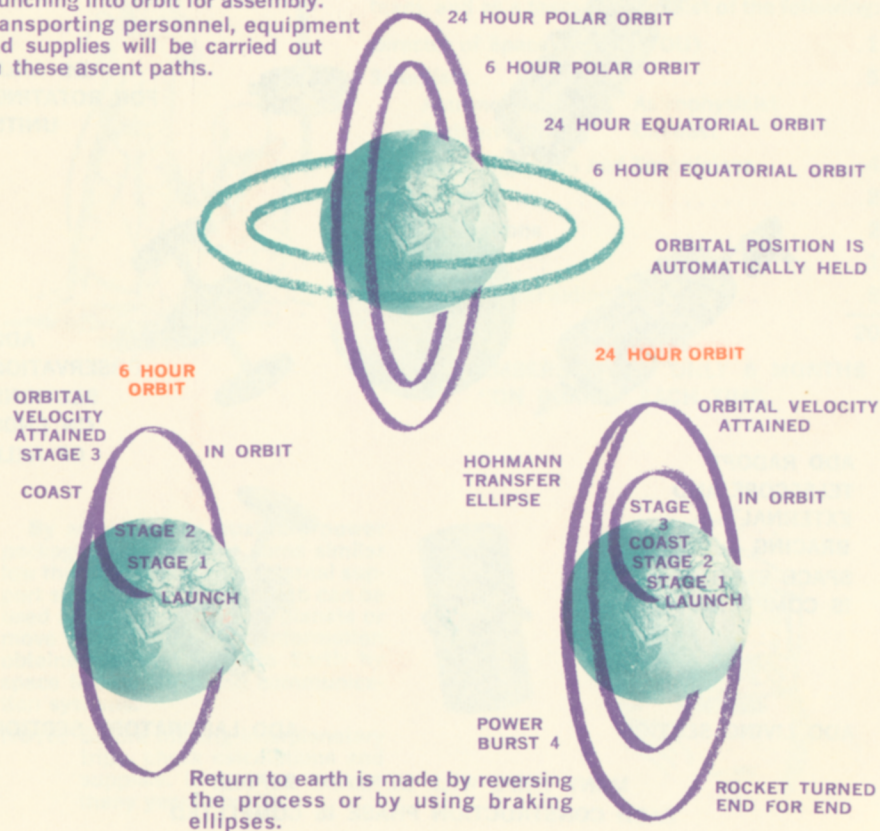
ORBIT	1	2
ALTITUDE, MILES	6,450	21,600
PERIOD, HOURS	6	4
VELOCITY, MILES PER HOUR	10,900	6,700

Two different positions of the orbits are Polar and Equatorial. These orbital positions provide best coverage of Earth. The same point on Earth is observed twice a day on a 24-hour Polar Orbit—once when the satellite is going from North to South and again when the satellite is going from South to North 12 hours later. For a 24-hour Equatorial Orbit the observatory will remain over the same point on Earth all the time. A 6-hour orbit will pass over the same point every 8 hours.

Adjustment or correction of the orbit is done by activating the control rocket secured to the external support structure.

CHECK PROPELLANT SUPPLY OF CONTROL ROCKETS REGULARLY.

Be sure you inspect all parts before launching into orbit for assembly. Transporting personnel, equipment and supplies will be carried out on these ascent paths.



CONSTRUCTION

Space Station parts are fabricated on Earth. They are "flown" into orbit by freight rocket (a modified XSL-01 space vehicle). The ascent orbit depends upon the final orbit selected for the Space Station.

After Space Station is in operation, the ascent path is used by shuttle or ferry rockets, transporting people and supplies.

NOTE: Parts sent into orbit must be precisely timed at launching so that all parts will end up at the same place in orbit.

The hub, which contains the control units and is the main entrance to the Space Station, is built first. It will provide temporary living quarters together with some of the supply space ships.

Before the floor is put on each of the rooms, the furnishings are put in. Delicate equipment is brought in after the Space Station is complete.

ORIENT SPACE STATION
WITH TERRESTRIAL
END POINTING
TOWARD
EARTH

7

1 CONSTRUCT HUB AND USE AS
TEMPORARY LIVING QUARTERS

2 ADD AXLE
FOR ROTATING
UNITS

3 ADD
OBSERVATION
SECTIONS
ON ENDS
OF AXLE

6

ADD RADOP
TELESCOPE AND
EXTERNAL
BRACING —
SPACE STATION
IS COMPLETE

5

ADD LIVING SECTION

4

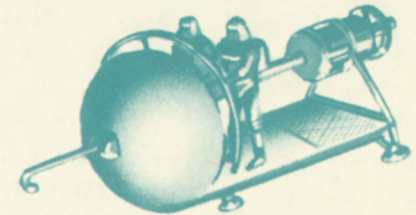
ADD LABORATORY SECTION

MANY TRIPS WILL BE MADE BEFORE
EACH CONSTRUCTION PHASE IS COMPLETED

MAINTENANCE

A small maintenance car is secured near air lock for use in the maintenance and repair on the outside of the Space Station. In use it is secured near the area where maintenance is required.

**BE CERTAIN THAT CAR IS SECURED
— ANY MOVEMENT MAY CAUSE THE
CAR TO DRIFT AWAY.**



FACTS ABOUT THE PERSONNEL

The Space Station provides living and working space for a crew of 20 people. Your crew consists of highly qualified personnel who have been trained in orbital flight and their scientific specialty. They have learned to function as a team, and as a team they consist of the following:

Director of Space Station (YOU)	1
Scientists	5
Astronomer	
Meteorologist	
Astrophysicist	
Chemist	
Computer Engineers and Technicians	4
Navigators	2
Communications	2
Photography	1
Maintenance (including cook)	5
	20

CREW MEMBERS SPEND ONLY 6 MONTHS
"ON BOARD" EACH TIME.

TAKE THE SPACE STATION TO OTHER PLANETS

By attaching an auxiliary power package . . . an ionic or some similar low thrust device on the external support structure . . . the Astrolab can be used as satellites of other planets or move closer to the Sun. Information obtained is sent back to Earth by space telemetering and communication systems.

NOTE: Before making interplanetary trips, check calculations and supplies. Long trips may be many years duration.

