CHAPTER 10: SPACE EXPLORATION

10.1 Developments in the Field of Astronomy and Space Exploration

- Astronomy is the scientific study of the stars and planets and their movements.
- The table below shows the names of astronomers and their contributions.

Astronomer	Contribution
Aristotle	Suggested that the Earth is spherical in shape. The Earth is the centre of the universe.
Aristarchus	Suggested that the Earth rotates on its axis and moves in its own orbit.
Nicholas Copernicus	Suggested that the Sun is the centre of the Solar System.
Galileo Galilei	Invented the first astronomical telescope.
Johannes Kepler	Suggested that orbits of planets are elliptical in shape.
Issac Newton	Explained that planets are able to move in their orbits because of the force of gravity.

- Telescopes are used in the space exploration. The distant object can be magnified by using telescopes.
- The following table shows some of the major events in the space exploration.

Year	Event
1926	Robert H. Goddard launched the first rocket.
1957	Sputnik I (Russia), the first man-made satellite, was launched to orbit around Earth.
1957	Sputnik II, was launched and it carried a dog.
1958	Explorer I, the first American satellite, was launched.
1959	Lunar 2 was launched but it crashed onto the Moon's surface.
1959	Lunar 3, the first space probe that orbited the Moon.
1961	Vostok 1 carried Yuri Gagarin to orbit the Earth.
1962	Mariner 2, the first space probe launched to Venus.
1964	Mariner 4, the first space probe launched to Mars.
1966	Lunar 9 landed on the Moon.
1969	Apollo 11 landed on the Moon. Neil Armstrong stepped on the Moon's surface.
1976	Viking 1 and Viking 2 landed on Mars.
1981	Space shuttle Columbia was launched.
1986	Voyager 2 passing through the outer space of Uranus.
1989	Voyager 2 passing thourgh the outer space of Pluto.
1990	Spacecraft launched to place Hubble telescope in the Earth's orbit.

- Some of the modern technological instruments used in space exploration:
  (a) Telescope
  (b) Spaceship
  (c) Space station
  (d) Space shuttle
  (e) Satellite

- Spaceships were used to carry astronauts. They are launched by rockets into outer space.
- A space probe is a spaceship that does not carry any astronauts.
- A space station is a place in the outer space where the astronauts can carry out researches.
- A space shuttle is a spaceship that can be launched and it can return to the Earth. It can be used repeatedly.
- A satellite revolves around another object in a certain orbit.
- These satellites play important role in remote sensing.
- The satellites brought various benefits to us in the following fields:
  (a) Telecommunications
  (b) Meteorology
  (c) Geology
  (d) Agriculture
  (e) Navigation
  (f) Disaster management
  (g) Forestry
  (h) Defence

- Space exploration should be continued. Scientists are studying the possibility of setting up settlements in the outer space.