

6a.1

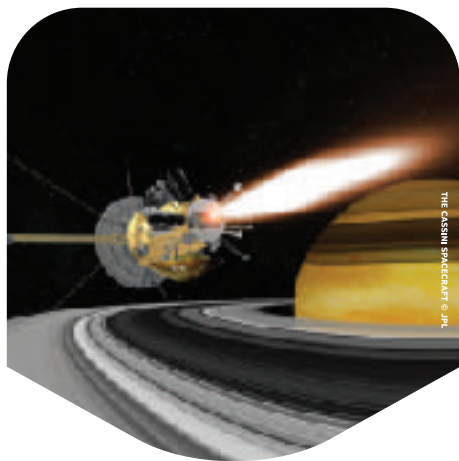
6a.2

6a.3

6b.1

6b.2

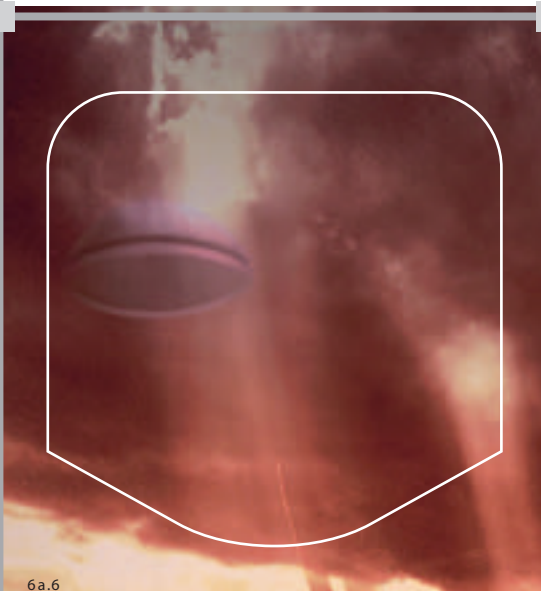
6b.3



6a.4

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6b.4

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COMET MISSION

SATURN MISSION

6a.7

6a.8

6a.9



6b.7

6b.8

6a.9



CASSINI/HUYGENS

MISSION FACT FILE

Agency: Cassini NASA
Huygens ESA
Launch Date: 1997
Destination: Cassini Saturn
Huygens Titan
Duration: Cassini Until July 08
Huygens Until January 05
Cassini To study Saturn, its rings, moons and plasma environment
Huygens To study Titan's atmosphere

6a.10

WHY STUDY SATURN?

Saturn and its rings are like a scale model of the early Solar System. Until now, we've had little opportunity to study Saturn close-up.

The rings are made of countless icy particles trapped in orbit around Saturn. Within the rings, there are many structures, gaps and wave patterns that we don't understand.

Saturn's magnetosphere is the vast bubble of space that is affected by the planet's magnetic field. Saturn has the most complex magnetosphere of any planet.

Saturn has more than 30 moons. Titan is the only moon in the Solar System to have a significant atmosphere.

6a.11

CASSINI

Cassini is the first mission to take a long, close-up look at Saturn, its rings and moons.

Cassini carries instruments that will take images and measurements of the planet, its moons, rings and magnetosphere. Scientists from the UK are involved in six instruments carried by Cassini.

HUYGENS

The Huygens probe will be dropped off at Titan.

It will take measurements as it descends through the thick orange atmosphere. After impact, it will send back information about Titan's surface.

MISSION CHALLENGE

The first instrument to hit the surface of Titan will be the Surface Science Package (SSP), which was made in the UK. As Titan's surface is a mystery, the SSP is designed to survive landing on liquid, ice, mud or rock.

6a.12

ROSETTA

MISSION FACT FILE

Agency: ESA
Launch Date: 2004
Destination: Comet 67P/Churyumov-Gerasimenko
Until 2015
Duration: To study the origin and composition of comets

6b.7

COMETS – THE ORIGINAL TIME CAPSULES?

By studying comets, we can look back in time to the birth of the Solar System.

Comets are made of ice and dust. They are leftover pieces of the gas cloud from which the Solar System formed.

The new-born Earth was struck repeatedly by comets and asteroids. Icy comets may be the source of water in our oceans. They may also have brought organic compounds that are the building-blocks of life.

6b.8

ROSETTA

Rosetta is the first mission to attempt to land on a comet. It will rendezvous with Comet 67P/Churyumov-Gerasimenko and monitor how the comet changes as it approaches the Sun.

The Rosetta orbiter will study the physical properties and chemistry of the comet's nucleus and tail. British scientists are involved in six instruments carried by the Rosetta orbiter. A lander will anchor itself to the nucleus and measure samples from the comet's surface. The Open University has led development on the lander's Ptolemy instrument. British scientists are involved in three other instruments carried by the lander.

MISSION CHALLENGE

Ptolemy will measure the ratio of different types of oxygen contained in the icy comet's nucleus. These oxygen ratios in ice are like fingerprints. If samples from the comet match samples of ice from Earth, then there is strong evidence of a link.

6b.12

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6a.15

6b.13

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