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PPARC

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The Solar System is a vast database of information. It can tell us everything we need to know about our planet's past and future.

We can access this information by sending spacecraft to study planets, comets and asteroids. But it's a bit like the internet – there is so much information, that you need to limit your search to a few key questions...

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Q.1

Where did we come from?

Missions like Rosetta and Cassini help us look back in time to the formation of the Solar System:

Saturn's ring system is like a scale-model of the early Solar System. Cassini's images of the rings will help us understand the processes at work when the planets formed. Comets are time-capsules containing material left over from the birth of the Solar System. Rosetta is the first mission to take samples from a comet's nucleus.

PLANETARY SYSTEMS IN THE MAKING © NASA

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Q.2

How did life begin on Earth?

Titan, Saturn's largest moon, resembles a primordial Earth, with orange clouds and maybe oceans of methane.

Huygens will search for clues to how organic chemicals turned into life.

TITAN'S ATMOSPHERE © JPL

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Q.3

Is there life elsewhere in the Solar System?

All life-forms leave tell-tale chemical signatures. Missions will look for these signatures in Martian soil and see whether there is or has ever been life on Mars.

REARVIEW MIRROR OF MARS © NASA

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Q.4

What is the Earth's future?

Our closest planetary neighbours are very different places. Venus has a runaway greenhouse effect and Mars is rather lacking in atmosphere.

Could similar fates await the Earth? The Venus Express and Mars Express missions are going to find out.

VENUS © CALVIN J. HAMILTON

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