For Supervisor's use only

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90192

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

Level 1 Science, 2004

90192 Describe aspects of astronomy

Credits: Two
2.00 pm Wednesday 17 November 2004

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the pages provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–7 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Achievement Criteria *For Assessor's use only*		
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Describe aspects of astronomy. ☐	Explain aspects of astronomy. ☐	Discuss aspects of astronomy. ☐
Overall Level of Performance ☐		

You are advised to spend 20 minutes answering the questions in this booklet.

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QUESTION ONE

(a) Describe how the **movement** of planets in the night sky allows them to be distinguished from stars.

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(b) Name the TWO planets that are **closer** to the sun than Earth.

(i) _____ (ii) _____

(c) **Pluto** is the furthest planet from the sun, at an **average** distance of 39.5 AU.

(i) Describe the shape of Pluto's orbit around the sun.

_____

(ii) Explain why **Pluto** is **not always** the outermost planet in the solar system.

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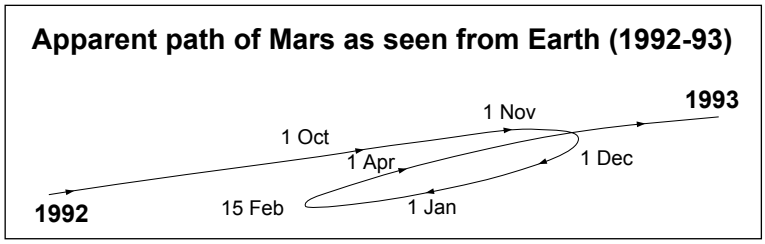
(d) The diagram below shows the path of the planet Mars, as seen from Earth, from September 1992 to May 1993.



Mars appears to travel in a loop, going first one way and then the other.

Explain the reason for this apparent motion.

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(e) The planet **Mercury** is only able to be seen in the sky at certain times of the night.

(i) When in the night is it possible to see Mercury?

(ii) Discuss the reasons for your answer to (i) above. A **labelled** diagram may assist your answer.

QUESTION TWO

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(a) Name the force that holds planets in orbit around the sun and satellites in orbit around planets.

_____

(b) Telescopes such as the Hubble Space Telescope are in orbit around the Earth.

Explain why optical telescopes in orbit are able to receive better information than ground-based telescopes.

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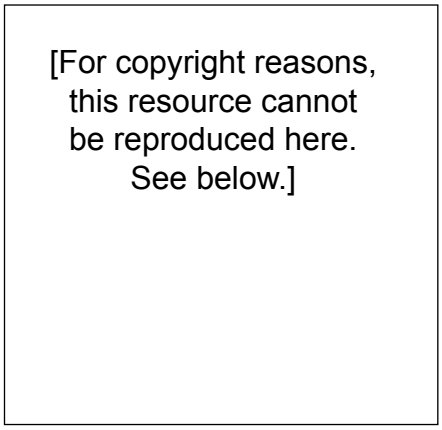
(c) In March 2004, the planet Jupiter was as close as it ever gets to the Earth. With a small telescope it was possible to see the four largest moons orbiting Jupiter. Jupiter has at least 62 moons.



http://stardate.org/resources/gallery/gallery_detail.php?id=212

(i) Explain why all of Jupiter's moons will **not** be seen in a single photograph.

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(ii) The largest of Jupiter's moons is bigger than the planet Pluto.

Explain why this moon is not a planet.

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(d) In 1997 the unmanned spacecraft Cassini left Earth on a seven-year journey to the planet Saturn. To get Cassini over the huge distance from Earth to Saturn required careful planning.

Discuss the **scientific** factors, including flight path and fuel, that would need to have been considered when planning Cassini's **journey** from Earth to Saturn.

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Extra paper for continuation of answers if required.
Clearly number the question.

Assessor's use only

Question number

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