

Soalan Subjektif

13.1

Jasad Lain dalam Sistem Suria, iaitu Meteoroid, Asteroid dan Komet
Other Objects in the Solar System, such as Meteoroids, Asteroids and Comets

Buku Teks: m.s. 270 - 275

1. Pada waktu malam, Aslin ternampak tahi bintang (seperti dalam Rajah 1.1) yang sangat cantik melintasi langit. Tahi bintang tersebut menghilang dalam waktu yang sangat pendek.
At night, Aslin saw a shooting star (as in Diagram 1.1) across the sky. The shooting star disappeared in a short amount of time.



Rajah 1.1 / Diagram 1.1

- (a) Apakah tahi bintang dan mengapakah jasad ini bercahaya? (TP 4)

What is a shooting star and why does it look bright?

KBAT Menganalisis

Shooting star is a [] that is [] up in the Earth's atmosphere due to friction with [] burning air meteor

- (b) Pada pendapat anda, apakah yang telah terjadi kepada tahi bintang tersebut yang menyebabkannya menghilang dalam waktu yang pendek? Jelaskan jawapan anda. (TP 4)

In your opinion, what happened to shooting star that cause it to disappear in a short time? Explain your answer.

KBAT Menganalisis

As the meteor [] down, it will [] until there was no material left and it finally [] burn falls disappeared

- (c) Rajah 1.2 menunjukkan satu lagi fenomena yang boleh dilihat di langit kita.

Diagram 1.2 shows another phenomenon that can be seen in our sky.



Rajah 1.2 / Diagram 1.2

- Apakah fenomena di atas dan jelaskan proses yang menyebabkannya terjadi? (TP 4)

What is the phenomenon and explain the process that causes it to happen?

KBAT Menganalisis

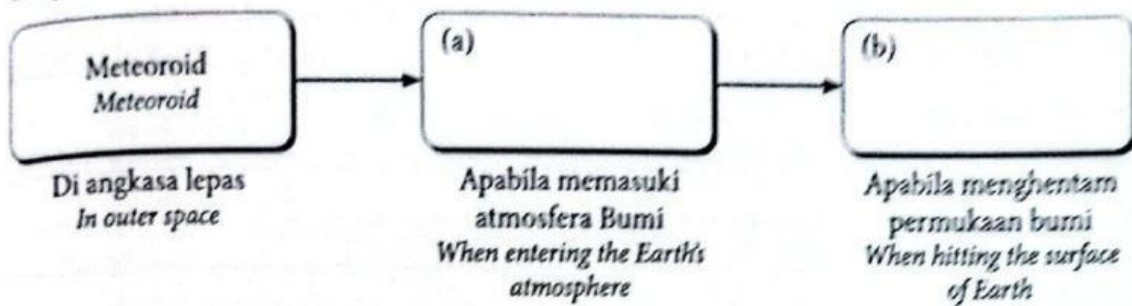
Meteor []. Meteor showers happen when [] meteors enter the [] at the same time.

many

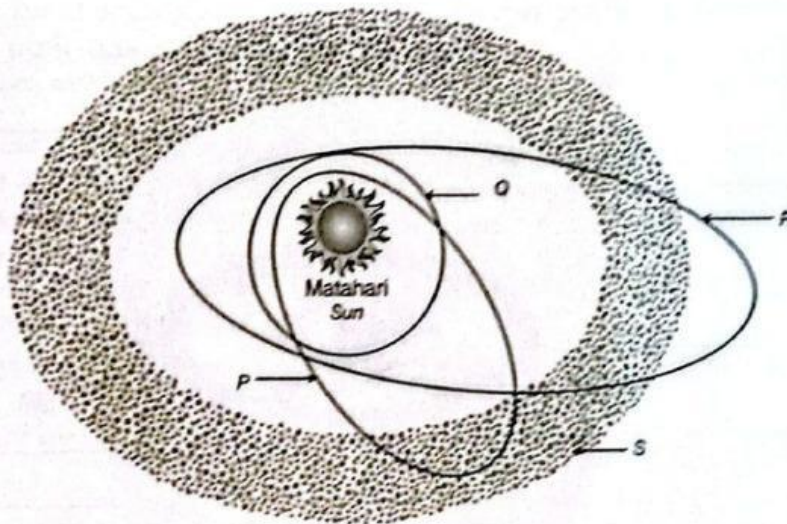
Earth

shower

2. Lengkapkan carta alir di bawah mengenai pergerakan meteoroid. **IP 2**
 Complete the flow chart below regarding the movement of meteoroids.



3. Rajah 2 menunjukkan lokasi asteroid dalam sistem suria kita.
 Diagram 2 the location of asteroids in our solar system.



Rajah 2 / Diagram 2

- (a) Kenal pasti P, Q, R dan S. **IP 1**
 Identify P, Q, R and S.

P : _____
 Q : _____
 R : _____
 S : _____

- (b) Di manakah kedudukan Lingkaran Asteroid? **IP 1**
 Where is the location of the Asteroid Belt?

In between the orbits of _____ and _____

- (c) Apakah kaitan antara asteroid dan meteoroid? **IP 4**
 What is the relationship between an asteroid and a meteoroid?

Some _____ originated from the fragments of _____.

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- (d) Antara asteroid di dalam dan di luar Lingkaran Asteroid, yang manakah mempunyai risiko lebih besar untuk berlanggar dengan Bumi? Jelaskan jawapan. **TP 4**
Among the asteroids inside and outside the Asteroid Belt, which asteroid would have a higher risk to crash with the Earth? Explain. **KBAT** *Menganalisis*

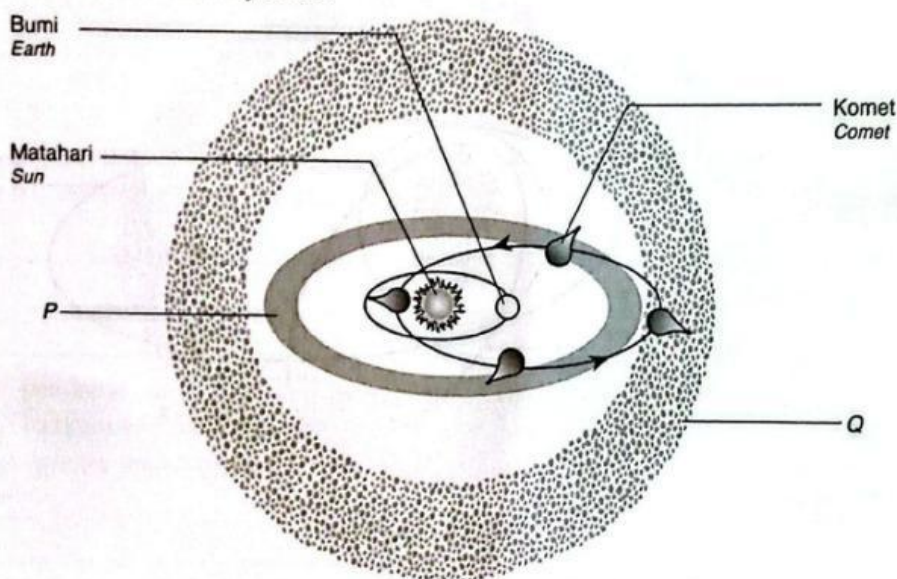
Asteroids that are _____ the asteroids belt such as _____, Aten and Amor because the crash between the earth and the asteroids can happen at the _____ of the orbits or in region near the Earth's orbit and the asteroid's orbit.

interactions

outside

Apollo

4. Rajah 3 menunjukkan pergerakan komet.
Diagram 3 shows the movement of comet.



Rajah 3 / Diagram 3

- (a) Kenal pasti P dan Q. **TP 1**
Identify P and Q.

P: _____

Q: _____

- (b) Nyatakan satu persamaan antara P dan Q. **TP 2**
State the similarity between P and Q.

Both are the region where there are many _____ bodies that will become _____ when knocked out of their _____

comets

orbits

icy

- (c) Namakan dua komponen utama komet. **TP 1**
Name the two main components of a comet.

- H _____
- T _____

Head

Tail

(d) Tandakan (✓) pada pernyataan yang betul mengenai komet. **TP 2**
Tick (✓) for the correct statement about comet.

(i) Komet ialah gumpalan ais, batuan, debu dan gas beku yang mengelilingi Matahari.

A comet is a lump of ice, rocks, dusts and frozen gasses that is revolving around the Sun.

(ii) Komet mengelilingi Matahari dalam orbitnya sendiri yang berbentuk elips.

A comet revolves around the Sun in its elliptical shaped orbit.

(iii) Komet bergerak pada kelajuan 100 km s^{-1} .

A comet moves at the speed of 100 km s^{-1} .

(iv) Apabila menghampiri Matahari, komet mencair dan kelihatan seperti berekor.

When approaching the Sun, the comet melts and looks as if it has a tail.

(v) Ekor komet sentiasa dalam keadaan menjauhi Matahari disebabkan oleh angin suria.

A comet's tail is always in a direction away from the Sun due to the solar wind.

5. Pada 15 Februari 2013, sebuah asteroid telah menghentam permukaan Bumi di Chelyabinsk, sebuah bandar di Rusia. Gelombang kejutan yang dihasilkannya telah mencederakan 1 200 orang. Tenaga yang terhasil daripada letupan itu dikatakan melebihi 470 kilo tan TNT.

On 15th February 2013, an asteroid collided on Earth surface in a town called Chelyabinsk in Russia. The shock wave produced through the impact injured 1 200 people there. The amount of energy produced in the collision is estimated to be more than 470 kilo tan TNT.

(a) Apakah yang boleh dilakukan oleh saintis untuk menyelamatkan Bumi daripada insiden sebegini? **TP 4**

What can be done by the scientists to save the Earth from an incident like this?

KBAT Menganalisis

In this incident, the direction of the asteroid could not be diverted as it is approaching towards Earth. [] and moving of key infrastructures and [] can be done to minimize loss. Other than that, scientist can also [] the asteroid before it hits the Earth.

valuables

destroy

Evacuation

(b) Apakah teknik yang boleh digunakan untuk mengawal asteroid yang boleh mengancam Bumi sebelum memasuki atmosfera Bumi? **TP 2**

What are the techniques to control threatening asteroids before they even enter the Earth's atmosphere?

- Kinetic impactor - a spacecraft that [] itself into the asteroid to move its orbit.
- Gravity tractor - a spacecraft that [] an asteroid for a long time and change the asteroid's path using its []

follows

slam

gravity