**Space Revision Packet**

1. Label the following diagram with the following: Earth’s axis (remember it’s tilted!), equator, North pole, South pole, Northern hemisphere, Southern hemisphere.



1. The Earth spins on it’s …………… once every ………….. hours. This is called one ……….....
2. Which side of the Earth in the diagram has day time and which side has night time? Shade in the side that is in night.



**SUN**

1. The sun appears to rise in the …………………. and set in the ……………….., even though the Sun actually does not move. Why does the Sun look like it’s moving across the sky?
2. The Earth is a ………………………………. and it orbits the ……………………
3. What does the word “orbit” mean?
4. What force keeps the Earth in orbit?
5. What two things affect the size of gravity between two objects? (HINT: think about the amount of gravity you would feel if you went into space or were standing on the moon)
6. The Earth orbits the ……….. once every …………………… days. This is called a ……………..
7. The Earth is tilted in different directions during different parts of it’s orbit at different times of the year. This causes the seasons. Label the seasons for the Northern hemisphere on the diagram below.



1. If it is summer here in the UK (Northern hemisphere), what season is it for people in Australia (Southern hemisphere). Why is this?
2. A satellite is object that orbits around another object. Here is an example.



There are man-made satellites (like the ones we use for GPS navigation) and there are also natural satellites.

What is the natural satellite of the Earth?

1. Why is it that the Moon looks different during different times?
2. Label the diagram for what the Moon looks like at different positions around the Earth.



1. Can you do it backwards? Label the phases of the moon with the correct position around the Earth.



1. What is a solar eclipse? Complete the diagram below by adding arrows for sunlight and the moon. Label the location on Earth where you would experience the solar eclipse.



1. What is a lunar eclipse? Complete the diagram below by adding arrows for sunlight and the moon. Label the location on Earth where you would experience the solar eclipse.



1. What is a planet?
2. What is the solar system?
3. Label the following diagram of the Solar System. (Note: it is NOT to scale! The Sun and planets are so different in sizes and distances that it would be hard to fit them on a diagram together.)



**Pluto (Dwarf planet)**

1. The Sun is an average sized star. Why does it look so big compared to the others?
2. What is a star? Why do they give out heat and light?
3. What is a group of stars called? What group is our Sun a part of?

Practice Exam Questions

**Level 3**

          (a)     Sita made a model of three parts of the solar system, the Sun, Earth and Moon.
She used a marble, a torch and a tennis ball.

          Draw a line from each part of the solar system to the object she used.

          Draw only **three** lines.



2 marks

(b)     The table below shows the order of some of the planets in our solar system.

          Complete the table to show the positions of the Earth, Neptune and the Sun.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Mercury | Venus |   | Mars | Jupiter | Saturn | Uranus |   |

2 marks

(c)     The diagram shows a satellite in orbit around the Earth.



                                                                    *not to scale*

(i)      Give **one** use of a satellite.

...................................................................................................................

...................................................................................................................

(ii)     Which force keeps the satellite in orbit around the Earth?
Tick the correct box.

gravity                         friction                             

air resistance            magnetism                      

2 marks

maximum 6 marks

**Level 4**          The diagram below shows the Hubble telescope in orbit around the Earth.



*not to scale*

(a)     Which force keeps the telescope in orbit around the Earth?
Tick the correct box.

air resistance                      friction           

gravity                                  magnetism   

1 mark

(b)     The Hubble telescope is a satellite used for looking at planets and stars.

          Give **one** other use of satellites.

........................................................................................................................

........................................................................................................................

1 mark

(c)     Fill each of the gaps in the following sentences with a different word from the box
below.

|  |
| --- |
| **absorbs                            produces                          reflects** |

You can see the Sun because it .............................................. light.

You can see a satellite because it ........................................... light.

1 mark

(d)     The bar chart shows the size of five planets compared to the size of Earth.



          The planet Uranus is four times the size of Earth.
**On the chart above**, draw a bar for the planet Uranus.

1 mark

(e)     (i)      Arrange the following in order of size, starting with the smallest.

|  |
| --- |
| **Sun              Hubble telescope              Earth** |

.......................................  ......................................  ......................................
**smallest**                                                                    **largest**

1 mark

(ii)     Some stars are bigger than the Sun but they look smaller.
Why do they look smaller than the Sun?
Tick the correct box.



1 mark

maximum 6 marks

**Level 5**          (a)     The diagram below shows the positions of the Sun, Moon and Earth during a solar eclipse.

          Write numbers (1–4) on the diagram below to label the features during an eclipse.

1.      the Earth

2.      the Moon

3.      the Sun

4.      a region where the total eclipse of the Sun is taking place



*not to scale*

2 marks

(b)     Scientists discovered a regular cycle of eclipses. It is called the Saros cycle.
The table below shows the dates of some eclipses in this cycle.

          Complete the table by predicting the date of the next eclipse in the Saros cycle.

|  |  |
| --- | --- |
| **eclipse** | **date** |
| eclipse 1 | 20th July 1963 |
| eclipse 2 | 31st July 1981 |
| eclipse 3 | 11th August 1999 |
| eclipse 4  |   |

2 marks

maximum 4 marks

**Level 6**          Pluto was discovered in 1930. It was classified as a planet.
In 2006, scientists agreed that Pluto is **not** a planet.

(a)     The diagram below shows our solar system.



*not to scale*

(i)      **From the diagram**, what supports the idea that Pluto is a planet?

...............................................................................................................

1 mark

(ii)     **From the diagram**, what supports the idea that Pluto is **not** a planet?

...............................................................................................................

1 mark

(b)     The table below shows information about planets in our solar system.

|  |  |
| --- | --- |
| **planet** | **diameter (km)** |
| Mercury | 4800 |
| Venus | 12200 |
| Earth | 12800 |
| Mars | 6800 |
| Jupiter | 142600 |
| Saturn | 120200 |
| Uranus | 49000 |
| Neptune | 50000 |

          Pluto has a diameter of 2 300 km.
How does this information suggest to scientists that Pluto is **not** a planet?

........................................................................................................................

1 mark

(c)     An object called Charon orbits Pluto.

          How does the presence of Charon support the idea that Pluto is a planet?

........................................................................................................................

1 mark

(d)     The table below shows the composition of the atmosphere of some of the objects in our solar system.

|  |  |
| --- | --- |
| **object** | **atmosphere** |
| Mercury | none |
| Venus | mainly carbon dioxide |
| Earth | mainly nitrogen and oxygen |
| Neptune | hydrogen, helium and methane |
| Earth’s moon | none |
| Titan (a moon) | nitrogen and methane |
| Pluto | nitrogen and methane |

          Atmosphere is **not** used to classify objects as moons or planets.
Use the information above to suggest a reason for this.

........................................................................................................................

........................................................................................................................

1 mark

(e)     Why do you think scientists found it difficult to decide how Pluto should be classified?

........................................................................................................................

........................................................................................................................

1 mark

maximum 6 marks

**Level 7**          The table below shows information about four planets.

|  |  |  |
| --- | --- | --- |
| **planet** | **time taken to orbit the Sun (Earth years)** | **distance from the Sun (million km)** |
| Mercury | 0.25 | 60 |
| Venus | 0.5 | 108 |
| Earth | 1.0 | 150 |
| Mars | 2.0 | 228 |

          The diagram below shows the orbits of the Earth, Mercury, Venus and Mars, and their position at one particular time.
The arrows show the direction in which the planets move.

                           

*not to scale*

(a)     Show the position of each planet six months later by drawing a letter X on the orbit of each planet.

2 marks

(b)     Use the information in the table to calculate the largest and smallest distance between the Earth and Venus.

          closest ............................................ million km

1 mark

          furthest ............................................ million km

1 mark

(c)     The speed of light is 300 000 km/second.
**Calculate** how long light takes to reach the Earth from the Sun.

........................................................................................................................

..................................................................................................................... s

1 mark

(d)     The diagram below shows the path of an asteroid around the Sun.

                                 

*not to scale*

(i)      **On the path of the asteroid**, draw a letter S to show the position where the asteroid is travelling the slowest.

         **On the path of the asteroid**, draw a letter F to show the position where the asteroid is travelling the fastest.

1 mark

(ii)     Explain why the speed of the asteroid changes.

...............................................................................................................

...............................................................................................................

1 mark

maximum 7 marks

**Mark Scheme**

**M1.**          (a)     •



*if all three lines are correct, award two marks*

*if one* ***or*** *two lines are correct, award one mark*

*if more than one line is drawn from any part of the
solar system, award no credit for that part*

**2 (L3)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sun** | *Mercury* | *Venus* | **Earth** | *Mars* | *Jupiter* | *Saturn* | *Uranus* | **Neptune** |

*award one mark for the Sun in the correct position*

*award one mark for both Earth and Neptune in the
correct positions*

**2 (L3)**

(c)     (i)      any **one** from

•    weather forecasting

*accept ‘weather’*

•    communications

*accept ‘phone’* ***or*** *‘fax’*

•    telescopes

•    global positioning system

*accept ‘GPS’*

•    TV

•    spying

*accept ‘taking photographs’*

•    internet

**1 (L4)**

(ii)     •    gravity 

*if more than one box is ticked, award no mark*

**1 (L4)**

**[6]**

**M2.**          (a)     •    gravity 

*if more than one box is ticked, award no mark*

**1 (L4)**

(b)     any **one** from

•    telecommunications

*accept ‘communication’*

•    television **or** TV

•    telephones

*accept ‘phone’* ***or*** *‘fax’*

•    radio

•    weather

•    military **or** spy observations

•    land use observations

•    GPS

*accept ‘navigation’*

•    internet

•    monitoring **or** taking pictures of the Earth

*‘looking at* ***or*** *taking pictures of planets* ***or*** *stars****or*** *galaxies’ is insufficient as it is given in the question*

**1 (L4)**

(c)     •    produces
     reflects

*answers must be in the correct order****both*** *answers are required for the mark*

**1 (L4)**

(d)     •    a bar drawn to 4

**1 (L4)**

(e)     (i)      •    Hubble telescope   Earth    Sun

*accept ‘Hubble’* ***or*** *‘telescope’ for Hubble telescope*

*answers must be in the correct order
all three answers are required for the mark*

**1 (L3)**

(ii)     •    They are further away than the Sun 

*if more than one box is ticked, award no mark*

**1 (L3)**

**[6]**

**M3.**          (a)



*for* ***all four*** *numbers in the correct place, award two marks*

*for any* ***two*** *or* ***three*** *numbers in the correct place, award**one mark*

**2 (L5)**

(b)     any **one** from

*•*    21st August

•    22nd August

•    23rd August

*accept dates written in another format*

**1 (L5)**

•    2017

**1 (L5)**

**[4]**

**M4.**          (a)     (i)      it orbits the Sun

*accept ‘it goes round the Sun’
‘it has an orbit’ is insufficient*

**1 (L5)**

(ii)     any **one** from

*•*    it is not in the same plane as the other planets

*•*    the orbit is out of line **or** at a different angle

*accept ‘it is not in line with the others’
‘it has a different orbit’ is insufficient*

*accept ‘the orbit* ***or*** *it is tilted’
do* ***not*** *accept ‘it is too small’
as this is not shown in the diagram*

**1 (L6)**

(b)     any **one** from

*•*    it has the smallest diameter

*accept ‘it is too small’
‘it is very small’ is insufficient*

*•*    all the other planets are bigger

**1 (L6)**

(c)     any **one** from

*•*    Charon is a moon **or** satellite

*accept ‘it is a moon’*

•    other planets have moons

*accept ‘the Earth* ***or*** *Saturn has a moon’
‘Charon orbits Pluto’ is insufficient*

*accept ‘moons do not orbit other moons’*

*accept ‘other planets have objects orbiting them’*

**1 (L6)**

(d)     any **one** from

*•*    both planets and moons have atmospheres

*accept ‘Venus has an atmosphere and Mercury does not’*

*•*    whether or not it has an atmosphere does not make it a planet

•    there is no pattern in the atmospheres

*accept ‘Earth’s moon does not have an atmosphere and Titan does’*

•    some planets do not have atmospheres

*accept ‘Titan has an atmosphere and so does Neptune’*

**1 (L6)**

(e)     any **one** from

•    scientists cannot decide on what a planet is

•    if Pluto is a planet there could be more planets orbiting our Sun **or**in our solar system

•    there is evidence for and against Pluto being a planet

*accept specific arguments for and against
e.g. ‘it goes around the Sun but it is too small’
‘there are reasons for and against’ is insufficient
‘it has an atmosphere like the Moon but orbits
the Sun’ is insufficient as atmosphere is not
sufficient to classify moons or planets*

**1 (L6)**

**[6]**

**M5.**          (a)



*for all* ***four*** *correct, award two marks
for any* ***two*** *or* ***three*** *correct, award one mark*

*accept a cross drawn that lies within the width
of the Sun for each planet, e.g.
*

**2 (L7)**

(b)     •    42

*accept ‘150-108’*

**1 (L7)**

•    258

*accept ‘150+108’*

**1 (L7)**

(c)     500

*accept ****or ***

*accept ‘8.3 minutes’
accept ‘about 8 minutes’*

**1 (L7)**

(d)     (i)

         

***both*** *answers are required for the mark
accept an answer within the dotted lines
at either end of the ellipse*

**1 (L7)**

(ii)     attracted by the Sun’s gravity

*accept ‘increased gravity near to Sun’*

**1 (L7)**

**[7]**