

Name: .....

**1 Write T (true) or F (false).**

- 1 The word “universe” means “nothing”. .....
- 2 We cannot see any planets of our Solar System when we look up at the sky. ....
- 3 Our Solar System is in a galaxy called the Milky Way. ....
- 4 We can see all the galaxies of the Universe with a telescope. ....
- 5 People had different ideas about the Universe in the past. ....
- 6 Andromeda is the next big galaxy to ours. ....

...../6

**2 Put the events that probably formed our Solar System in the correct order (1–8).**

- a  The rocks became planets, which all orbited the bright star in the middle.
- b  The planets formed three groups: rock planets, gas planets and ice planets.
- c  The planets cleaned their path round the Sun by attracting all the bits of rock that got in their way.
- d  The dust in the circle around the star slowly held together to form rocks.
- e  The middle of the circle got hotter and hotter, until it started to burn and became a star.
- f  The circle got bigger and turned more quickly.
- g  A star exploded and became very bright.
- h  A ball of dust turned round and round, until it became a very flat circle.

...../8

**3 For each question about Chapter Two choose the correct answer, A (Albert Einstein), B (Galileo Galilei) or C (Isaac Newton).**

- 1 Who developed a theory about the laws of gravity? **A B C**
- 2 Who developed a theory that nothing can travel faster than the speed of light? **A B C**
- 3 Who first saw four moons orbiting the planet Jupiter? **A B C**
- 4 Whose theory could mean that astronauts might be able to time-travel? **A B C**
- 5 Whose name is used to measure the force of things? **A B C**
- 6 Whose new telescope marked the true start of astronomy? **A B C**

...../6

**4 Complete the information about Edwin Hubble in Chapter Two.**

**Born in:** 1 .....

**Died in:** 2 .....

**Nationality:** 3 .....

**Job:** 4 .....

**Worked at:** 5 .....

**In 1923 he used an:** 6 ..... to look at the 7 .....

**He measured its:** 8 ..... from the Earth, realizing it was one of many  
9 .....

**He discovered:** the further away a galaxy was from the Solar System,  
the 10 ..... it travelled (Hubble's Law).

...../10

**5 Complete the text. Choose from the sentences (a–h) below. There are three extra sentences.**

During the daytime, only one bright star can be seen in the sky. It is the star that is nearest to us, and the star that is the most important in our daily lives. <sup>1</sup>..... .

The Moon and the planets do not shine on their own. They appear bright at night because the Sun lights them up. <sup>2</sup>..... Some are bigger, some are smaller, but they are all stars. If there is no cloud in the sky at night, and you are away from city lights, you can see thousands of stars without using a telescope. You can also see a few other things that are not stars: the Moon and some of the planets, like Venus, Mars, Jupiter or Saturn.

Our Moon is a natural satellite of our planet. A satellite orbits something, like the Earth goes round the Sun; and “natural” means that it was not made by people. <sup>3</sup>..... But we only ever see the same side of the Moon when we look at it from Earth. From the Moon, the sky always looks black because there is no atmosphere.

The Moon is much smaller than the Earth. <sup>4</sup>..... It also has less gravity than the Earth. If your weight were 45 kilograms on the Earth, it would be 7.5 kilograms on the Moon.

The Moon was probably made more than 4 billion years ago when something the size of a planet hit the Earth. <sup>5</sup>..... As this cloud got cooler, parts of it held together until it finally formed the Moon.

- a** All the other shining points in the night sky are stars, like our Sun.
- b** Although astronomers think that there is some ice on the Moon.
- c** Astronauts have landed on the Moon six times from the Earth.

- d Scientists think this sent a hot cloud of dust and small pieces of rock into the Earth's orbit.
- e The Moon orbits the Earth in 27.3 days.
- f We have a special name for it – the Sun.
- g You could put forty-nine Moons into the Earth.
- h You could not live on the Moon without wearing special clothes.

...../5

**6 Answer the questions about Chapter Three.**

1 What would you need to wear in order to live on the Moon?

.....

2 What do astronomers think is on the Moon?

.....

3 Who first landed on the Moon in 1969?

.....

4 What did people use to believe about the moon?

.....

5 How does the Moon do magic on the Earth?

.....

6 Why is the Sun's force of gravity felt less than the Moon's on the Earth?

.....

...../6

**7 Match the names in the box with the facts about them.**

the asteroid belt	a light year	Proxima Centauri
the Kuiper Belt	a dwarf planet	the speed of light

- 1 It always travels in space at about 300,000 kilometres per second. ....
- 2 How we measure distance in space (about 9.5 trillion kilometres). ....
- 3 This is the nearest star to the Earth after the Sun. ....
- 4 Pluto became this after the IAU changed how they described planets. ....
- 5 A big group of asteroids made of rock and metal between Mars and Jupiter. ....
- 6 A bigger group of objects made of very small pieces of ice and gas on the far side of Neptune. ....

...../6

**8 Write *Alpha Centauri*, *CoRoT-7b*, *55 Cancri* or *Kepler-90*.**

- 1 ..... was the first exoplanet that could be shown to be made of metal or rock.
- 2 ..... is the closest star system to our Sun, at a little more than 4 light years away.
- 3 ..... is a star system 41 light years away with a family of planets in it.
- 4 ..... , a star in the constellation Draco, has eight planets orbiting it.

...../4

**9 Complete this description of the Earth's layers from Chapter Four.**

The Earth is formed of several layers. At the very centre is the part we call the <sup>1</sup>.....  
 ....., which might be solid. Around it is the <sup>2</sup>.....  
 which is liquid. Further out is the <sup>3</sup>....., made of very hot rock, which becomes liquid  
 when the pressure is released. Above this is the <sup>4</sup>....., which is covered by land and  
 oceans. It is in several pieces, and these pieces are called <sup>5</sup>.....  
 And all around is the <sup>6</sup>.....

...../6

**10 Complete the lists. Put the words from the box into the correct categories.**

Indonesia	Hawaii	Japan	Iceland
-----------	--------	-------	---------

There is less pressure on the rock, so it melts in: <sup>1</sup>..... <sup>2</sup>.....  
 Matter gets added to the mantle and it melts in: <sup>3</sup>..... <sup>4</sup>.....

...../4

**11 Complete the text. Choose one word (a, b, c or d) for each gap.**

When an <sup>1</sup>..... volcano erupts, first the ground shakes, and hot liquid called lava is <sup>2</sup>..... out of it. Then,  
 you hear the sound of the gas trying to escape from the volcano. This is followed by the volcano exploding  
 with a sound <sup>3</sup>..... loud that you can feel it through your body as well as your ears. The gas then hits you,  
 making your eyes and nose hurt. And your skin starts to smell <sup>4</sup>..... the sulphur (S) coming out of the  
 volcano, which is like bad eggs. Next, hot red rocks fly <sup>5</sup>..... into the sky, and they turn black as they get  
 cooler and fall to the ground. Lava and rocks then flow <sup>6</sup>..... the side of the volcano.

- |                    |                 |                  |                  |
|--------------------|-----------------|------------------|------------------|
| 1 <b>a</b> act     | <b>b</b> acted  | <b>c</b> acting  | <b>d</b> active  |
| 2 <b>a</b> push    | <b>b</b> pushed | <b>c</b> pushes  | <b>d</b> pushing |
| 3 <b>a</b> as      | <b>b</b> more   | <b>c</b> so      | <b>d</b> too     |
| 4 <b>a</b> for     | <b>b</b> from   | <b>c</b> of      | <b>d</b> off     |
| 5 <b>a</b> distant | <b>b</b> high   | <b>c</b> long    | <b>d</b> wide    |
| 6 <b>a</b> down    | <b>b</b> out    | <b>c</b> through | <b>d</b> up      |

...../6

**12** List five things we need for life.

- a .....
- b .....
- c .....
- d .....
- e .....

...../5

**13** Choose the correct answers (a, b, c or d) about Chapter Five.

1 Which is the smallest planet and the closest to the Sun?

- a Earth
- b Mars
- c Mercury
- d Neptune

2 Which is the hottest planet in the Solar System?

- a Jupiter
- b Mars
- c Saturn
- d Venus

3 Which is the best description of Mars today?

- a A cold desert planet.
- b A cold, wet planet.
- c A hot desert planet.
- d A warm, wet planet.

4 Which planets are the gas giants?

- a Earth and Venus
- b Jupiter and Saturn
- c Mercury and Mars
- d Neptune and Uranus

5 What is special about Saturn's moon Titan?

- a It has an atmosphere.
- b It has rings.
- c It has very long days.
- d It has volcanoes.

6 What is Neptune’s “Great Dark Spot”?

- a A mountain
- b A sea
- c A star
- d A storm

...../6

14 Tick  **five things we know about dark matter.**

- 1 It makes up about 27% of the Universe.
- 2 It is ten times bigger than all the galaxies in the Universe.
- 3 It has strong gravity.
- 4 We know what dark matter is made of.
- 5 It is made of the same particles that we find in atoms.
- 6 Dark matter particles move around quickly.
- 7 The Large Hadron Collider looks for dark matter particles and tries to make them, too.
- 8 Dark matter is trying to push things away from other things.

...../5

15 **Circle the correct words to complete the text.**

A black hole is an area where gravity is so <sup>1</sup> **powerful** / **weak** that any light that tries to escape gets pulled back <sup>2</sup> **into** / **out of** it. Because nothing can travel <sup>3</sup> **slower** / **faster** than light, everything will get pulled in, not just light.

So, if you fell into a black hole, you would <sup>4</sup> **always** / **never** get back out again.

The <sup>5</sup> **edge** / **top** of a black hole is called the “horizon”. It is like being on the edge of a waterfall, which has lots of water flowing <sup>6</sup> **downhill** / **uphill** quickly. If you were above the edge of the waterfall, you could probably get out of the water by swimming fast enough. But once you passed the edge, you would not be able to get out again.

As more things fall into a black hole, it gets <sup>7</sup> **bigger** / **smaller** and the horizon moves further away. To form a black hole, you need to push a large amount of matter into a very <sup>8</sup> **large** / **small** space. Then, the pull of gravity will be so powerful that light will be pulled back in, and it will not be able to escape.

...../8

**16 Complete the text about wormholes with the missing words.**

Imagine you <sup>1</sup> ..... a very small insect, and you live on the surface of an apple. You cannot easily move around to the other side of the apple, or go <sup>2</sup> ..... that is not on the apple, so the surface of the apple is your whole universe.

Now, imagine that a worm has <sup>3</sup> ..... a hole through the middle of the apple. Now, you can get from one side of the apple to the other in two ways: round the apple's surface (your universe); or the second, shorter way through the wormhole.

Scientists want to know <sup>4</sup> ..... our Universe could be like this apple. Could there be wormholes that can take us from one place in our Universe to another? And, if so, what <sup>5</sup> ..... these wormholes look like?

The wormhole could have two mouths – one at each end of it. One mouth could maybe be in the middle of London, and the other on a beach in California. The mouths might be round, so you could see everything clearly through them, <sup>6</sup> ..... a glass ball. But they would not be solid, so you could also walk through them from one place to the other.

...../6

**17 Match the two parts of the sentences. Draw lines between them.**

- |   |   |
|---|---|
| 1 Most wormholes would collapse so quickly                  | a and talk to yourself when you were younger.                                   |
| 2 To stop the wormhole from collapsing,                     | b impossible for anybody to make a time machine and go back and change history. |
| 3 This matter would have to make energy                     | c that nobody could get to the other side alive.                                |
| 4 If it were possible, you could take a journey             | d that works against gravity to hold the wormhole open.                         |
| 5 You could even use wormholes to travel back in time       | e that would normally take several years in just a few days.                    |
| 6 But Stephen Hawking said that the laws of physics made it | f we would have to put some special matter into it.                             |

...../6

**18 Match the dates with the events. Draw lines between them.**

- |                   |   |
|-------------------|---|
| 1,000 years ago   | a Telstar sent out the first TV show from the USA to Britain and France in real time.   |
| 4th October 1957  | b The Americans launched their satellite, Explorer I, into space.                       |
| 1st February 1958 | c The Chinese made the first rockets.   |
| in 1962           | d The NASA satellite TOPEX/Poseidon helped us to understand "El Niño".                  |
| in the 1970s      | e The Russians used a rocket to launch the first satellite into orbit.                  |
| in the 1990s      | f The USA launched satellites that sent back time signals and information about orbits. |

...../6

**19 Put the information in the correct column.**

nobody dies if there is a problem    are more exciting    don't feel bored, alone or get ill  
 can cost more because they need to come back    travel more slowly  
 don't have to be big or comfortable    need food, water and oxygen    can travel greater distances

People in space	Probes in space

...../8

**20 Where did these probes go and what did they do? Write the planets and what the probes found.**

large volcanoes                      fastest-moving winds                      lying on its side  
 Great Red Spot                      signs of water                      first new pictures                      the moons

Mercury    Jupiter    Saturn    Venus    Neptune    Mars    Uranus

- 1 Spirit and Opportunity found ..... on ..... from its past.
- 2 Magellan found 167 ..... on the surface of .....
- 3 MESSENGER sent us the ..... of ..... for 30 years.
- 4 Pioneer 10 showed us the ..... on .....
- 5 Cassini gave us more information about ..... that orbit .....
- 6 Voyager 2 brought us pictures of the ice planet ..... when it flew by .....
- 7 Voyager 2 also showed us the ..... in the Solar System on .....

...../14



**21 Complete the sentences. Choose names from the box.**

John Glenn     Alan Shepard     Yuri Gagarin     Alexei Leonov     Neil Armstrong

- 1 Russian astronaut ..... was the first human in space. He orbited the Earth on 12th April 1961 in the spacecraft Vostok I.
- 2 In 1961, astronaut ..... became the first American in space, flying for 15 minutes, without quite orbiting the Earth.
- 3 The year after, ..... became the first NASA astronaut to orbit the Earth.
- 4 The first-ever spacewalk was done in 1965 by Russian astronaut .....
- 5 But US astronaut ..... was the first person to step on to the Moon in 1969.

...../5

**22 Complete the text. Choose the correct words (a, b, c or d).**

Astronauts started <sup>1</sup> ..... the International Space Station (ISS) in space in 1998. It orbits

- a build
- b building
- c built
- d having built

the Earth <sup>2</sup> ..... 90 minutes and is a place <sup>3</sup> ..... astronauts, and astronomers back on

- a all
- b always
- c every
- d through

- a what
- b where
- c which
- d why

the Earth, from many countries work together. NASA's space shuttle, the Russian spaceship Soyuz,

and Automated Transfer Vehicles belonging to the European Space Agency (ESA) <sup>4</sup> ..... used

- a had
- b has
- c was
- d were

to take people and things to and from the ISS. Now, Russian and European rockets fly there, as well as

small SpaceX and Crew Dragon spaceships called capsules. The astronauts also have <sup>5</sup> .....

- a a
- b an
- c any
- d the

way of escaping the ISS in an emergency!

...../5

**23 Read the answers and complete the questions with the correct question words.**

1 ..... might aliens say to us?

We can only really guess, but let's hope that they would send a long message.

2 ..... hard will it be to live on Mars?

It will be harder to live there than at the top of Mount Everest or at the South Pole.

3 ..... could animals be different on different planets?

Because of weaker gravity, animals could be bigger with legs as thin as insects'.

4 ..... planets are too hot for intelligent life?

Mercury and Venus are both too hot for intelligent life.

5 ..... could we find intelligent life in the Universe?

There could be living things swimming in the ocean under the ice on Jupiter's moon Europa.

6 ..... thinks that Titan might be a good place for life?

Some scientists think that Titan might be a good place for life, but it has not been found there yet.

...../6

**24 Correct the sentences about Chapter Ten.**

1 Sometimes, a black hole is pushed out of its orbit by the gravity from planets near it, and then it could hit the Earth.

.....

2 An asteroid hit the Earth 65 million years ago but didn't kill the dinosaurs – enormous animals that once lived on the planet.

.....

3 We could also be burned by lava flows from space, which shoot out of very big stars when they explode.

.....

4 This happens very often, so astronomers are worried!

.....

...../4

**25 Complete the sentences. Choose the correct words from the box.**

fossil fuels      carbon dioxide      rubbish      forests      plastic      greenhouse gases

- 1 We should stop using ..... for energy and use cleaner energy from the wind and the Sun.
- 2 This does not release dangerous ..... into the atmosphere.
- 3 We should also stop throwing so much ..... into our rubbish.
- 4 We should grow more trees, which use ..... in their natural processes.
- 5 We should stop burning or cutting down the ..... that we already have.
- 6 We must also stop throwing ..... into our oceans, which is making them dirtier and warmer.

...../6

**26 Complete the sentences. Use the adverbs, comparatives or superlatives formed with the adjectives in brackets.**

- 1 This was a new idea that made the Sun ..... (**sudden**) seem more important than the Earth.
- 2 The Universe was not ..... (**total**) smooth, so the temperature was a little different in different places.
- 3 This also meant that some parts of the Universe grew ..... (**slow**) than other parts.
- 4 As the circle attracted more dust, it got bigger and turned ..... (**quick**).
- 5 You cannot ..... (**easy**) move around to the other side of the apple, or go anywhere that is not on the apple.
- 6 ..... (**important**), we should stop burning or cutting down the trees and forests that we already have on the Earth.

...../6

**27 Write the passive form of the sentences.**

- 1 Maybe a supernova caused this.  
.....
- 2 Since then, somebody has measured the distance again.  
.....
- 3 Gravity will pull the light back in and it will not be able to escape.  
.....

4 When the volcanoes erupted, they brought these metals and minerals to the planet's surface.

.....

5 Somebody has also measured the winds on Neptune at 2,200 kilometres per hour.

.....

...../5

**28 Complete the sentences with a stem and a suffix from the table.**

Stem			Suffix	
beauty	care	comfort	-able	-ful
out	power	to	-fully	-wards

1 The time has come when we need to look ..... across the Universe instead of in at ourselves on this very full planet.

2 If there were life on Jupiter, where the force of gravity is much more ..... than on the Earth, it would be very different.

3 If you looked very ..... at the energy and particles, you would be able to rebuild what had been inside the black hole.

4 But nobody would go to Mars for a ..... life.

5 This magma is not as dense as the rock around it, and so it starts to move up ..... the surface.

6 You notice how ..... the deserts of the Earth are, as they are not usually covered by clouds.

...../6

**29 Match the words and write the new words or phrases.**

- 1 Big year .....
- 2 black System .....
- 3 dwarf ship .....
- 4 light planet .....
- 5 Solar nova .....
- 6 space hole .....
- 7 super hole .....
- 8 worm Bang .....

...../8

**30 Match the words from exercise 29 with the definitions.**

- 1 A star that explodes and becomes very bright. ....
- 2 A part of space with the Sun and eight planets. ....
- 3 A type of plane that you can travel to other planets in. ....
- 4 An area where gravity is so powerful that any light that tries to escape gets pulled back into it. ....
- 5 Scientists use this word to describe a special way of going from one place in the universe to another place. ....
- 6 A way to measure distances in space. ....
- 7 The moment when matter started to expand. ....
- 8 A large, round piece of rock, metal or gas that moves around the Sun or a star. ....

...../8

Total...../190