



St. Antony's Catholic College

Aspire - Believe - Achieve

Year 7 Science – Zones 3 & 4

Once your work is completed you do not need to submit it. You can mark it in green when the answers are published and keep it neatly and safely until you return to school. **If** you wish to submit a **good** piece of work, **after** you have marked it yourself, please do so using the SUBMIT button on ShowMyHomework.

See <https://help.teamsatchel.com/en/articles/2912000-submitting-my-work-online> for instructions on how to do this.

If you've any issues with your work please comment on Showmyhomework and we will respond to you.

If you don't have the textbook, I have attached images of these pages in this document.

Watch

Watch the video "How did the Solar System form?". <https://vimeo.com/259687037>

Read

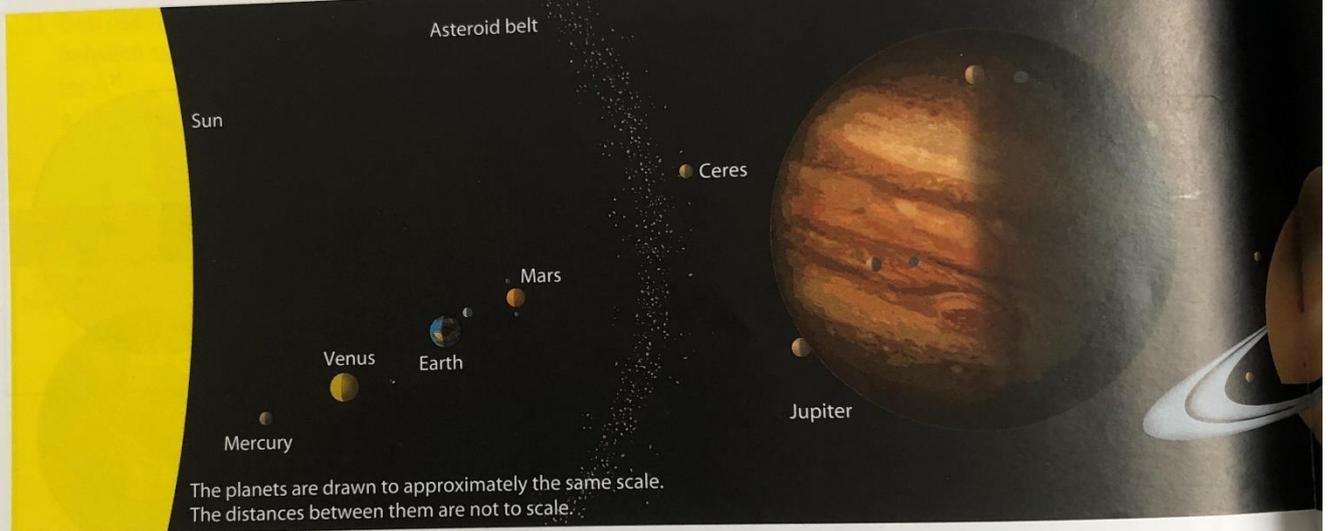
Read pages 170 and 171 of your textbook.

7Ld The Solar System

What is the Solar System?

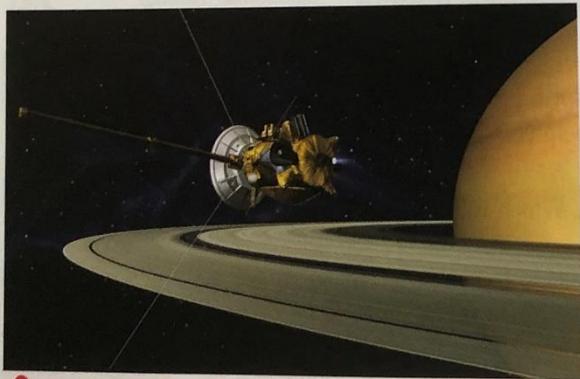
When people first started to observe the stars, they saw some points of light that appeared to move compared to the rest of the stars. We now know that these moving objects are planets orbiting the Sun. They are much closer to us than the stars.

There are eight planets in the **Solar System**, and three **dwarf planets** (Ceres, Pluto and Eris). There are also thousands of **asteroids** (small lumps of rock) and **comets** (mostly balls of dirty ice). Most of the planets have natural satellites (**moons**) orbiting them.



The planets are drawn to approximately the same scale. The distances between them are not to scale.

A



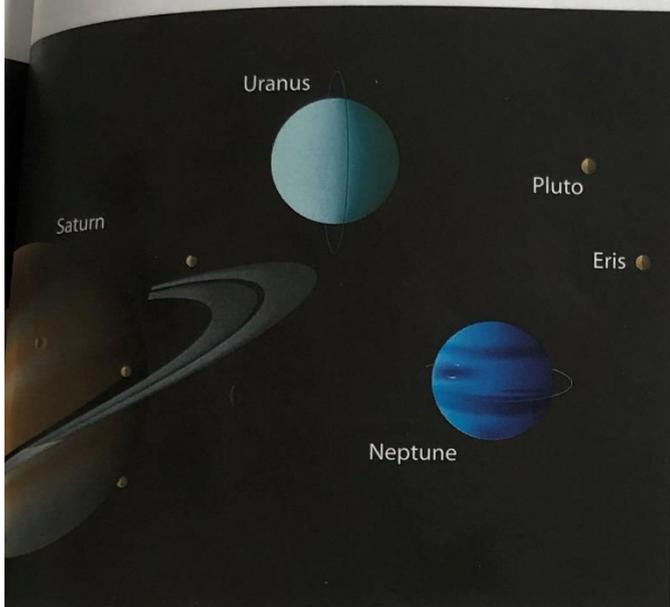
B Scientists can observe other planets using telescopes on Earth. However, they can find out much more from the information sent back by space probes. This is an artist's impression of the Cassini probe orbiting Saturn.

The four planets closest to the Sun are known as the **inner planets**. They are rocky planets. The other planets are the **outer planets**. The outer planets are made of gas. The further a planet is from the Sun, the longer it takes to orbit it.

- 1 Write down the names of the inner planets, starting with the one closest to the Sun.
- 2 Which planets are made of gas?
- 3 Which planet has the longest year? Explain your answer.

Most of the asteroids have orbits between Mars and Jupiter, but some have orbits which cross the orbit of the Earth. Many scientists think that the dinosaurs were wiped out when an asteroid hit the Earth 65 million years ago.

You can sometimes see planets in the night sky. We can see planets because they reflect light from the Sun. They do not make their own light. Planets look brighter than stars because they are much closer to the Earth.



The Earth is the only planet that has living things on it. The other planets are too hot or too cold.

- 4 a** What is an asteroid?
b Between which two planets are the orbits of most of the asteroids?
5 How can we see planets in the night sky?

Planet	Distance from Sun (million km)	Mean surface temperature (°C)
Mercury	58	170
Venus	108	460
Earth	150	15
Mars	228	-50
Jupiter	778	-143
Saturn	1427	-195
Uranus	2870	-201
Neptune	4497	-220

C

H S W



A Polish astronomer called Copernicus (1473–1543) suggested that the planets went around the Sun. Until that time most people thought that everything went around the Earth. In 1610, another astronomer called Galileo (1564–1642) proved that Copernicus was correct by using one of the first telescopes. The Christian church believed that the Earth was at the centre of the Solar System, and Galileo was arrested when he wrote about his theory.

- 6 a** Draw a bar chart showing the mean temperature of each planet. **H S W**
b Describe the pattern you can see from your graph. **H S W**
c The asteroids are about 400 million km from the Sun. Use your graph to estimate the mean temperature on an asteroid. **H S W**
d One planet does not fit the pattern on the graph. Find out why this planet does not follow the pattern. **H S W**

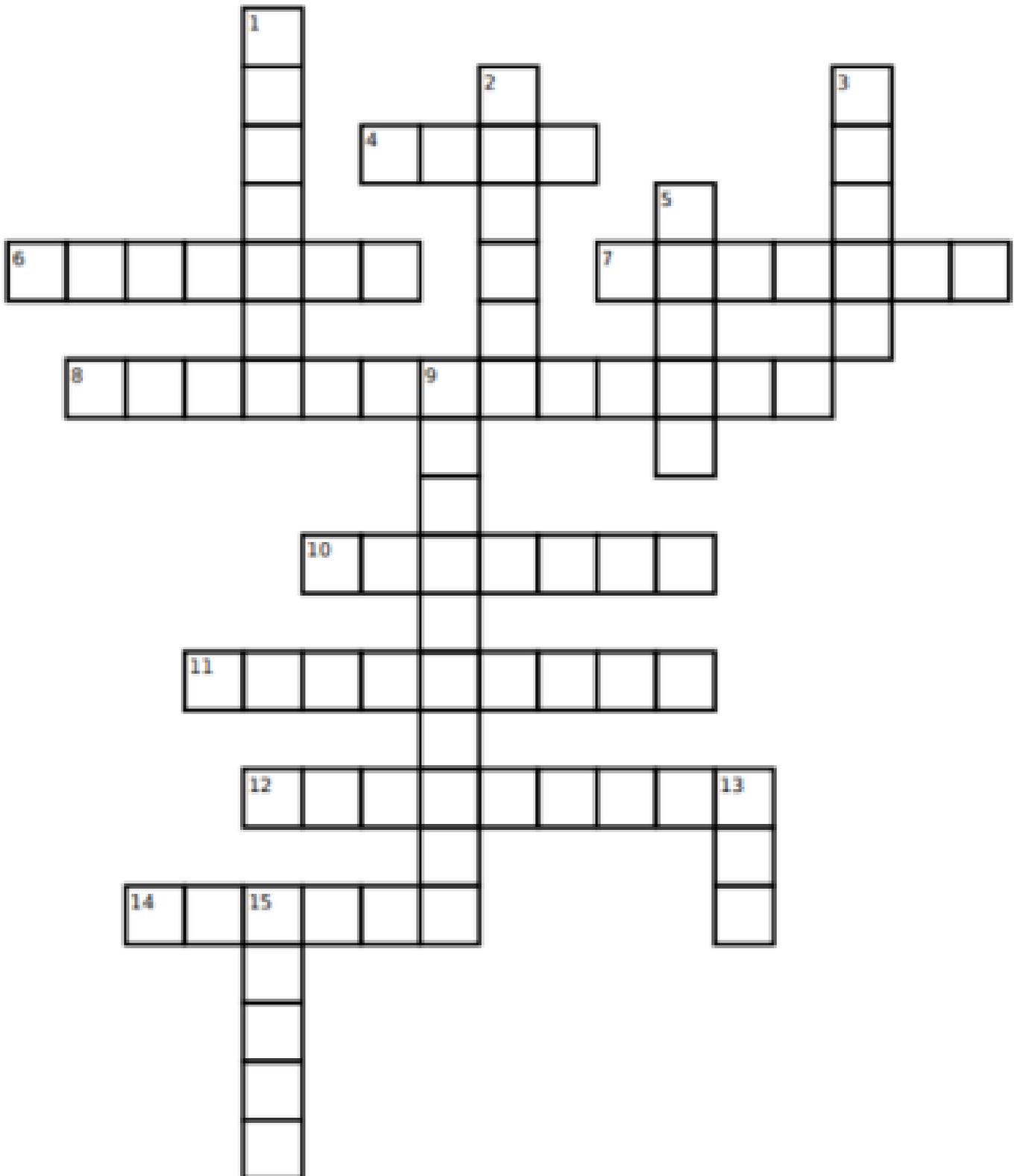
I CAN...

- describe how planets, dwarf planets and asteroids are arranged in the Solar System.
- explain why planets look brighter than stars.

Do

Activity 1 - Solar System crossword

After watching the video 'How did the Solar System form?' complete the crossword below to find 15 keywords.



Solar System crossword clues

Down

1. Our Solar system is thought to be about 4.5 years ago.
2. Which planet was knocked onto its side by an impact?
3. Which planet is spinning in the opposite direction to all the others?
5. The rocky planets are made of chunks of rock and
9. What do we call planets which orbit other stars?
13. Which object was the first to form in the Solar System?
15. Objects which were captured by planets and now orbit around them are called

Across

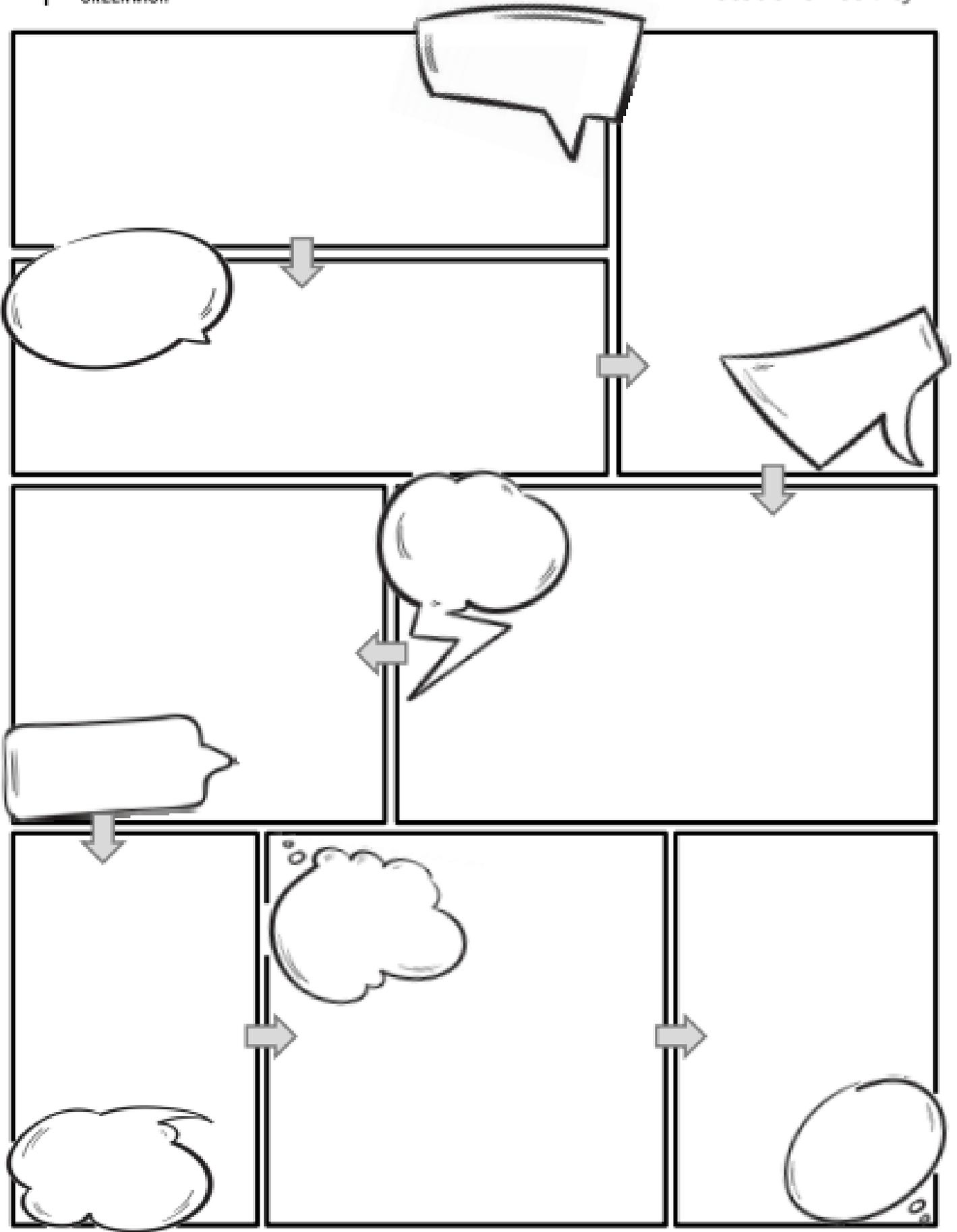
4. Jupiter swallowed up lots of material around it – which planet is smaller in size than expected as a result?
6. Our Sun formed from a huge cloud of material which was pulled together and planets are kept in orbit around the Sun. Which force is responsible for both of these things?
7. There are two ice giant planets. Uranus is one, which is the other?
8. What are the large pieces / the building blocks of planets called?
10. Which planet do scientists think formed first?
11. Just like humans and animals which may move from one place to another, planets moved closer and further from the Sun in their early lifetime – we call this
12. What are the rocky leftover pieces of rock in the Solar System called?
14. Scientists think that perhaps water was brought to the Earth by

Activity 2

Create a comic strip that summarises the main stages in the formation of the Solar System as described in the video. You should use the words from the crossword in your descriptions. The template below can be printed and used or you can create your own comic strip template. a

How did the Solar System form?

Student Activity

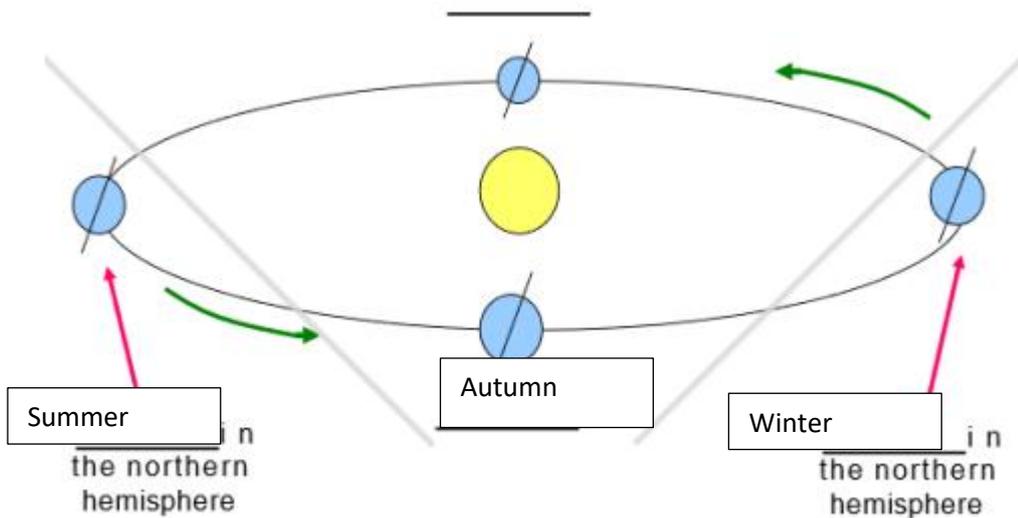


Self- assess last week's work

1. The UK is in the Northern Hemisphere.

2.

Spring



3.

Sentence beginnings.	Sentence endings.
1. The Earth takes 365 ¼ Earth-days to ...	-towards the sun.
2. We have seasons because the Earth's axis is ...	- orbit ("go around") the sun.
3. During summer in the northern hemisphere, the Earth is tilted ...	- less sunlight.
4. The UK therefore gets ...	- longer and warmer.
5. The days are ...	- shorter and colder.
6. During winter in the northern hemisphere, the Earth is tilted ...	- more sunlight
7. So, the UK gets ...	- tilted at an angle of about 23°.
8. The days now are ...	- 12 hours of night-time
9. 'Equinox' means "equal night", that is, 12 hours of day-time and ...	- away from the sun.

4. When the northern hemisphere is tilted away from the Sun it is winter there. The Earth is moving however and when it moves to the opposite side of the Sun the northern hemisphere will be pointing towards the Sun meaning it is summer there. When it is between these 2 positions, we say it is spring in the northern hemisphere and autumn on the other side (moving from summer to winter). Spring begins in March, summer begins in June, autumn begins in September and winter begins in December.

Textbook Questions

1. A) Daylight is longer in summer than in winter.
B) It is warmer in summer than in winter.

2. A hemisphere is a half of a sphere. The top half of the Earth is the northern hemisphere.

3. A) At position X it will be spring in the UK.

B) At position Y it will be autumn in the UK.

C) It will be spring at position X because the northern hemisphere is in the process of being tilted towards the Sun as the Earth is orbiting the sun. It will be autumn at position Y because the northern hemisphere is in the process of being tilted away from the Sun as the Earth is orbiting the Sun.

4. When the northern hemisphere is tilted towards the Sun the area of that hemisphere in the dark section is much smaller than the area that is in the light section so each part of the northern hemisphere spends less time in the dark section than it does in the light section.

6. When it is summer in the UK it is winter in Australia.

7. A) At the North Pole a day can last 24 hours in summer.

B) At the North Pole a night can last 24 hours in winter.

8. The Sun feels hotter at the Equator because the sun's rays are more concentrated at this point.

Optional Activities

Go to <https://www.bbc.co.uk/bitesize/tags/zf9yy9q/year-7-lessons/1> and work through the Science lessons set each week.

Or

Go to <https://www.thenational.academy/online-classroom/year-7/science/#subjects> and work through the Y7 science lessons shared there.

Or

Complete the wordsearch below.

Planets

B U J O E I G Q G J V E N U S W R A M N A O W J
H R Y S X T P R X C A U C I O F A E T B X O F E
G E D P Y S A T U R N S G A A Q F M T F T Q F B
R N Z Y O A O V N R Y M A I F G S G Q I Z G E U
O T U L P X W N C H D U U M V W I N D Y P X A A
V Y N Q U F N Y O O C K J N D Q X P H X H U Q G
L K R T V C V O K N M Y G V H Y X Y Y Q A D J Q
Q G R C S Y W C B L D E W E O T Y I X S U Q M S
T S V R C J Z G H I I X T C W J Z Y T D L X F G
N C E Y B R X E H S R M R A O S U R B V I C N Q
T A N A C Z T L J E S Y O P I N O E I Z D E H L
D T U G A L A X Y K S W D S T N E A R T H A A O
V M T S I X O Y U Z W V Z C A N G I D A Q Z Q H
P O P J V Z S R Z L G Z R U I P L D I Y R J N K
J S E S Q T I C A M X O T S O L A R S Y S T E M
O P N N A U P S G P F S Q T Z G R F N M Y T Y M
S H U R L G G Y U A D W N T D K D O M E B C H X
U E S B F F V N Z N S L A S A B O K Q U P P C F
Q R M U R A N U S Q D B T U F M A R S B G D V C
J E B E W W K N I I G L A D B O V M Q J E Y V Q
N N L B E L C X Q G K G L R X W U G R O C K E T
A Q O P T Q L B Q X U V N A F A M S U G X G E K
D T P E G Y X Y E X T X Z T R R U G R N L V S F
X Z C H N V I O J K S M A S O N Z H O Z V D N V

astronauts	atmosphere	Space	Gas
Star Dust	Moon	Rocket	Comet
Neptune	Venus	Uranus	Galaxy
Solar System	Sun	mars	Jupiter
Stars	Earth	Milky Way	Pluto

Fantastic Friday – Please email Mrs Wright (f.wright@st-antonys.com) by 12pm on a Friday if you'd like to share some of your best work of the week with her. She'd love to see it!

