

Complete the work below either in the booklet or on Teams – hand any printed copies to your Tutor on Friday.

<b><u>English</u></b>  Make sure you have completed Home Learning 1, 2 and 3.	<b><u>Maths</u></b>  1) Complete the Prior knowledge check for Unit 8. Calculating with Fractions  2) Sparx Maths – Complete the extra Home Learning that has been set. If you do not know your password, go to the Sparx site, and request a password reset.
<b><u>Science</u></b>  Read through the information on Astronomers and answer the questions.	<b><u>History</u></b>  Read through the information on The Ancien Regime and answer the questions.
<b><u>Geography</u></b>  Read through the information on The 2007 Tewkesbury Floods and answer the questions.	

## **Maths**

### Calculating with fractions: Prior Knowledge Check

1) Calculate

$123 + 658$	$245 + 783$	$378 + 985$	$569 + 1082$
$256 - 109$	$569 - 491$	$985 - 897$	$1987 - 1086$
$12 \times 8$	$14 \times 16$	$17 \times 19$	$23 \times 19$
$297 \div 9$	$420 \div 12$	$456 \div 8$	$658 \div 7$

2) Work out the lowest common multiple (LCM) of

- a) 3 and 4
- b) 4 and 5
- c) 5 and 10



- d) 4, 8 and 16  
e) 3, 6 and 9  
f) 3, 5 and 10

3) Complete the missing numerator or denominator in each pair below:

(a)  $\frac{2}{3} = \frac{\quad}{6}$  (b)  $\frac{1}{5} = \frac{\quad}{20}$  (c)  $\frac{3}{4} = \frac{\quad}{12}$  (d)  $\frac{5}{7} = \frac{10}{\quad}$   
(e)  $\frac{\quad}{5} = \frac{15}{25}$  (f)  $\frac{4}{\quad} = \frac{12}{21}$  (g)  $\frac{3}{10} = \frac{\quad}{50}$  (h)  $\frac{7}{8} = \frac{14}{\quad}$   
(i)  $\frac{3}{4} = \frac{30}{\quad}$  (j)  $\frac{\quad}{8} = \frac{55}{88}$  (k)  $\frac{2}{9} = \frac{10}{\quad}$  (l)  $\frac{2}{3} = \frac{\quad}{18}$

4) Simplify each fraction below to its lowest terms:

(a)  $\frac{2}{4}$  (b)  $\frac{6}{9}$  (c)  $\frac{6}{8}$  (d)  $\frac{5}{15}$  (e)  $\frac{4}{6}$  (f)  $\frac{9}{12}$   
(g)  $\frac{10}{15}$  (h)  $\frac{9}{15}$  (i)  $\frac{8}{12}$  (j)  $\frac{10}{14}$  (k)  $\frac{15}{35}$  (l)  $\frac{6}{21}$

5) Calculate

$\frac{1}{2}$ of 50	$\frac{1}{3}$ of 24
$\frac{1}{4}$ of 100	$\frac{3}{4}$ of 36
$\frac{2}{5}$ of 35	$\frac{4}{8}$ of 32

6) Calculate

$\frac{1}{5} + \frac{1}{5}$	$\frac{3}{7} + \frac{2}{7}$	$\frac{7}{9} - \frac{5}{9}$	$\frac{13}{15} - \frac{11}{15}$
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7)

Calculate: $\frac{1}{2} \times \frac{3}{5}$	Calculate: $\frac{7}{8} \times \frac{3}{4}$	Calculate: $\frac{4}{5} \times \frac{9}{10}$	Calculate: $\frac{5}{14} \times \frac{3}{4}$
Calculate: $\frac{2}{3} \div \frac{8}{11}$	Calculate: $\frac{1}{4} \div \frac{6}{7}$	Calculate: $\frac{5}{13} \div \frac{2}{3}$	Calculate: $\frac{2}{17} \div \frac{2}{5}$



## Science

### What do astronomers do?

#### Astrology

The skies have been studied by humans for thousands of years. One study of stars called **astrology** was believed to have begun around the time of the **Ancient Greeks**.



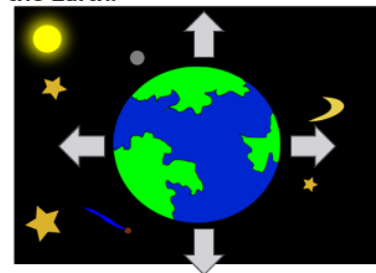
Astrology is where it is believed that the **movements of the stars and the planets** will affect what happens to living things on Earth (including humans).



Astrology is where **Horoscopes** come from. Modern science has found **no evidence** that they are true.



**Astronomy** is the study of all the objects in the universe outside of the Earth.



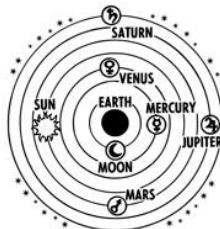
A scientist who studies astronomy is called an **Astronomer**.



**Astronomy started** with detailed mapping of the stars and planets (by the **Mayans** in South America and others such as **Ptolemy** who lived in Egypt).



For a long time, people could not agree if the **earth** was like other planets and **orbited the sun** or if the sun, the moon and **all of the sky orbited the Earth**. This debate was argued by astronomers from **Greece, India** and in the **Islamic world** for hundreds of years.



Finally, with help from the work of many astronomers, **Nicolaus Copernicus** showed that the **Earth and all the planets orbited the sun** as we understand it today.



After the invention of the **telescope about 400 years ago**, humans could see things in space in **much more detail** that ever before.



The **knowledge** that astronomers gained over the next 400 years (with the **help of engineers** who got better and better at building) helped us get to a stage where **humans could go into space and even get to the moon!**



## Famous Astronomers

### Ancient Mayans

**Lived: for thousands of years up until 1697 CE**

**Background information:** This was an advanced civilisation in South America that created the most accurate early Calendar for its time

**Famous for:** accurately mapping out the motions of the stars across the night sky



### Nicolaus Copernicus

**Lived: 1473-1543 CE**

**Background information:** A Polish astronomer who showed that the sun was at the centre of the solar system and not the Earth. These ideas got him into trouble with the Catholic church at the time so he did not publish his finding until he was on his deathbed.

**Most famous for:** Writing On the revolutions of heavenly spheres



### Ptolemy

**Lived: from about 100 CE to 170 CE**

**Background information:** Had Greek ancestry and was a mathematician and Astronomer. Lived in Alexandria in Egypt.

**Most famous for:** creating the Almagest, a book mapping the motion of stars and planets which accurately predicted where planets would be



### Katherine Johnson

**Lived: 1918-2020 CE**

**Background information:** was a gifted mathematician and could do incredible calculations. This gave her the job as a 'computer' for NASA before electronic computers were created that could do those jobs.

**Most famous for:** providing the calculations that enabled NASA to send humans into space



### Jocelyn Bell Burnell

**Lived in: 1943-present**

**Background information:** Studied physics at a time when girls were discouraged from doing so. Worked in research that led to a Nobel prize which many believed she should have been awarded too.

**Most famous for:** discovering a new type of star called a 'Pulsar'



## Questions

1. What is astrology?
2. What is astronomy?



3. Which is based on scientific evidence, astronomy or astrology?
4. In which parts of the world was the place of the Earth discussed?
5. Which type of scientist helped astronauts get into space?
  1. Where were the Ancient Mayans based?
  2. What was included in the book "The Almagest"?
1. Why did Copernicus not publish his findings until he was on his deathbed?
1. Katherine Johnson was give the job of a...

Use the information from this lesson or your own research to write a report on 'My Favourite Astronomer'. Complete the planning questions below and then write the full report.

**Planning questions:**

- 1) Who have you picked as your favourite astronomer?
- 2) In which years did they live?
- 3) Write down 2 or 3 facts about them:
- 4) Give 1 or 2 reasons why they are your favourite:

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**History****The Ancien Regime****1 The Three Estates**

Although many Enlightenment ideas were discussed in French salons, in many ways, the way France was ruled during the eighteenth century was very old-fashioned. In fact, the French government was facing a crisis because society had changed but the way France was ruled had not changed. France had a political system known as the Three Estates. Everyone in France was a member of one of the three estates. The first two estates were the clergy and the aristocracy. These two groups owned most of the land in France and had the greatest influence on the French government. Although they were wealthy, they paid very few taxes. The Third Estate included everyone else in French society. Members of the Third Estate had to pay a lot of tax. Most members of the Third Estate were poor peasants.

**2 The Three Estates**

During the Eighteenth century, France was changing. New social groups were growing. One was the bourgeoisie: the new wealthy middle class. Members of the bourgeoisie were part of the Third Estate, but they were wealthy. People in the bourgeoisie were also well educated and because they knew about Enlightenment ideas, they had strong views on how France should be ruled. They particularly did not like that they paid so many taxes but that they did not get to influence the French government. Another new group was the growing number of workers who lived in towns. These have become known as the sans culottes. The sans culottes were mainly very poor and because they had to pay so many taxes sometimes they could not afford to buy bread. Both the bourgeoisie and the sans culottes wanted change but King Louis XVI was unwilling to reform the French government.

**3 Social Change**

The French government was also in crisis because it was in debt. France had spent lots of money fighting against Britain in the American War of Independence. In order to pay for its debt, the French government needed to collect more money through taxes. Most people that worked for the government were members of the First and Second Estates. Although the aristocracy and clergy could afford to pay more money they did not want to be taxed and might stop supporting King Louis XVI if he tried to tax them. The bourgeoisie were wealthy enough to pay more but they wanted to be involved in government through a parliament. The sans culottes could not afford to pay any more taxes and were at risk of starving.

**4 Tax and debt**

Louis XVI was in a difficult situation. He knew he needed more money but he did not know how he could raise taxes without losing support. He also wanted to rule as an absolute monarch. In fact, some people who knew about Enlightenment ideas thought Louis XVI was a despot. In the centre of Paris was a feared building called the Bastille. The Bastille was a prison where Louis XVI could send anyone without a trial. For example, the Enlightenment thinker Voltaire had briefly been imprisoned in the Bastille for criticising the French government.



## 5 Louis XVI's crisis

### Glossary

Clergy: people who work for the Church. Known in France as the First Estate.

Crisis: a bad situation which will get worse if action is not taken.

Debt: money that is owed to someone else.

Three Estates: the division of French society into three social classes.

Reform: to change something.

Sans culottes: poor workers who live in towns.

### Comprehension Questions

1. Who were the clergy? Sentence starter: The clergy means....
2. What were the benefits of being part of the First or Second Estates?
3. Why were members of the bourgeoisie unhappy about paying taxes?
4. Which groups could not afford to pay more taxes?
5. Challenge question: Why was Louis XVI's government facing a crisis?

Extension: Did the Enlightenment contribute to the crisis of 1789?

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## Geography

### Key terminology

Urbanisation - the expansion of urban areas (towns and cities).

Environment Agency - a government body responsible for flood management in the UK.

#### The 2007 Tewkesbury floods

We are going to be examining the causes and effects of the 2007 Tewkesbury floods.

The River Severn is the largest river in the UK and has flooded frequently throughout its history.

Historically, it was a major waterway, with many settlements locating next to it.



Credit: Wikimedia Commons - Nifanion - Map of Gloucestershire

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Credit: Map data ©2020 Google, GeoBasis-DE/BKG (©2009)

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Credit: Wikimedia Commons - Chrisbayley - Course of the River Severn

#### Physical causes

- The River Severn travels through areas of **high relief** and **steep slopes**. This means faster **surface run-off**.
- Tewkesbury is the **confluence** of two large rivers - the **River Severn** & the **River Avon**.
- The west of the UK typically experiences **heavy rainfall**. In May-July 2007, England and Wales received 414 mm of rainfall.
- The River Severn is the **longest UK river**, at 354 km long. It has a large drainage basin and many tributaries, contributing to its high discharge.

#### River Severn



Credit: Wikimedia Commons - Nifanion - Map of the River Severn

#### Human causes - urbanisation



Credit: geograph - David Dixon - Tewkesbury High Street (A38)

#### Human causes - pressure for housing



Credit: geograph - David P Howard - Sheltered housing construction

#### Human causes - drainage of farmland



Credit: Phil Draythorn - farmland

**Task: Answer the following questions to check your knowledge of the causes of the floods.**

- 1) Tewkesbury is located at the confluence of which two UK rivers?
- 2) What effect does Tewkesbury's location in the west of the UK have on the amount of precipitation it experiences?
- 3) How many kilometres long is the River Severn?
- 4) Give an example of an 'impermeable surface'.
- 5) Why are some houses being built on floodplains?

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### Effects

- Approximately 48,000 homes were affected, with estimated repair costs for each home of between £20,000 and £30,000. 800 homes flooded in Tewkesbury
- Two people died as an indirect result of the flooding.



Credit: Wikimedia Commons - D Heaysman - Gadwell Road Flood 21st July 2007

### Effects

#### Effects

- Electricity was lost to 48,000 homes across Gloucestershire for two days.
- Over half the homes in Gloucestershire and 7,500 businesses were without any mains water for up to 12 days.



Credit: geograph - Lewis Clarke - Tewkesbury District: Pylons

- For the local council's economy, the floods cost £140,000 and for the British economy, an estimated £3.2 billion.
- The floods left many schools and businesses closed.



Credit: Wikimedia Commons - Paul Sherlock - A closed sign

**Which is the best example of an economic effect?**

Repair costs £20,000-£30,000

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