Hello again Year 5. It's time to go on an adventure through the Solar system! Does anyone know why it is called the Solar system? For this next pack we are going to take you on a tour of the planets and celestial bodies in our stellar neighbourhood! Remember we love to see your work, get an adult to upload it to: ***homelearning@greenlane.ngfl.ac.uk*** or hold onto it to show us when we get back to school.

For the next few weeks we continue our journey through space. I think we should start at the center of our Solar system, but be careful it is going to be hot! As usual do as much or as little as you can and if you have ideas of your own, go for it!

Keep rocking your timetables and using purple mash, there is a blog set up for each class that we are now checking. So post some comments or ask some questions!

Remember, although the lockdown is slowly lifting we still need to be careful when meeting other people. Make sure you are keeping your distance and continue staying safe so that we can all be back together sooner.

Kind regards

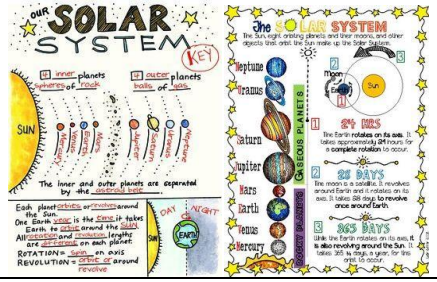
Mrs Lee, Mr Kicks, Mr West, Mrs Kicks, Mrs Soren, Mrs Nessa, Mr Ijaz, and Ms Grove.

Space project

Extra activities and ideas to add to your project

Reading:
Create a giant poster showing off the new knowledge you have now! Try not to copy. What can you remember from your reading?

While reading make some notes, I like to draw little pictures to remind me of the facts I have read.

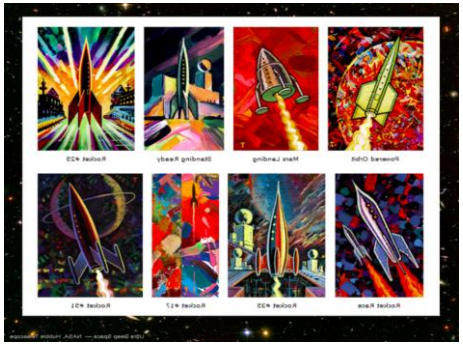


Mental well being:
Go for a walk. Enjoy the sights and sounds of a local park.

Find a quiet space and sit down and relax.

Just watch the world go around for a little while.

Art:
There is an artist called Peter Thorpe who creates space themed pictures.



Why don't you have a go?

Talk activity:

Ask members of your family which planet they would go to if they could go anywhere? Why have they chosen that one?

If you could invent a planet what would you choose? How about a planet made of chocolate? Or perhaps you would like a planet that is all water?

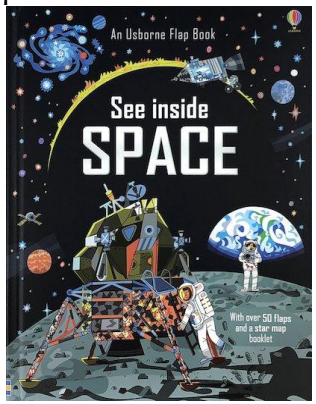
Share your learning with everyone!

Drama:
The Earth is in peril and you have to leave. You must build a base on a strange new planet! What sights will you see? Are there aliens?
The whole family could go with you...

Maybe you could even make alien costumes!

Writing:
Can you create a Non-Chronological report about the Solar system?

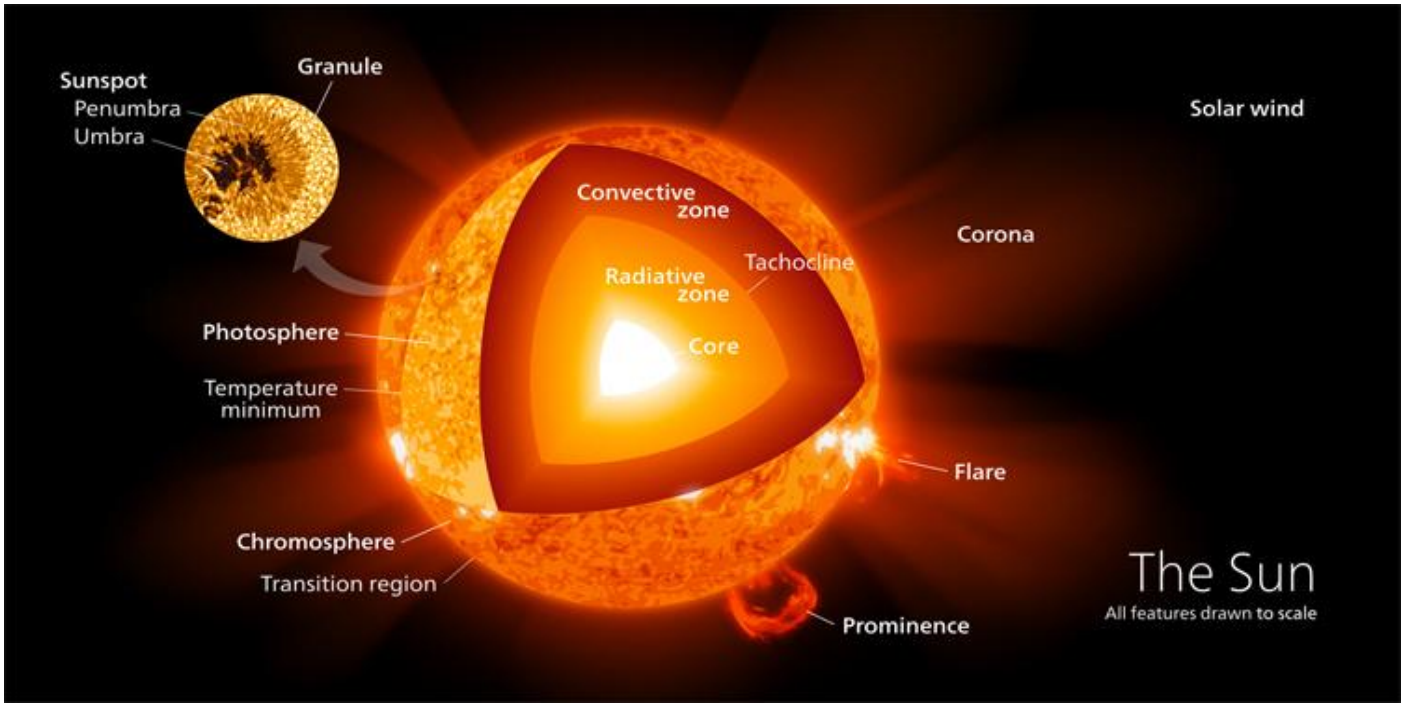
Make it look like a non-fiction book. Fill it with facts and pictures.



Physical wellbeing:
This week in the Kicks' house hold we have been doing treasure hunts!
First:
Choose a selection of items (Noah chose Ben Ten toys) and hide them around the house or in the garden.
Next:
Create a map of the house or garden showing the location of the treasures.
Finally:
Challenge family members to find them all.

If lots of family members want to play you could time them each to find the fastest!

Let us begin our journey at the sun! Don't go too close. It is hot! If you think your oven is hot well the sun is much, much, much, much, much, much hotter!



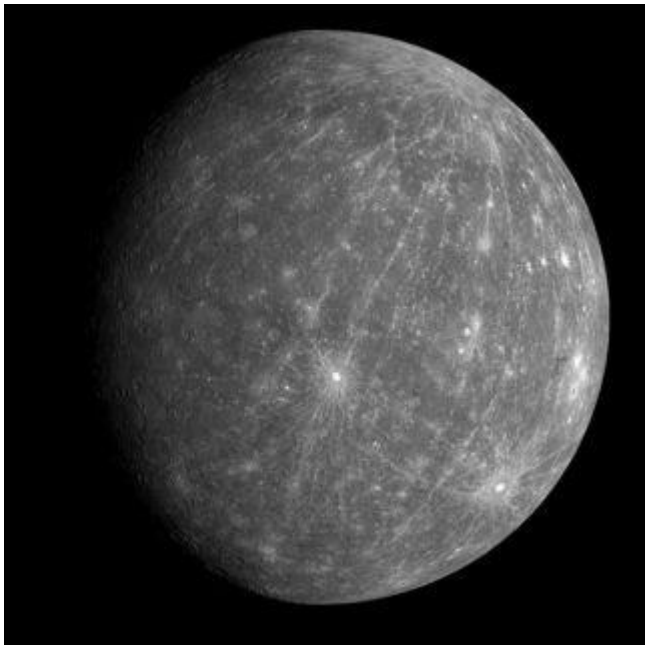
The sun is actually a STAR! All those pinpricks of light in the night sky are suns! Really, really far away.

- **One million Earths could fit inside the Sun.**
  A hollow Sun would fit around 960,000 spherical Earths. If squished inside with no wasted space, then around 1,300,000 would fit inside. The Sun's surface area is 11,990 times that of the Earth's.
- **The Sun contains 99.86% of the mass in the Solar System.**
  The mass of the Sun is approximately 330,000 times greater than that of Earth. It is almost three quarters Hydrogen, whilst most of the remaining mass is Helium.
- **The Sun is an almost perfect sphere.**
  There is a 10-kilometre difference between the Sun's polar and equatorial diameter. This means it is the closest thing to a perfect sphere that has been observed in nature.
- **The Sun will consume the Earth.**
  When the Sun has burned all its Hydrogen, it will continue to burn helium for 130 million more years. During this time, it will expand to the point that it will engulf Mercury, Venus, and the Earth. At this stage it will have become a red giant
- **The Sun will one day be about the size of Earth.**
  After its red giant phase, the Sun will collapse. It will keep its enormous mass with the approximate volume of our planet. When this happens, it will have become a white dwarf.
- **The temperature inside the Sun can reach 15 million degrees Celsius.**
  Energy is generated at the Sun's core, by nuclear fusion, as Hydrogen converts to Helium. Hot objects expand, the Sun would explode if it were not for its enormous gravitational force. The temperature on the surface of the Sun is closer to 5,600 degrees Celsius.

- **Light from the Sun takes eight minutes to reach Earth.**
  The Sun is an average distance of 150 million kilometres from the Earth. Light travels at 300,000 kilometres per second. Dividing one by the other gives us an approximate time of 500 seconds (or eight minutes and 20 seconds). Although this energy reaches Earth in a few minutes, it will already have taken millions of years to travel from the Sun's core to its surface.
- **The Sun travels at 220 kilometres per second.**
  The Sun is 24,000-26,000 light years from the galactic centre. It takes the Sun 225-250 million years to complete an orbit of the centre of the Milky Way.
- **The distance from the Sun to Earth changes throughout the year.**
  This is because the Earth travels on an elliptical orbit around the Sun. The distance between the two bodies varies from 147 to 152 million kilometres.
- **The Sun is middle-aged.**
  At around 4.6 billion years old, the Sun has already burned off about half of its store of Hydrogen. It has enough left to continue to burn Hydrogen for approximately 5 billion years. The Sun is currently a type of star known as a Yellow Dwarf.
- **The Sun has a very strong magnetic field.**
  Magnetic energy released by the Sun during magnetic storms causes solar flares. We see these as sunspots. In sunspots, the magnetic lines twist and they spin, much like a tornado would on Earth.
- **The Sun generates solar wind.**
  The wind is a stream of charged particles. This travels at approximately 450 kilometres per second through the solar system. Solar wind occurs when the magnetic field of the Sun extends into space.
- **Sol is the Latin for Sun**
  This is where the word "solar" comes from, which is used to describe things that are derived from, related to, or caused by the Sun

WOW!

Now let us get out of here before we get burnt. Next we head to Mercury, a planet named after the ancient Roman messenger god!

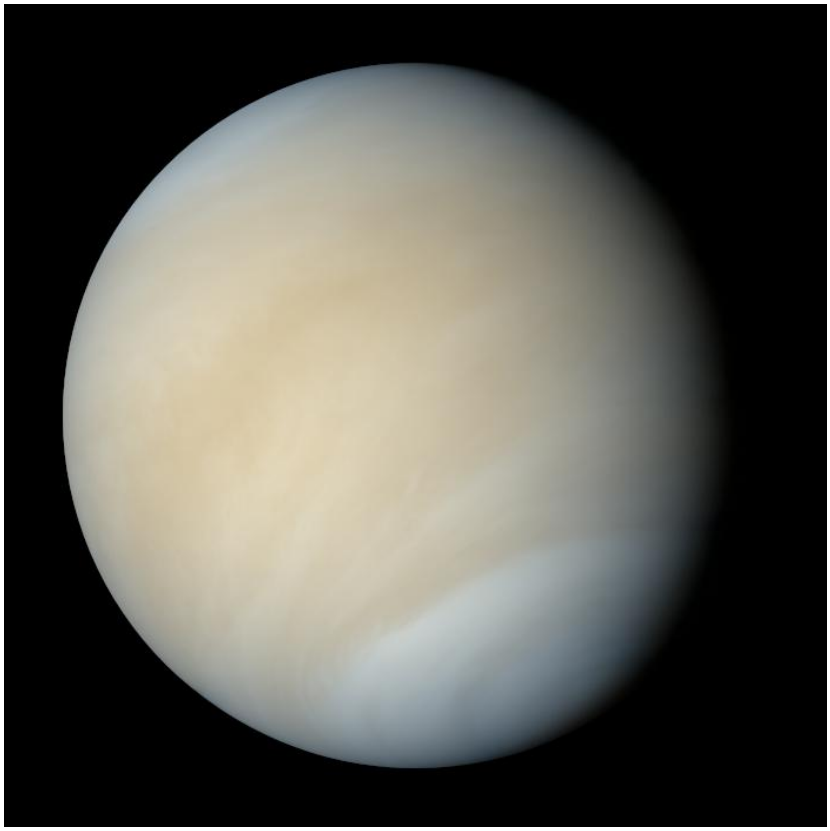


- **Mercury does not have any moons or rings.**
- **Mercury is the smallest planet.**
- **Mercury is the closest planet to the Sun.**
- **Your weight on Mercury would be 38% of your weight on Earth.**
- **A day on the surface of Mercury lasts 176 Earth days.**
- **A year on Mercury takes 88 Earth days.**
- **It's not known who discovered Mercury.**

- **A year on Mercury is just 88 days long.**
  One solar day (the time from noon to noon on the planet's surface) on Mercury lasts the equivalent of 176 Earth days while the sidereal day (the time for 1 rotation in relation to a fixed point) lasts59 Earth days. Mercury is nearly tidally locked to the Sun and over time this has slowed the rotation of the planet to almost match its orbit around the Sun. Mercury also has the highest orbital eccentricity of all the planets with its distance from the Sun ranging from 46 to 70 million km.
- **Mercury is the smallest planet in the Solar System.**
  One of five planets visible with the naked eye a, Mercury is just 4,879 Kilometres across its equator, compared with 12,742 Kilometres for the Earth.
- **Mercury has wrinkles.**
  As the iron core of the planet cooled and contracted, the surface of the planet became wrinkled. Scientist have named these wrinkles, Lobate Scarps. These Scarps can be up to a mile high and hundreds of miles long.
- **Mercury has a molten core.**
  In recent years scientists from NASA have come to believe the solid iron core of Mercury could in fact be molten. Normally the core of smaller planets cools rapidly, but after extensive research, the results were not in line with those expected from a solid core. Scientists now believe the core to contain a lighter element such as sulphur, which would lower the melting temperature of the core material. It is estimated Mercury's core makes up 42% of its volume, while the Earth's core makes up 17%.
- **Mercury is only the second hottest planet.**
  Despite being further from the Sun, Venus experiences higher temperatures. The surface of Mercury which faces the Sun sees temperatures of up to 427°C, whilst on the alternate side this can be as low as -173°C. This is due to the planet having no atmosphere to help regulate the temperature.

OKAY TIME TO MOVE ON. I DON'T THINK I WANT TO STAY ON MERCURY LONG!

VENUS NEXT….



- **Venus does not have any moons or rings.**
- **Venus is nearly as big as the Earth with a diameter of 12,104 km.**
- **Venus is thought to be made up of a central iron core, rocky mantle and silicate crust.**
- **A day on the surface of Venus (solar day) would appear to take 117 Earth days.**
- **A year on Venus takes 225 Earth days.**
- **The surface temperature on Venus can reach 471 °C.**
- **A day on Venus lasts longer than a year.**
  It takes 243 Earth days to rotate once on its axis (sidereal day). The planet's orbit around the Sun takes 225 Earth days, compared to the Earth's 365. A day on the surface of Venus (solar day) takes 117 Earth days.
- **Venus rotates in the opposite direction to most other planets.**
  This means that Venus is rotating in the opposite direction to the Sun, this is also known as a retrograde rotation. One possible reason for this might be a collision with an asteroid or other object.
- **Venus is often called the Earth's sister planet.**
  The Earth and Venus are very similar in size with only a 638 km difference in diameter and Venus having 81.5% of the Earth's mass. Both also have a central core, a molten mantle and a crust.
- **The same side of Venus always faces the Earth when at their closest.**
  It is possible this is due to the Earth's gravational influence.
- **Venus is also known as the Morning Star and the Evening Star.**
  Early civilisations thought Venus was two different bodies. These were called Phosphorus and Hesperus by the Greeks, and Lucifer and Vesper by the Romans. When Venus' orbit around the Sun overtakes Earth's orbit, it changes from being visible after sunset to being visible before sunrise. Mayan astronomers made detailed observations of Venus as early as 650 AD.

- **Venus is the hottest planet in our solar system.**
  The average surface temperature is 462 °C, and because Venus does not tilt on its axis, there is no seasonal variation. The dense atmosphere of around 96.5 percent carbon dioxide traps heat and causes a greenhouse effect.

MUCH TOO HOT HERE AGAIN, LET'S HEAD TO HOME SWEET HOME…

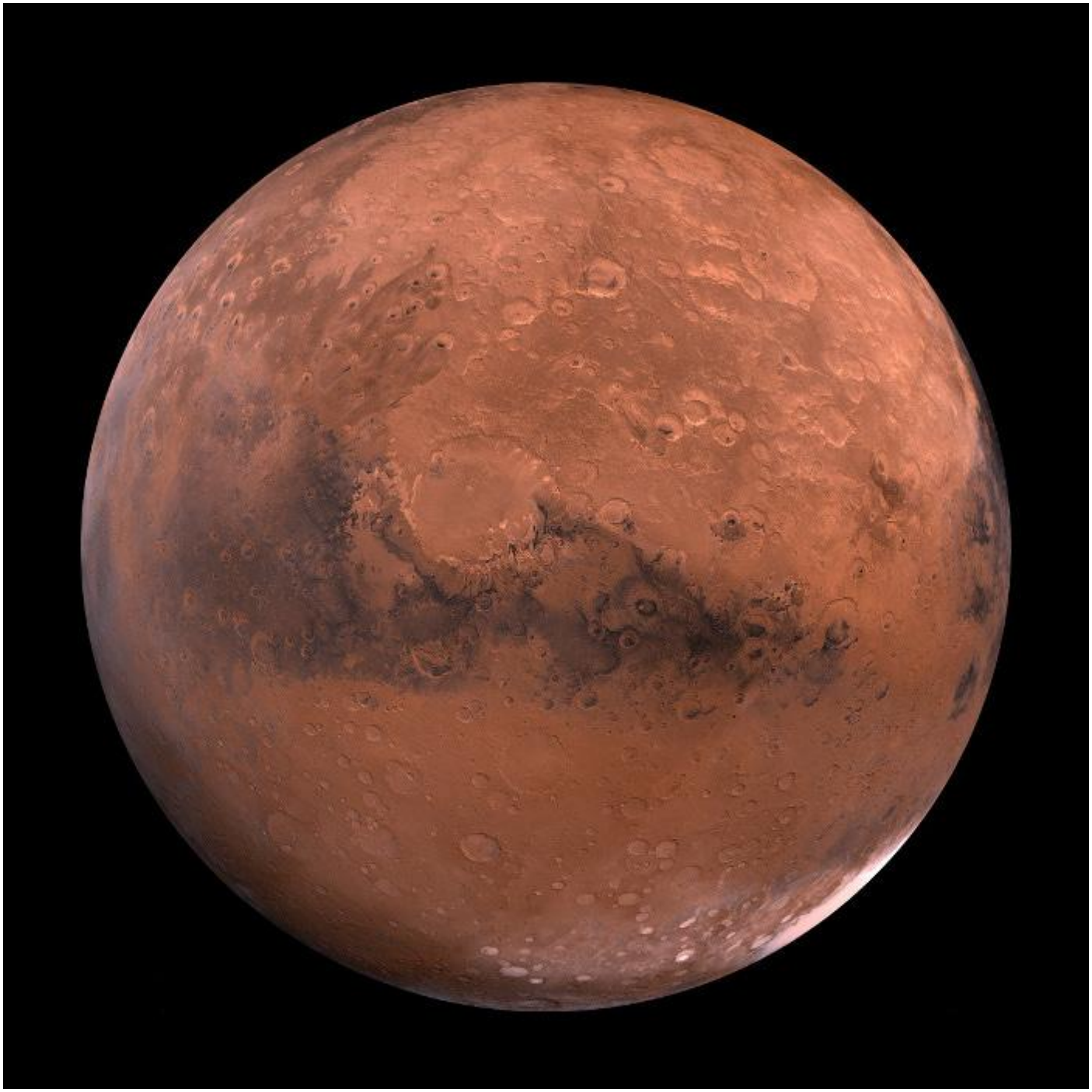
WHAT A BEAUTIFUL PLANET!

Earth is the third planet from the Sun and is the largest of the terrestrial planets. The Earth is the only planet in our solar system not to be named after a Greek or Roman deity. The Earth was formed approximately 4.54 billion years ago and is the only known planet to support life.

- **The Earth's rotation is gradually slowing.**
  This deceleration is happening almost imperceptibly, at approximately 17 milliseconds per hundred years, although the rate at which it occurs is not perfectly uniform. This has the effect of lengthening our days, but it happens so slowly that it could be as much as 140 million years before the length of a day will have increased to 25 hours.
- **The Earth was once believed to be the centre of the universe.**
  Due to the apparent movements of the Sun and planets in relation to their viewpoint, ancient scientists insisted that the Earth remained static, whilst other celestial bodies travelled in circular orbits around it. Eventually, the view that the Sun was at the centre of the universe was postulated by Copernicus, though this is also not the case.
- **Earth has a powerful magnetic field.**
  This phenomenon is caused by the nickel-iron core of the planet, coupled with its rapid rotation. This field protects the Earth from the effects of solar wind.
- **There is only one natural satellite of the planet Earth.**
  As a percentage of the size of the body it orbits, the Moon is the largest satellite of any planet in our solar system. In real terms, however, it is only the fifth largest natural satellite.
- **Earth is the only planet not named after a god.**
  The other seven planets in our solar system are all named after Roman gods or goddesses. Although only Mercury, Venus, Mars, Jupiter and Saturn were named during ancient times, because they were visible to the naked eye, the Roman method of naming planets was retained after the discovery of Uranus and Neptune.

IT IS REALLY NICE HERE, HOWEVER WE HAVE EXPLORING TO DO! ONWARDS TO THE RED PLANET…

MARS!



Mars is the fourth planet from the Sun and is the second smallest planet in the solar system. Named after the Roman god of war, Mars is also often described as the "Red Planet" due to its reddish appearance. Mars is a terrestrial planet with a thin atmosphere composed primarily of carbon dioxide.

- **Mars and Earth have approximately the same landmass.**
  Even though Mars has only 15% of the Earth's volume and just over 10% of the Earth's mass, around two thirds of the Earth's surface is covered in water. Martian surface gravity is only 37% of the Earth's (meaning you could leap nearly three times higher on Mars).

- **Mars is home to the tallest mountain in the solar system.**
  Olympus Mons, a shield volcano, is 21km high and 600km in diameter. Despite having formed over billions of years, evidence from volcanic lava flows is so recent many scientists believe it could still be active.
- **Only 18 missions to Mars have been successful.**
  As of September 2014 there have been 40 missions to Mars, including orbiters, landers and rovers but not counting flybys. The most recent arrivals include the Mars Curiosity mission in 2012, the MAVEN mission, which arrived on September 22, 2014, followed by the Indian Space Research Organization's MOM Mangalyaan orbiter, which arrived on September 24, 2014. The next missions to arrive will be the European Space Agency's ExoMars mission, comprising an orbiter, lander, and a rover, followed by NASA's InSight robotic lander mission, slated for launch in March 2016 and a planned arrival in September, 2016.
- **Mars has the largest dust storms in the solar system.**
  They can last for months and cover the entire planet. The seasons are extreme because its elliptical (oval-shaped) orbital path around the Sun is more elongated than most other planets in the solar system.
- **On Mars the Sun appears about half the size as it does on Earth.**
  At the closest point to the Sun, the Martian southern hemisphere leans towards the Sun, causing a short, intensely hot summer, while the northern hemisphere endures a brief, cold winter: at its farthest point from the Sun, the Martian northern hemisphere leans towards the Sun, causing a long, mild summer, while the southern hemisphere endures a lengthy, cold winter.
- **Pieces of Mars have fallen to Earth.**
  Scientists have found tiny traces of Martian atmosphere within meteorites violently ejected from Mars, then orbiting the solar system amongst galactic debris for millions of years, before crash landing on Earth. This allowed scientists to begin studying Mars prior to launching space missions.
- **Mars takes its name from the Roman god of war.**
  The ancient Greeks called the planet Ares, after their god of war; the Romans then did likewise, associating the planet's blood-red colour with Mars, their own god of war. Interestingly, other ancient cultures also focused on colour – to China's astronomers it was 'the fire star', whilst Egyptian priests called on 'Her Desher', or 'the red one'. The red colour Mars is known for is due to the rock and dust covering its surface being rich in iron.
- **There are signs of liquid water on Mars.**
  For years Mars has been known to have water in the form of ice. The first signs of trickling water are dark stripes or stains on crater wall and cliffs seen in satellite images. Due to Mars' atmosphere this water would have to be salty to prevent it from freezing or vaporising.
- **One day Mars will have a ring.**
  In the next 20-40 million years Mars' largest moon Phobos will be torn apart by

gravitational forces leading to the creation of a ring that could last up to 100 million years.

- **Sunsets on Mars are blue.**
  During the martian day the sky is pinkish-red, this is the opposite of the Earth's skies.

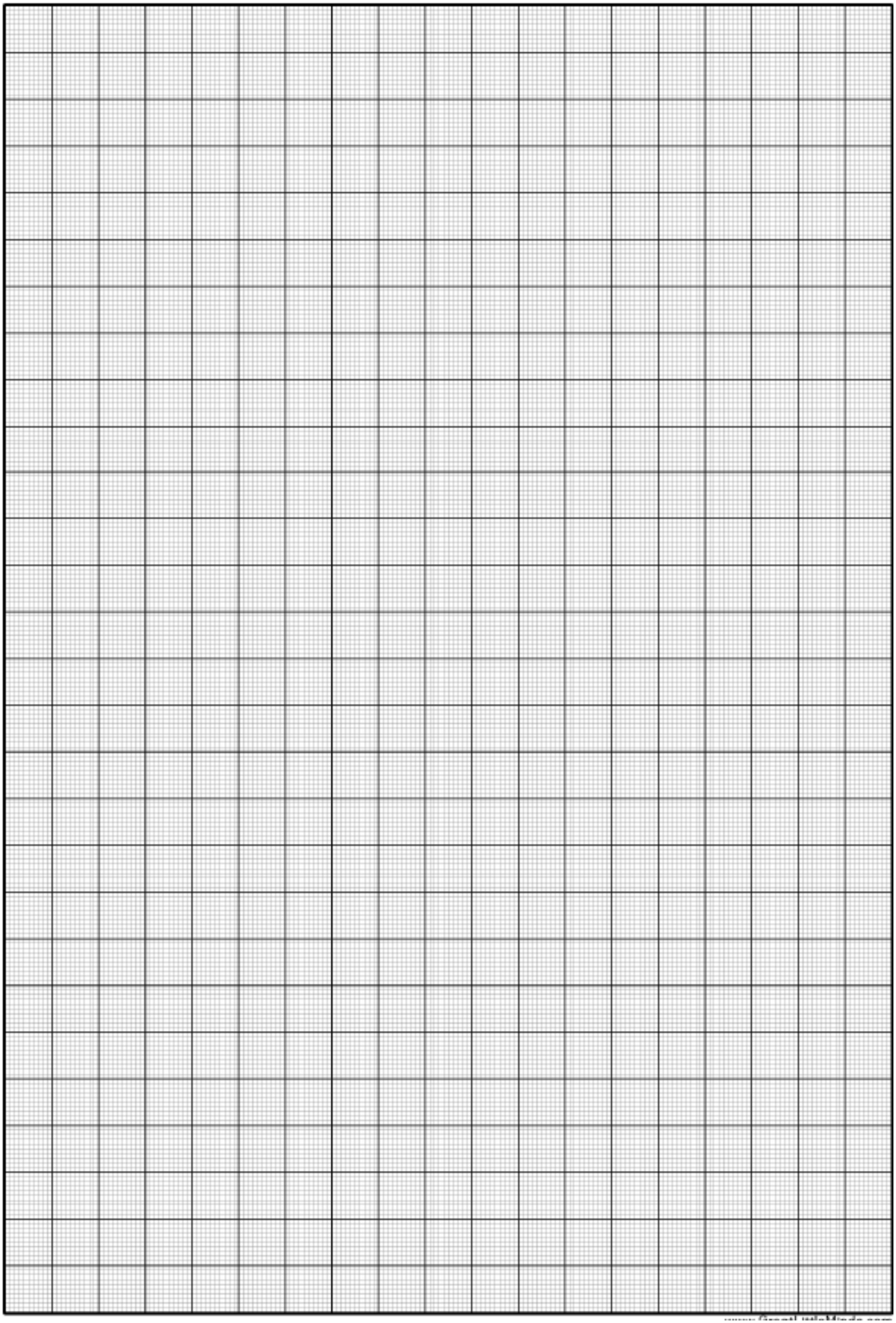
WE HAVE HAD A LOT OF INFORMATION SO FAR! SO WE WILL VISIT THE GAS GIANTS NEXT TIME. FOR NOW I AM GOING TO SETTLE DOWN AND WATCH THE BLUE SUNSET ON MARS.

Producing graphs about the planets

Use the data below to plot a graph showing the average temperature of each planet.

Planet	Average Temperature (on sunny side) °C
Mercury	430
Venus	470
Earth	20
Mars	-20
Jupiter	-150
Saturn	-180
Uranus	-210
Neptune	-220
Pluto	-230

1. What is the overall pattern of your results?
2. Which Planet is the hottest planet?
3. Which Planet is the coldest planet?
4. Where would you expect a planet to be if it had a day temperature of 0°C
5. Were there any results that did not fit that pattern? Can you explain this?



Arithmetic practice test 6

Name:_____

Date_____

1	1024 + 3463		
2	5839-120		
3	__ + 77 = 87		
4	55 - __ = 3		
5	80 x 800		
6	$\frac{4}{11} + \frac{5}{11}$		
7	3.39 ÷ 10		
8	6^2		
9	0.5 + 0.1		
10	813 x 3		
11	3619 ÷ 7		
12	0.08– 0.05		
13	$\frac{3}{6} - \frac{2}{6}$		
14	185 x 87		
15	721 x 24		
16	$\frac{7}{10} - \frac{1}{2}$		
17	1.3 x 6.3		
18	963179-619148		

19	8853016+ 1583062		
20	11– 0.019		
21	1291 x 23		
22	$\frac{1}{2} \times 9$		
23	1337 x 7		
24	204 ÷ 6		
25	$4\frac{1}{6} \times 5$		
26	47.68 cm in mm		
27	10% of 4.6		
28	2039 x 73		
29	60.25 x 100		
30	$^1/_4$ of 32		
31	75 + 10		
32	303,291-10,000		
33	$\frac{2}{10} + \frac{1}{2}$		
34	$\frac{1}{10}$ of ___ is 4		
35	__ ÷10 = 17		
36	6 x __ = 36		

Things to work on for next time:

Arithmetic practice test 7

Name:_____

Date_____

1	8922 + 321		
2	4882-495		
3	__ + 86 = 147		
4	50 - __ = 32		
5	500 x 70		
6	$\frac{1}{8} + \frac{5}{8}$		
7	0.43 ÷ 10		
8	7^2		
9	0.5 + 0.3		
10	386 x 5		
11	914 ÷ 2		
12	0.1– 0.03		
13	$\frac{8}{9} - \frac{2}{9}$		
14	885 x 44		
15	549 x 20		
16	$\frac{3}{4} - \frac{7}{10}$		
17	2.7 x 7.3		
18	273373-102161		

19	73585+ 35107		
20	5-0.07		
21	2257 x 87		
22	$\frac{3}{5} \times 10$		
23	2018 x 5		
24	306 ÷ 9		
25	$5 \times 5\frac{1}{8}$		
26	653.6 mm in cm		
27	50% of 38		
28	1346 x 30		
29	67.25 x100		
30	$^1/_9$ of 36		
31	103 + 10		
32	584,831– 100		
33	$\frac{1}{2} + \frac{2}{3}$		
34	$\frac{6}{12}$ of ___ is 108		
35	__ ÷9 = 16		
36	36 = __ x 18		

Things to work on for next time:

Equivalent Fractions

Step 1

Equivalent fractions are fractions worth the same amount, but are written in different terms.

For example:

$\frac{1}{3}$

$\frac{2}{6}$

$\frac{4}{12}$

Step 2

To find an equivalent fraction, you find a pattern between either the numerators or denominators that have been given.

$\frac{1}{3} = \frac{\ }{21}$ (X 7)

$\frac{18}{20} = \frac{9}{\ }$ (÷ 2)

Step 3

Whatever the pattern is for the denominator/numerator, is the same for the missing part.

"Whatever we do to the top, we do to the bottom" and vice versa.

$\frac{1}{3} = \frac{7}{21}$ (X 7 / X 7)

$\frac{18}{20} = \frac{9}{10}$ (÷ 2 / ÷ 2)

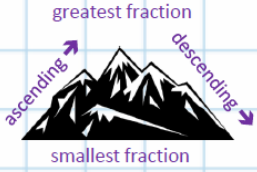
Original	Equivalent	Equivalent
$\frac{2}{5}$	$\frac{\ }{10}$	$\frac{\ }{25}$
$\frac{12}{20}$	$\frac{3}{\ }$	$\frac{\ }{10}$
$\frac{4}{16}$	$\frac{\ }{4}$	$\frac{8}{\ }$
$\frac{6}{10}$	$\frac{\ }{5}$	$\frac{9}{\ }$
$\frac{3}{4}$	$\frac{\ }{20}$	$\frac{12}{\ }$
$\frac{1}{2}$	$\frac{\ }{50}$	$\frac{13}{\ }$
$\frac{1}{5}$	$\frac{4}{\ }$	$\frac{\ }{55}$
$\frac{16}{30}$	$\frac{8}{\ }$	$\frac{\ }{300}$
$\frac{3}{9}$	$\frac{1}{\ }$	$\frac{6}{\ }$
$\frac{6}{8}$	$\frac{\ }{4}$	$\frac{\ }{36}$
$\frac{2}{14}$	$\frac{1}{\ }$	$\frac{\ }{21}$
$\frac{30}{50}$	$\frac{3}{\ }$	$\frac{\ }{30}$
$\frac{86}{100}$	$\frac{\ }{50}$	$\frac{860}{\ }$

Compare & Order Fractions

Step 1

Convert all fractions into equivalent fractions, this will make it the easiest to compare and/or order them.

$\frac{1}{3}$ (X 6) $\frac{6}{18}$ $\quad$ $\frac{5}{6}$ (X 3) $\frac{15}{18}$ $\quad$ $\frac{4}{9}$ (X 2) $\frac{8}{18}$



Step 2 - Ordering

Once converted into equivalent fractions, look at the numerators (top number) which will tell you the order to put them in. Convert them back to their original fractions.

Smallest to Largest

$\frac{6}{18}, \frac{8}{18}, \frac{15}{18}$ In the original fractions: $\frac{1}{3}, \frac{4}{9}, \frac{5}{6}$

Largest to Smallest

$\frac{15}{18}, \frac{8}{18}, \frac{6}{18}$ In the original fractions: $\frac{5}{6}, \frac{4}{9}, \frac{1}{3}$

Step 3 - Comparing

To compare, again, look at the numerators (top number) to tell you which symbol to use. Remember to write them in their original fraction.

$\frac{6}{18} < \frac{8}{18}$ In the original fractions: $\frac{1}{3} < \frac{4}{9}$

$\frac{15}{18} > \frac{6}{18}$ In the original fractions: $\frac{5}{6} > \frac{1}{3}$

Put the following fractions in **ascending order**

$\frac{8}{10}$	$\frac{12}{20}$	$\frac{2}{5}$

$\frac{2}{3}$	$\frac{7}{12}$	$\frac{3}{4}$

Put the following fractions in **descending order**

$\frac{3}{6}$	$\frac{5}{9}$	$\frac{2}{3}$

$\frac{2}{5}$	$\frac{1}{2}$	$\frac{3}{10}$

Use >, < or = to compare these fractions.

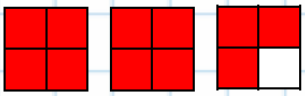
$\frac{2}{5}$		$\frac{1}{2}$
$\frac{5}{7}$		$\frac{2}{3}$
$\frac{8}{10}$		$\frac{4}{5}$

Converting Improper Fractions To Mixed Numbers

Step 1

An improper fraction is a fraction where the numerator (top number) is bigger than the denominator (bottom number).

$11/4$



Step 2

The denominator tells us how many pieces make 1 whole. If we divide the numerator by the denominator we will know how many wholes we have.

11 ÷ 4 = 2 r3

We can make 2 wholes.

Step 3

The remainder is our fraction part of our mixed number.

So r3 becomes $3/4$

Step 4

Our final answer is our whole number and fraction together.

$11/4$ = 2 $3/4$

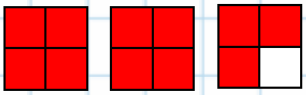
Improper Fraction	Mixed Number
$11/4$	
$8/5$	
$10/3$	
$23/6$	
$34/8$	
$11/10$	
$30/9$	
$7/2$	
$31/4$	
$69/7$	
$18/5$	
$19/6$	
$52/11$	

Converting Mixed Numbers to Improper Fractions

Step 1

A mixed number is a combination of whole numbers and fractions.

2 $3/4$



Step 2

Multiply the denominator (bottom number) by the whole number. This will tell you how many (numerator) for the whole number.

4 x 2 = 8

Step 3

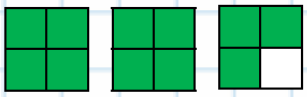
Add the numerator of your fraction to your answer. This will give your total numerator.

8 + 3 = 11

Step 4

Write your answer as a numerator over the existing denominator.

$11/4$



$4/4$ + $4/4$ + $3/4$

Mixed Number	Improper Fraction
1 $5/6$	
3 $1/4$	
1 $3/7$	
2 $2/4$	
5 $1/3$	
3 $2/5$	
2 $4/5$	
4 $3/4$	
3 $1/3$	
3 $6/8$	
8 $2/6$	
5 $6/7$	
4 $3/9$	

Adding Fractions

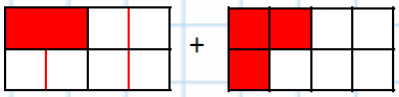
Step 1

Convert both fractions to the same denominator by finding equivalent fractions.

x2

$^1/_4 + {}^3/_8 = {}^2/_8 + {}^3/_8$

x2



Step 2

Add the numerators together ***but not the denominators.***

$^2/_8 + {}^3/_8 = {}^5/_8$

Step 3

Simplify the answer if you can.

$^5/_8$ cannot be simplified as the only factor they share is 1.

However:

$^{12}/_{20}$ the example answer can be simplified.

÷4

$^{12}/_{20} = {}^3/_5$

÷4

	Convert Question to Same Denominator	Answer
$^1/_4 + {}^7/_{20} =$	(x5) $^5/_{20} + {}^7/_{20} =$	$= {}^{12}/_{20}$ or $^3/_5$
$^1/_3 + {}^1/_6 =$		
$^1/_3 + {}^2/_9 =$		
$^5/_8 + {}^1/_4 =$		
$^3/_5 + {}^1/_{10} =$		
$^7/_{15} + {}^1/_5 =$		
$^2/_3 + {}^5/_{24} =$		
$^3/_5 + {}^1/_4 =$		
$^1/_2 + {}^2/_5 =$		
$^2/_3 + {}^1/_4 =$		
$^3/_5 + {}^3/_8 =$		
$^3/_8 + {}^2/_7 =$		
$^5/_{11} + {}^3/_7 =$		

Converting between Units of Time

Units of Time	
60 seconds = 1 minute 60 minutes = 1 day 24 hours = 1 day	7 days = 1 week 12 months = 1 year 365 days = 1 year

Step 1

Write out the measurements that you need, thinking of how many go into 1 of the other. For example, if converting seconds to minutes, we need to know how many seconds are in a minute.

60 seconds = 1 minute

Step 2

Add arrows showing how you get to each value from the other.

X 60

60 seconds = 1 minute

÷ 60

Step 3

You can then use these calculations to work out your answer.

What is 240 seconds in minutes?

To get from seconds to minutes we need to ÷ 60 so we need to divide 240 by 60.

240 seconds = 4 minutes

Question	Answer
What is 360 seconds in minutes?	
What is 300 minutes in hours?	
What is 86 minutes in seconds?	
What is 60 months in years?	
What is 7 minutes in seconds?	
What is 3 hours in minutes?	
What is 3 ½ minutes in seconds?	
What is 28 days in weeks?	
What is 480 minutes in hours?	
What is 13 weeks in days?	
What is 100 minutes in hours and minutes?	
What is 5 ½ hours in minutes?	
What is 3 years in days?	

Regular & Irregular Polygons

Step 1

A polygon can be defined as a 2D shape with 3 or more straight sides. Triangles, quadrilaterals, pentagons, hexagons etc. are all polygons.

For a shape to be classed as a regular polygon, all sides and angles must be equal to each other.

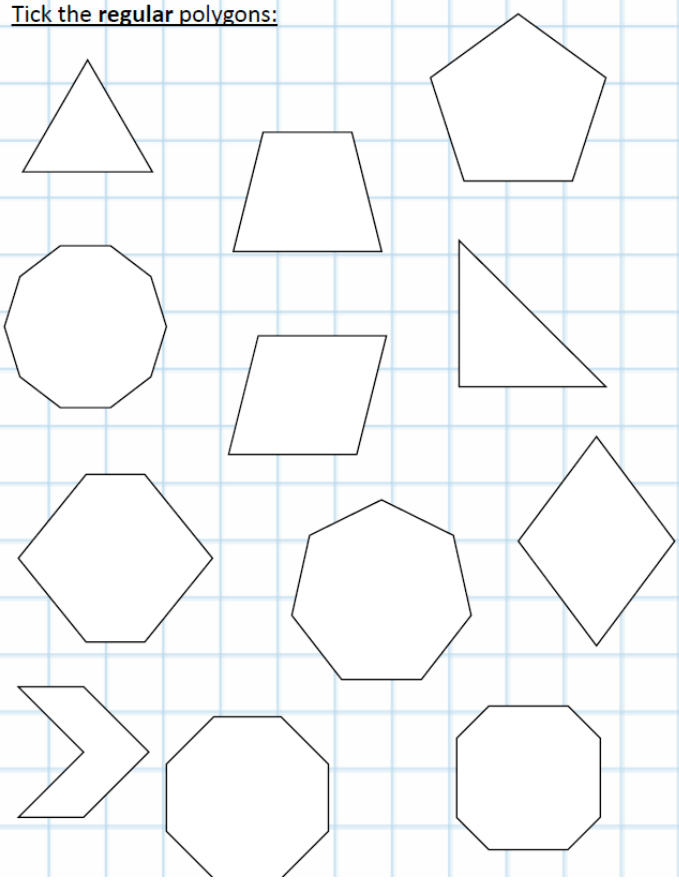
A square is classed as a **regular** polygon, as all sides must be the same length for it to be considered a square, and all angles equal 90°.

Step 2

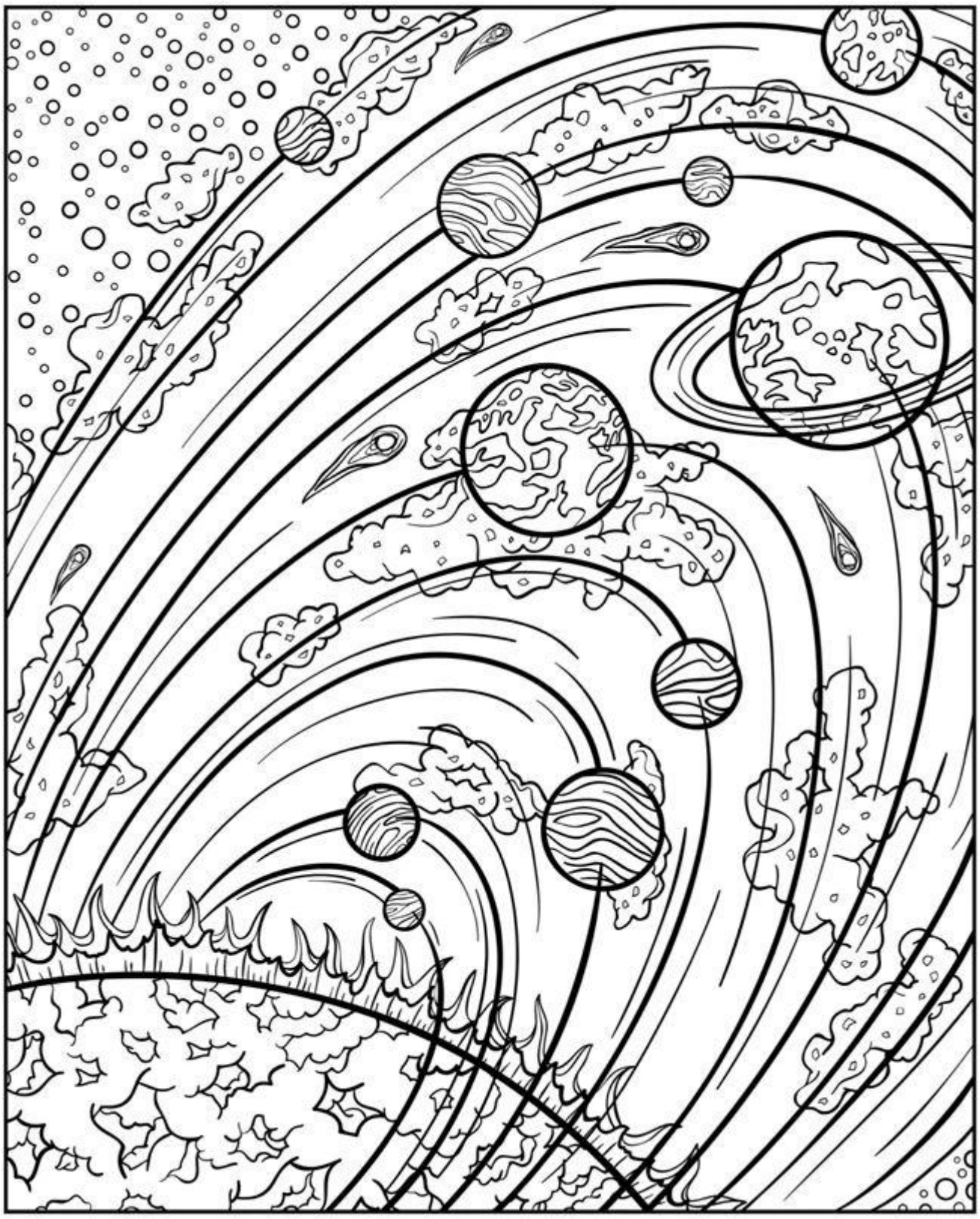
An irregular polygon, is a shape where 1 or more side and/or angle is different to the others.

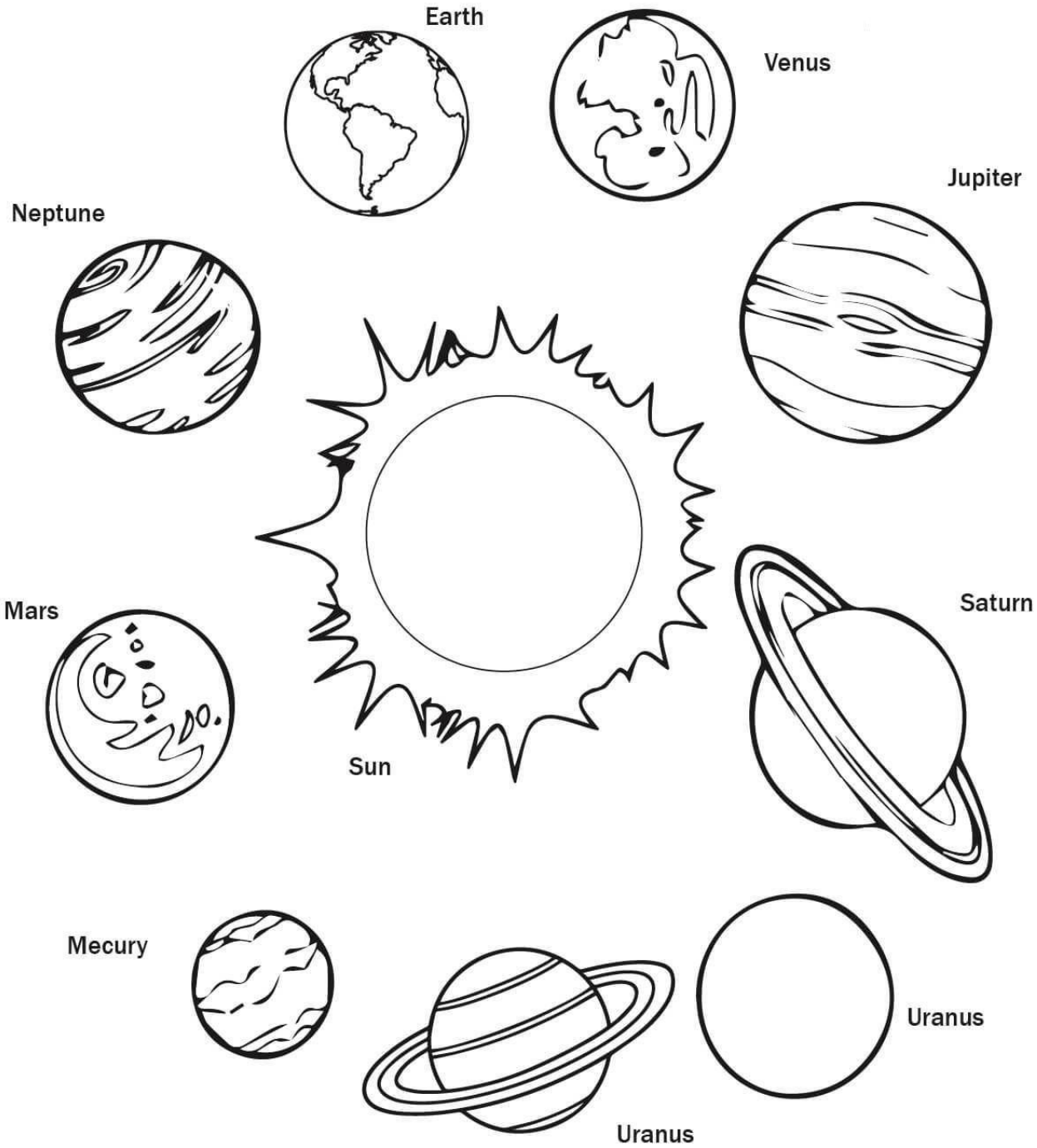
A rectangle is considered an **irregular** polygon, as it has 2 sides that are longer than the others. Even though all angles are equal, it is still **irregular**.

Tick the **regular** polygons:

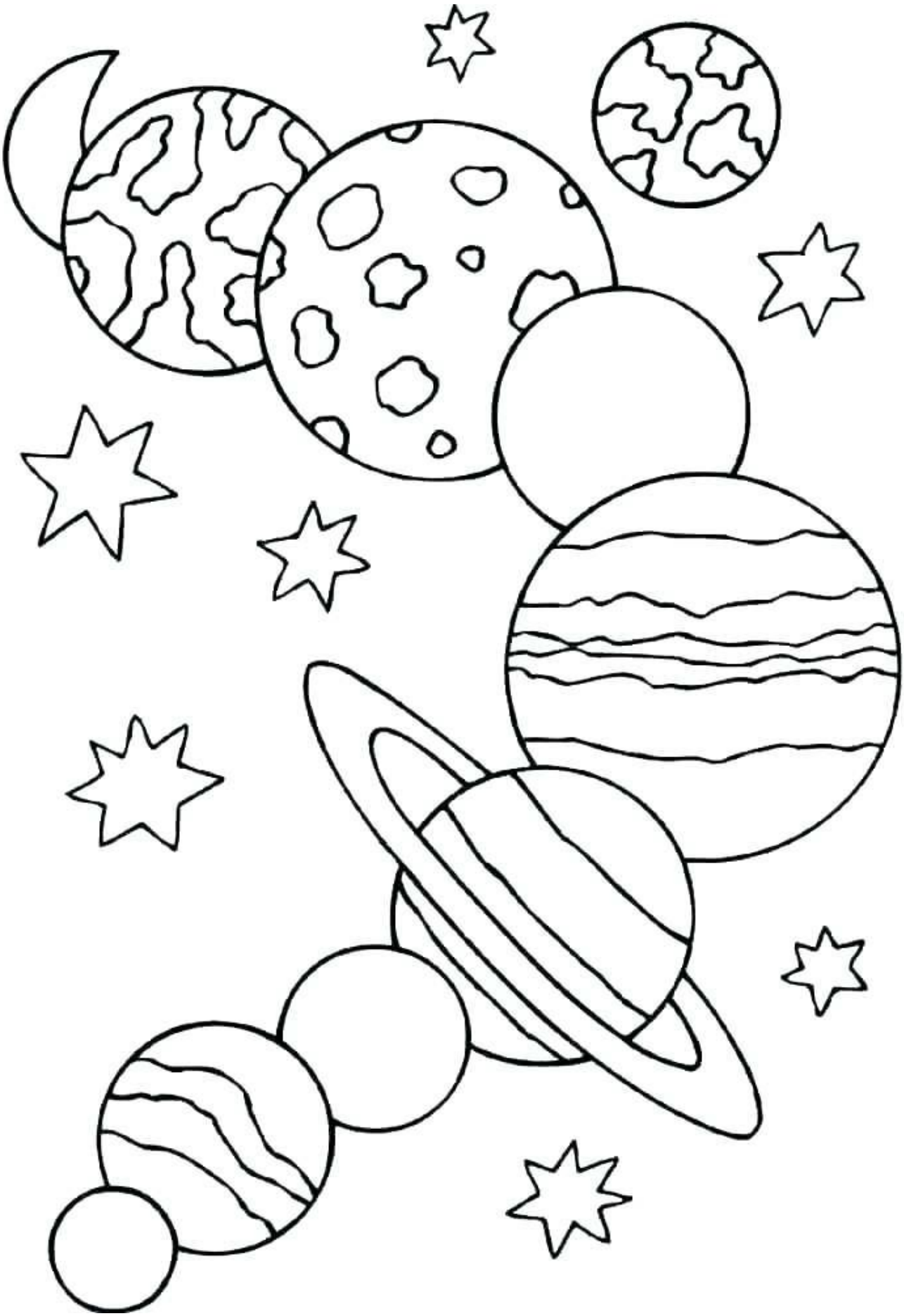


Some tricky colouring for you all!





Solar System



Name: _____

Date: _____

Solar System Word Search

Find the related words.

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

Earth	Telescope	Star	Moon	Mars
Neptune	Saturn	Satellite	Jupiter	Galaxy
Sunspot	Light-Year	Sun	Uranus	Nova
Asteroid	Meteor	Solar Wind	Pluto	Galileo Galilei
Coma	Comet	Venus	Crater	Mercury

Find one word that can complete both sentences below.

Write the word in the box.

1) Tomorrow, we are going to watch a _____ at the theatre.

My friend Tomas is coming over to _____ tennis later.

2) I need to get some money from the _____.

Ducks live on the river _____.

3) Ouch! That ant just _____ me!.

Would you like a little _____ of cake?

4) I know that you are _____ to me!.

I love _____ on the beach in the summer.

5) I think you got a _____share.

Are you going to the book _____ after school?

6) Tomorrow should be a _____ day.

He was given a _____ for driving too fast.

Write a **contraction** to replace the underlined words in each sentence below.

a) I will ask her to phone you later.

_____ ask her to phone you later.?

b) Oliver could not eat another bite of his dinner.

Oliver _____ eat another bite of his dinner

c) You are really going to enjoy the movie.

_____ really going to enjoy the movie.

d) You should not run in the corridor.

You _____ run in the corridor.

e) I do not think that is the correct answer.

I ..... think that is the correct answer.

f) Where is the remote control for the TV?

.....the remote control for the TV?

g) I have never seen that skateboard move before

.....never seen that skateboard move before

h) We did not go shopping this afternoon.

We .....go shopping this afternoon.

Turn these sentences into <u>direct speech</u> - including inverted commas/quotation marks/speech marks in the new sentence.

Example

She said that she hated me.

"I hate you," she said.

1) Mrs Morgan claimed that the Summer Fair would be a success.

……

……

……

2) Mr Woodley shouted at the boy to stop running in the hall.

……

……

……

3) Jim laughed at Sarah, saying her dress was silly.

……

……

……

4) Emma told Eddie that he could not come to the party.

.....

.....

.....

5) Sally complained that her shoes were too tight.

.....

.....

.....

6) Chris mumbled that he felt sick.

.....

.....

.....

7) Joe exclaimed that he won the match!

.....

.....

.....

8) Carol offered to cook the dinner.

.....

.....

.....

9) Peter told his mum that he did not want to eat his cabbage.

.....

.....

.....

10) Mr McNally told his class that they were being far too noisy.

.....

.....

.....

11) Hayley shouted at the dog to stop barking.

.....

.....

.....

12) The fireman begged the cat to come down from the tree.

.....

.....

.....13) My brother said that he would get me a book for my birthday.

.....

.....

.....

14) My teacher said that I had put a lot of effort into my work.

.....

.....

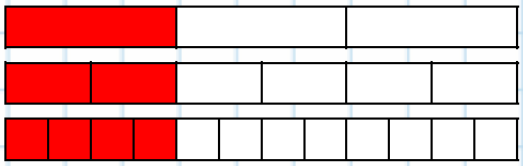
.....

Equivalent Fractions Answers

Step 1

Equivalent fractions are fractions worth the same amount, but are written in different terms.

For example:



Step 2

To find an equivalent fraction, you find a pattern between either the numerators or denominators that have been given.

$1/3 = \ /21$ (X 7)

$18/20 = 9/\ $ (÷ 2)

Step 3

Whatever the pattern is for the denominator/numerator, is the same for the missing part.

"Whatever we do to the top, we do to the bottom" and vice versa.

$1/3 = 7/21$ (X 7)

$18/20 = 9/10$ (÷ 2)

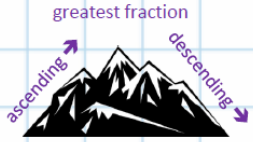
Original	Equivalent	Equivalent
$2/5$	$4/10$	$10/25$
$12/20$	$3/5$	$6/10$
$4/16$	$1/4$	$8/32$
$6/10$	$3/5$	$9/15$
$3/4$	$15/20$	$12/16$
$1/2$	$25/50$	$13/26$
$1/5$	$4/20$	$11/55$
$16/30$	$8/15$	$160/300$
$3/9$	$1/3$	$6/18$
$6/8$	$3/4$	$27/36$
$2/14$	$1/7$	$3/21$
$30/50$	$3/5$	$18/30$
$86/100$	$43/50$	$860/1000$

Compare & Order Fractions Answers

Step 1

Convert all fractions into equivalent fractions, this will make it the easiest to compare and/or order them.

$1/3$ (X 6) $= 6/18$; $5/6$ (X 3) $= 15/18$; $4/9$ (X 2) $= 8/18$



Step 2 - Ordering

Once converted into equivalent fractions, look at the numerators (top number) which will tell you the order to put them in. Convert them back to their original fractions.

Smallest to Largest

$6/18$, $8/18$, $15/18$ — In the original fractions: $1/3$, $4/9$, $5/6$

Largest to Smallest

$15/18$, $8/18$, $6/18$ — In the original fractions: $5/6$, $4/9$, $1/3$

Step 3 - Comparing

To compare, again, look at the numerators (top number) to tell you which symbol to use. Remember to write them in their original fraction.

$6/18 < 8/18$ — In the original fractions: $1/3 < 4/9$

$15/18 > 6/18$ — In the original fractions: $5/6 > 1/3$

Put the following fractions in **ascending order**

$8/10$	$12/20$	$2/5$
$2/5$	$12/20$	$8/10$
$2/3$	$7/12$	$3/4$
$7/12$	$2/3$	$3/4$

Put the following fractions in **descending order**

$3/6$	$5/9$	$2/3$
$2/3$	$5/9$	$3/6$
$2/5$	$1/2$	$3/10$
$1/2$	$2/5$	$3/10$

Use >, < or = to compare these fractions.

$2/5$	<	$1/2$
$5/7$	>	$2/3$
$8/10$	=	$4/5$

Converting Improper Fractions To Mixed Numbers Answers

Step 1

An improper fraction is a fraction where the numerator (top number) is bigger than the denominator (bottom number).

$^{11}/_{4}$ 

Step 2

The denominator tells us how many pieces make 1 whole. If we divide the numerator by the denominator we will know how many wholes we have.

11 ÷ 4 = 2 r3 (We can make 2 wholes.)

Step 3

The remainder is our fraction part of our mixed number.

So r3 becomes $^{3}/_{4}$

Step 4

Our final answer is our whole number and fraction together.

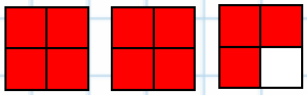
$^{11}/_{4}$ = 2 $^{3}/_{4}$

Improper Fraction	Mixed Number
$^{11}/_{4}$	2 $^{3}/_{4}$
$^{8}/_{5}$	1 $^{3}/_{5}$
$^{10}/_{3}$	3 $^{1}/_{3}$
$^{23}/_{6}$	3 $^{5}/_{6}$
$^{34}/_{8}$	4 $^{2}/_{8}$
$^{11}/_{10}$	1 $^{1}/_{10}$
$^{30}/_{9}$	3 $^{3}/_{9}$
$^{7}/_{2}$	3 $^{1}/_{2}$
$^{31}/_{4}$	7 $^{3}/_{4}$
$^{69}/_{7}$	9 $^{6}/_{7}$
$^{18}/_{5}$	3 $^{3}/_{5}$
$^{19}/_{6}$	3 $^{1}/_{6}$
$^{52}/_{11}$	4 $^{8}/_{11}$

Converting Mixed Numbers to Improper Fractions Answers

Step 1

A mixed number is a combination of whole numbers and fractions.

2 $^{3}/_{4}$ 

Step 2

Multiply the denominator (bottom number) by the whole number. This will tell you how many (numerator) for the whole number.

4 x 2 = 8

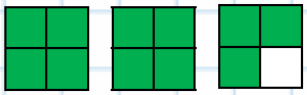
Step 3

Add the numerator of your fraction to your answer. This will give your total numerator.

8 + 3 = 11

Step 4

Write your answer as a numerator over the existing denominator.

$^{11}/_{4}$ 

$^{4}/_{4}$ + $^{4}/_{4}$ + $^{3}/_{4}$

Mixed Number	Improper Fraction
1 $^{5}/_{6}$	$^{11}/_{6}$
3 $^{1}/_{4}$	$^{13}/_{4}$
1 $^{3}/_{7}$	$^{10}/_{7}$
2 $^{2}/_{4}$	$^{10}/_{4}$
5 $^{1}/_{3}$	$^{16}/_{3}$
3 $^{2}/_{5}$	$^{17}/_{5}$
2 $^{4}/_{5}$	$^{14}/_{5}$
4 $^{3}/_{4}$	$^{19}/_{4}$
3 $^{1}/_{3}$	$^{10}/_{3}$
3 $^{6}/_{8}$	$^{30}/_{8}$
8 $^{2}/_{6}$	$^{50}/_{6}$
5 $^{6}/_{7}$	$^{41}/_{7}$
4 $^{3}/_{9}$	$^{39}/_{9}$

Adding Fractions Answers

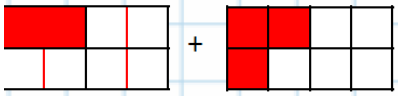
Step 1

Convert both fractions to the same denominator by finding equivalent fractions. Sometimes you may need to change **both** fractions.

x2

$\frac{1}{4} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8}$

x2



Step 2

Add the numerators together ***but not the denominators.***

$\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$

Step 3

Simplify the answer if you can.

$\frac{5}{8}$ cannot be simplified as the only factor they share is 1.

However:

$\frac{12}{20}$ the example answer can be simplified.

÷4

$\frac{12}{20} = \frac{3}{5}$

÷4

	Answer	Simplified
$\frac{1}{4} + \frac{7}{20} =$	(x5) $\frac{5}{20} + \frac{7}{20} =$	$= \frac{12}{20}$ or $\frac{3}{5}$
$\frac{1}{3} + \frac{1}{6} =$	$= \frac{3}{6}$	$= \frac{1}{2}$
$\frac{1}{3} + \frac{2}{9} =$	$= \frac{5}{9}$	
$\frac{5}{8} + \frac{1}{4} =$	$= \frac{7}{8}$	
$\frac{3}{5} + \frac{1}{10} =$	$= \frac{7}{10}$	
$\frac{7}{15} + \frac{1}{5} =$	$= \frac{10}{15}$	$= \frac{2}{5}$
$\frac{2}{3} + \frac{5}{24} =$	$= \frac{21}{24}$	$= \frac{7}{8}$
$\frac{3}{5} + \frac{1}{4} =$	$= \frac{17}{20}$	
$\frac{1}{2} + \frac{2}{5} =$	$= \frac{9}{10}$	
$\frac{2}{3} + \frac{1}{4} =$	$= \frac{11}{12}$	
$\frac{3}{5} + \frac{3}{8} =$	$= \frac{39}{40}$	
$\frac{3}{8} + \frac{2}{7} =$	$= \frac{37}{56}$	
$\frac{5}{11} + \frac{3}{7} =$	$= \frac{68}{77}$	

Converting between Units of Time Answers

Units of Time	
60 seconds = 1 minute 60 minutes = 1 day 24 hours = 1 day	7 days = 1 week 12 months = 1 year 365 days = 1 year

Step 1

Write out the measurements that you need, thinking of how many go into 1 of the other. For example, if converting seconds to minutes, we need to know how many seconds are in a minute.

60 seconds = 1 minute

Step 2

Add arrows showing how you get to each value from the other.

X 60

60 seconds = 1 minute

÷ 60

Step 3

You can then use these calculations to work out your answer.

What is 240 seconds in minutes?

To get from seconds to minutes we need to ÷ 60 so we need to divide 240 by 60.

240 seconds = 4 minutes

Question	Answer
What is 360 seconds in minutes?	6 minutes
What is 300 minutes in hours?	5 hours
What is 86 minutes in seconds?	5160 seconds
What is 60 months in years?	5 years
What is 7 minutes in seconds?	420 seconds
What is 3 hours in minutes?	180 minutes
What is 3 ½ minutes in seconds?	210 seconds
What is 28 days in weeks?	4 weeks
What is 480 minutes in hours?	8 hours
What is 13 weeks in days?	91 days
What is 100 minutes in hours and minutes?	1 hour 40 minutes
What is 5 ½ hours in minutes?	330 minutes
What is 3 years in days?	1095 days

Regular & Irregular Polygons Answers

Step 1

A polygon can be defined as a 2D shape with 3 or more straight sides. Triangles, quadrilaterals, pentagons, hexagons etc. are all polygons.

For a shape to be classed as a regular polygon, all sides and angles must be equal to each other.

A square is classed as a **regular** polygon, as all sides must be the same length for it to be considered a square, and all angles equal 90°.

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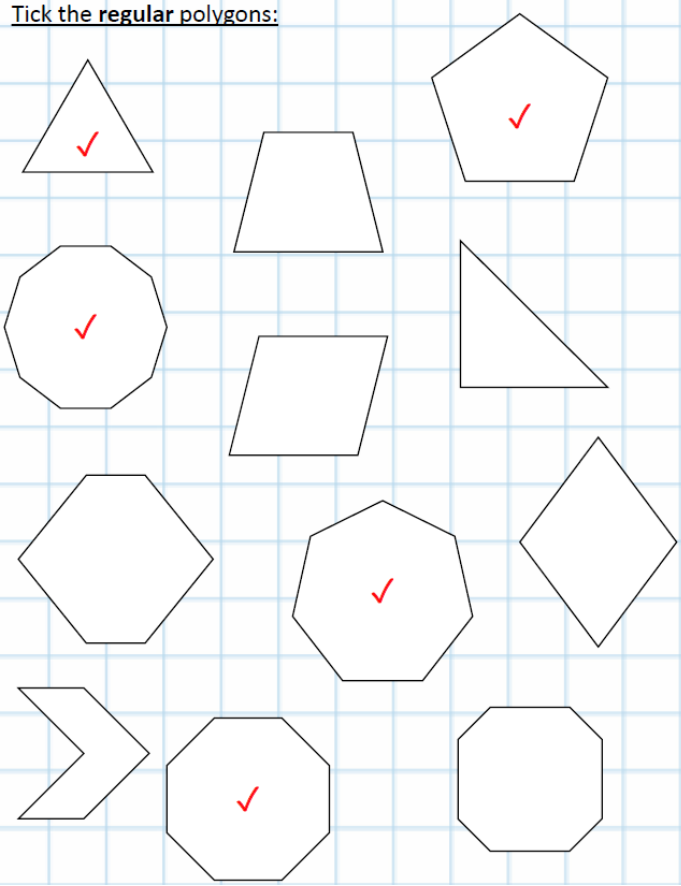
A rectangle is considered an **irregular** polygon, as it has 2 sides that are longer than the others. Even though all angles are equal, it is still **irregular**.

Tick the **regular** polygons:



1	4,487	10	2439	19	10436078	28	148,847
2	5,719	11	517	20	10.981	29	6025
3	10	12	0.03	21	29,693	30	8
4	52	13	1/6	22	9/2 4 1/2	31	85
5	64,000	14	16,095	23	9359	32	293,,291
6	$\frac{9}{11}$	15	17, 304	24	34	33	7/10
7	0.339	16	2/10 or 1/5	25	20 5/6	34	40
8	36	17	8.19	26	476.8 mm	35	170
9	0.6	18	344031	27	0.46	36	6

1	9243	10	1930	19	108692	28	40,380
2	4387	11	457	20	4.93	29	6725
3	71	12	0.07	21	196,359	30	4
4	18	13	6/9	22	30/5 6/1 6	31	113
5	35,000	14	38, 940	23	10,090	32	584,731
6	$\frac{6}{8}$ 3/4	15	10, 980	24	34	33	7/6 1 1/6
7	0.043	16	1/20	25	25 5/8	34	216
8	49	17	19.71	26	65.36 cm	35	144
9	0.8	18	171212	27	19	36	2