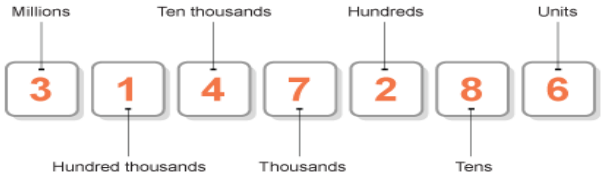
All Saints C of E Primary School Year 6 - Number and place value

By the end of Year Six, children have been taught to:

<table>
<tr><th>Objective</th><th>Why is it important? Things to watch out for!</th><th>Ways to support a Year 6 child</th></tr>
<tr>
<td>Read, write, order and compare numbers up 10 000 000

Recognise the value of numbers up to 10 000 000 and determine the value of each digit</td>
<td>
Reading and writing larger numbers draws heavily on the accumulation of knowledge and skills from previous year groups. Without the understanding of place value and position the next stepping stones cannot be built on.


Children love writing large numbers! Attempting to say them out loud however can sometimes be a challenge for some. Encouraging the use of commas to break up the numbers breaks the number into chunks which encourages children to think more about the position and values.
3,147,286 – counting back three from the last digit enables commas to be put in the right place which then aids reading. Simple facts, like knowing there are seven digits in a millions number, six digits in a hundreds of thousands number, five digits in a tens of thousands numbers and 4 digits in a thousands numbers really helps children rationalise what they can see.
Some challenging values to write correctly:
<table>
<tr><th>I would like you to write this value.</th><th>Child's written response showing miconceptions</th><th rowspan="4">All of these responses are part of the learning pathway for children to be able to accurately read and write larger values.</th></tr>
<tr><td>Thirty three thousand and four (33,004)</td><td>330004</td></tr>
<tr><td>One hundred thousand and twenty four (100,024)</td><td>10024</td></tr>
<tr><td>Four million, six hundred and fourteen thousand and twenty four (4,614,024)</td><td>400000061424</td></tr>
</table>
</td>
<td>
To support your child with this particular area of maths choosing an interesting context to use is always key.
Contexts which have been used in the past at All Saints C of E Primary School to support recognising values of digitis, ordering and comparing are:

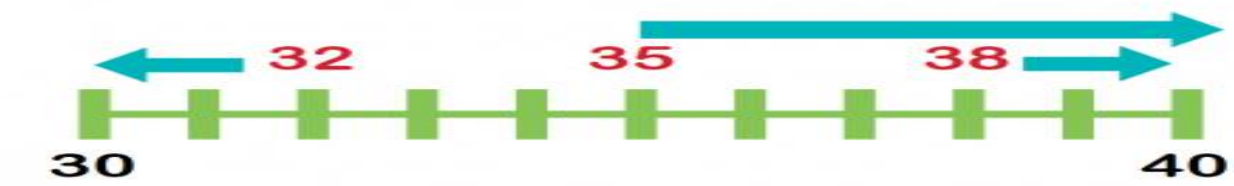
County populations
Town populations
Animal weights
Endangered species lists
Lengths of rivers
Heights of mountains
Prices
Footballers – games played, goals scored, tackles and other football statistics

Whatever your child is interested in there are statistics!

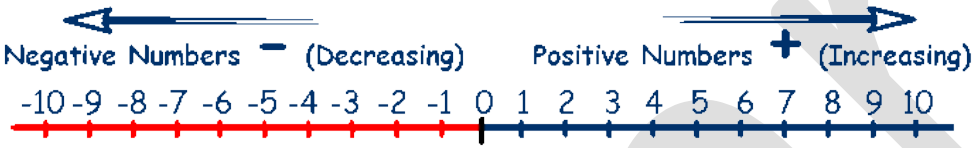
Think about the number 34 567 800.
Say this number aloud.
Round this number to the nearest million.
What does the digit '8' represent?
What does the digit '7' represent?
</td>
</tr>
</table>

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	Ordering and comparing > *greater than* < *less than* = *equal to* For example: 36,485>3,648 Values with the same digits but in different places can be a challenge at times and really test a child to truly show his/her understanding of place value order Such as, place in order: 14675423 1764524 164754 1674543 174654 14732654 Being able to compare values saying which has the greatest value and the least value helps children, as well as adults, make informed choices such as: Q: 'Would you rather buy a car for £23,999 or £2,399?' In this context and decision many other elements come into play, such as budget, value for money and reliability of the car. Q: Would you rather have 20 000 twenty pences or would you rather have £3000.00?	Divide this number by 100 and say your answer aloud. Divide this number by 1000 and say your answer aloud.
round any whole number to a required degree of accuracy	Teaching children to round values to the nearest 10, 100 or 1000 builds on their understanding of place value and the relative size of numbers in comparison to others. We often refer to tens, hundreds or thousand whole numbers as being *landmark numbers* because it is often a strong base to work from. A good way of explaining this is to use a number line. If the **unit** of the number is **less than five**, the number needs to be **rounded down**. If the **unit** of the number is **5 or above**, the number needs to be **rounded up**. So 32 would be *rounded down* to the nearest *landmark number* - 30, 35 would be *rounded up* to its nearest *landmark number* 40 and 38 would also be *rounded up* to the *landmark number* 40:	Challenge a child when shopping to round the values of shopping items placed in the basket or trolley.

	 **Rounding to 100**: If the tens digit is less than 50 the number is *rounded down***.** If the tens digit is 50 or more, the number is *rounded up*. (The units digit can be ignored when rounding a three-digit number to the nearest 100.) So 834 would be *rounded down* to 800, 851 would be *rounded up* to 900 and 876 would be *rounded up* to 900:  Rounding to 1 000, 10 000, 100 000 uses the same principles as above but at a higher level.	 Rounding anything with a price is purposeful and can relate to real life. 
Solve number and practical problems that involve all of the above	Problem solving involves the application of previously taught skills. This relies on many things, such as; the ability to recall key number facts, mathematical vocabulary, concepts, strategies, reasoning, understanding of the problem and the ability to know which aspect of maths needs to be applied. The ability to round values to the nearest *landmark number* enables children to make reasonable estimates when calculating. For example 88+64= if you round the values to give yourself a rough estimate the calculation would be 90+60 = 150. After doing this the child would then calculate the answer using a taught strategy. If the child said 252 he/she would realise that an error had occurred during the calculations and that he/she would	When supporting a child there are a few things we can do, such as: • Read the problem more than once • Underline the important information • Imagine what is happening in the problem to understand the maths that needs doing • Stop and think about an efficient strategy to use • Work logically and slowly

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	need to check it again. (88+64=152) Estimate the answer to 4243 + 1734 by rounding the numbers to: the nearest 1000 the nearest 100 the nearest 50 the nearest 10. The population of Shanghai is 21 million, to the nearest million. Each person weighs on average 70 kg. Estimate the total weight of all the people in Shanghai. Do you think your answer is more or less than the actual answer you'd get if you weighed everyone in Shanghai accurately?	though the problem • Not panic! • Re-read the problem to check the answer is reasonable
use *negative numbers* in context and calculate intervals across zero	 A *negative number* is a number smaller than zero. It can be demonstrated to children by using either a horizontal **number line** or a vertical number line (number ladder**).** Discussing with children when *negative numbers* are used is key in helping children understand what it actually means in real life, such as: temperatures and bank balances. Real life contexts*:* *Susan had £43 in the bank. She spent £65 on shoes. By how much was she overdrawn? Looking at bank balances helps teach children about financial awareness and budgeting to prepare them for later life.*	 Put a thermometer on a window and challenge the child to keep a weather chart. Watch the weather forecast and discuss what minus 2 means outside.

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Use data to find differences between temperatures. For example, what is the difference between the coldest place and the least coldest place in the table?
How many locations are colder than -70 degrees Celsius?
Children can go on to investigate the differences between other weather data, such as the difference between Great Britain's coldest day and Germany's coldest day.

Top ten coldest places on earth	***Degrees celcius***
Yukon, Canada	*-63*
North Ice, Greenland	*-66*
Klinick research station, Greenland	*-69.4*
Verkhoyansk, Russia	*-69.8*
Oymyakon, Russia	*-71.2*
Mount Mckinley, Alaska	*-73.8*
Amundsen-Scott South Pole Station	*-82*
Dome A,Antarctica	*-82.5*
Russia's Vostock research station	*-89.2*
Some Fuji ridge, East Antactica Plateau	*93.2*

A scientist measured the temperature each day for one week at 06:00.
On Sunday the temperature was 1·6°C.
On Monday the temperature had fallen by 3°C.
On Tuesday the temperature had fallen by 2·1°C.
On Wednesday the temperature had risen by 1·6°C.
On Thursday the temperature had risen by 4·2°C.
On Friday the temperature had fallen by 0·9°C.
On Saturday the temperature had risen by 0·2°C.
What was the temperature on Saturday?

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