### Number and Place Value: Order Whole Numbers to 1 000 000

Aim: Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. To order and compare numbers	Success Criteria: I can determine the value of each digit in a number. I can use a place value grid to compare numbers. I can put numbers in a given order.	Resources: Lesson Pack Whistle
to 1 000 000.	Key/New Words: Place value, digit, compare, order, higher, lower, greater than, less than, millions, thousands, hundreds, tens, ones, zero, partition, digit.	Preparation: Build a Number Cards - cut out, one per class Differentiated Number Ordering Cards - cut out, one per class Differentiated Spiral Ordering Sheet - one per pair Star Swap Activity Sheet - as required

Prior Learning: It will be helpful if children have covered reading and writing numbers with up to at least 1 000 000, and identifying the value of each digit.

#### **Learning Sequence**

(1.5.2)	<b>Remember It:</b> Children read different representations of numbers shown on the Lesson Presentation, identifying which is the odd one out.									
(193)	<b>Build a Number:</b> Give each child a <b>Build a Number Card</b> . Children move around the space with their cards, then get into groups of six when the whistle is blown. Each child in the group should have a different coloured card. Children build a number using the parts of numbers shown on their cards. Show the next slide on the <b>Lesson Presentation</b> , which gives the criteria for winning this round. Find the winning group, then repeat the game, showing a different slide with different criteria for winning.									
	Ordering Numbers: Introduce the table showing the weekly takings at a theme park as shown on the Lesson Presentation. Model how to enter the digits of each number in the table into a place value grid using the Lesson Presentation. Click through the slides to explain how to compare four of the numbers by looking at the value of their digits. Can children order the three remaining numbers by comparing the value of their digits? Share the final order of the numbers and discuss any misconceptions.									
Whole Class	<b>Explain Yourself:</b> Show the set of numbers on the <b>Lesson Presentation</b> . Can children identify which number would be third if they were put in order? Can children explain how they ordered the numbers? Referring to the <b>Lesson Presentation</b> , model an explanation of how to order the numbers to identify the third number in the set.									
Whole Class	Connect the Dots: Children order the numbers in the circle on the Lesson Presentation by joining the dots. Click through the slides to reveal the answer. Can children put the numbers in order?									
(a)	Spiral Ordering: Children take turns to draw a differentiated Number Ordering Card. Children label their number on the differentiated Spiral Ordering Sheet. The winner is the player who is the first to get three numbers in order on the spiral. Can children put numbers in a given order?  Numbers up to 10 000. Spiral has quarter, half way and three quarter points marked and labelled.  Number up to 100 000. Spiral has half way point marked and labelled.									



**Diving into Mastery:** Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.





To compare amounts using inequality symbols, order amounts and position numbers on a number line to 1 000 000.



Children interpret clues and match the clues to the set of ordered numbers. They answer reasoning questions about numbers that can be made - and ordered - from a set of number cards.



Children decide whether statements about a set of ordered numbers - some numbers unknown - are true or false, explaining their reasoning. They explain whether generalised statements about ordering are always, sometimes or never true.





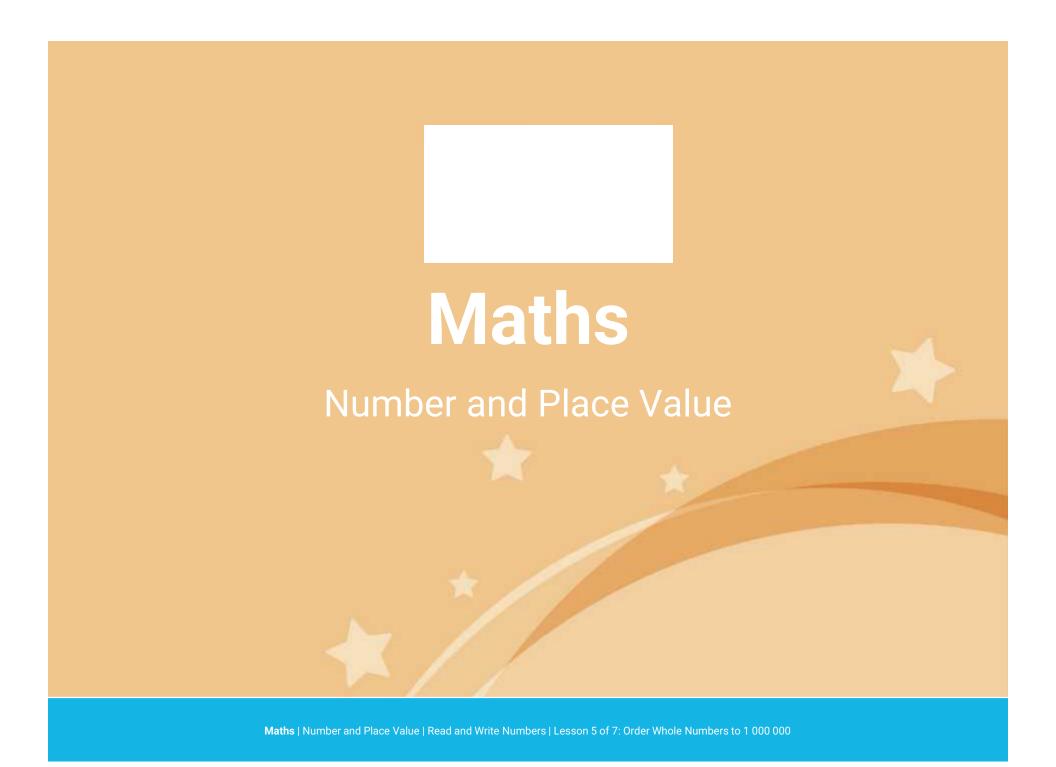
**Star Swap:** Show the star on the **Lesson Presentation** and explain that two opposite pairs of numbers have been swapped. Can children work out which pairs need to swapped back to put the numbers in order? Children use the **Star Swap Activity Sheet** if required. Share and discuss the answer.

#### **Explore**it

Findit: Set up a number hunt around your classroom or school. Write numbers up to 1 000 000 on lolly sticks and hide them. Children find the numbers, then put them in order.

Orderit: Children use Place Value Ordering 6-Digit Numbers Activity Sheet to order six-digit numbers.

Learnit: Children will find this visually exciting Knowledge Organiser a useful tool for ordering and comparing numbers to 1 000 000.







#### Aim

• To order and compare numbers to 1 000 000.

#### Success Criteria

- I can determine the value of each digit in a number.
- I can use a place value grid to compare numbers.
- I can put numbers in a given order.

#### Remember It

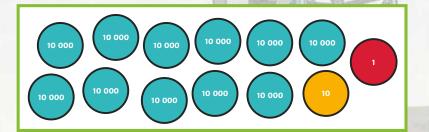


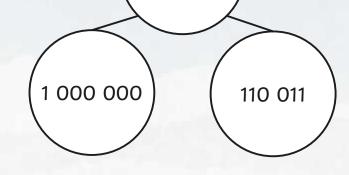
Which of the representations is the odd one out? Explain your reasoning to your partner.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	1	1	0	0	1	1

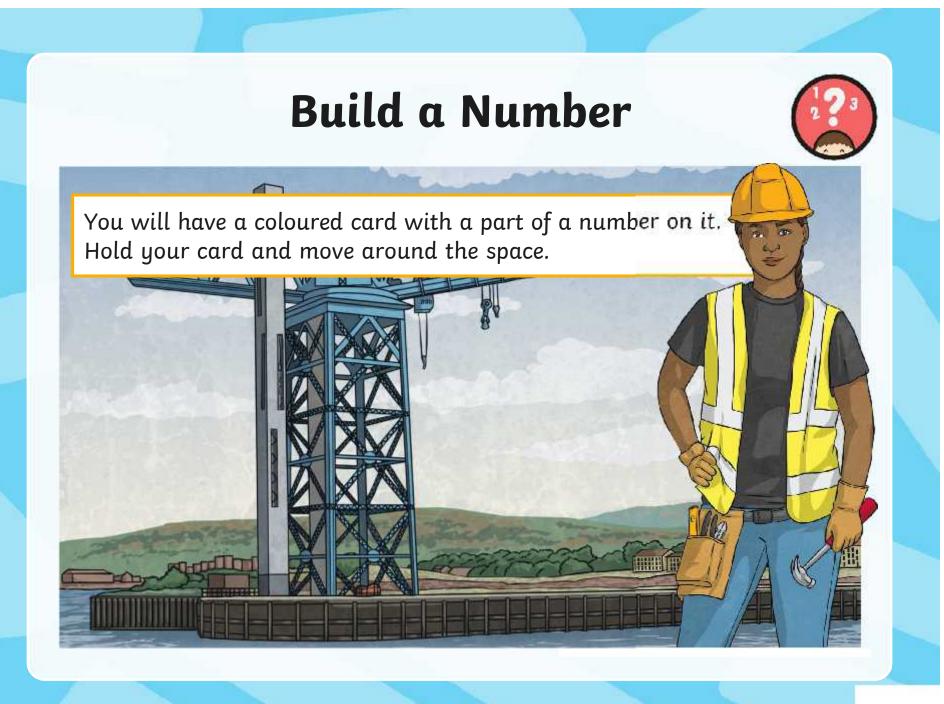
one million, one hundred and ten thousand and eleven

one millions, one hundred thousands, one ten thousands, one ten and one ones





The place value counters is the odd one out. All other representations total 1 110 011. The counters represent 1 100 011.



#### Build a Number



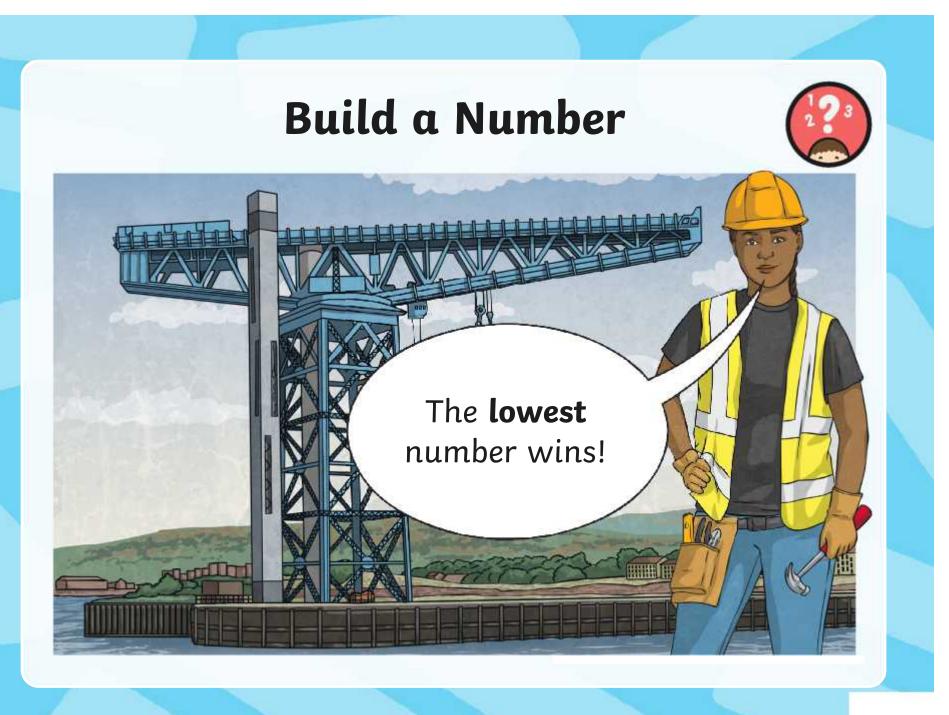
When I blow the whistle, get into a group of 6. Each person in your group should have a different coloured card.

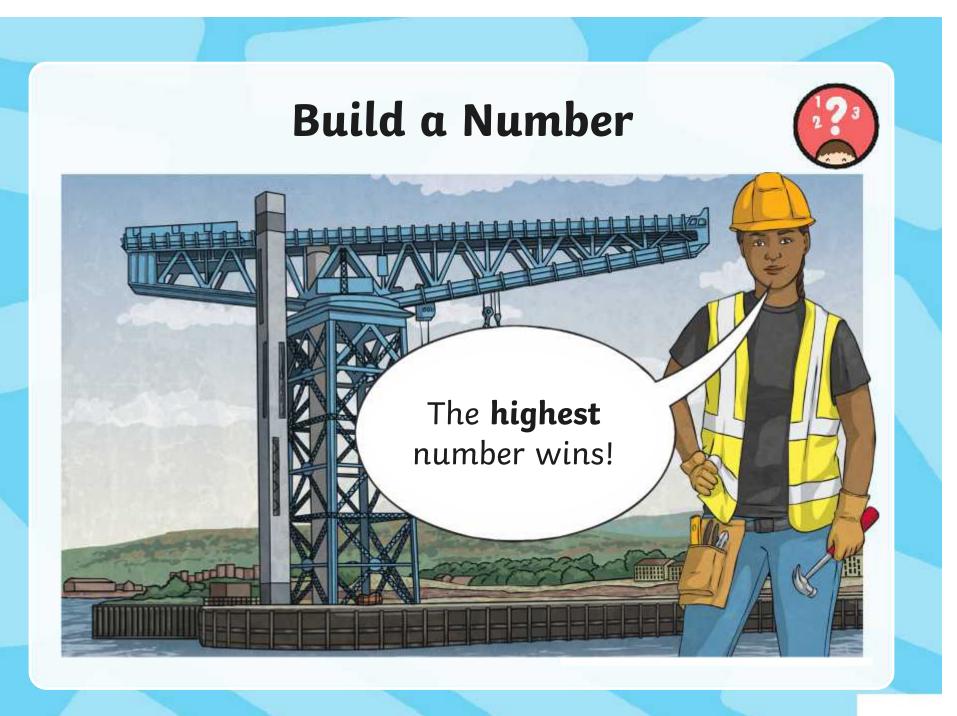
If it is not possible to get into a group of 6, just make sure everyone in your group has a different coloured card.

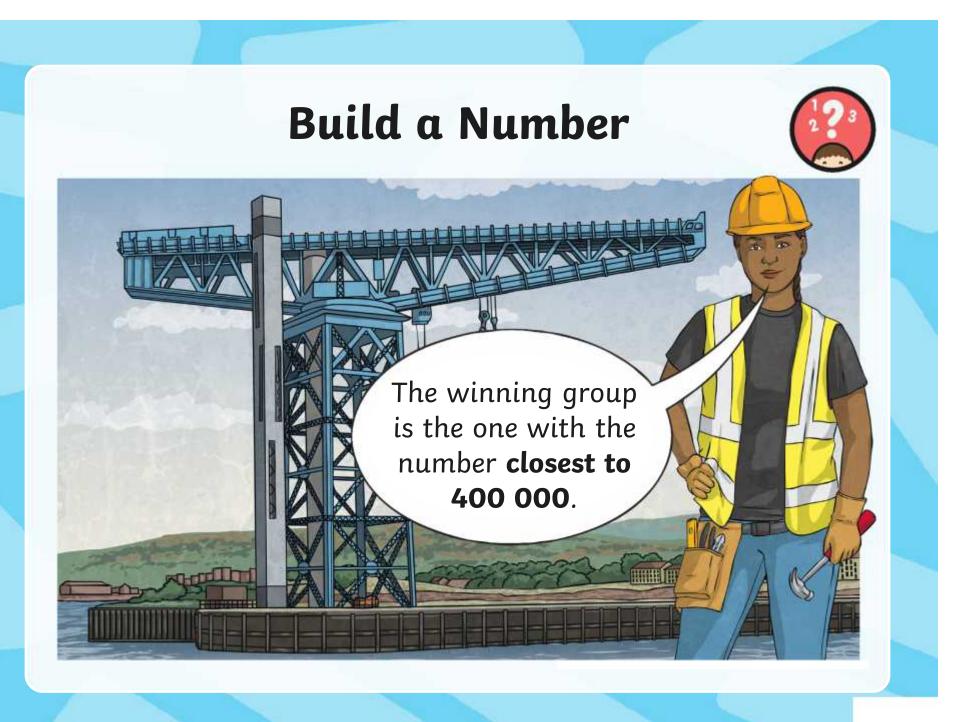
Look at the parts of numbers on your cards.
What number can you build from the different parts?

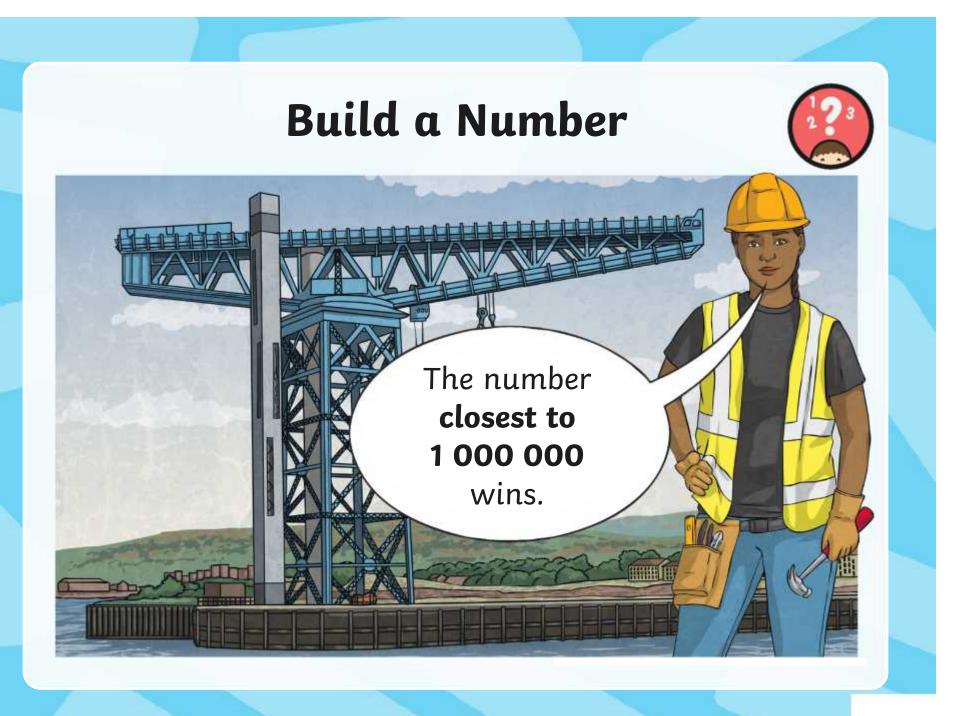
#### INTERNATION

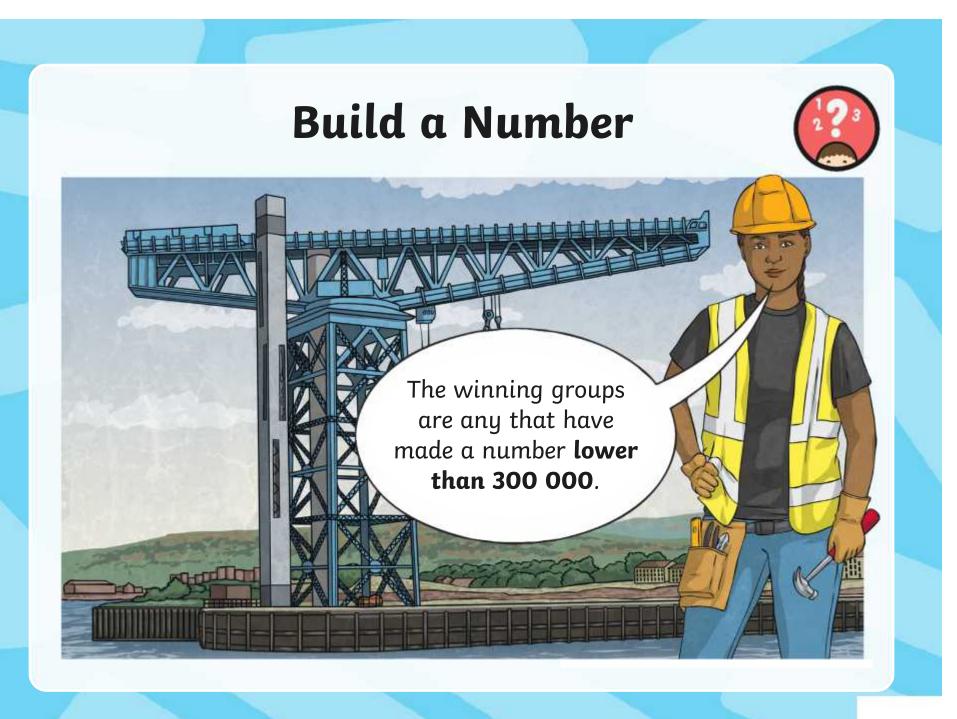
I will choose a winner based on different criteria each time. It might be the highest number, the lowest number or the number closest to 500 000.

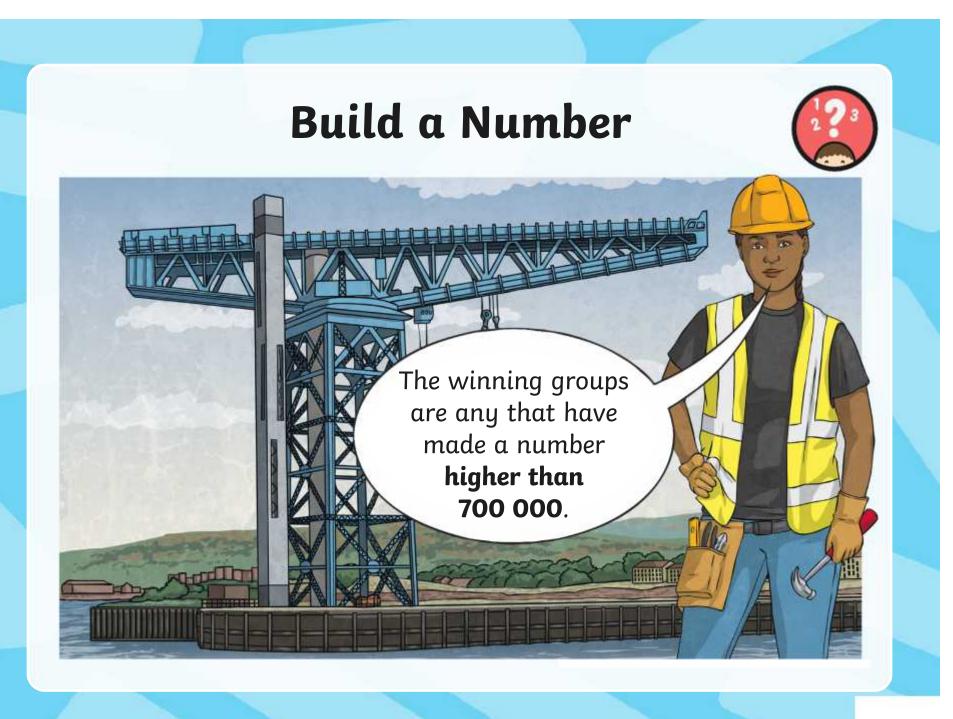






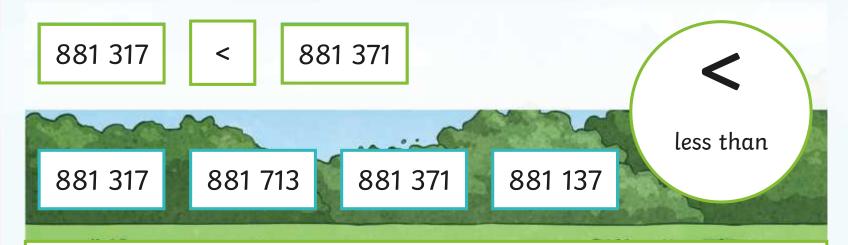






## Comparing 6-Digit Numbers

When we compare 6-digit numbers, we compare the values of each digit starting with the hundred thousands. If the numbers have the same amount of hundred thousands, we compare the ten thousands. If the digits are the same again, we look at the next place value digit to the right.



881 317 and 881 371 both have 8 hundred thousands, 8 ten thousands, 1 thousand and 3 hundreds.

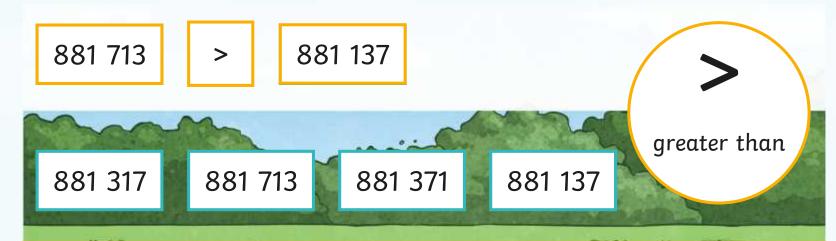
881 317 has 1 ten.

881 371 has 7 tens.

881 317 is less than 881 371.

## Comparing 6-Digit Numbers

When we compare 6-digit numbers, we compare the values of each digit starting with the hundred thousands. If the numbers have the same amount of hundred thousands, we compare the ten thousands. If the digits are the same again, we look at the next place value digit to the right.



881 713 and 881 137 both have 8 hundred thousands, 8 ten thousands and 1 thousand.

881 713 has 7 hundreds.

881 137 has 1 hundred.

881 713 is greater than 881 137.



When ordering numbers, we need to compare the value of the digits in each place. We can do this using a place value grid to help us.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday					
£12 875	£10 423	£12 785	£9758	£13 853	£19 758	£21 758					





Entering the amounts into a place value grid helps to compare the value of the digits.

Day	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
Monday			1	2	8	7	5
Tuesday			1	0	4	2	3
Wednesday			1	2	7	8	5
Thursday				9	7	5	8
Friday			1	3	8	5	3
Saturday			1	9	7	5	8
Sunday			2	1	7	5	8



Monday and Wednesday both have 2s in the thousands column, so we look at their hundreds digits. Monday has an 8, so this is the next biggest number in the set, while Wednesday has a 7 in the hundreds column, making it the next number in the set.

Day	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
Monday			1	2	8	7	5
Tuesday			1	0	4	2	3
Wednesday			1	2 7		8	5
Thursday				9	7	5	8
Friday			1	3	8	5	3
Saturday			1	9	7	5	8
Sunday			2	1	7	5	8

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#### Here are the numbers in order:

Day	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
Sunday			2	1	7	5	8
Saturday			1	9	7	5	8
Friday			1	3	8	5	3
Monday			1	2	8	7	5
Wednesday			1	2	7	8	5
Tuesday			1	0	4	2	3
Thursday				9	7	5	8



Look at this set of numbers:

3 576 283

3 756 382

3 567 382

3 765 283

If you put them in order from highest to lowest, which number would be third?

Explain your choice to a partner and explain how you ordered the numbers.





3 576 283

3 756 382

3 567 382

3 765 283

- To order the numbers, compare the digits. All the numbers have 3 millions, so we need to compare the digits in the hundred thousands place.
- We can see that 2 of the numbers have 5s in the hundred thousands place and 2 of the numbers have 7s in the hundred thousands place.
- We know that the numbers with 7s in the hundred thousands place are higher than the numbers with 5s, so we then move on to compare the digits in the ten thousands place.



3 576 283

3 7<u>5</u>6 382

3 567 382

3 7<u>6</u>5 283

Looking at the 2 highlighted numbers, we can see that one has a 5 in the ten thousands place, whereas the other number has a 6 in the ten thousands place.

This means that 3 765 283 is bigger than 3 756 382. Therefore, we can put these two numbers in order

3 765 283, 3 756 382



3 5**7**6 283

3 5**6**7 382

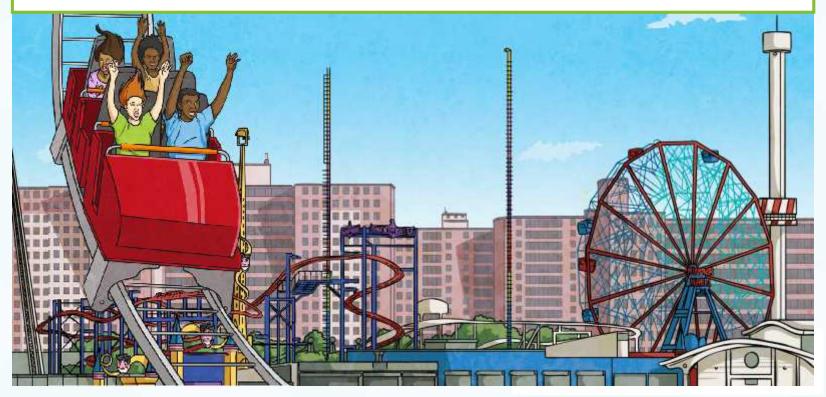
- We now just need to compare the ten thousands digits in the remaining two numbers.
- We can see that the first number has a 7 in the ten thousands place, whereas the second number has a 6 in the ten thousands place.
- This means that 3 576 283 is bigger than 3 567 382. We can order these numbers now.

3 765 283, 3 756 382, 3 576 283, 3 567 382.



3 765 283, 3 756 382, 3 576 283, 3 567 382.

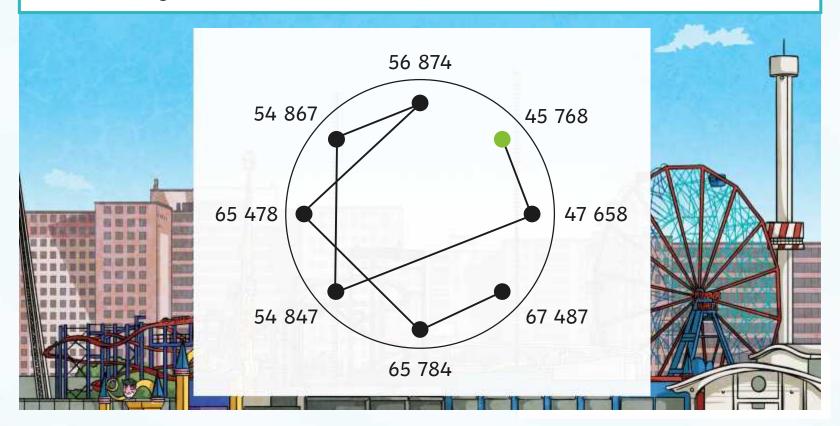
This means that 3 576 283 would appear third in this list!



## Connect the Dots



Can you order these numbers smallest to greatest by connecting the dots? Start at the green dot.



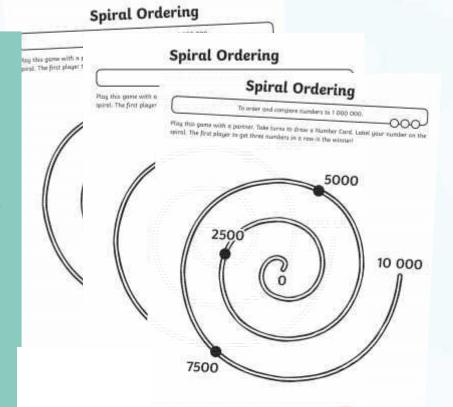


#### Play this game in pairs.

On your **Spiral Ordering Activity Sheet** you will see a spiral numbered from zero.

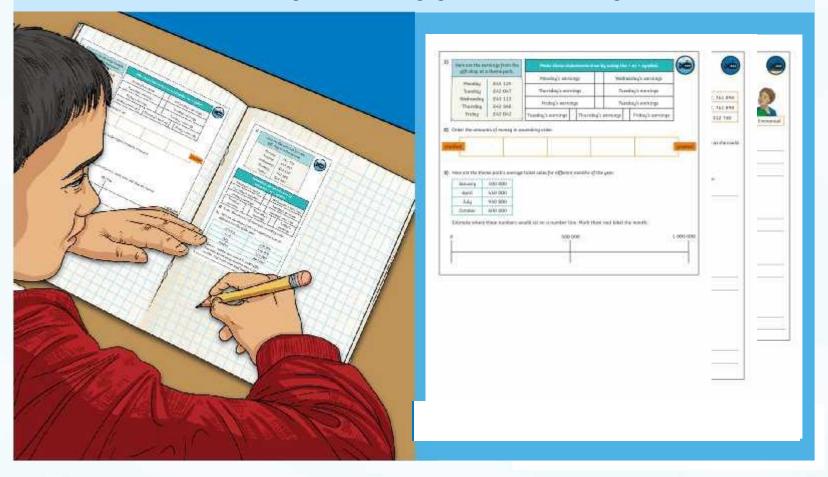
Take turns to draw a Number Card. Label your number on the spiral. The first person to get 3 numbers in a row, with none of their partner's numbers between them, is the winner.

When you order your numbers, it is helpful to think about where the halfway point of the spiral is, and which number would be there. You could also work out the numbers that would be one quarter and three quarters along the spiral.



#### Diving into Mastery

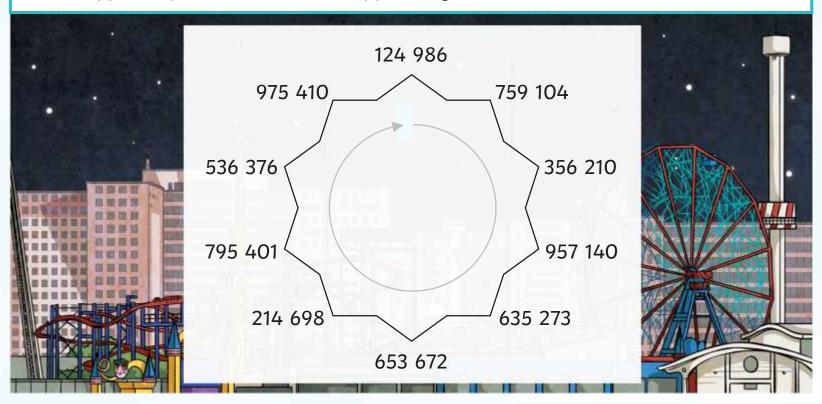
#### Dive in by completing your own activity!



## Star Swap



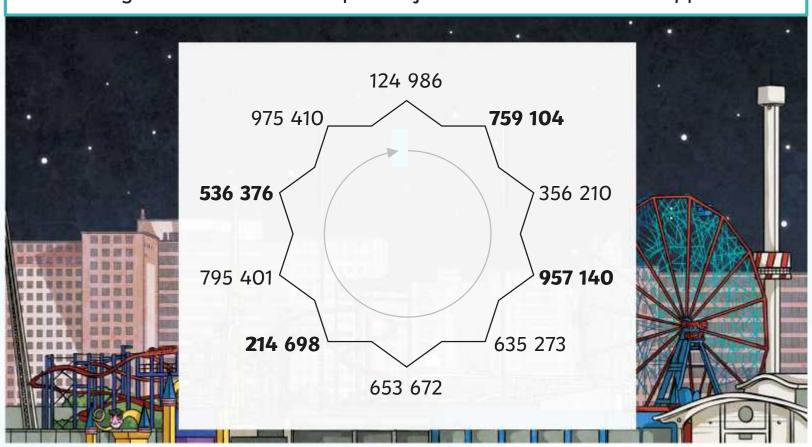
The numbers on the points of this star are in order from lowest to highest. However, two opposite pairs of numbers have been swapped. Can you work out which opposite pairs need to be swapped to get the numbers in order?



## Star Swap



Did you work out which pairs of numbers had been swapped?



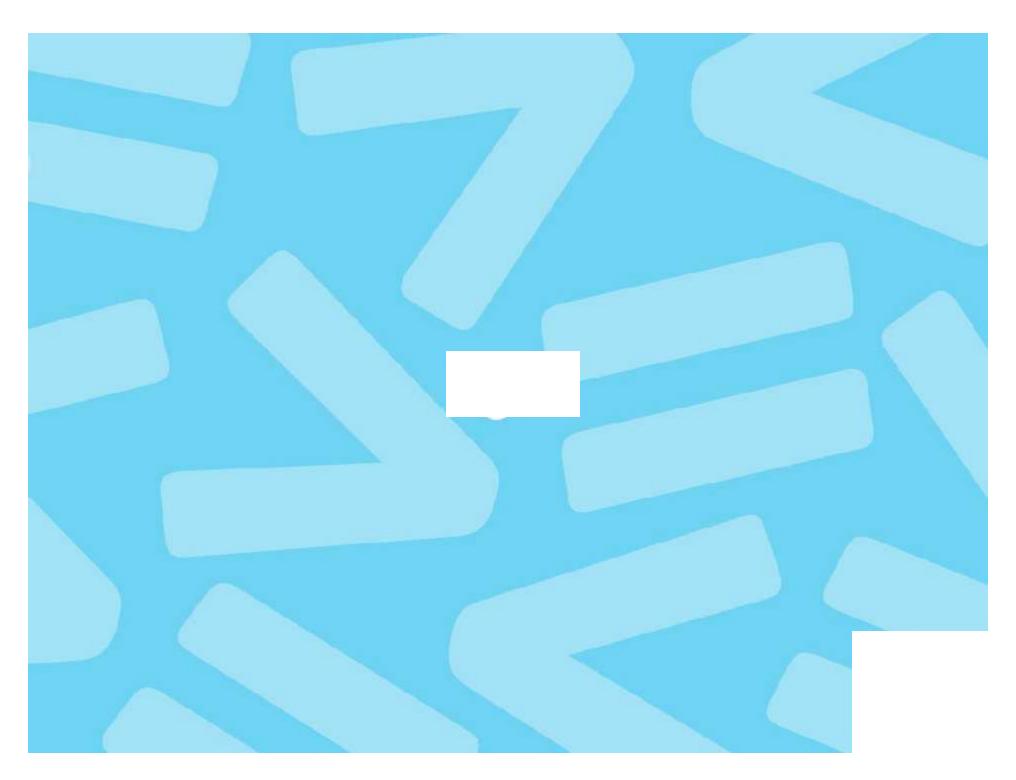
## Aim



To order and compare numbers to 1 000 000.

## Success Criteria

- I can determine the value of each digit in a number.
- I can use a place value grid to compare numbers.
- I can put numbers in a given order.



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Aim: To order and compare numbers to 1 000 000.						Date:					
							Support:				
Success Criteria	Me	Friend	Teacher	Т	PPA	s	I	AL	GP		
I can determine the value of each digit in a number.				Notes/Evidence			Notes/Evidence		Notes/Eviden		
I can use a place value grid to compare numbers.											
I can put numbers in a given order.											
Next Steps											
J											
J											

Т	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

				1									
Aim: To order and compare numbers to 1 000 000.						Date:							
		Delive	rt:										
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I can use a place value grid to compare numbers.													
I can put numbers in a given order.													
Next Steps													
)													
J													

Т	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

Three ones Six ones Five ones

Zero ones

Two ones

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Nine ones

Six tens Two tens Seven tens Eight tens One ten Four tens

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Five hundreds Nine hundreds Zero hundreds

Four hundreds

Six hundreds

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Eight hundreds Two thousands

Seven thousands

One thousand

Four thousands

Three thousands

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Six thousands One ten thousand

Nine ten thousands

Eight ten thousands

Three ten thousands

Five ten thousands

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Four ten thousands

Zero hundred thousands

Six hundred thousands

Nine hundred thousands

Five hundred thousands

Four hundred thousands

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Two hundred thousands

1)	Make these statements true by using the < or > symbol.												
	М	Monday's earnings > We			Nednesday's earnings								
	Thursday's earnings		۸	Т	Tuesday's earnings								
	F	riday's earr	ings	S	٧	Т	Tuesday's earnings						
	Tuesday	's earnings	<b>«</b>	Thursdo	ıy's e	earnings	>	Frid	ay's earnii	ngs			
2)				1									
	smallest <b>£42 042 £4</b>		2 04 lesdo		٧	£42 Vedno	568 esday		£43 113 Thursday	£43 125 Monday	greatest		
3)	3) 0 500 000 1 00							1 000 000					
	January					A	pril	Oct	 tober			July	

1) Rodrigo - B

Thelma - C



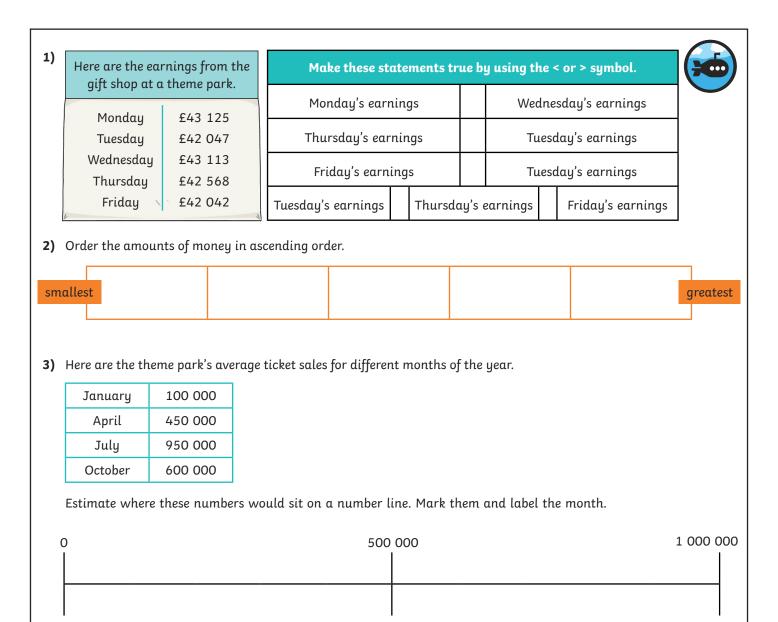
- 2) a) Leo is incorrect. The largest number Fiona could make is 863 210.
  - b) There are many possible answers. Both numbers should be larger than 836 210. The fourth number should be larger than the third.
  - c) Leo has ordered the numbers in ascending order not descending order.
- 1) Freddie is incorrect. 167 980 is a possible answer but it is not the only possible answer.



Christie is incorrect. The last card must be larger than 167 998. 167 000 is smaller than 167 998 so it is not a possible answer.

Emmanuel is incorrect. When the number cards are put in descending order, 167 998 will be the second card.

- 2) a) This is sometimes true. When you are ordering numbers in ascending order, the largest number will come last. However, the largest number will come first if you are putting the numbers in descending order.
  - b) This is sometimes true. With a set of numbers that all have a different digit in the highest value place value column, you only need to look at this for example, 23, 54 and 78. However, if the digits are the same then you need to look at the next highest value place value column.
  - c) Always true.



1) Match the child to the set of numbers that satisfies their clue. I've put numbers between 50 000 and 200 000 in order. Rodrigo Α 760 891, 761 545, 761 877, 761 898 В 760 891, 761 545, 761 877, 761 898 I need to swap around two numbers С 76 882, 289 776, 332 540, 312 740 to order my numbers correctly. Thelma 2) Fiona picked 6 cards from a set of 0-9 digit cards. She arranged them to make as many 6-digit numbers as she could. 6 1 0 8 3 2 a) Leo says that the greatest number Fiona could make is 632 801. Do you agree? Explain your answer. b) Fiona makes four numbers using these digit cards and arranges them in ascending order. She covers the last two numbers. 836 201 836 210 Which numbers could go in the last two boxes? Find two possible answers for each box. c) Leo makes four numbers of his own. He arranges them in descending order. 985 211 985 321 975 891 983 120 Do you agree with his work? Explain your answer.

1)	The second card could only be 167 980.  The last card could be 167 000.  The last card could be in the same position if the cards are put in descending order.  Emmanuel  To you agree with the children's statements? Explain your answers.
2)	Are the following statements always, sometimes or never true? Explain your answers.
	a) When ordering numbers, you always put the largest number last.
	b) You only need to look at the digit with the largest value when ordering numbers.
	c) Putting an odd amount of numbers in ascending order gives you the same middle number as when you put the group of numbers in descending order.
	hamser as when you put the group of hambers in accentaing order.

1)

#### Here are the earnings from the gift shop at a theme park.



Monday £43 125
Tuesday £42 047
Wednesday £43 113
Thursday £42 568
Friday £42 042

Make these statements true by using the < or > symbol.						
Monday's ea		Wednesday's earnings				
Thursday's earnings				Tuesday's earnings		
Friday's ear	ning	ĮS		Tu	esda	y's earnings
Tuesday's earnings			ursdo arnin	_		Friday's earnings

- 2) Order the amounts of money in ascending order.
- **3)** Here are the theme park's average ticket sales for different months of the year.

January	100 000
April	450 000
July	950 000
October	600 000

Draw a number line from 0 to 1 000 000. Estimate where these numbers would sit on a number line. Mark them and label the month.

Here are the earnings from the gift shop at a theme park.



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Thursday's earnings				Tuesday's earnings		
Friday's ear	ning	S		Tu	esda	y's earnings
Tuesday's earnings				ay's .gs		Friday's earnings

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I've put numbers between 50 000 and 200 000 in order.

Rodrigo



I need to swap around two numbers to order my numbers correctly.

Thelma

- 760 891, 761 545, 761 877, 761 898
- B 760 891, 761 545, 761 877, 761 898
  - 76 882, 289 776, 332 540, 312 740
- 2) Fiona picked 6 cards from a set of 0-9 digit cards. She arranged them to make as many 6-digit numbers as she could.

6

1

0

8

3

2

- a) Leo says that the greatest number Fiona could make is 632 801. Do you agree? Explain your answer.
- b) Fiona makes four numbers using these digit cards and arranges them in ascending order. She covers the last two numbers.

836 201

836 210





Which numbers could go in the last two boxes? Find two possible answers for each box.

**c)** Leo makes four numbers of his own. He arranges them in descending order.

985 211

985 321

975 891

983 120

Do you agree with his work? Explain your answer.

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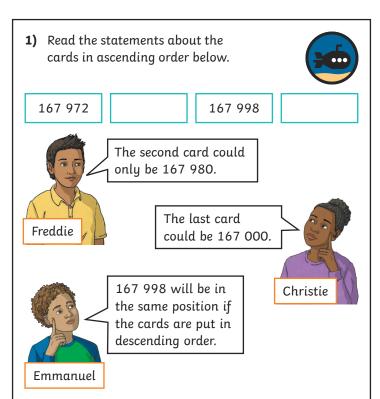
985 211

985 321

975 891

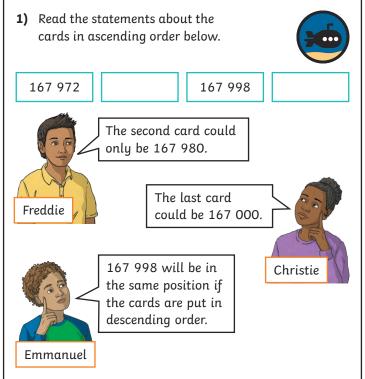
983 120

Do you agree with his work? Explain your answer.



Do you agree with the children's statements? Explain your answers.

- **2)** Are the following statements always, sometimes or never true? Explain your answers.
  - **a)** When ordering numbers, you always put the largest number last.
  - b) You only need to look at the digit with the largest value when ordering numbers.
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  - c) Putting an odd amount of numbers in ascending order gives you the same middle number as when you put the group of numbers in descending order.

## Number Ordering Cards

To order and compare numbers to 1 000 000.

-000-

Cut out these cards and use them to complete the Spiral Ordering Activity Sheet.

1000	9000	2000	3500
7000	7300	1250	1700
500	2750	8500	5500
3000	9250	2900	100
4500	8000	9500	9900
1000	9000	2000	3500
7000	7300	1250	1700
500	2750	8500	5500
3000	9250	2900	100
4500	8000	9500	9900

# **Number Ordering Cards**

To order and compare numbers to 1 000 000.

-000-

Cut out these cards and use them to complete the Spiral Ordering Activity Sheet.

25 000	75 000	12 500	87 500
31 900	10 200	10 250	29 400
7500	15 300	19 000	65 250
56 000	91 300	91 030	70 500
30 750	5000	69 000	40 000
25 000	75 000	12 500	87 500
31 900	10 200	10 250	29 400
7500	15 300	19 000	65 250
56 000	91 300	91 030	70 500
30 750	5000	69 000	40 000

## Number Ordering Cards

To order and compare numbers to 1 000 000.

-000-

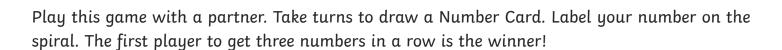
Cut out these cards and use them to complete the Spiral Ordering Activity Sheet.

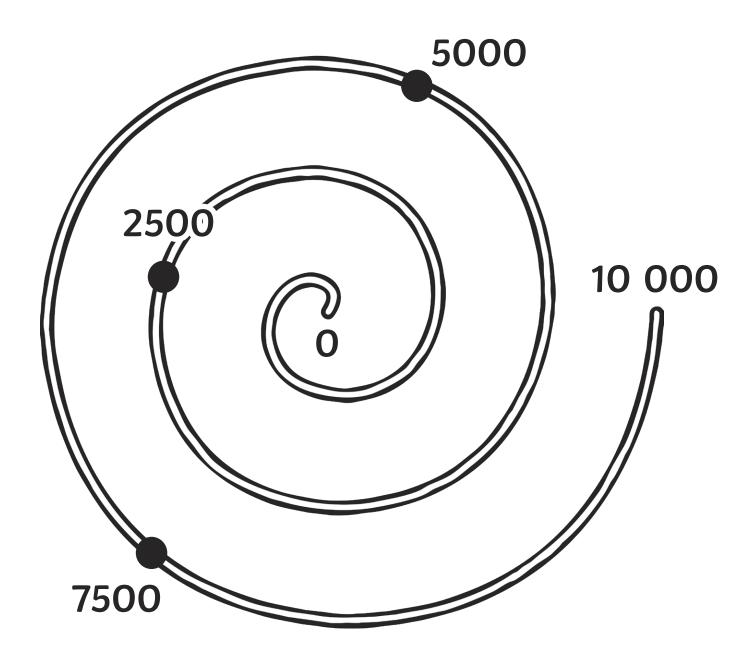
500 000	250 000	750 000	330 400
25 850	920 600	960 200	45 700
815 700	851 900	123 480	132 840
600 000	690 200	700 000	850 000
303 900	457 000	213 408	990 900

500 000	250 000	750 000	330 400
25 850	920 600	960 200	45 700
815 700	851 900	123 480	132 840
600 000	690 200	700 000	850 000
303 900	457 000	213 408	990 900

## Spiral Ordering

To order and compare numbers to 1 000 000.

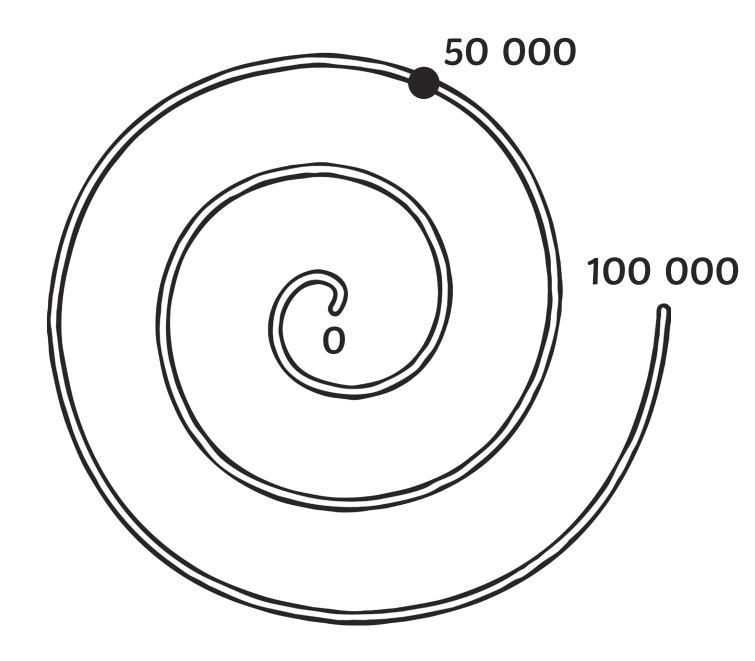




## Spiral Ordering

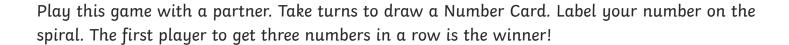
To order and compare numbers to 1 000 000.

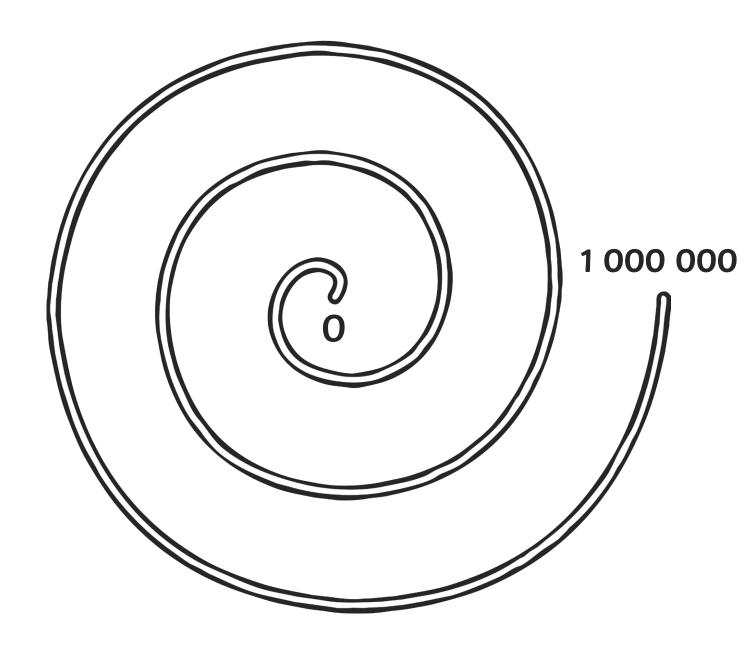
Play this game with a partner. Take turns to draw a Number Card. Label your number on the spiral. The first player to get three numbers in a row is the winner!



# Spiral Ordering

To order and compare numbers to 1 000 000.

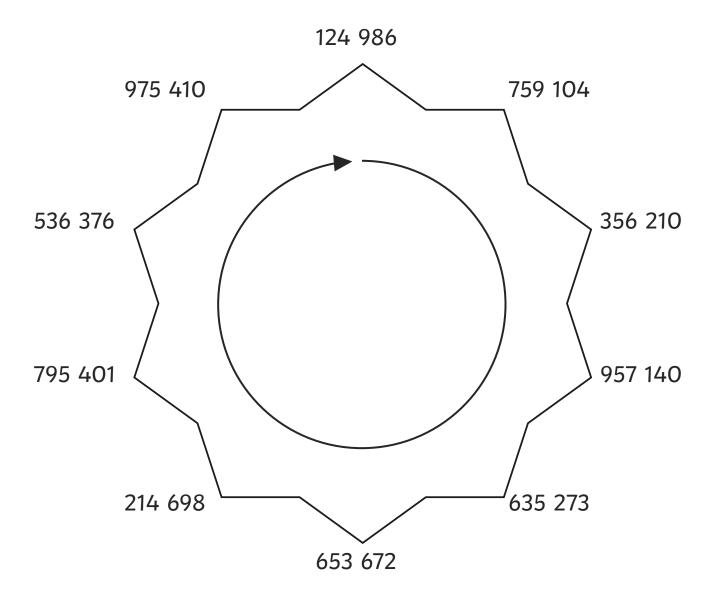




#### Star Swap

To order and compare numbers to 1 000 000.

The numbers on the points of this star are in order from lowest to highest. However, two opposite pairs of numbers have been swapped. Can you work out which opposite pairs need to be swapped to get the numbers in order?



Place Value   Order Whole Numbers to 1 000 000	Place Value   Order Whole Numbers to 1 000 000
To order and compare numbers to 1 000 000.	To order and compare numbers to 1 000 000.
I can determine the value of each digit in a number.	I can determine the value of each digit in a number.
I can use a place value grid to compare numbers.	I can use a place value grid to compare numbers.
I can put numbers in a given order.	I can put numbers in a given order.
Place Value   Order Whole Numbers to 1 000 000	Place Value   Order Whole Numbers to 1 000 000
To order and compare numbers to 1 000 000.	To order and compare numbers to 1 000 000.
I can determine the value of each digit in a number.	I can determine the value of each digit in a number.
I can use a place value grid to compare numbers.	I can use a place value grid to compare numbers.
I can put numbers in a given order.	I can put numbers in a given order.
Place Value   Order Whole Numbers to 1 000 000	Place Value   Order Whole Numbers to 1 000 000
To order and compare numbers to 1 000 000.	To order and compare numbers to 1 000 000.
I can determine the value of each digit in a number.	I can determine the value of each digit in a number.
I can use a place value grid to compare numbers.	I can use a place value grid to compare numbers.
I can put numbers in a given order.	I can put numbers in a given order.
Place Value   Order Whole Numbers to 1 000 000	Place Value   Order Whole Numbers to 1 000 000
To order and compare numbers to 1 000 000.	To order and compare numbers to 1 000 000.
I can determine the value of each digit in a number.	I can determine the value of each digit in a number.
I can use a place value grid to compare numbers.	I can use a place value grid to compare numbers.
I can nut numbers is a given order	I can put numbers in a given order

I can put numbers in a given order.

I can put numbers in a given order.