

Dereham Church OF England Infant and Nursery Academy- Mathematics

	Year group: 2	Area/topic: Mathematics- statistics
	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data	

Prior learning	Future learning
Children used tally marks and charts when learning to subitise in Reception. During Year 1 and Reception children were exposed to pictograms in maths meetings.	In year 3 children will use this knowledge to solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.

What pupils need to know or do to be secure	
Key knowledge and skills	Possible evidence
Make tally charts	Draw tallies for a range of numbers. Ask children to collect their own data and create a tally chart. Possible topics include: • favourite colour • favourite sport • how children travel to school

Here is a tally chart showing some children's favourite colours.



Favourite colour	Tally
red	
green	
blue	
yellow	

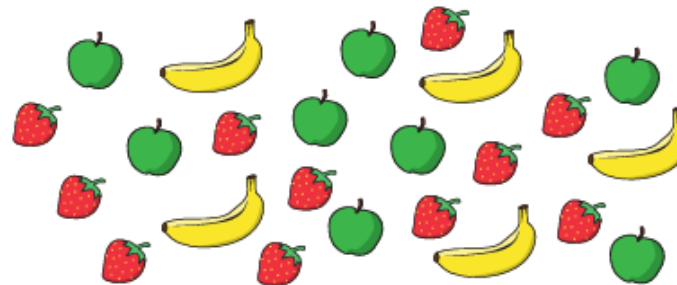
- Yellow is the least popular colour.
- The number of children who like green is greater than the number who like red, but less than the number who like blue.

Complete the tally chart.

Is there more than one answer?



Complete the tally chart for the fruit.



Fruit	Tally	Total
apple		
strawberry		
banana		

Tables

Look at the tally chart and table.

Item	Tally
pencil	
rubber	
ruler	

Item	Total
pencil	30
rubber	15
ruler	21

What is the same? What is different?

Which do you find easier to understand?

Here is a table showing the pets owned by children in Class 2

Pet	Total
cat	11
dog	14
hamster	7

- ▶ Which pet is most common? Which pet is least common?
- ▶ How many cats and hamsters do children in Class 2 have?
- ▶ How many pets do children in Class 2 have altogether?
- ▶ How many more dogs than hamsters are there?

Block diagrams

Tiny wants to record the colours of cars that pass by.



I think that tables are easier to understand than tally charts, so I will use a table to collect my data.



Do you think that this is a good idea?

Why?

Give every child a sticky note and ask them to write their name on it. Use the sticky notes to create block diagrams showing:

- the month with the most birthdays*
- children's favourite sports*

Match the tables to the block diagrams.

A

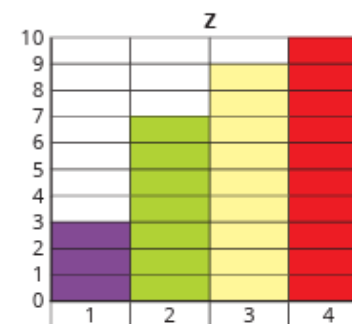
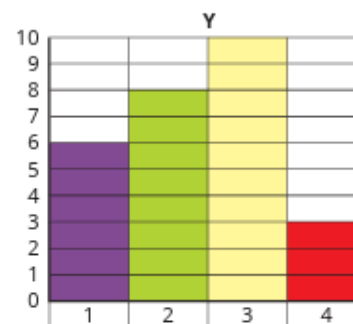
	Total
1	6
2	8
3	10
4	3

B

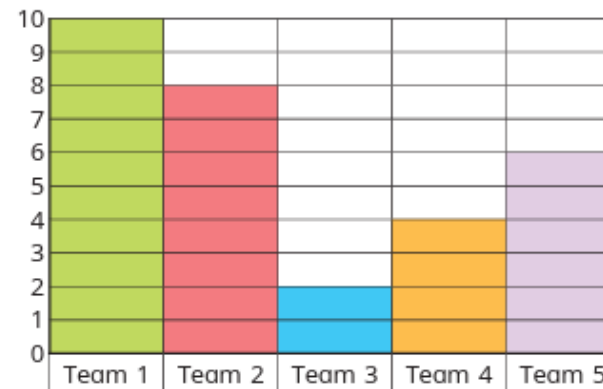
	Total
1	6
2	8
3	5

C

	Total
1	3
2	7
3	9
4	10



The block diagram shows the number of house points each team got.



- ▶ How many more points did team 2 get than team 4?
- ▶ How many fewer points did team 3 get than team 5?
- ▶ How many points did team 2 and team 3 get altogether?

Draw pictograms.

- Use the key to complete the pictogram.

Key ▼ = 1 ice cream

Flavour	Total
vanilla	8
chocolate	12
mint	7
strawberry	3

vanilla	chocolate	mint	strawberry

Ask children to collect their own data and to draw a pictogram for it. Remind them to include a key.

Tiny goes on a shape hunt and uses the data to make a pictogram.

Shape	Number of shapes
circle	● ● ● ●
rectangle	▭ ▭ ▭ ▭
square	■ ■ ■ ■ ■ ■ ■ ■
triangle	▲ ▲ ▲



I saw the same number of squares and rectangles.

Do you agree with Tiny?

Explain your reasons.



Interpret pictograms

The pictogram shows the number of minibeasts that Class 2 see on a bug hunt.

Minibeast	Number of minibeasts
spider	
ladybird	
centipede	
worm	

Key

 = 1 minibeast

Complete the sentences.

- ▶ There are _____ centipedes and worms altogether.
- ▶ There are _____ more spiders than ladybirds.

What else does the pictogram tell you?

The pictogram shows Class 2's favourite colours of T-shirt.

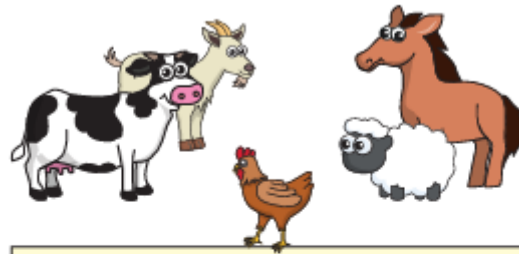
Colour	Number of children
blue	
green	
red	
purple	

Key

 = 1 child

- ▶ What is the most popular colour of T-shirt?
- ▶ How many more children voted for blue than for red?
- ▶ How many children are there in Class 2?

Tom writes these statements about a pictogram.



- There are more cows than sheep.
- There are the same number of sheep and horses.
- There are more chickens than any other animal.
- There are fewer cows than goats.
- There are 8 goats.

Draw the pictogram.

Compare answers with a partner.



Draw pictograms 2, 5, 10

- Complete the pictograms for the flowers in the garden.



Key  = 1 flower

Flower	Flowers in garden
 tulip	     
 crocus	
 daffodil	

Key  = 2 flowers

Flower	Flowers in garden
 tulip	  
 crocus	
 daffodil	

Which pictogram do you prefer? Why?

Use the tally chart to complete the pictogram showing the number of books read in each class.

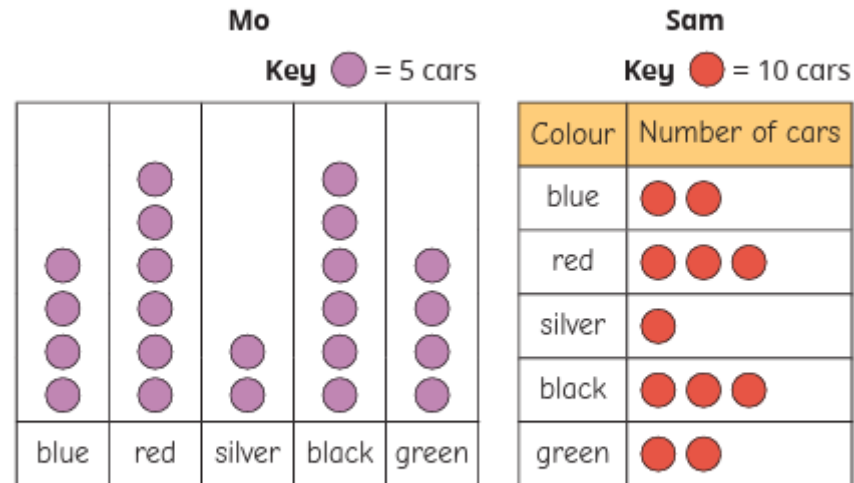
Key  = 5 books

Class	Books read
Class 1	
Class 2	
Class 3	
Class 4	

Class	Books read
Class 1	  
Class 2	
Class 3	
Class 4	

Interpret pictograms 2, 5, 10

Mo and Sam draw pictograms to show how many cars they see.

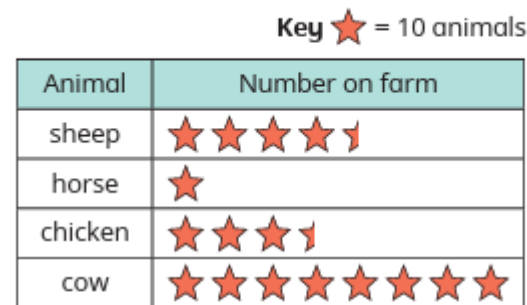


What is the same? What is different?

Whose pictogram do you prefer?



Use the pictogram to decide if the statements are true or false.



There are 8 cows on the farm.

There are 55 sheep and horses in total.

The number of chickens is half the number of cows.

Max and Kim count the traffic they see.

They draw a pictogram.

Key  = 10 vehicles

van	  
bus	   
bike	  
lorry	 
car	    



Max

The total number of lorries and bikes is equal to the number of cars.

There are 16 and a half vehicles.



Kim

Do you agree with Max and Kim?

Explain your answer.



Key vocabulary

Tally, chart, table, most/least popular, block, diagram, data, row, column, symbol, total, represent, symbol, category, key,

Common misconceptions	Books linking to this area
Children may draw five individual lines rather than using a "gate". Children may count the groups of 5s as 10s or 1s. If looking at pictures, children may need efficient strategies to avoid counting an object more than once. Children may not use/draw blocks of equal size. Children may not use the size of the bars to compare totals. Children may need support to understand the use of part-symbols, for example if 1 symbol = 10, then half a symbol = 5	Kenley's line plot graph by Kathleen L Stone Bert's amazing charts by Dianne Ochiltree
Memorable first hand experiences	Opportunities for communication
Provide children with the opportunity to gather their own data- by asking their peers, staff members, children in another class or year group.	Completing sentence stems provided by White Rose Reasoning their ideas and thinking Partner and group work

DCINA Reasonable adjustments for pupils with SEND

<i>Communication and Interaction</i> <i>Use a range of visual aids</i> <i>Give clear instructions one at a time</i> <i>Repetition</i> <i>Provide simple instructions</i> <i>Pre teach vocabulary</i> <i>Use working wall where modelling is displayed</i> <i>Give children thinking time</i> <i>Model task</i>	<i>Cognition and Learning</i> <i>Check understanding regularly</i> <i>Allow rest breaks</i> <i>Give thinking time</i> <i>Colour code signs that could be confusing</i> <i>Work checklists</i> <i>Break down tasks into small steps</i> <i>Give opportunities for over-learning</i>
<i>Social, Emotional and Mental health</i> <i>Allow access to a quiet and calm space</i> <i>Give child a special role to increase self esteem</i> <i>Provide a visual support- what to do if you are stuck</i> <i>Provide a movement break</i> <i>Seat pupil by more confident peer</i> <i>Now and next board</i> <i>Sand timers</i> <i>Movement breaks</i> <i>Break down tasks into small steps</i>	<i>Sensory and Physical</i> <i>Consider carpet space position</i> <i>Reduce background noise</i> <i>Provide a range of manipulatives- dienes may be too small</i> <i>Appropriate seating</i> <i>Wobble boards</i> <i>Writing slope</i> <i>Enlarge text</i> <i>Variety of writing tools available</i>