Planning Overview
Year 2 – 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.

2NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.
2AS–1 Add and subtract across 10
2AS–2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?".

Read scales in divisions of ones, twos, fives and tens (TAF ARE)
Read scales where not all numbers on the scale are given and estimate points in between (TAF GD)

	Teaching and Learning
Introduction – key vocab	Develop the use of the vocabulary total, altogether, more, less and difference by providing children with a selection of different coloured counters? Can they sort them? Can they say which colour has more/fewer counters? How many are there altogether? What is the difference between one colour and another? If children are struggling encourage them to line the objects alongside each other so that they can see the difference, and which one has more or less. Repeat for other objects e.g. cars, minibeasts. Use this mastery question for each type of data as you work through the plan and continue to practise after you have moved on from Statistics. **Mastery** *Generate data with the children on a daily basis. For example, use an IWB to identify who is having school dinner or a packed lunch.* *Present data in different ways: pictograms, tally charts, block diagrams and simple tables.* *Check whether children can answer questions about the data. For example: which is most popular? Which is least popular?* *Children may be able to answer simple retrieval questions, but can they extend to finding the total number or finding a difference?*

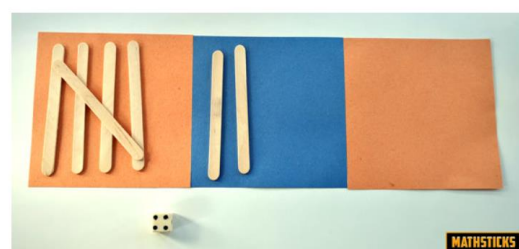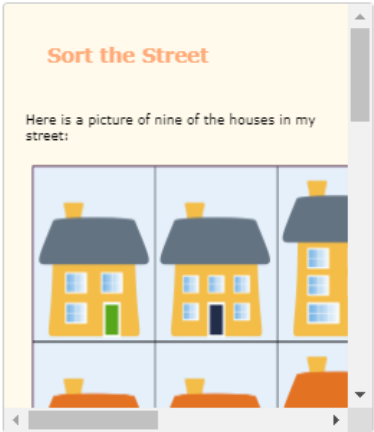| Interpret and construct simple tally charts and ask and answer questions about the data	Begin by recapping on counting in 5s. What patterns do the children notice? Use Mathsticks tally game. https://mathsticks.com/my/2020/01/tally-marks-the-game/ Players aim to fill their game-board with lolly sticks. Each player rolls a dice in turn and collects that number of lolly sticks. They place these on their board. Sticks 1 to 4 are simply placed in the square. However, should they have a total of 5 or more then they must arrange them to form a tally, and place sticks in the next square if necessary. On the next roll, 4 is added to the existing 3 to give 7 (5+2) Explain to the children that a tally chart is a systematic method of recording data as a running total for an unknown quantity. Pick a topic e.g. How people travel to school? Model asking each child how they travel to school and marking a tally as a 1:1 match to the children's responses. When you reach 5 discuss how the tally mark changes and refer back to Mathsticks game. **It is important not to count a whole set and then mark that on the tally.** Children need to see it as a way of keeping a systematic record of their findings. Continue until the class is complete. Now count each group and total the tally marks. Discuss how counting in 5s and 1s is easier than counting just in 1s. Show that when we add all the tally marks it should add to the number of the children in the class. Ask questions such as, do more children travel to school in a car than on a bicycle? How do we know? What is the least popular way to travel to school? What is the difference between the least and most popular way to travel to school? Allow children to create their own tally chart for another topic e.g. favourite sport/fruit/colour.

	Provide children with tally charts that are incomplete. Can they add any missing tally marks or totals? Can they answer questions about the tally chart once it is complete?
	Can the children write a statement about a tally chart, and another and another? How many statements can they write?
	Can the children make a true or false statement about the tally chart?
	Can they spot a mistake on a tally chart?
	Provide children with two tally charts e.g. favourite colours in Year 1 and favourite colours in Year 2. Can they answer, What's the same and what's different about the tally charts? They may say all the colours are the same on both charts. More people in Year 2 like red. 3 more people like yellow in Year 1 than in Year 2. Provide children with some stem sentences to support their comparison if needed.
	Choose a larger topic to consider using a tally chart e.g. the letters in the children's names on their table. Different birds in one place for a set time. How will they record it?
	Ask questions about the tally. What does this chart/table tell you? Tell me about the way you're creating your tally chart? What can you tell from the tally you have made?
Interpret and construct simple tables and ask and answer questions about the data	Demonstrate that a table is similar to a tally chart except you can count a set and record the total rather than marking the tally marks. Discuss what they need to construct their table. Create a list similar to the following list: 1. Work out how many columns and rows you need. How many groups. 2. Draw the table. Using a ruler, draw a large box. … 3. Label all your columns. 4. Record the data in the correct column or row. 5. Check your table. Model the process with a topic relevant to the class e.g. When is everyone's birthday? How many months are there? So how many rows? Ask questions about the table. What does this chart/table tell you? Tell me about the way you're creating your table? What can you tell from the table you have made?

	Provide the children with a bag of coins. Can they sort them and create a simple table to show how many of each is in the bag?

Ask questions about the table.
What does this chart/table tell you?
Tell me about the way you're creating your table?
What can you tell from the table you have made?

You could ask them to work out how much money there is if they are able to count in 2s 5s and 10s.

Provide children with reasoning activities such as Spot the mistake, Complete the table, Convince me more people like chocolate ice cream...,

Provide children with tables that have numbers they are comfortable to add together using the strategies taught in the addition and subtraction unit. Ask them questions about the table that will encourage them to add and subtract.
How many children like chocolate and strawberry ice cream?

How many more children like chocolate ice cream than vanilla ice cream? |
| **Interpret and construct simple pictograms and ask and answer questions about the data** | Sort a tube of smarties into different colours.

Line each colour up like a pictogram on a large piece of paper. Add the axes to the paper. Discuss what the axes are called. Add a title to your pictogram.

Draw around each smartie. Remove the smarties to be left with your pictogram. Discuss how each circle represents one smartie.

Ask questions about the pictogram. What colour were most of the smarties?

Encourage the children to repeat with a selection of objects e.g. counters. What can they say about their pictogram?

It is important that all the symbols on a pictogram are the same. Be careful when selecting pictograms from online resources.

Provide children with a selection of pictograms where each object represents 1. Ask questions about the pictogram.

Can children spot true or false statements about a pictogram? |

5	Ask children to complete a pictogram from a set of clues. E.g. Can you complete the number of people who walk to school if it is 2 more than the number of people who come in a car? Ask children to compare two pictograms e.g. goals scored in a football match. What's the same, what's different about the pictograms? Discuss how sometimes groups are too big to draw one symbol per object so sometimes we group them together. E.g. Number of goals scored in a season by a selection of teams. Discuss how one football symbol represents 2 goals. Take some data and convert to a pictogram. Have all even numbers until the end of the data. Discuss drawing half the football to show 1 goal. Repeat for other topics. Ask questions about a variety of pictograms. Ask children to compare pictograms. Can they create a pictogram from a table/ tally?
Interpret and construct simple block diagrams and ask and answer questions about the data	Sticky Data from Nrich **Sticky Data** Age 5 to 7 Challenge Level ★ *This activity is designed to be worked on in a large group or as a whole class. For more information, please read the Teachers' Notes.* Everyone in your group or class will need a sticky note. Write your name on it. You could even draw a picture of yourself on it too. You'll also need some large sheets of flipchart paper or you could work on the board or the floor. Draw two long lines on the paper/board/floor, something like this (you might ask an adult to do this for you): Extract in italics taken from **Nrich** website *"You could begin this activity using the children themselves to create a block graph. Pose a question for the class to answer. A good one to start with would be "How could we show how many girls and boys there are in our class?".* *Take ideas and if not already suggested, sit or stand the children in two lines. Which line is the longer?"*

| 6 | *Ask another question, for example, "How could we show how many children have school dinners and how many don't?".*

Again, after suggestions, sit or stand the children in two lines and talk about what they notice.

Now give each child a sticky note and ask them to write their name on it and decorate it in some way, should they wish.

How could we use the sticky notes to answer the same questions? Give learners time to have a think themselves, then talk to a partner, then share with the whole group (think – pair – share). Some may suggest sorting or grouping the sticky notes on opposite sides of the board, which you could try to begin with. The disadvantage of this method is that it's not so easy to compare the number of boys with the number of girls (unless of course there is a large difference between the two numbers!). Ask the class how the sticky notes could be arranged to make the counting easier. At this point, some may suggest lining the sticky notes up in two rows or two columns, just as they had been doing at the beginning of the activity. You could then superimpose the axes of the block graph as a way of framing the picture and invite children to suggest labels for each axis. If your class is familiar with block graphs, you could draw the axes on the board right from the beginning."

NB – Sticky notes may also be useful for pictograms.

Once the children have been introduced to Sticky notes as above, give each child a sticky note and ask them to write their name on it. Draw the axes to a block diagram on a large piece of paper.

Ask the children questions such as 'When is everyone's birthday?' Can the children decide on the labels for the x axes. Write these on a post it and label the lines. Then ask children to put their post it in the right month. Model how to put them in line with the month and on top of each other. Now model labelling the y axes. Discuss how this is like a numberline. Ask questions about the data. Which month has the fewest birthdays? What is the difference between March and May?

Take all the post it notes off and repeat for another topic e.g. favourite food.

Move to using multilink instead of post it notes. Give each child a multilink cube. Choose a topic, can they put their multilink cube on the axes? Ask questions about the data. Model how to draw the block diagram that has been made with multilink into a diagram. Show how there are 5 cubes in this category so we colour 5 blocks. |

	Encourage the children to make block graphs from tally charts, tables and pictograms. Ask questions about each block graph. Can the children complete a block graph from clues / table? Can the children create questions to ask (and answer) about block graphs using key vocabulary. Can the children make up True/ False statements about a block graph?
Consolidation – ask and answer questions about a variety of different representations	Can the children create questions to ask (and answer) about different statistical representations using key vocabulary? ## Sort the Street Age 5 to 7 Challenge Level ★ **Why do this problem?** This low threshold high ceiling problem is ideal for children to work on in pairs or small groups as this will encourage them to talk about what they are doing, which is a great assessment opportunity for you. Its open-ended nature is a reason in itself to try it in the classroom. Some pupils may surprise you with their inventiveness! **Possible approach** To introduce the problem, invite the children to chat in pairs about what they notice about the houses. Then, sort the houses according to a particular criterion using the interactivity and invite the class to work out how they have been sorted. This will help them to grasp the focus. Give each pair cards of the nine houses, (you can print off copies of either this pdf or this word document, laminate it and cut out for long-term use) so learners can physically sort the houses into groups. Children could record their different groupings in some way, perhaps by making a collective record on the board or on a large sheet of display paper. You could also use the interactivity to share ideas. It is important to recognise children's reasons for groupings. Any way of sorting the houses is valid, as long as a good explanation of the categories is given. You could round off the lesson by playing "odd one out". Drag four of the houses into a space and ask pupils to say which is the odd one out. Can they give reasons for any of the other houses to be an odd one out too?

Generate data with the children on a daily basis. For example, use an IWB to identify who is having school dinner or a packed lunch.

Present data in different ways: pictograms, tally charts, block diagrams and simple tables.

Check whether children can answer questions about the data. For example: which is most popular? Which is least popular?

Children may be able to answer simple retrieval questions, but can they extend to finding the total number or finding a difference?

Ten friends went to the fair.

The picture below shows each friend's favourite activity.

Fill in the number of children under each picture.

Challenge children to compare different ways of representing the same information.

Number of children				

Mastery with Greater Depth

Four children played racing games at break time. Each time they won a game they took a counter.

Sam	
Tom	
Sally	
Ally	

Present the information in a different way to make it clearer and answer the following questions:

Who won the most races?

How many more races did Ally win than Sally?

Does the information answer the question:

Who is the fastest runner?

Mastery with Greater Depth

What's the same? What's different?

Ice creams sold in one week	
Monday	🍦🍦🍦🍦🍦
Tuesday	🍦🍦🍦🍦
Wednesday	🍦🍦🍦
Thursday	🍦🍦🍦🍦🍦
Friday	🍦🍦🍦🍦🍦🍦
Saturday	🍦🍦🍦🍦🍦
Sunday	🍦🍦🍦🍦🍦

Cars in the car park on Monday at 10 o'clock	
Red	卌 l
Blue	卌
Black	卌 卌 lll
Silver	卌 卌 ll
White	卌 ll
Other	卌 llll