

# Reasoning and Problem Solving

## Step 1: Make Tally Charts

### National Curriculum Objectives:

Mathematics Year 2: (2S1) [Interpret and construct simple pictograms, tally charts, block diagrams and simple tables](#)

Mathematics Year 2: (2S2a) [Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity](#)

Mathematics Year 2: (2S2b) [Ask and answer questions about totalling and comparing categorical data](#)

### Differentiation:

Questions 1, 4 and 7 (Problem Solving)

**Developing** Use clues to add tallies and totals to a tally chart. Clues relate to the number of objects in each group. Tallies up to 15.

**Expected** Use clues to add tallies and totals to a tally chart. Clues relate to the number of objects in each group and totalling objects in different categories. Tallies up to 30.

**Greater Depth** Use clues to add tallies and totals to a tally chart. Clues compare objects in different categories using the language of twice, double or how many more. Tallies up to 30.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Read clues and place headings correctly to match tallies. The clues relate to how many objects in each category. Tallies up to 15.

**Expected** Read clues and place headings correctly to match tallies. The clues relate to totalling objects in different categories. Tallies up to 30.

**Greater Depth** Read clues and place headings correctly to match tallies. The clues compare objects in different categories using the language of 'how many more' or 'how many times more'. Tallies up to 30.

Questions 3, 6 and 9 (Reasoning)

**Developing** Explain whether a statement is true or false. The statements relate to how many objects in each category. Tallies up to 15.

**Expected** Explain whether a statement is true or false. The statements relate to totalling objects in different categories. Tallies up to 30.

**Greater Depth** Explain whether a statement is true or false. The statements compare using the language of 'how many more' or 'the difference between'. Tallies up to 30.




More [Year 2 Statistics](#) resources.

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## Make Tally Charts

1a. Class 1 counted the traffic passing school. They started their tally chart then...

*three more cars passed by,  
two more bikes went by,  
four more lorries passed by.*

Traffic	Tally	Total
	### I	
	### ### I	
	III	

Complete the tally chart.






PS

## Make Tally Charts

1b. Class 2 counted the traffic passing school. They started their tally chart then...

*three more cars went by,  
two more motorbikes passed by,  
five more buses passed by.*

Traffic	Tally	Total
	### ### III	
	###	
	### IIII	

Complete the tally chart.



PS

2a. Class 3 surveyed the wildlife in the school grounds.

*Frogs were the most common.  
Squirrels were the least common.  
They saw an odd number of mice.*

Wildlife	Tally	Total
	IIII	4
	### ###	10
	### II	7

Add the correct names to the tally chart.



PS

2b. Class 4 did a survey of favourite sports.

*Tennis was the least popular.  
Golf was the most popular.  
More than 10 children like hockey.*

Sports	Tally	Total
	### ### II	12
	II	2
	### ### IIII	14

Add the correct names to the tally chart.



PS

3a. Jen carried out a survey of bed times. She says,



Fourteen children go to bed at 8pm.

True or false? Explain how you know.

Time	Tally	Total
7pm	### III	
8pm	### ### ###	
9pm	II	



R

3b. Suni counted the colours of sweets in a jar. He says,



Most sweets in the jar were red.

True or false? Explain how you know.

Colours	Tally	Total
Red	### I	
Pink	III	
Green	### ### I	



R

## Make Tally Charts

4a. Year 4 survey the number of children in school. They start a tally chart.

*Four more children join Year 2.*

*There are 36 children in Year 3 and 4 in total.*

*There are 3 fewer children in Year 1 than Year 2.*

Year	Tally	Total
1		
2		
3		16
4		

Complete the tally chart.



PS

## Make Tally Charts

4b. Year 2 survey the number of children in school. They start a tally chart.

*Five more children join Year 1.*

*In total, there are 40 children in Year 2 and 3.*

*There are 4 more children in Year 4 than Year 3.*

Year	Tally	Total
1		
2		
3		21
4		

Complete the tally chart.



PS

5a. Josh counted the birds that came into his garden.

*Magpies were most popular and wrens least.*

*There were 40 robins and magpies altogether.*

*There were 14 wrens and sparrows altogether.*

Birds	Tally	Total
Robin		10
		3
		30
		11

Add the correct names to the tally chart.



PS

5b. Amy counted the animals she saw at the zoo.

*Monkeys were the most common.*

*There were 20 bears and elephants in total.*

*There were 9 more penguins than bears.*

Animals	Tally	Total
Elephants		12
		26
		8
		17

Add the correct names to the tally chart.



PS

6a. Zaynab carried out a traffic survey. She says,



I saw more bikes than buses and lorries added together.

True or false? Explain how you know.

Vehicles	Tally	Total
Bus		4
Bike		19
Lorry		13
Car		27



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6b. Shah counted the shaped buttons in a box. He says,



There were fewer than 35 circle and square buttons in total.

True or false? Explain how you know.

Shapes	Tally	Total
Square		15
Circle		21
Star		7
Triangle		24



R

## Make Tally Charts

7a. Class 5 have started a tally chart for the after school clubs they attend.

- 5 more children go to Chess than Choir.
- 8 fewer children go to Coding than Chess.
- 11 fewer children go to Netball than Coding and Choir added together.

Clubs	Tally	Total
Chess		
Netball		
Coding		
Choir		22

Complete the tally chart.



PS

## Make Tally Charts

7b. Class 6 have started a tally chart for the after school clubs they attend.

- 2 more children go to Art than Drama.
- In total, 40 children go to Art and Guitar.
- Cycling Club is double the size of Guitar Club.

Clubs	Tally	Total
Art		
Cycling		
Guitar		
Drama		24

Complete the tally chart.



PS

8a. Year 6 have started a tally chart to show their favourite school lessons.

- 5 times more children liked PE than History.
- 4 more children liked PE than Art.
- 13 fewer children liked Art than Music.

Lessons	Tally	Total
History		

Complete the tally chart.



PS

8b. Year 5 have started a tally chart to show their favourite colours.

- Twice as many children liked blue than red.
- 10 more children liked purple than red.
- In total, 43 children chose purple or green.

Colours	Tally	Total
Red		

Complete the tally chart.



PS

9a. Iram carried out a pet survey. She says,



The difference between the number of children who have dogs and cats is 7.

True or false? Explain how you know.

Pets	Tally	Total
Hamster		
Dog		
Rabbit		
Cat		



R

9b. Lester carried out a gaming survey. He says,



Four more children like 2 Week than Italy Kart and Football together.

True or false? Explain how you know.

Game	Tally	Total
You Build		
2 Week		
Italy Kart		
Football		






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## Reasoning and Problem Solving Make Tally Charts

### Developing

1a.

Traffic	Tally	Total
		9
		13
		7

2a. Squirrels = 4; Frogs = 10; Mice = 7

3a. False. The tally shows that 15 children go to bed at 8pm.

### Expected

4a.

Year	Tally	Total
1		23
2		26
3		16
4		20

5a. Wren = 3; Magpie = 30; Sparrow = 11

6a. True. There were 17 buses and lorries altogether and there were 19 bikes. 19 is greater than 17.

### Greater Depth

7a.

Clubs	Tally	Total
Chess		27
Netball		30
Coding		19
Choir		22




8a. History = 4; Art = 16; Music = 29; P.E = 20,

9a. False. 28 children have dogs and 26 children have cats.  $28 - 26 = 2$ . The difference is 2.

## Reasoning and Problem Solving Make Tally Charts

### Developing

1b.

Traffic	Tally	Total
		15
		8
		14

2b. Hockey = 12; Tennis = 2; Golf = 14

3b. False. Green has the highest tally of 11 so most sweets in the jar were green.

### Expected

4b.

Year	Tally	Total
1		23
2		19
3		21
4		25

5b. Monkeys = 26; Bears = 8; Penguins = 17

6b. False.  $15 + 21 = 36$  which is greater than 35.

### Greater Depth

7b.

Clubs	Tally	Total
Art		26
Cycling		28
Guitar		14
Drama		24

8b. Blue = 24; Purple = 22; Green = 21; Red = 12,

9b. True. 13 like Italy Kart and 12 like Football, which is 25 altogether. 29 like 2 Week. 29 is 4 more than 25.