# Reasoning and Problem Solving
## Step 5: Interpret Pictograms (2, 5 and 10)

## 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 (Reasoning)
**Developing** Determine whether a statement about a pictogram is correct and explain why. One picture represents 2, 5 or 10 and there are no half pictures. Statement involves simple retrieval.
**Expected** Determine whether a statement about a pictogram is correct and explain why. One picture represents 2, 5 or 10 and there are some half pictures.
**Greater Depth** Determine whether a statement about a pictogram is correct and explain why. One picture represents 2, 5 or 10 and includes half pictures. Statement involves two steps.

Questions 2, 5 and 8 (Problem Solving)
**Developing** Use clues to complete the categories of a pictogram. One picture represents 2, 5 or 10 and there are no half pictures. Clues involve simple retrieval.
**Expected** Use clues to complete the categories of a pictogram. One picture represents 2, 5 or 10 and there some half pictures.
**Greater Depth** Use clues to complete the categories of a pictogram. One picture represents 2, 5 or 10 and includes half pictures. Clues involve two steps.

Questions 3, 6 and 9 (Reasoning)
**Developing** Determine whether a statement about a pictogram is true or false and explain why. One picture represents 2, 5 or 10 and there are no half pictures. Statement involves simple retrieval.
**Expected** Determine whether a statement about a pictogram is true or false and explain why. One picture represents 2, 5 or 10 and there are some half pictures.
**Greater Depth** Determine whether a statement about a pictogram is true or false and explain why. One picture represents 2, 5 or 10 and includes half pictures. Statement involves two steps.

## More Year 2 Statistics resources.

## Did you like this resource? Don't forget to review it on our website.

**classroomsecrets.co.uk**

## 1a. Anna counted balloons.

| Red |  |
|------|------|
| Yellow |  |
| Green |  |

 = 2

The most common colour of balloon was red.

Is she correct? Explain why.

R

## 1b. Toby counted coloured pencils.

| Blue |  |
|------|------|
| Red |  |
| Green |  |

 = 5

I counted 100 green pencils.

Is he correct? Explain why.

R

## 2a. Use the clues to complete the pictogram.



 = 2

Roses were the most popular flower.

Tulips were the least popular flower.

8 people chose lilies.

PS

## 2b. Use the clues to complete the pictogram.



 = 10

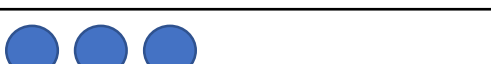Tom collected more shells than Bess.

Bess collected 40 shells.

Sam collected the most.

PS

## 3a. True or false?

There were 70 animals on the farm.
35 of the animals were sheep.

| Cow |  |
|------|------|
| Pig |  |
| Sheep |  |

Prove it.     = 5

R

## 3b. True or false?

Josh planted the most seeds.
Adam only planted 2 seeds.

| Freya |  |
|------|------|
| Josh |  |
| Adam |  |

Prove it.     = 2

R

# classroomsecrets.co.uk

**4a.** Zara counted snack fruits.

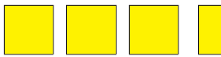| Apples | ● ● ● ● |
| Pears | ● ● ● |
| Grapes | ● ● ● ● ● |

I counted 24 snack fruits in total so the value of a circle is 5.

**Is she correct? Explain why.**

**4b.** Shadi counted school dinners.

| Monday | ▮ ▮ ▮ ▮ ▯ |
| Tuesday | ▮ ▮ ▮ ▯ |
| Wednesday | ▮ ▮ ▮ |

I counted 35 school dinners on Tuesday so the value of a square is 10.

**Is he correct? Explain why.**

**5a.** Use the clues to complete the pictogram.

| | 😄😄😄😄😄😄😄😄😄 |
| | 😄😄😄😄😄😄😄😄😄😄 |
| | 😄😄😄😄😄😄😄 |

😄 = 2

**More people liked dance than chess.**

**Karate was least popular.**

**17 people liked chess.**

**5b.** Use the clues to complete the pictogram.

| | ⬤⬤⬤⬤⬤⬤⬤ |
| | ⬤⬤⬤⬤⬤⬤⬤⬤⬤ |
| | ⬤⬤⬤⬤⬤⬤◗ |

⬤ = 10

**Blue was the least popular colour.**

**5 more people liked red than blue.**

**10 more people like green than red.**

**6a.** True or false?

95 people travelled by car, the same number travelled by train and 90 travelled by plane.

| Car | ★★★★★★★★★⯪ |
| Plane | ★★★★★★★★★ |
| Train | ★★★★★★★★★⯪ |

**Prove it.**  ★ = 10

**6b.** True or false?

The baker baked 18 biscuits, 14 cakes but only 3 muffins.

| Muffin | 🧁🧁🧁 |
| Cake | 🧁🧁🧁🧁🧁🧁🧁 |
| Biscuit | 🧁🧁🧁🧁🧁🧁🧁🧁🧁 |

**Prove it**  🧁 = 2

# classroomsecrets.co.uk

**Reasoning and Problem Solving – Interpret Pictograms (2, 5 and 10) – Year 2 Expected**

**7a.** Ali counted buttons.

| Black | |
| Silver | |
| White | |

= 5

You could also draw this pictogram with each button having a value of 10.

Is he correct? Explain why.

**7b.** Saffie counted marbles.

| Red | |
| Blue | |
| Green | |

= 2

I could also draw this pictogram with each marble having a value of 5.

Is she correct? Explain why.

**8a.** Use the clues to complete the pictogram and key.

= 

Ben counted 5 lorries.

In total, there were 19 cars and buses

There were 5 more cars than buses.

**8b.** Use the clues to complete the pictogram and key.

= 

There were more hamsters than rabbits.

There were 55 rabbits and mice in total.

There were more than 20 mice.

**9a.** True or false?

Fred has 45 more stickers than Amie, but Zac has more stickers than Amie and Fred added together.

| Zac | |
| Fred | |
| Amie | |

Prove it.  = 10

**9b.** True or false?

Twice as many people chose tuna sandwiches than chose beef sandwiches. Only 9 people chose ham sandwiches.

| Tuna | |
| Ham | |
| Beef | |

= 2

Reasoning and Problem Solving – Interpret Pictograms (2, 5 and 10) – Year 2 Greater Depth

# Reasoning and Problem Solving
## Interpret Pictograms (2, 5 and 10)

### Developing
**1a.** Anna is correct. Various answers, for example: There are more red balloons than any other colour.
**2a.** Lilies; Roses; Tulips
**3a.** True. Various answers, for example: If you count all the symbols in 5s the total is 70. There are 7 symbols for sheep and 7 x 5 = 35.

### Expected
**4a.** Zara is incorrect. Various answers, for example: If you count the circles in 5s the total is 60. If you count the circles in 2s the total is 24, so the value of a circle is 2.
**5a.** Chess; Dance; Karate
**6a.** True. Various answers, for example: There are 9 full stars and half a star, which give a total value of 95, for both 'car' and 'train'. There are 9 stars for 'plane' which gives a total value of 90.

### Greater Depth
**7a.** Ali is correct. Various answers, for example: For 'black' the total value is 40, for 'silver' it is 30 and for 'white' it is 20. 40, 30 and 20 are all multiples of 10 so the pictogram could be drawn with each button having a value of 10.
**8a.** Buses; Cars; Lorries; Value = 2
**9a.** False. Various answers, for example: Fred has 75 stickers and Amie has 40 so Fred has 35 more than Amie. Zac has 85 but Fred and Amie have 115 added together.

# Reasoning and Problem Solving
## Interpret Pictograms (2, 5 and 10)

### Developing
**1b.** Toby is incorrect. Various answers, for example: He has counted in 10s instead of 5s. There are 50 green pencils.
**2b.** Tom; Sam; Bess
**3b.** False. Various answers, for example: Josh planted 14 seeds but Freya planted 18 seeds so Freya planted the most. The symbols are worth 2 so Adam planted 4 seeds.

### Expected
**4b.** Shadi is correct. Various answers, for example: If each square is worth 10, half a square is worth 5 so on Tuesday there were 10 + 10 + 10 + 5 = 35 school dinners.
**5b.** Red; Green; Blue
**6b.** False. Various answers, for example: There are 9 symbols for 'biscuits', which give a total value of 18 but there are 7 and a half symbols for 'cake', which give a total value of 15. There are 3 symbols for muffins, which give a total value of 6.

### Greater Depth
**7b.** Saffie is incorrect. Various answers, for example: For 'red' the total value is 13, for 'blue' it is 16 and for 'green' it is 17. 13, 16 and 17 are not multiples of 5 so the pictogram could not be drawn with each marble having a value of 2.
**8b.** Hamsters; Rabbits; Mice; Value = 5
**9b.** True. Various answers, for example: 14 chose tuna and 7 chose beef. 14 is double 7. There are 4 and a half squares for ham so the total value is 9.