Reasoning and Problem Solving Step 4: Draw Pictograms (2, 5 and 10)

National Curriculum Objectives:

Mathematics Year 2: (2S1) <u>Interpret and construct simple pictograms, tally charts, block</u> <u>diagrams and simple tables</u>

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Draw a pictogram from the given statements. Three clues, with each image representing either 2, 5 or 10. No half pictures.

Expected Draw a pictogram from the given statements. Four clues, with each image representing either 2, 5 or 10. Includes half pictures.

Greater Depth Draw a pictogram from the given statements. Four clues, with each image representing either 2, 3, 5 or 10. Includes half pictures. No value given for pictogram.

Questions 2, 5 and 8 (Reasoning)

Developing Use the pictogram to explain whether the statement is correct. Each image representing either 2, 5 or 10. No half pictures. Pictogram is partially complete. Expected Use the pictogram to explain whether the statement is correct. Each image representing either 2, 5 or 10. Includes half pictures. Pictogram is partially complete. Greater Depth Use the pictogram to explain whether the statement is correct. Each image representing either 2, 3, 5 or 10. Includes half pictures. No value given for pictogram.

Questions 3, 6 and 9 (Problem Solving)

Developing Use the clues to work out how many images could be missing from the pictogram. Each image representing either 2, 5 or 10. No half pictures. Pictogram is partially complete.

Expected Use the clues to work out how many images could be missing from the pictogram. Each image representing either 2, 5 or 10. Includes half pictures. Pictogram is partially complete.

Greater Depth Use the clues to work out how many images could be missing from the pictogram. Each image representing either 2, 5 or 10. Includes half pictures. No value given for pictogram.

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10 children like water.

8 children like milk.

1b. A class is collecting information.

Only 2 children like juice.

1a. A class is collecting information.



8 children like lions.

Only 4 children like elephants.





6 children like tigers.

Create a pictogram to display this information where one picture represents 2 animals.



Create a pictogram to display this information where one picture represents 2 children.



2a. Stan is drawing a pictogram to show Year 2's favourite colours.

Colours	Number of Children = 5 children
Blue	
Yellow	
Green	

2b. Anna is drawing a pictogram to show Year 2's hair colours.

Hair	Number of Children
Colour	= 10 children
Black	
Brown	
Blonde	

Stan says,

I must draw 5 circles to show 5 children like blue.



Is he correct? Explain your answer.

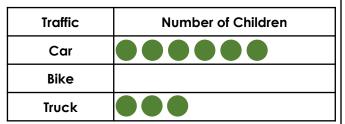
Anna says,

I must draw 20 circles to show 20 children have blonde hair.



Is she correct? Explain your answer.

3a. Naseem is drawing a pictogram where = 5 children.



3b. Filip is drawing a pictogram where = 10 children.

Favourite Sport	Number of Children
Football	
Cricket	
Gymnastics	

Naseem knows there were 10 more bikes than trucks. How many bikes were there?

Complete the pictogram.

Filip knows 20 more children like cricket than gymnastics. How many children like cricket? Complete the pictogram.



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4b. A year group is collecting information.





There are 3 more cats than dogs.

Only 10 children like hamsters.



9 more children like dogs than fish.

11 children like fish.



Create a pictogram to display this information where one picture represents 2 children.





5 more children like plums than oranges.

5 more children like kiwis than plums.

15 children like oranges.



Create a pictogram to display this information where one picture represents 5 children.



5a. Ed is drawing a pictogram to show Year 2's favourite drinks.

Drinks	Number of Children = 10 children
Orange	
Cola	
Water	
Milk	

Ed says,

I must draw 30 circles to show 30 children like water.



Is he correct? Explain your answer.

5b. Olivia is drawing a pictogram to show Year 2's favourite playground games.

Games	Number of Children = 2 children
Football	
Skipping	
Hopscotch	
Races	

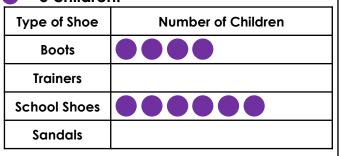
Olivia says,

I must draw 10 circles to show 20 children like skipping.



Is she correct? Explain your answer.

6a. Evie is drawing a pictogram where = 5 children.



Evie knows more children wear trainers than sandals, but fewer children wear trainers than boots. How many children could wear trainers? Complete the pictogram.

6b. Jakub is drawing a pictogram where = 10 children.

Accommodation	Number of Children
Detached House	
Cottage	
Terraced House	
Flat	

Jakub knows more children live in a flat than live in a cottage, but more children live in a cottage than a terraced house. How many children could live in a

cottage? Complete the pictogram.



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We saw 11 fewer red cars than white.

We saw 2 fewer blue cars than red.



We saw 5 more white than black.

We saw 9 black cars.



Create a pictogram to display this information using the fewest number of images possible. Remember you can use half images.

7b. A class is collecting information.



3 fewer children like broccoli than carrots.

2 more children like carrots than

peas.

7 fewer children like sweetcorn than broccoli.



15 children like peas.



Create a pictogram to display this information using the fewest number of images possible. Remember you can use half images.

8a. Riley is drawing a pictogram to show 30 of his friends' favourite superheroes.

Superheroes	Number of Children
Super Cat	
Bat Dog	
Iron Boy	0001
Green Girl	

Riley says,

I must draw 1 circle to show 10 children prefer Green Girl.



Is he correct? Explain your answer.

8b. Sara is drawing a pictogram to show 30 of her friends' favourite cartoons.

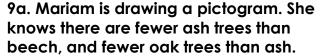
Cartoons	Number of Children
Dino Dogs	
Bug Men	
Tiny Tia	
Power Girl	

Sara says,

I must draw 6 circles to show 12 children prefer Dino Dogs.



Is she correct? Explain your answer.



Trees	Number of Trees in the Forest
Ash	
Beech	
Elm	000001
Oak	

Complete the pictogram.

How many of each tree could there be?

Find 2 possibilities.

9b. Jojo is drawing a pictogram. He knows fewer children are 4 than 5, but fewer children were 7 years old than 4.

Ages	Number of Children
4 years	
5 years	
6 years	
7 years	

Complete the pictogram. How many children could there be in each age group? Find 2 possibilities.







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Developing

1a.

Animals	Number of Children = 2 children
Lions	
Elephants	
Tigers	

2a. No. 1 image = 5 children, so Stan must only draw one image.

3a. Bike = 25

Traffic	Number of Children = 5 children
Car	00000
Bike	
Truck	000

Expected

4a.

Pets	Number of Children = 2 children
Cats	00000000001
Dogs	00000000
Hamsters	
Fish	000001

5a. No, 1 image = 10 children, so Ed must draw 3 images.

6a. Various answers, for example:

Shoe Type	Number of Children = 5 children
Boots	0000
Trainers	
School Shoes	000000
Sandals	

Developing

1b

).	Drinks	Number of Children = 2 children
	Water	
	Juice	
	Milk	

2b. No. 1 image = 10 children, so Anna must only draw 2 images.

3b. Cricket = 30

Sport	Number of Children = 10 children
Football	00000
Cricket	
Gymnastics	\bigcirc

Expected

4b.

Fruit	Number of Children = 5 children
Kiwis	••••
Plums	
Oranges	
Mangoes	

5b. No, 1 image = 2 children, so Olivia must draw 10 images.

6b. Various answers, for example:

Accommoda- tion	Number of Children = 10 children
Detached House	J
Cottage	•••
Terraced House	
Flat	000

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Greater Depth

7a. Various answers, for example:

Colour of	Number of Cars
Cars	= 2 cars
Red	••
White	000000
Blue	
Black	00001

8a. No, 1 image = 2 children, so Riley must draw 5 images.

9a. Various possible answers:

Trees	Number of Trees in the Forest = 10 trees
Ash	
Beech	0000
Elm	000001
Oak	

There could be 30 ash, 40 beech, 55 elm and 20 oak trees in the school grounds.

Greater Depth

7b. Various answers, for example:

Vegetable	Number of Children = 2 children
Broccoli	•••••
Carrots	00000001
Sweetcorn	•••
Peas	•••••

8b. Yes, 1 image = 2 children, so Sara must draw 6 images.

9b. Various possible answers:

Ages	Number of Children = 10 children
4 years	
5 years	0001
6 years	0000
7 years	

There could be 30 4 year olds, 35 5 year olds, 40 6 year olds and 20 7 year olds.