

Reasoning and Problem Solving

Step 1: Part Whole Model

National Curriculum Objectives:

Mathematics Year 1: (1C1) [Represent and use number bonds and related subtraction facts within 20](#)

Mathematics Year 1: (1C2b) [Read, write and interpret mathematical statements involving addition \(+\), subtraction \(-\) and equals \(=\) signs](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Fill in the two missing parts using the clues to help; totals within 10. Using two different visual representations.

Expected Fill in the two missing parts using the clues to help; totals within 10. Using counters.

Greater Depth Fill in the three missing parts; totals within 10. Using numerals and words.

Questions 2, 5 and 8 (Problem Solving)

Developing Read a simple word problem and use a part whole model (2 groups) to identify the total. Using visual representations for both groups.

Expected Read a simple word problem and use a part whole model (2 groups) to identify a missing part. Using visual representations for one group.

Greater Depth Read a simple word problem use a part whole model (3 groups) to help find the solution. Using the same visual representations, numerals and words.

Questions 3, 6 and 9 (Reasoning)

Developing Explain if the statement is correct. Statement refers to two part models. Two different visual representations.

Expected Explain if the statement is correct. Statement refers to two or three part models. Visual representations and numerals.

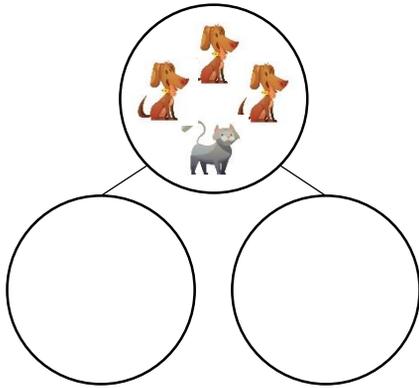
Greater Depth Explain if the statement is correct. Statement refers to three part models. Using the same visual representation, numerals or words.

More [Year 1 Addition and Subtraction](#) resources.

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

Part Whole Model

1a. Dan has more pets than Sal.
Fill in the missing parts.



Dan

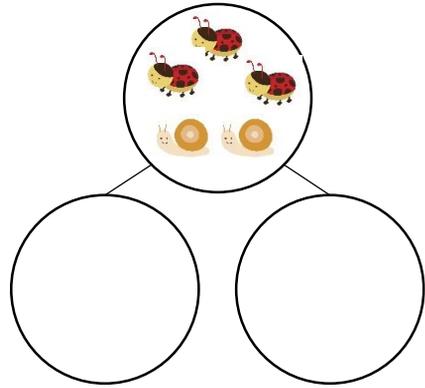
Sal



PS

Part Whole Model

1b. Tim has fewer bugs than Bob.
Fill in the missing parts.



Tim

Bob



PS

2a. Tom has 2 pigs.

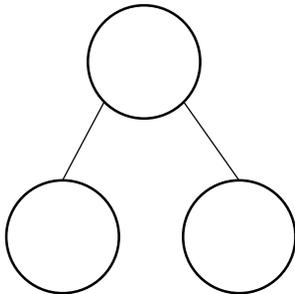


Max has 4 hens.



What is the total?

Use a part whole model to help you.



Tom

Max



PS

2b. Jon has 3 bees.

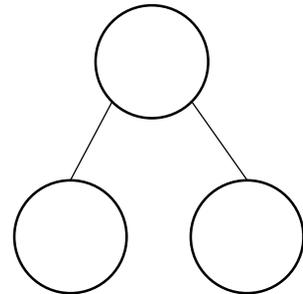


Ann has 5 ants.



What is the total?

Use a part whole model to help you.



Jon

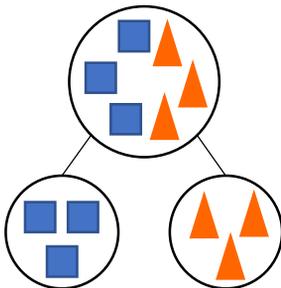
Ann



PS

3a. Ben says,

My part whole model is correct.



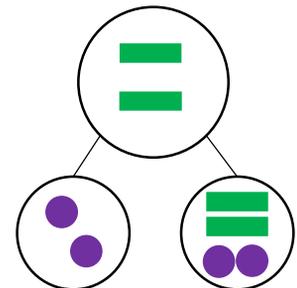
Is Ben right? Explain how you know.



R

3b. Jin says,

My part whole model is correct.



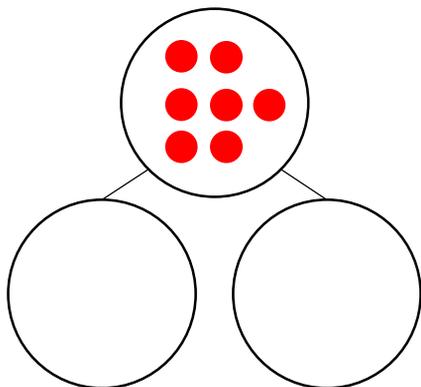
Is Jin right? Explain how you know.



R

Part Whole Model

4a. Pat has more counters than Sam.
Fill in the missing parts.



Pat

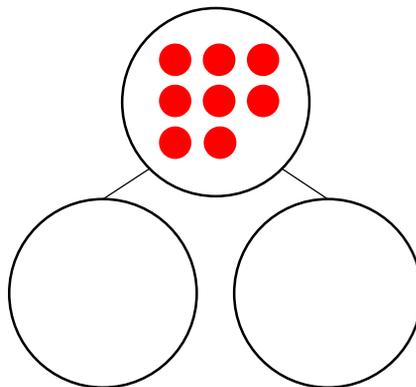
Sam



PS

Part Whole Model

4b. Ying has fewer counters than Lin.
Fill in the missing parts.



Ying

Lin



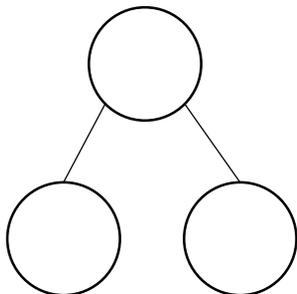
PS

5a. Emma and Evan have 8 objects.

Emma has 3 cars. 

How many vans does Evan have?

Use a part whole model to help you.



Emma

Evan



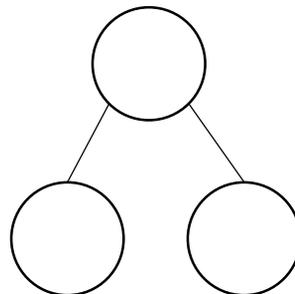
PS

5b. Jack and Ava have 7 objects.

Ava has 4 sweets. 

How many cakes does Jack have?

Use a part whole model to help you.



Ava

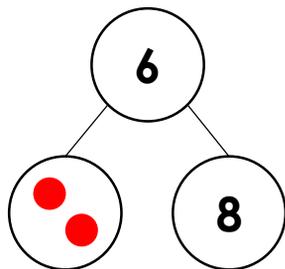
Jack



PS

6a. Ray says;

My part whole model is correct.



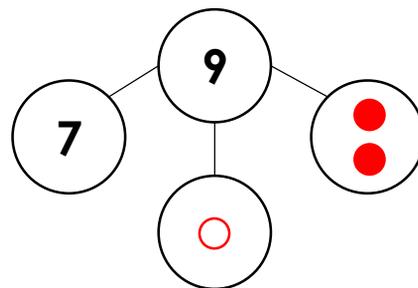
Is Ray right? Explain how you know.



R

6b. Pam says,

My part whole model is correct.



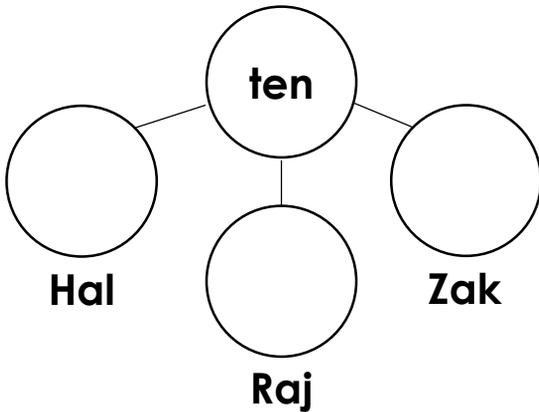
Is Pam right? Explain how you know.



R

Part Whole Model

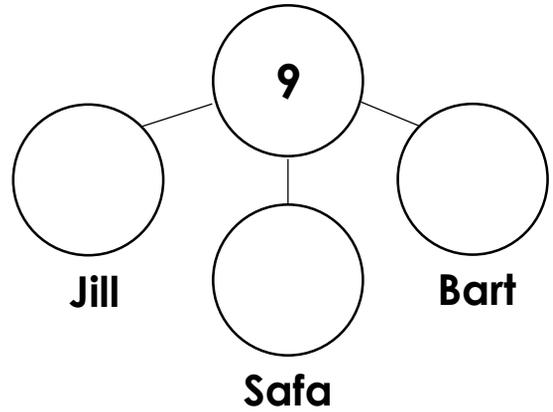
7a. Hal has least counters.
Raj and Zak both have more than Hal.
Fill in the missing parts.



PS

Part Whole Model

7b. Jill has most counters.
Safa and Bart both have fewer than Jill.
Fill in the missing parts.

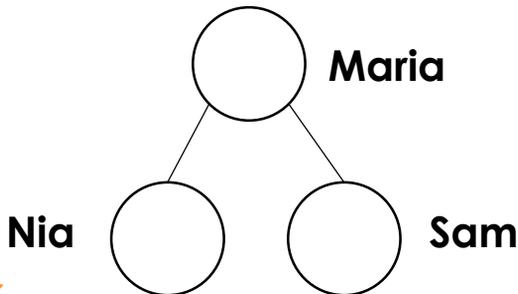


PS

8a. Maria has 7 lollipops. 
She gives three to Nia. 

How many does Sam get?

Use a part whole model to help you.

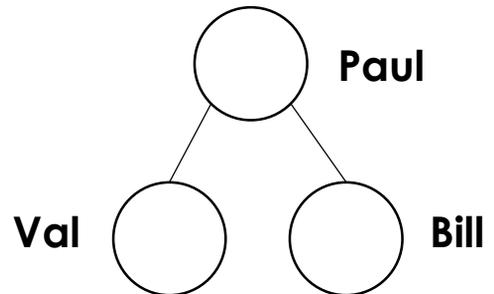


PS

8b. Paul has 8 apples. 
He gives 2 to Val. 

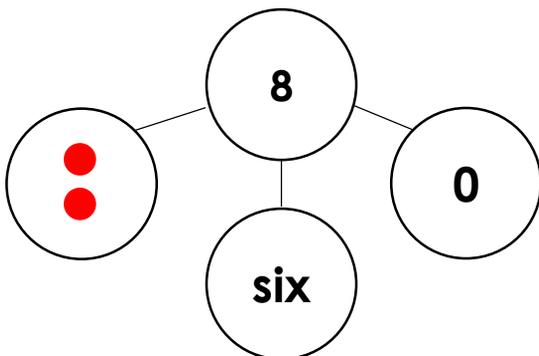
How many does Bill get?

Use a part whole model to help you.



PS

9a. Dani says,
My part whole model is correct.

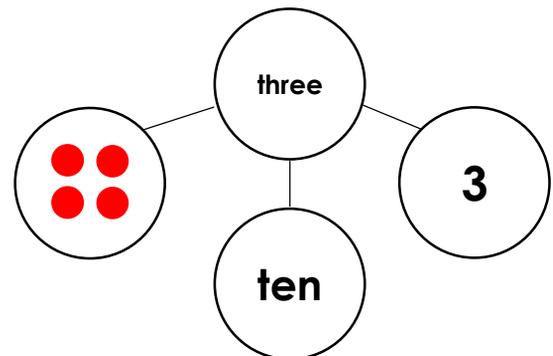


Is Dani right? Explain how you know.



R

9b. Wez says;
My part whole model is correct.



Is Wez right? Explain how you know.



R

Reasoning and Problem Solving Part Whole Model

Developing

- 1a. Dan has 3 dogs. Sal has 1 cat.
2a. The whole is 6.
3a. Ben is right because the parts are 3 squares and 3 triangles. The whole is 6 shapes.

Expected

- 4a. Various answers, for example:
Pat = 7, Sam = 0
Pat = 6, Sam = 1
Pat = 5, Sam = 2
Pat = 4, Sam = 3
5a. Evan has 5 vans.
6a. Ray is wrong because the whole should be 8. The parts are 6 and 2.

Greater Depth

- 7a. Various answers, for example:
Hal = 1, Raj = 2, Zak = 7
Hal = 2, Raj = 3, Zak = 5
Hal = 2, Raj = 4, Zak = 4
8a. Sam gets 4 lollipops.
9a. Dani is right. The whole is 8. The parts are 2, 6 and 0.

Reasoning and Problem Solving Part Whole Model

Developing

- 1b. Tim has 2 snails. Bob has 3 ladybirds.
2b. The whole is 8.
3b. Jin is wrong because she has put the whole where a part should go.

Expected

- 4b. Various answers, for example:
Ying = 0, Lin = 8
Ying = 1, Lin = 7
Ying = 2, Lin = 6
Ying = 3, Lin = 5
5b. Jack has 3 cakes.
6b. Pam is wrong because the whole should be 10.

Greater Depth

- 7b. Various answers, for example:
Jill = 7, Safa = 1, Bart = 1
Jill = 6, Safa = 2, Bart = 1
Jill = 5, Safa = 3, Bart = 1
8b. Bill gets 6 apples.
9b. Wez is wrong because he has put the whole where a part should go. The whole is 10. The parts are 4, 3 and 3.