

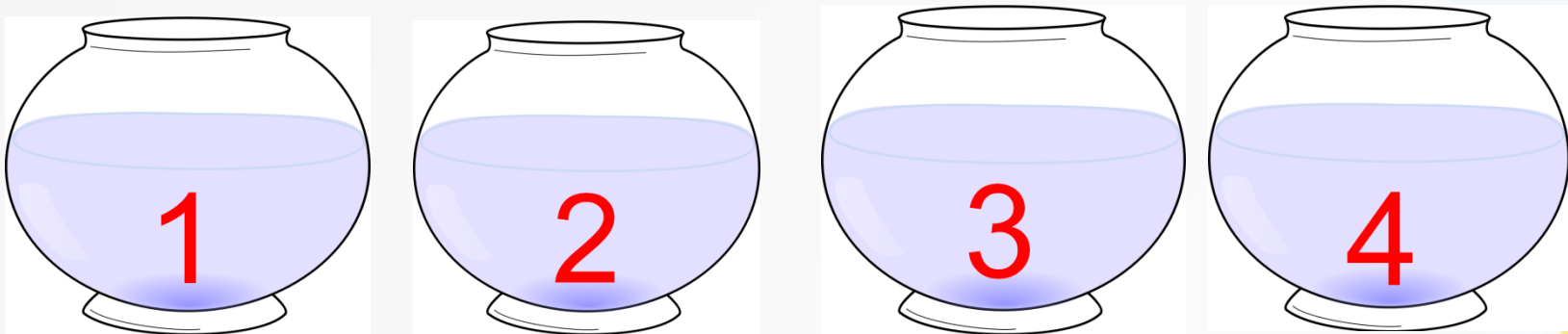
# Mathematical challenges for able pupils

Year 1 C Handling data and  
measures



# Fish Bowls

- Sam threw 3 bouncy balls.
- Each bag went in a fish bowl.
- More than ball can go in a fish bowl.
- The scores are written on the fish bowls.



2. What three numbers does Dan get?

Next click brings you the solutions...

## Learning Objective:

- Solve mathematical problems or puzzles.
- Know addition facts up to 10.

# Solution to the Fish Bowl problem.

1. The highest score is 12  
(3 balls in 4).

2. Score 6 in three ways:

1 ball in 4 and 2 balls in 1, or 1 ball in 1, 1 ball in 2 and 1 ball in 3, or 3 balls in 2.

3. Score 9 in three ways:

1 ball in 1 and 2 balls in 4, or 1 ball in 2, 1 ball in 3, 1 ball in 4, or 3 balls in 3.

4. Besides 6, 9 and 12, other possible scores are:

**3:** 3 balls in 1

**4:** 2 balls in 1, 1 ball in 2

**5:** 2 balls in 1, 1 ball in 3, or 1 ball in 1, 2 balls in 2

**7:** 1 ball in 1, 2 balls in 3, or 2 balls in 2, 1 ball in 3, or

1 ball in 1, 1 ball in 2, 1 ball in 4

**8:** 2 balls in 2, 1 ball in 4, or 1 ball in 2, 2 balls in 3, or

1 ball in 1, 1 ball in 3, 1 ball in 4

**10:** 1 ball in 2, 2 ball in 4

## Learning Objective:

- Solve mathematical problems or puzzles.
- Know addition facts up to 10.

# Christmas tree

- Rudolph put four stars on a tree.
- He coloured each star either red or yellow.



In how many different ways can Rudolph colour the four stars?

## Learning Objective:

- Solve mathematical problems or puzzles.
- Solve a problem by organising information.
- Explain methods and reasoning.

# Solution for Christmas Tree

There are 16 different ways:

1 way for 4 red;

1 way for 4 yellow;

4 ways for 3 red and 1 yellow;

4 ways for 1 red and 3 yellow;

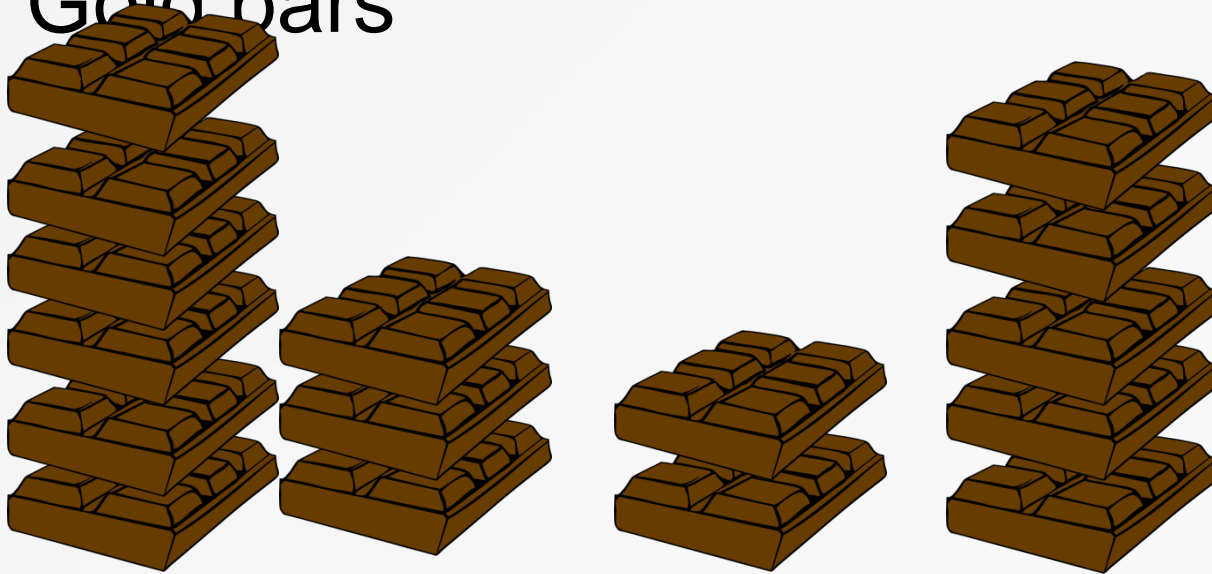
6 ways for 2 red and 2 yellow



## Learning Objective:

- Solve mathematical problems or puzzles.
- Solve a problem by organising information.
- Explain methods and reasoning.

# Gold bars



Jane loves to count chocolate bars.  
Her chocolate bars are in piles.  
She can move one or more bars at a time.  
She made all the piles the same height.  
She made just two moves.  
How did she do it?

## Learning Objective:

- Solve mathematical problems or puzzles.
- Explain methods and reasoning.

# Solution to the Chocolate bars problem.

- Move two bars from pile 1 to pile 3.
- Move one bar from pile 4 to pile 2.

## Learning Objective:

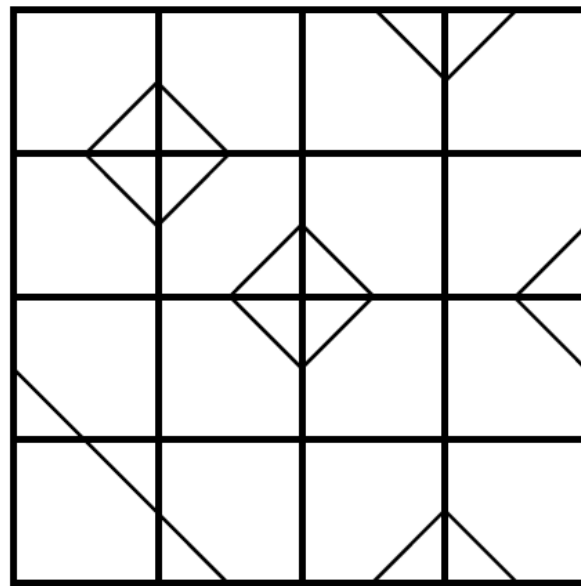
- Solve mathematical problems or puzzles.
- Explain methods and reasoning.

# Odd one out

1. Here is a grid of 16 squares.

One square is different from all the others.

Mark it on the grid.



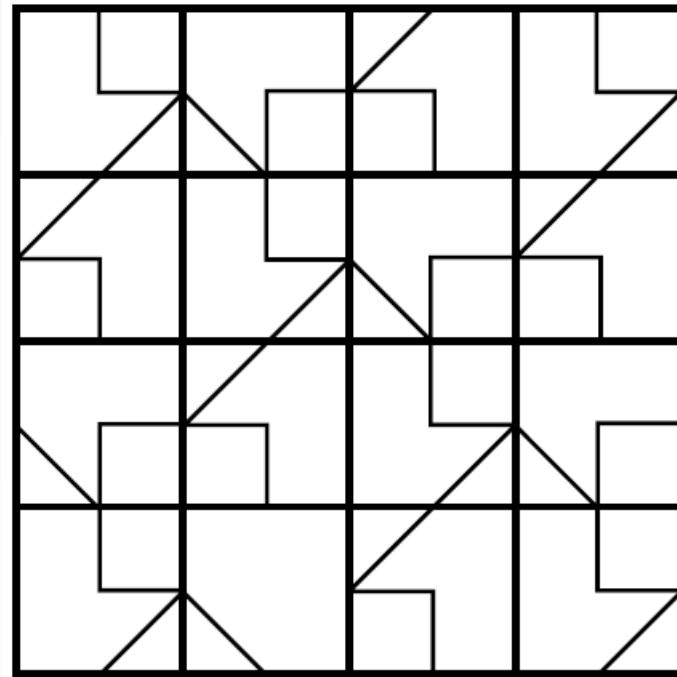
## Learning Objective:

- Solve mathematical problems or puzzles.
- Make and describe patterns and pictures.



Odd one out

**2. Here is another a grid of 16 squares.  
One square is different from all the  
others. Mark it on the grid.**

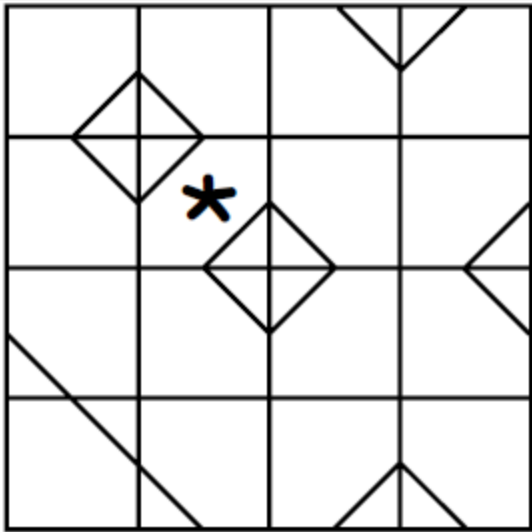


Learning Objective:

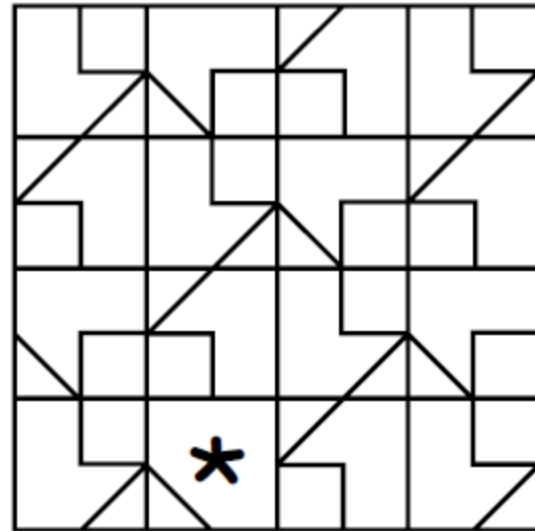
- Solve mathematical problems or puzzles.
- Make and describe patterns and pictures.

# Solution to Odd one out.

1.



2.



Learning Objective:

- Solve mathematical problems or puzzles.
- Make and describe patterns and pictures.

***Thank You***

The background is a smooth gradient of blue, transitioning from a darker shade on the left to a lighter, cyan shade on the right. At the bottom, there are several overlapping, wavy bands. The topmost band is a bright yellow, followed by a light blue band, and then a white band at the very bottom. The overall effect is clean and modern.

# References and additional resources.

These units were organised using advice given at:

[http://www.edu.dudley.gov.uk/numeracy/problem\\_solving/Challenges%20and%20Blocks.doc](http://www.edu.dudley.gov.uk/numeracy/problem_solving/Challenges%20and%20Blocks.doc)

**PowerPoint template published by [www.ksosoft.com](http://www.ksosoft.com)**

These Mental Maths challenges can be found as a PDF file at :

[http://www.edu.dudley.gov.uk/numeracy/problem\\_solving/Mathematical%20Challenges%20Book.pdf](http://www.edu.dudley.gov.uk/numeracy/problem_solving/Mathematical%20Challenges%20Book.pdf)

The questions from this PowerPoint came from:

Mathematical challenges for able pupils in Key Stages 1 and 2

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(<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)

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