

# Discussion Problems

## Step 1: 11 and 12 Times Table

### National Curriculum Objectives:

Mathematics Year 4: (4C6a) [Recall multiplication and division facts for multiplication tables up to  \$12 \times 12\$](#)

Mathematics Year 4: (4C7) [Multiply two-digit and three-digit numbers by a one-digit number using formal written layout](#)

Mathematics Year 4: (4C8) [Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 4 Multiplication and Division](#) resources.

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

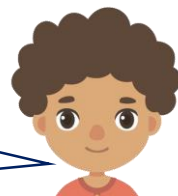
# 11 and 12 Times Table

1. Malorie and Justin each roll a dice. Malorie's dice is numbered from 1-12. Justin's dice is numbered from 1-11. They multiply the numbers they have rolled by the number of sides on their own dice.



Malorie

Our combined total was greater than 135 but less than 165.



Justin

I rolled an even number.

Find different combinations of numbers Malorie and Justin could have rolled.

DP

2. Using your knowledge of the 11 and 12 times tables, find the value of each flower by completing the calculations below. The value of one flower has been shown below.

$$\text{Blue flower} \times \text{Green flower} \div \text{Red flower} \times \text{Yellow flower} = \text{Blue flower}$$

$$\text{Red flower} \times \text{Red flower} \times \text{Green flower} = \text{Green flower} \times \text{Green flower}$$

$$\text{Orange flower} \times \text{Green flower} = \text{Dark green flower} \times \text{Red flower} \times \text{Yellow flower}$$

$$\text{Green flower} \times \text{Red flower} \times \text{Yellow flower} = \text{Purple flower} \times \text{Yellow flower}$$

$$\text{Blue flower} = \square \quad \text{Green flower} = \square \quad \text{Red flower} = 1 \quad \text{Yellow flower} = \square \quad \text{Orange flower} = \square \quad \text{Dark green flower} = \square \quad \text{Purple flower} = \square$$

DP

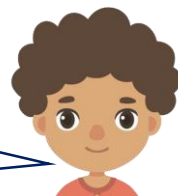
# 11 and 12 Times Table

1. Malorie and Justin each roll a dice. Malorie's dice is numbered from 1-12. Justin's dice is numbered from 1-11. They multiply the numbers they have rolled by the number of sides on their own dice.



Malorie

Our combined total was greater than 135 but less than 165.



Justin

I rolled an even number.

Find different combinations of numbers Malorie and Justin could have rolled.

Various answers, for example: Malorie could have rolled the number '9' whilst Justin could have rolled the number '4' which is an even number.  $9 \times 12 = 108$  and  $4 \times 11 = 44$ .  $108 + 44 = 152$  which is greater than 135 but less than 165.

DP

2. Using your knowledge of the 11 and 12 times tables, find the value of each flower by completing the calculations below. The value of one flower has been shown below.

$$\begin{array}{ccccccccc}
 \text{3} & \text{6} & \div & \text{1} & \text{2} & = & \text{3} \\
 \text{(blue flower)} & \text{(green flower)} & & \text{(purple flower)} & \text{(yellow flower)} & & \text{(blue flower)}
 \end{array}$$

$$\begin{array}{ccccccccc}
 \text{1} & \text{1} & \times & \text{6} & = & \text{6} & \text{6} \\
 \text{(purple flower)} & \text{(purple flower)} & & \text{(green flower)} & & \text{(green flower)} & \text{(green flower)}
 \end{array}$$

$$\begin{array}{ccccccccc}
 \text{9} & \text{6} & = & \text{8} & \times & \text{1} & \text{2} \\
 \text{(orange flower)} & \text{(green flower)} & & \text{(grey flower)} & & \text{(purple flower)} & \text{(yellow flower)}
 \end{array}$$

$$\begin{array}{ccccccccc}
 \text{6} & \times & \text{1} & \text{2} & = & \text{7} & \text{2} \\
 \text{(green flower)} & & \text{(purple flower)} & \text{(yellow flower)} & & \text{(blue flower)} & \text{(yellow flower)}
 \end{array}$$

$$\begin{array}{ccccccccc}
 \text{3} & \text{6} & \text{1} & \text{2} & \text{9} & \text{8} & \text{7} \\
 \text{(blue flower)} & \text{(green flower)} & \text{(purple flower)} & \text{(yellow flower)} & \text{(orange flower)} & \text{(grey flower)} & \text{(blue flower)}
 \end{array}$$

Calculations from the top row are:  $36 \div 12 = 3$ ;  $11 \times 6 = 66$ ;  $96 = 8 \times 12$  and  $6 \times 12 = 72$

DP