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Task 1 • Finding multiplication

**TASK 1**

**(Y3)**

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  <https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-1-finding-multiplication> |

# Task overview

Students learn that multiplication is about ‘how many’ groups and ‘how much’ in each group.

## Learning Goals

Multiplication is about coordinating two ideas: how many groups and how much in each group.

## Resources

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* **reSolve Market picture** printed on A3

**Each student**:

* Blank A3 paper
* Post-it notes for the gallery walk

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| Task phase | Estimated time | Task type |
| **Launch | Bags and boxes** | 5 minutes | Whole class |
| **Explore | Noticing multiplication** | 20 minutes | Small group |
| **Explore | Gallery Walk** | 10 minutes | Individual |
| **Connect | Class discussion** | 10 minutes | Whole class |
| **Summarise | Equal-sized groups** | 5 minutes | Whole class |

# Teach this task

## Launch | Bags and boxes

Use **reSolve Market PowerPoint** to introduce the context of the reSolve Market.

Show students slide 3 which displays the illustration of the reSolve Market.

**Discuss as a class**: *What do you notice?*

Some examples of multiplication represented in the picture include:

* equal-sized groups as bags of fruit
* boxes of fruit arranged into arrays of a number of rows, each of an equal quantity
* the price per kilo, or for each bag/punnet

**Pose the task:** *I can see a lot of multiplication in this picture! What multiplication do you see?*

## Explore | Noticing multiplication

Ask students to work in pairs. Provide each pair with **reSolve Market picture**, access to counters to use if they choose, and a blank A3 sheet of paper.

Ask students to create a poster on their A3 paper of all the multiplication that they see on **reSolve Market picture**. Allow students time to represent their thinking in any way they choose.

### Noticing students’ thinking

Students will see multiplication in a range of ways. The purpose at this early stage in the sequence is to take note of what students see as multiplication in the illustration.

* Do students recognise multiplication as repeated, equal-sized groups?
* If students work out the total number of fruit in different displays, do they use strategies such as skip counting and repeated addition to work out the total?
* Do they link multiplication facts to any examples of multiplication that they see?

### Questioning to prompt students’ thinking

This task serves as a helpful pre-assessment task. The strategies that students’ use will indicate their existing understandings of multiplication. Pose questions or prompts that help you to make sense of student thinking. For example:

* *Explain why this is an example of multiplication.*
* *Can you see any examples of things that do not represent multiplication?* 
  + The plants and the tins are not representations of multiplication. The garlic is partially hidden so we cannot confidently say that it represents multiplication either.

## Explore | Gallery walk

Display students’ work in preparation for the gallery walk.

Review the task that was posed and ask students to think about what they expect to see as they complete the gallery walk. Ask students to consider the following questions as they look at others’ work:

* *What multiplication have others noticed in the reSolve Market picture? Why is this an example of multiplication?*
* *Is there anything that surprises you?*

Provide students with post-it notes for them to write questions and comments on other students’ work.

Conduct the class gallery walk.

At the end of the class gallery walk, allow students time to read and reflect on any post-it notes left on their work, and to adjust or change to their poster as needed.

## Connect | How many and how much

This class discussion focuses on multiplication as how many and how much, that is how many groups and how much in each group.

Use the illustration on slide 3 of the **reSolve Market PowerPoint** to support the discussion.

Select some students to present their posters to the class. Ask students to share the different examples of multiplication that they found and why they believe they are examples of multiplication.

**Discuss:**

* *What was similar about all the multiplication we noticed?*
  + The use of equal-sized groups or equal rows and columns will be the same for these examples of multiplication.

Show slide 4. This emphasises the ‘how many groups’ and ‘how much in each group’ structure of multiplication.

## Summarise | Equal-sized groups

**Explain:** *Multiplication is based on equal-sized groups. These might be represented as groups or as an array in rows and columns. In multiplication, we need to work out two things: ‘how many groups’ and ‘how much in each group’.*

Show slide 3 of the **reSolve Market PowerPoint** again. Look at some of the different examples of multiplication and discuss *how many* groups there are and *how much* is in each group.

Create a class display using the students' posters, using the summary statement from above as a title for the display. Read the **Class display** professional learning embedded in this step to learn how this display can be used to build a shared understanding amongst the students.

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  [https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-1-finding-multiplication](https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-1-finding-multiplication?utm_source=docx&utm_medium=task_1&utm_campaign=resolve_market) |

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**(Y3)**

Task 2 • Mangoes and apples

**Task 2**

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  [https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-2-mangoes-and-apples](https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-2-mangoes-and-apples?utm_source=docx&utm_medium=task_2&utm_campaign=resolve_market) |

**Task overview**

Students learn that the array is a powerful representation of the ‘how many groups’ and ‘how much in each group’ structure of multiplication.

**Learning Goals**

The array is a powerful representation of the ‘how many groups’ and ‘how much in each group’ structure of multiplication.

**Resources**

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* Blank A3 paper
* Counters

**Each student**:

* **Fruit arrays Sheet**

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| **Task phase** | **Estimated time** | **Task type** |
| **Launch | Mangoes and apples** | 5 minutes | Whole class |
| **Explore | Looking for relationships** | 30 minutes | Small group |
| **Connect | Class discussion** | 10 minutes | Whole class |
| **Summarise | Recording as multiplication facts** | 5 minutes | Whole class |

**Teach this task**

**Launch | Mangoes and apples**

Use the **reSolve Market PowerPoint** to continue the context of the reSolve Market.

**Revise:** *Multiplication is based on equal-sized groups. These might be represented as groups or as an array in rows and columns. In multiplication, we need to work out two things: ‘how many groups’ and ‘how much in each group’.*

Show students slide 6.

*I have been looking very closely at this picture and I have noticed some similarities between the different examples of multiplication that we have found.*

Show slide 7. This slide has been divided into four sections. Each section has two pictures of fruit which are related.

Here are some examples of similarities that I found.

**Pose the question:** *How are these different examples similar?*

**Explore | Looking for relationships**

Provide each student with an A3 sheet of paper and a copy of **Fruit arrays Sheet**.

Have students work with a partner or in small groups. Ask them to create a poster on their A3 paper of the similarities and differences they notice between the two displays of fruit in each section. Students should record this information in any way they choose including using materials, diagrams, cut-up fruit arrays, numbers, and equations.

**Noticing students’ thinking**

This task asks students to notice the connections between the two displays of fruit in each section. In particular, take note of whether students use the language of ‘how many groups’ and ‘how much in a group’ to explain the relationships that they notice. For example:

* *The limes and pears are similar because they are both arranged into 3 groups with 5 in each group. They are different because the limes are in 3 bags of 5 and the pears are in 3 rows of 5.*

**Consider:** *Do students notice connections between the number of smaller arrays of mangoes and the whole mango array?*

**Questioning to prompt students’ thinking**

* *How are the pairs of pictures similar and how are they different?*
* *What do you notice about how the fruit is organised? Describe any ways that you notice it has been grouped.*
* *How many mangoes are in each part? How can you be sure without counting them all?*
* *How could the mangoes help you to find the number of apples?*
* *How could the mangoes be partitioned in a different way again?*

**Connect | Class discussion**

Use the illustrations on slides 6 and 7 of **reSolve Market PowerPoint** to support the discussion.

Select some students to present their work to the class, particularly noting the way that they represented and recorded the relationships that they noticed.

Slides 8, 9, 10 and 11 represent each collection of fruit using an equation, in the form:

**how many groups x how much in a group = the total in the group**

**Discuss:** *How are the two fruit displays similar? How are they different?* The similarities between the fruit on each slide is clearly evident in the equations:

* The mangoes and apples and the limes and pears are represented using the same equation.
* The oranges are an example of the communitive property. We can see that one fact can be turned around to make another fact.
* For each type of berry, the number of groups (punnets) increases by one each time.

**Summarise | Recording as multiplication facts**

**Explain**: *The array is a very helpful representation for multiplication. We can clearly see ‘how many groups’ and ‘how much in each group’. In the reSolve Market we can use how many and how much to look for relationships between the different fruit displays.*

Discuss how identifying how many and how much helped us to see relationships between the different fruit displays.

Add this new understanding to the class display along with students’ work samples.

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**(Y3)**

Task 3 • Making arrays

**Task 3**

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  [https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-3-making-arrays](https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-3-making-arrays?utm_source=docx&utm_medium=task_3&utm_campaign=resolve_market) |

# Task overview

Students complete an activity that builds their understanding of the array as a representation of multiplication.

## Learning Goals

The array powerfully represents the ‘*how many* groups’ and ‘*how much* in each group’ structure of multiplication.

## Resources

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* Number cards printed onto A4 card and cut out
* Counters (at least 100)

**Each student**:

* **Making arrays Student sheet**

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| Task phase | Estimated time | Task type |
| **Build | Making Arrays** | 50 minutes | Pairs or small group |

# Teach this task

## Build | Making arrays

Use slide 14 of the **reSolve Market PowerPoint** to explain to students the *Making arrays* activity.

Students work in pairs. Each pair needs a set of cards and a collection of counters. Each student needs their own copy of **Making arrays Student sheet**.

**Completing the activity**

1. The first student selects a number card. Both students collect that number of counters.
2. Each student works on their own to arrange their full collection of counters into an array. They record a picture of their array and the corresponding fact family on their student sheet.
3. The students compare their arrays and talk about the similarities and differences that they notice.
4. The second student selects a card, and the pair repeat the activity.

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**(Y3)**

Task 4 • Hidden fruit

**Task 4**

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  <https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-4-hidden-fruit> |

# Task overview

Students learn that multiplying ‘how many’ by ‘how much’ gives the whole.

## Learning Goals

Multiplying *how many* by *how much* gives *the whole*: *how many x how much = the whole*

## Resources

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* Counters

**Each student**:

* Blank A3 paper
* **Hidden fruit Sheet** printed on A3

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| Task phase | Estimated time | Task type |
| **Launch | Back of the store** | 5 minutes | Whole class |
| **Explore | Hidden fruit** | 20 minutes | Small group |
| **Connect | Comparing strategies** | 20 minutes | Whole class |
| **Summarise | Filling in the gaps** | 5 minutes | Whole class |

# Teach this task

## Launch | Back of the store

Show the picture of the reSolve Market on slide 16 of the **reSolve Market PowerPoint** to continue the context of the reSolve Market.

**Revise**:

*The array is a very helpful representation for multiplication. We can clearly see ‘how many groups’ and ‘how much in each group’. In the reSolve Market we can use how many and how much to look for relationships between the different fruit displays.*

*But what if we can’t see all the parts of the array?*

Show slide 17.

*The grocer has boxes of fruit that she is unpacking and putting out on display. Some of the apples, lemons and blueberry punnets are missing.*

*The box of strawberry punnets is all full, the boxes of oranges and mangoes are full. There are also the right number of kiwi fruit in each bag. We just can’t see them all.*

**Pose the task:** *Can you work out how many apples, lemons and blueberry punnets would be in each box if each box was full? Can you work out how many strawberry punnets, oranges, mangoes and kiwifruit there are?*

## Explore | Hidden fruit

Provide each student with an A3 sheet of paper and **Hidden fruit Sheet**. Also provide them with access to counters to use if they choose.

Allow students time to work on the task. Ask them to record on their A3 paper the way that they worked out the total number of items that would fit into each box. Students should represent their thinking in any way they choose, including using materials, diagrams, numbers and equations.

### Noticing students’ thinking

This task asks students to apply their understanding of the array, specifically that there are an equal number in each row. They need to work out *how many* groups/rows and *how much* in one group/row, then multiply the two quantities to find the product. Students who solve the problem in this way demonstrate a good understanding of the multiplicative structure as represented by the array.

Students may not begin with this strategy; they should be allowed time to explore and work towards this approach for themselves.

It is quite likely that some students will need to draw or model all items to determine how many pieces of fruit (or punnets) are (or can be) in the boxes. This indicates that they do not fully appreciate the equal rows structure of the array.

### Questioning to prompt students’ thinking

* *Do we need to see everything to be able to know how many there would be?* 
  + We don’t need to see everything if we understand the structure of equal groups and the array.
* *What information do we need to work out how many would be in full boxes?* 
  + The information needed is *how many groups* and *how many in each group*. In each example this is provided for the students.

## Connect | Comparing strategies

Use **reSolve Market PowerPoint** to support the class discussion. Slides 18, 19, and 20 present three different students and the strategies that they used to solve the number of fruit to compare and discuss.

Show slide 18.

*This is how Tommy worked out the number of apples there would be if the box was full. Look carefully at how Tommy has recorded his solution.*

**Ask**: *Can someone explain how Tommy solved the problem?*

* Tommy has completed the array and then skip counted the columns to work out the total that can fit in the box.

Show slide 19.

*This is how Isla worked out the number of strawberry punnets there are in the full box. Look carefully at how Isla has recorded her solution.*

**Ask**: *Can someone explain how Isla solved the problem?*

* Isla worked out how many groups and how much in a group. She multiplied the two quantities to find the whole.

Show slide 20.

*This is how Anya worked out the number of mangoes in the four full boxes. Look carefully at how Anya has recorded her solution.*

**Ask**: *Can someone explain how Anya solved the problem?*

* Anya has drawn all and then counted by twos to calculate the total amount.

Show slide 21 which shows all three strategies.

**Discuss:**

* *What is helpful about these different strategies?*
  + Isla’s strategy is the most efficient and shows that she understands the array structure.
  + Students may comment that it is helpful to see all the items to work out how many there are altogether. This is useful for those who have not fully abstracted the array structure.
* *Do you need to see everything in an array to know how many there are altogether?*
  + You only need to know *how many* and *how much*. Multiplying these two quantities gives the whole amount.
* *Which is the most efficient strategy?*
  + Isla’s is the most efficient. We want to promote efficiency based on an understanding of the array structure.

Slide 22 shows the lemons, blueberry punnets, oranges and kiwi fruit.

**Ask:** *How could we efficiently work out how many are in each collection if the boxes were full?*

This question reinforces the relationship that exists between how many rows/groups (first factor), how much in each row/group (second factor), and the whole (product). The whole can be calculated in the following way:

**how many x how much = the whole**

## Summarise | Filling in the gaps

**Discuss**: *What do we need to know to be able to work out how many in the whole array?*

Show slide 22.

**Explain**: *We do not need to see or count every part of the array to know how many there are all together. We just need to know how many groups and how much in each group. We can then multiply:*

**how many x how much = the whole**

Add this new understanding to the class display along with students’ work samples.

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**(Y3)**

Task 5 • Rolling arrays

**Task 5**

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  [https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-5-rolling-arrays](https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-5-rolling-arrays?utm_source=docx&utm_medium=task_5&utm_campaign=resolve_market) |

# Task overview

Students play a game to build their understanding that multiplying *how many* by *how much* gives *the whole*.

## Learning Goals

Multiplying *how many* by *how much* gives *the whole*: *how many x how much = the whole*.

## Resources

**Whole class**:

* reSolve Market PowerPoint

**Each group**:

* Two six-sided dice with digits 1, 2, 3, 4, 5 & 10 (stick the number 10 over the 6 on the dice)
* Different coloured pens/pencils

**Each student**:

* Rolling arrays Gameboard

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| Task phase | Estimated time | Task type |
| **Build | Rolling Arrays** | 50 minutes | Pairs or small group |

# Teach this task

## Build | Rolling arrays

Use slide 24 of **reSolve Market PowerPoint** to explain to students how to play the game Rolling arrays.

**Rolling arrays**

A game is played in pairs. Each pair needs one gameboard and two different coloured pencils.

1. Each player rolls one die. The player with the highest number is Player 1 and the other person is Player 2. They each take a coloured pencil.
2. Player 1 rolls both dice. They select one number to represent *how many* rows and the other number to represent *how much* in each row. They draw this as an array on the gameboard and record as a multiplication fact in the middle of the array.
3. Player 2 uses the other coloured pencil and takes their turn.
4. The players keep taking turns.

The game is over when a player cannot fit the array that they have rolled onto the gameboard. The winner is the player who drew the last complete array.

Provide students with **Rolling arrays Gameboard**, two dice and two different coloured pencils. Have students play the game in pairs.

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  [https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-5-rolling-arrays](https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-5-rolling-arrays?utm_source=docx&utm_medium=task_5&utm_campaign=resolve_market) |

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**(Y3)**

Task 6 • Lemon arrays

**Task 6**

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# Task overview

Students learn that related multiplication and division facts can be recorded as a fact family.

## Learning Goals

Related multiplication and division facts can be found in the array. These related facts are known as a *fact family*.

## Resources

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* Counters

**Each student**:

* **Lemon arrays Student sheet**
* **Limes and kiwifruit arrays Student sheet**

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| Task phase | Estimated time | Task type |
| **Launch | Bags of lemons** | 5 minutes | Whole class |
| **Explore | Making lemon arrays** | 25 minutes | Small group |
| **Connect | Introducing facts families** | 20 minutes | Whole class |
| **Explore | Limes and kiwifruit** | 40 minutes | Whole class |
| **Summarise | Fact families** | 10 minutes |  |

# Teach this task

## Launch | Bags of lemons

Use **reSolve Market PowerPoint** to continue the context of the reSolve Market. Show slide 27.

**Revise**: *We have learnt that we can calculate the whole by multiplying how many rows/groups by how much is in each row/group.*

Show slide 28. **Ask**: *How many lemons are there? How could we work it out?*

* This is a quick revision question to see if the students know to multiply 4 by 6. If students do not know the answer, they can share how they might work it out.

Continue the context:

*The grocer wishes to take the lemons out of the bags and arrange all of them in an array like the oranges, apples, peaches, apricots and mangoes. She wants to make one array with more than one lemon in each row and column.*

**Pose the task**: *How could the grocer arrange all the lemons in just one array? Can you find more than one way?.*

## Explore | Making lemon arrays

Provide students with **Lemon arrays Student sheet**. Also provide them access to counters to use if they choose.

Allow students time to explore the problem. For each array that they find, they should record on their student sheet a diagram of the array and the corresponding multiplication fact.

As there needs to be more than one lemon in each row and column, there are six possible ways to arrange 24 lemons:

* 2 rows of 12 and 12 rows of 2
* 3 rows of 8 and 8 rows of 3
* 4 rows of 6 and 6 rows of 4

**Ask:** *How do you know you have found them all? Can you see similarities between the arrays?*

### Noticing students’ thinking

Observe whether students are applying the understandings developed through this sequence, including:

* Do the students use equal rows and columns to create their arrays?
* Are they able to use a multiplication fact to represent each array?
* Do they recognise that they can use the commutative property of multiplication to record two different options?

### Questioning to prompt students’ thinking

* *Which numbers cannot be used for the number of rows in your array?*
  + There are quite a few numbers it is not possible to use to make an array for 24. This prompts students to start eliminating possibilities and thinking more systematically.
* *Have you found all possible answers?*
  + Working systematically helps find all possibilities. For example:
    - One lemon in each row is not allowed (according to the question).
    - Two lemons in each row creates a 2 x 12 array.
    - Three in each row creates a 3 x 8 array.
    - Four in each row creates a 4 x 6 array, and so on.
* *Which arrangement do you think will work best in the fruit shop? Why*?
  + There is no right answer for this question, but students should consider the different shapes and sizes of the arrays.

## Connect | Introducing fact families

Invite some students to share the different solutions that they found with the class. Record the different solutions that students found on the board in no particular order.

**Ask**: *Have we found all possible answers? How will we know if we have found them all?*

Working systematically helps find all possibilities. For example:

* One lemon in each row is not allowed (according to the question).
* Two lemons in each row creates a 2 x 12 array.
* Three in each row creates a 3 x 8 array.
* Four in each row creates a 4 x 6 array.
* Five in each row does not create an array.
* Six in each row creates a 6 x 4 array.
* Seven in each row does not create an array.
* Eight in each row creates an 8 x 3 array, and so on.

Show slide 29 of **reSolve Market PowerPoint.**

*4 bags of lemons with 6 lemons in each bag can be arranged into a 4 x 6 array. It can also be divided into 3 x 8 array.*

*We know that we can represent this as 4 x 6 and 3 x 8.*

**Discuss**: *What other facts can we see from these arrays?*

* This question introduces fact families. Four related facts are evident in the array (or two facts for square numbers). It also highlights the inverse nature of multiplication and division.
* For the 4 x 6 array we can see 4 x 6, 6 x 4 (the commutative property), 24 ÷ 4 = 6 and 24 ÷ 6 = 4.
* For the 3 x 8 array we can see 3 x 8, 8 x 3 (the commutative property), 24 ÷ 3 = 8 and 24 ÷ 8 = 3.
* Read the **Fact families** professional learning embedded in this step to learn more about the importance of using fact families when teaching multiplication and division.

Show slide 30 and 31.

Look at the how the two multiplication and the two division facts can be seen in the one array.

**Explain:** *We can see four different facts from the one array. Once we know one fact, we actually know four!*

## Explore | Limes and kiwifruit

Show slide 32.

*The grocer wants to take the limes and kiwifruit out of their bags as well. She wants to arrange the limes in an array like the oranges, apples, peaches, apricots and mangoes. She also wants to arrange the kiwifruit in an array.*

**Pose the task:** *How could the grocer arrange all the limes in just one array? How could the grocer arrange all the kiwifruit in just one array? Can you find all the fact families for each array?*

Provide students with **Limes and kiwifruit arrays Student sheet**. Also provide them access to counters to use if they choose.

Allow students time to explore this second problem. This time the focus is not on finding many arrays, but on recording the fact family for any array that is found. For each array that students find they should record a diagram of the array and the corresponding fact family.

## Summarise | Fact families

Invite some students to share the different arrays that they found for the limes and the kiwifruit. Record the array and the fact family for each array on the board.

**Explain:** *We can see four different facts from the one array. Once we know one fact, we actually know four!*

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**(Y3)**

Task 7 • Making fact families

**Task 7**

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# Task overview

Students continue to build their understanding that related multiplication and division facts can be recorded as a fact family.

## Learning Goals

Related multiplication and division facts can be found in the array. These related facts are known as a *fact family.*

## Resources

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* **Number cards** printed onto A4 card and cut out

**Each student**:

* **Making fact families Student sheet**

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| Task phase | Estimated time | Task type |
| **Build | Making fact families** | 50 minutes | Pairs or small group |

# Teach this task

## Build | Making fact families

This activity is a variation of the earlier activity**, Making arrays**.

Use slide 34 of the reSolve Market PowerPoint to explain to students the *Making fact families* activity.

Students work in pairs. Each pair needs a set of cards and a collection of counters. Each student needs their own copy of **Making fact families Student sheet.**

**Completing the activity**

1. The first student selects a number card. Both students collect that number of counters.
2. Each student works on their own to arrange their full collection of counters into an array. They record a picture of their array and the corresponding fact family on their student sheet.
3. The students compare their arrays and facts and discuss the similarities and differences that they notice.
4. The second student selects a card and the pair repeat the activity.

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| To read the most recent version of this task, download associated resources, and view embedded professional learning including classroom videos and work samples, visit:  [https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-7-making-fact-families](https://resolve.edu.au/teaching-sequences/year-3/multiplication-resolve-market/task-7-making-fact-families?utm_source=docx&utm_medium=task_7&utm_campaign=resolve_market) |

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**(Y3)**

Task 8 • Finding fact families

**Task 8**

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# Task overview

Students revisit the reSolve Market picture and use fact families to record the multiplication.

## Learning Goals

Multiplication and division are inverse operations that deal with equal-sized groups.

Related multiplication and division facts can be recorded as a *fact family*.

The array is a powerful representation of the relationship between multiplication and division.

## Resources

**Whole class**:

* **reSolve Market PowerPoint**

**Each group**:

* **reSolve Market picture** printed on A3

**Each student**:

* Blank A3 paper

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| Task phase | Estimated time | Task type |
| **Build | Finding fact families** | 50 minutes | Pairs or small group |

# Teach this task

## Build | Finding fact families

Use **reSolve Market PowerPoint** to introduce the context of the reSolve Market.

Show students the illustration of the reSolve Market on slide 3.

*We have found so much multiplication in this picture. We know now that when we find one fact, we have actually found four! That means that there are also a lot of division facts in this picture too.*

**Pose the activity**: *What fact families can you find?*

Ask students to work in pairs. Provide each pair with **reSolve Market picture** and a blank A3 sheet of paper.

Ask students to create a poster on their A3 paper of all the multiplication that they see on their student sheet. Allow students time to represent their thinking in any way they choose.

Come together at the end of the activity and ask some students to present their posters to the class. Ask students to share the different examples of multiplication and division that they found and the fact family that they recorded for each example.

**Explain**: *Multiplication and division are both about equal-sized groups. The two operations are related. That means that when we know one fact, we actually know four. The array powerfully represents the relationship between multiplication and division.*

Add this summary statement to the class display along with students’ posters. Read the **Class display** professional learning embedded in this step to learn how this display can be used to build a shared understanding amongst the students.

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