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 Task 1 • How big is a handful?

**TASK 1**

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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/foundation/number-taking-handfuls/task-1-how-big-handful](https://resolve.edu.au/teaching-sequences/foundation/number-taking-handfuls/task-1-how-big-handful?utm_source=docx&utm_medium=task_1&utm_campaign=taking_handfuls) |

# Task overview

Students learn that there are some ways of arranging items in a collection to make it easy to see the total number of items.

## Learning Goals

Organising a quantity of items helps us to count accurately.

Some ways of arranging a collection make it easy for us to see how many items there are in the collection, without needing to count every item.

## Resources

**Each group:**

* A large quantity of small items which students can take a handful of (for example: counters, pasta, dried beans).
* A student handful should be around 10 to 20 items.

**Each student:**

* **How big is a handful? Student sheet**

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| Task phase | Estimated time | Task type |
| **Launch | Introducing handfuls** | 5 minutes | Whole class |
| **Explore | Organising handfuls** | 20 minutes | Small group |
| **Explore | Gallery Walk** | 10 minutes | Individual |
| **Connect | Class discussion** | 10 minutes | Whole class |
| **Summarise | Organising groups** | 5 minutes | Whole class |

# [Teach this task](https://resolve.edu.au/teaching-sequences/foundation/number-taking-handfuls/task-1-how-big-handful)

## Launch | Introducing handfuls

Introduce the idea of a ‘handful’ to the students. For example: *I had a handful of blueberries for morning tea today. I wondered afterwards: how many blueberries might have been in my handful? How big is a handful?*

Present students with a large quantity of small items (e.g. counters, pasta, dried beans). Ask students to each take a handful of items.

**Pose the question:** *How many items do you think might be in your handful?* Encourage reasonable estimates, not the ‘right answer’.

**Pose the task:** *Carefully count the items in your handful. Organise your collection in a way that makes it easy to see how many items you have.*

## Explore | Organising handfuls

Allow students time to count and organise their collection.

Once students have organised their collection, ask them to show their handful to someone else and compare the ways they have arranged their collections. Prompt them to consider: *Which arrangement makes it easier to work out the total number of items in your collection? Why?*

After comparing, students may rearrange their handful if they would like to.

Ask students to use **How big is a handful? Student sheet** to record the final way they arranged their handful and how many items were in their handful altogether.

## Explore | Gallery Walk

Ask students to display their student sheet next to their handfuls in preparation for a [gallery walk](https://resolve.edu.au/pedagogical-tools/learning-community-tools/learning-each-other?utm_source=docx&utm_medium=task_1&utm_campaign=taking_handfuls).

Review the original task (*Organise your handful in a way that makes it easy to see how many items you have*) 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: *Which arrangements make it easy to see how many are in a handful? Why?*

Conduct the class gallery walk.

## Connect | Class discussion

Focus this Connect discussion on which arrangements made it easy to see how many there were. You might make comparisons to familiar objects that are designed for easy counting or recognisable collections, for example, playing cards, dominoes, or dice. Also look at those arrangements that are not easy to quantify quickly. As a class, consider how these handfuls might be rearranged so that it is easy to see how many there are without needing to count.

**Discuss:** *Which arrangements made it easy to see how many are in a handful? Why?*

* Students might think about patterns that made numbers easy to count. For example, subitising patterns such as those on dice.
* Some students may use groups of 10 when there are more than 10 objects.

Ask the students to return to their own collections and rearrange their items a final time, using the strategies they have seen to make their collections easier to count.

Again, ask students to show their arrangements to someone else and compare the different ways they have arranged their collections.

## Summarise | Organising groups

Discuss with the students what they noticed about how others had organised their collections.

**Explain:** *Organising a collection helps us to count accurately. Some ways of arranging collections make it easy for us to see how many items there are in the collection, without needing to count every item.*

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 Task 2 • Rolling handfuls

**Task 2**

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# Task overview

A short dice-rolling game builds students’ understanding that the same quantity can be arranged in different ways without changing the total.

## Learning Goals

We can determine quantity without counting by seeing small collections at a glance.

The same quantity can be arranged in different ways without changing the total in the collection.

## Resources

**Each pair:**

* A collection of counters
* A 6-sided die with the numbers 9-14 marked on it

**Each student:**

* **Rolling Handfuls Student sheet**

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| Task phase | Estimated time | Task type |
| **Build | Rolling handfuls** | 50 minutes | Pairs |

# Teach this task

## Build | Rolling Handfuls

Reflect on the previous task with the students.

**Revise:** *We learnt that organising a collection makes it easier to count. We also learnt that some ways of arranging collections makes it easy to see how many there are without needing to count.*

Discuss with the students how they arranged their handfuls to make it easy to see how many items they had.

Show students how to play Rolling Handfuls in pairs:

1. Students take turns rolling a die with the numbers 9-14 marked on it.
2. Both students collect the number of counters shown on the die. These are their ‘handfuls’.
3. Each student arranges their collection to make it easy to see how many counters there are altogether.
4. Students compare their arrangements. They look at how the arrangements are similar and different, and make sure that both arrangements have the same number of counters.
5. Students record the two different ways of arranging the handfuls on their student sheet. If they both arranged the counters the same way, they only record the arrangement once.

Explain: *Some ways of arranging collections means that we can work out how many at a glance. We don't need to count! Even though collections might be arranged differently, they can still have the same amount.*

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 Task 3 • Comparing handfuls

**Task 3**

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# Task overview

Students learn that common units are needed to easily compare and order different quantities.

## Learning Goals

Comparing allows us to order quantities and determine which quantity has more and which has less.

A common unit allows us to quickly compare quantities.

## Resources

**Whole class:**

* A large quantity of small items which students can take a handful of (for example: counters, pasta, dried beans). A student handful should be around 10 to 20 items.

**Each student:**

* **Comparing handfuls Student sheet**

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| Task phase | Estimated time | Task type |
| **Launch | Organising handfuls** | 15 minutes | Whole class |
| **Explore | Comparing handfuls** | 20 minutes | Group |
| **Explore | Gallery Walk** | 15 minutes | Individual |
| **Connect | Class discussion** | 40 minutes | Whole class |
| **Summarise | Comparing handfuls** | 10 minutes | Whole class |

# Teach this task

## Launch | Organising handfuls

**Revise:** *In the last activity we learnt that some ways of arranging collections means that we can work out how many at a glance. We don't need to count! We also learnt that even though collections might be arranged differently, they can still have the same amount.*

**Pose the initial task:** *Take a handful and organise your collection in a way that makes it easy to see how many items are in your handful.*

Allow students to count and organise their collections, then ask them to compare their organised handful with a partner.

**Pose the question:** *Who has more and who has fewer items?* It is likely that the students will have used different arrangements, which makes it more difficult to compare the two collections.

**Pose the task:** *Take a new handful. Work with your partner to arrange your handfuls so it is easy to see how many there are in each handful, and to also see who has more and who has fewer.*

## Explore | Comparing handfuls

Give students time to arrange their handfuls. As students are working, ask:

* *How do your arrangements make it easy to see how many there are?*
* *How do your arrangements make it easy to see who has more and who has fewer items?*

Provide students with the **Comparing handfuls Student sheet**. Ask students to record how they have arranged and compared their handfuls.

### Noticing students’ thinking:

Both students in each pair need to arrange their items in the same way, using subitisable groups to easily see how many they have and to see who has more and who has fewer items.

* Students might make arrangements where it is easy to compare collections but not easy to see how many there are altogether. For example, making two lines of items (ensuring a common baseline and that there is one-to-one correspondence across the lines).
* Students might make arrangements where it is easy to see how many items are in each collection, but it is not easy to compare without counting. For example, using different arrangements of subitisable groups.

Allow students the chance to explore some of these options to determine if they can easily see how many and easily compare. Prompt students to think about how they might be able to arrange their collections so they can do both.

## Explore | Gallery Walk

Review the original task (*arrange your handfuls so it is easy to see how many there are in each handful, and to also see who has more and who has fewer items*) and ask students to think about what they expect to see as they complete a [gallery walk](https://resolve.edu.au/pedagogical-tools/learning-community-tools/learning-each-other?utm_source=docx&utm_medium=task_3&utm_campaign=taking_handfuls).

Ask students to consider the following questions as they look at others’ work: *Look at how pairs of students have arranged their handfuls. Which arrangements make it easy to see how many there are and also to see who has more and who has fewer items? Why?*

Conduct a class gallery walk.

Ask the students to return to their collections. Allow them to rearrange their items using the strategies they have seen, to make their collection easier to count and to see who has more and who has fewer items.

## Connect | Class discussion

There are two important ideas to bring out in this Connect phase:

* Arranging counters in subitisable groups makes it easy to see how many there are in a collection.
* A common unit makes it easy to compare collections to see which has more and which has less.

**Discuss:**

* *Which arrangements made it easy to see how many items there were? Why?*
	+ Subitising patterns (such as those on dice) make it easy to see at a glance how many items are in an arrangement.
* *Which arrangements made it easy to see who had more and who had fewer items? Why?*
	+ A common unit is needed for quick comparison. For example, making a line of items (ensuring a common baseline and that there is one-to-one correspondence across the lines) uses the common unit of ‘one’.
* *Were there any arrangements that made it easy to see how many there are and also to see who had more? Why?*
	+ The best way to do this is to use the same subitisable patterns. Students can quickly see how many they have and also who has more.

Ask the students to return to their collections. Again, provide time to rearrange the items if they would like to. Ask students to record their new arrangements of their handfuls on their student sheet.

## Summarise | Comparing handfuls

Discuss with the students whether they found it easier to compare their collections this time. Ask students how they arranged their collections in similar ways to make comparing easier.

**Explain**: *Comparing allows us to see who has more and which has less. Arranging our collections in the same way makes it easier to compare.*

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 Task 4 • Towers of 5

**Task 4**

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# Task overview

Students build their ability to use benchmark numbers to quantify and compare collections.

## Learning Goals

5 is a useful benchmark to quantify and compare smaller collections.

## Resources

**Each pair:**

* A collection of Unifix or large interlocking cubes. A student handful should be around 4 to 12 cubes.

**Each student:**

* **Towers of 5 Student sheet**

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| Task phase | Estimated time | Task type |
| **Build | Towers of 5** | 50 minutes | Pairs |

# Teach this task

## Build | Towers of 5

**Revise:** *In the last task we learnt that arranging our collections in the same way makes it easier to compare so we can see who has more and which has less.*

**Introduce the activity:** *We are going to use 5 to help us work out how many cubes are in our handfuls and to compare who has more.*

Show students how to do the activity in pairs:

1. Both students take a handful of cubes.
2. Each student arranges their cubes into towers. Once they have 5 cubes in a tower, they start making a new tower.
3. Students name their total number of cubes and its relationship to 5. For example, *I have 8 cubes. 8 is 3 more than 5.*
4. Students compare their collections. They use 5 as a benchmark to determine who has more and who has fewer cubes. For example, *I have 8 cubes. 8 is 3 more than 5. You have 9 cubes and 9 is 4 more than 5. You have more cubes in your handful.*
5. They record the two different arrangements of collections on **Towers of 5 Student sheet** and circle which arrangement has more cubes.

Students repeat the activity at least three times.

**Explain:** *5 is a useful number to compare smaller collections. We can see easily who has more and who has less.*

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 Task 5 • Using 10

**Task 5**

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# Task overview

Students learn the value of using 10 to quantify and compare larger collections.

## Learning Goals

10 is a useful benchmark to quantify and compare larger collections.

## Resources

**Each group:**

* A large quantity of small items which students can take a handful of (for example: counters, pasta, dried beans). A student handful should be around 10 to 20 items.
* Ten-frames

**Each student:**

* **Using 10 Student sheet**
* Blank A5 or A6 card

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| Task phase | Estimated time | Task type |
| **Launch | Introducing ten-frames** | 15 minutes | Whole class |
| **Explore | Using ten-frames** | 20 minutes | Group |
| **Explore | Gallery Walk** | 15 minutes | Individual |
| **Connect | Class discussion** | 40 minutes | Whole class |
| **Summarise | Using 10** | 10 minutes | Whole class |

# Teach this task

## Launch | Introducing ten-frames

**Introduce the task:** *Today we are going to take another handful. We are going to take a handful of* [whatever small item you are using].

Take a handful, making sure you have more than 10 items.

**Ask:** *How many items do you think are in my handful?* Take suggestions from students. The point is not to get the right answer but to show that there are a lot more than 10.

*In the last task, we used 5 to help us work out how many we had in our handful. But this time there are a lot more than 5 items in my handful! I wonder what we might use this time.* Take suggestions from students. They may suggest 10.

*Let’s put two 5s together and use 10 as our benchmark.*

Introduce the ten-frame as a tool to organise items. Look at the fact that the ten-frame is made up of 2 rows of 5, which is like 2 towers of 5 cubes (the towers made in the previous task), and that there are 10 spaces in all. Allow students time to explore the ten-frame.

**Pose the task:** *Take a handful. Use the ten-frames to see how many items are in your handful.*

## Explore | Using ten-frames

Allow students time to organise their collections using the ten-frames.

Ask students to show their collection (organised onto ten-frames) to a partner and share how many items they have and how 10 helps them work out the total. For example:

* I have 14 items. There are 4 more than 10.
* I have 23 items. There are 10, 20 and then 3 more.

Ask students to compare their collections, using 10 as a benchmark to determine who has more and who has fewer.

Provide each student with a blank card and ask them to write down the number of items in their collection. Provide them with **Using 10 Student sheet** and ask them to use the ten-frames on the sheet to record their collection.

Students can repeat the activity if there is time.

### Noticing students’ thinking

**Ask students**: *How many items are in your collection? Watch how they determine the total.*

* **Count multiple times and then count all**: When the collection is composed of multiple parts, students may count all in each smaller part and then count the collection as a whole.
	+ For example, a collection of 14 items might be made up of a full ten-frame of ten and a ten-frame of four items. Students might first count the 10, next count the 4, and then finally count the two ten-frames together to find the total.
	+ The more we count, the more room there is for error. Prompt students to consider how they can determine the total without doing too much counting.
* **Count all at once**: Students count the whole collection; they don’t hold the 10 and count on. Ask students if they need to count from one, or if they might be able to count on from the 10; you may even cover/hide the 10.
* **Count on from 10**: Students hold the 10 and count on from 10 or use 10 as a benchmark.

## Explore | Gallery Walk

Review the task that was posed (*Use the ten-frames to see how many items are in your handful*) and ask students to think about what they expect to see as they complete a [gallery walk](https://resolve.edu.au/pedagogical-tools/learning-community-tools/learning-each-other?utm_source=docx&utm_medium=task_5&utm_campaign=taking_handfuls). Ask students to consider the following questions as they look at others’ work:

* *How are other students’ handfuls different? How are they the same?*
* *Who has the most items? Who has the fewest? How do you know?*

Conduct a class gallery walk.

## Connect | Class discussion

After the gallery walk, come together for a whole class discussion.

Focus this Connect phase on the power of 10 as a benchmark number. 10 is a very important number in our number system, which also makes it an easy number to work with. Students may notice the place value patterns that emerge through activity which further emphasises the power of 10, however, these patterns are not the primary focus of the investigation.

**Discuss:**

* *What did you notice that was the same?*
	+ Everyone used ten to arrange their items. The use of ten makes it easy to see how many and to compare the collections.
* *What did you notice that was different?*
	+ Different students would have different numbers of items in their handfuls.
* *Who has the most items? Who has the least? How do you know?*
	+ Using 10 as a benchmark makes it easy to compare numbers.

Select some students to come to the front, with the cards from Step 2 where they recorded their total number of items. Ask them to hold up their cards and invite the other students in the class to arrange these students in ascending order. Keep using 10 as benchmark to determine the order of numbers.

## Summarise | Using 10

Discuss with the students the way that they used 10 as a benchmark number. For example, 15 can be thought of as 10 and 5 more, and 26 can be thought of as 2 tens and 6 more.

**Explain**: *10 is an important number in our number system. It is a very useful number to compare larger collections*.

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 Task 6 • Close to 20

**Task 6**

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# Task overview

Students build their use of 10 as a benchmark to quantify and compare collections.

## Learning Goals

10 is a useful benchmark to quantify and compare larger collections.

## Resources

**Each pair:**

* A collection of at least 40 counters
* At least 10 tokens (e.g. cubes, teddy bear counters)

**Each student:**

* **Close to 20 Gameboard**, ideally printed on A3 card

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| Task phase | Estimated time | Task type |
| **Build | Close to 20** | 50 minutes | Pairs |

# Teach this task

## Build | Close to 20

**Revise:** *10 is an important number in our number system. It is a very useful number to compare larger collections*.

Share with students that they will use 10 as a benchmark number in a game. Explain how to play Close to 20 in pairs:

1. Both players take a handful of counters, trying to get as close to 20 counters as they can without going over.
2. Each player arranges their handful onto their gameboard to show how many counters they have.
3. Any player who has more than 20 counters is out for this round.
4. The remaining players compare their collections:
* Whoever is closest to 20 is the winner and collects a token.
* If both collections have the same number of counters, both players collect a token.
* Anyone who gets exactly 20 counters collects a bonus token.
1. The first player to collect 5 tokens wins.

Students play Close to 20.

Gather the students together for a whole class discussion at the end of the game. Discuss how students used 10 to compare who had more or less. For example:

* "I have 10 and 6 more, you have 10 and 7 more. You have more than me."
* "I have 2 less than 2 tens. You have 3 less than 2 tens. I have more than you."

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