# Classroom talks: Year 3: Place Value

## Teaching strategies involved

**Collaborative Learning; Concrete, representational, abstract; Metacognitive strategies; Multiple Exposures; Questioning**

## Overview

**Running classroom talks regularly is a powerful complement to other instruction because they allow students to develop language, build mathematical thinking skills and create mathematical meaning through collaborative conversations.**

**Classroom talks typically last 5 to 15 minutes and create a safe space for mathematical thinking and risk-taking. They also offer educators an opportunity for formative assessment by observing students verbalise their understandings.**

### The teacher:

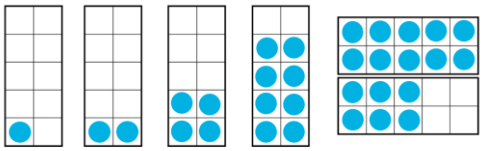
- has a goal in mind and selects a prompt accordingly
- provides adequate thinking time
- encourages students to use hand protocols (rather than raising hands) to communicate where they are at with their thinking
- invites students to share their ideas (cold-calling students is avoided to maintain a safe space for reluctant contributors)
- accepts all answers without judgement, ensuring a safe space for risk-taking
- facilitates discussion and encourages respectful dialogue
- records student ideas on the board when useful.

### The students:

- make the most of the thinking time given; if they come up with one idea, they continue to look for or generate additional ideas
- use subtle hand protocols (thumb and additional fingers at the chest) to indicate to the teacher where they are at with their thinking
- describe their observation or strategy to the group
- listen to and make sense of other students' ideas and explanations
- may ask clarifying questions about another student's explanation.

# Types of classroom talks

There are different types of classroom talks. Those that are more open-ended, such as *Notice and Wonder* and *Same and Different,* allow for a greater diversity of ideas to be shared. Starting with talks like these can be a powerful way to encourage participation before moving on to *Number Talks*, which are more narrowly focused on using reasoning to solve a specific problem. Here is a brief summary of these three talks.

| **Classroom Talk 1: Notice and Wonder** | |
|---|---|
| Brief summary | Example prompt |
| Students spend initial thinking time making observations about what they see.<br><br>The teacher facilitates student discussion as they share what they notice and what they wonder. | *What do you notice?*<br>*What do you wonder?*<br>  |

| **Classroom Talk 2: Same and Different** | |
|---|---|
| Brief summary | Example prompt |
| Students spend initial thinking time to compare and contrast two items.<br><br>The teacher facilitates student discussion as they share their observations about what's the same and what is different. | *How are they the same?*<br>*How are they different?*<br>  |

| **Classroom Talk 3: Number Talk** | |
|---|---|
| Brief summary | Example prompt |
| Students spend initial thinking time to generate their own solutions to solving problems. | *How many dots do you see?*<br>*How do you see them?* |

| | |
|---|---|
| The teacher invites students to share their answers and the different strategies used to find a particular total.<br><br>*For more detail on how to run a Number Talk, see below.* |  |

## How to run a Number Talk

1. **Present the prompt or problem**. Pose a question that invites students to work out the total.

| Example visual prompt | Example question |
|---|---|
| Dot Number Talk<br>  | *How many altogether?*<br>*How do you know?* |
| Numeral Number Talk<br>$6 + 7 + 4$ | *Solve this problem.*<br>*How did you work it out?* |

2. **Give students time to solve the problem.** Tell students to indicate when they have an answer with a quiet and subtle thumb up at their chest. If they come up with more than one way to get the answer, they can hold up a second thumb to let the teacher know where their thinking is at.

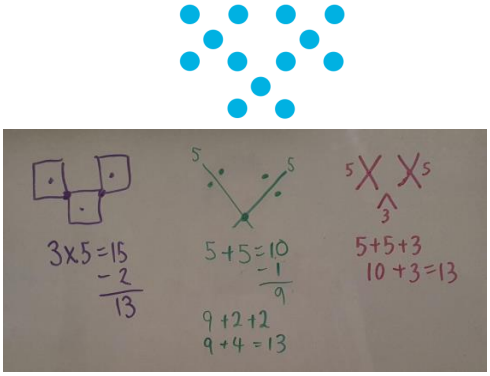
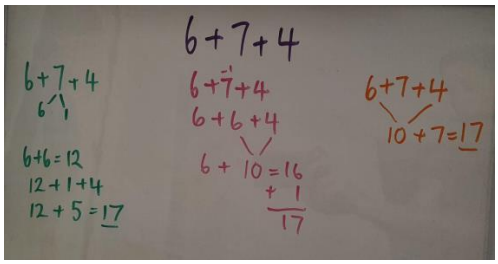
   This hand protocol is an important replacement for hands up because:
   - it allows those who are still thinking to continue thinking uninterrupted
   - it encourages those who think they have finished thinking to keep thinking
   - it emphasises depth over speed, for example, that it isn't a race to be first but rather an opportunity to think about one problem in different ways.

3. **Invite all answers from the group.** Record all answers without judgement on the board or chart paper. Avoid saying whether the answers given are right or wrong.

Adopting an approach that *expects* more than one answer is a powerful way to help build a learning culture in which mistakes are normalised and celebrated. Ideas for how to respond when more than one answer is provided:

- *More than one answer – great! Now we have something to defend.*
- *It's great when we have more than one answer. It means we're going to learn something!*
- *More than one answer! There must be something here that we can learn from.*

4. **Invite explanations from the group.** Once all answers are recorded, the teacher invites students to share how they got an answer. Model or record each student strategy as they explain it.

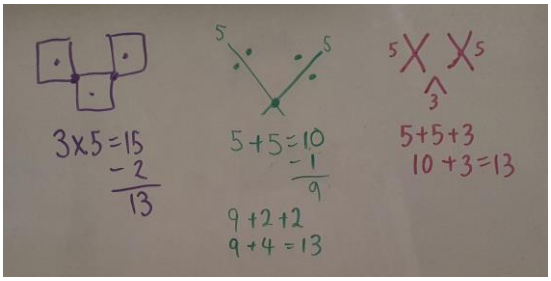
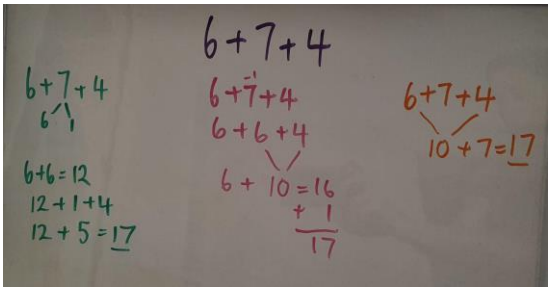
| **Example recording** | **Notes** |
|---|---|
|  | **Left strategy:** Sees 3 overlapping dice 5 patterns (expressed as 3 x 5 = 15). Knows that two dots are counted twice so takes 2 away to get 13.<br><br>**Middle strategy**: Sees 2 overlapping lines of 5 (expressed as 5 + 5). Knows that one dot is counted twice so takes 1 away to get 9. Then adds the remaining 4 dots to get 13.<br><br>**Right strategy**: Sees two dice 5 patterns (5 + 5 = 10) and an arrow made of 3 dots so 10 + 3 = 13. |
|  | **Left strategy:** Split 7 into 6 and 1 to create a familiar double (double 6). Double 6 is 12. 1 and 4 makes 5. Add 12 and 5 to get 17.<br><br>**Middle strategy**: Take 1 away from 7 to make it into 6. Add that 6 and 4 to make a friendly 10. Add the other 6 to get 16 and add the 1 back on to get 17.<br><br>**Right strategy**: Add the 6 and 4 to make a friendly 10. Add the 7 to get 17. |

This teacher's role as the scribe is important because:

- it requires students to verbalise their thinking clearly enough that it can be accurately replicated by the teacher and therefore be accessible to others
- it helps ensure that the recordings will be visible and clear for all group members to access the thinking being shared.

Note: In cases when a student is having trouble explaining, or you are having trouble understanding, it is appropriate to invite them up to point or help you with the recording.

5. **Invite students to compare and contrast the different strategies**. Once you have recorded three to five different strategies, invite students to pick two strategies and think about how they are the same and how they are different. Provide thinking time for them to do so.
   This step is important because:
   - it provides an opportunity for students to notice details about strategies and understand how they work
   - it creates an opportunity for students who are still reluctant to share their own strategies to contribute to the discussion
   - it gives dedicated time to making mathematical connections.

| **Compare and contrast examples:** | |
|---|---|
|  | Students might notice:<br>• all three strategies involve identifying fives, however, only the left and right strategies involve seeing dice 5 patterns<br>• the left and middle strategies both identify overlapping dots and both use subtraction to factor this in<br>• the left strategy uses multiplication while the other two use addition. |
|  | Students might notice:<br>• the middle and right strategies both involve making a friendly 10 with 6 and 4, but the middle strategy takes 1 away from 7 to make 6 (and adds the 1 back on later) to add to 4 while the other strategy uses the existing 6<br>• the left and middle strategy both take 1 away from the 7 to make a 6. But the left strategy uses that 6 in a double with the other 6 while the other uses it to make a friendly 10 with the 4. |

## Getting started prompts

This editable PowerPoint provides example prompts to use when running Classroom Talks.

**Classroom Talk Prompts - Year 3 Quantifying Number**
https://docs.google.com/presentation/d/1fS5UYjw-LqmCNq7XsRlN5smKaF11EJbnNLRtOZM5gkU/edit?usp=sharing

## Use number talks to apply place value to addition problems

This resource revisits the steps of a Number Talk using an addition example.
https://docs.google.com/document/d/1OxBOH-E0rotcUkjryhbUG18Axdfn3CBdsCcLArtpZeY/edit

## Further information:

Talk moves (downloadable poster) https://education.nsw.gov.au/content/dam/main-education/en/home/teaching-and-learning/curriculum/literacy-and-numeracy/teaching-and-learning-resources/numeracy/talk-moves-poster-A3.pdf