If you are brand new to Number Talks you may wish to read this lesson plan over before you try your first Number Talk. Please email any of us with questions. We will be happy to help you out!

**Step #1: Complete the Number Talk Planning Template**
Before you try your two dot patterns with your students. Finish the Number Talk Planning Template. We have found that we feel more confident as the teacher when we have an idea of what the children may say when they are asked “How many dots do you see? How do you see them?” We are also more confident recording their thinking when we have practiced this at least once before trying the patterns with our students.

**Step #2: Select a Location for Your Number Talk**
Select a location in your classroom to gather your students in a way that will allow you to have close proximity to them for informal observations and interactions. Some teachers choose to use an area in their classroom that is set apart with a large rug; others move to a section of the classroom with a large writing space. We prefer to gather our students close to us on the floor by a whiteboard or chalkboard so we have a spot to record their strategies. We find that it is easier for us to have a focused discussion when students move away from their typical desk distractions.

**Step #3: Get your dot patterns ready to “flash.”**
You many wish to use dot stickers and paper plates or card stock. The dot stickers can be purchased at Office Depot and are fairly affordable. You may create your patterns using your Smart Board or Power Point slides, or you may draw it out on a small white board so you can easily flip and flash the dot pattern to your students.

**Step #4: Gather your students and prepare them for the Number Talk**
Explain to your students that they are going to participate in a Number Talk. You may ask them what they think a Number Talk is. They may reply with something like “a time when we talk about numbers.” At this point, emphasize to your students that THEY will be doing the talking and you will be only charting and asking questions to make sure everyone understands what is shared. You may respond with something like, “You’re right! Today YOU are going to talk about numbers and I’m going to record your thinking! I am going to show you a dot pattern for about 3 to 5 seconds. When five seconds is up I am going to ask you how many dots you saw.” You may wish to count to five silently holding up a finger as you count so you students can see how long 3, 4, and 5 seconds may be.

**Step #5: Introduce the steps to your students**
Begin by saying something like, “During a Number Talk it is important that everyone has a chance to think about how many dots they see without feeling rushed. So please don’t
shout out how many dots you see. Instead of shouting out I want you to give me a thumbs up. I want you place your “thumbs up” right in the middle of your chest when you know how many dots there are and wait quietly. That will be your secret signal to me that you know how many dots there are.”

Continue with something similar to the following. “After I see lots and lots of ‘thumbs up’ I am going to show you the pattern a second time so you can double check. After that, I will call on you to tell me how many dots you saw and I will write down everyone’s answer here in the corner of the board.”

Wrap up the directions with “When I have gathered all the possible answers. I will call on a few students to explain how they many dots they saw and how they saw them.”

**Note:** If your students have never seen a dot pattern before you may wish to show them a different dot than the two you will be trying with them. A very simple dot pattern of three dots would be nice “practice” dot pattern. You can practice the “silent thumbs up.”

**Step #6:** Facilitate the Number Talk with your students.

Here is a brief version of the “steps” that you can follow while you facilitate your Number Talk.

- Gather students together for your Number Talk. Have your dot patterns and a place to record student thinking handy.
- Remind students to put a “thumbs up” when they know how many dots they see and to not shout out the answer.
- Show the dot pattern to your students for 3-5 seconds.
- Wait until most students have a thumbs ups.
- Show the dot pattern a second time for 3-5 seconds so they can check their answer. If they arrive at an answer before silent thinking time is up, they should try to think of another way to see the dot pattern.
- Call on 4-5 students to share answers only. Write the answers in the corner of the board or chart paper. You can poll the class to determine if most students got a specific answer.
- If you wish, you can ask your students to share how many dots they saw and how they saw them with a neighbor.
- Select a student to share how he/she saw the dot pattern. Encourage students to listen to each other as strategies are shared. As much as possible let the student finish explaining their strategy before recording. Try to capture exactly what students say, even if incorrect; give them opportunities to correct/clarify their own thinking before
jumping in to “save” them. Many times, children will self-correct their incorrect responses when they hear others explain their thinking.

- Repeat steps #6 and #7 until you are satisfied that all strategies have been shared.

Step #7: Wrap up the Number Talk.

Closure can be achieved through a discussion by identifying similarities and differences between strategies. For example if 7 pattern was shown and there were 4 different ways of seeing 7 a wrap up to the Number Talk might sound like the following: “Wow! We have 3 different ways to see 7. Some of us saw 7 as 6 and 1. Some of us saw 7 as 4 and 3, and some of us saw 7 as 5 and 2. We may see 7 in all these ways but when we put them back together again there are still 7 dots. Well done!” AND “What did you learn during today’s Number Talk that you might try during another Dot Pattern Number Talk?”

Below are some questions you may wish to ask in order to your students explain their thinking:

- Who would like to share how they got their answer?
- I heard you say __________, did I hear correctly?
- Did anyone see the dots in a different way?
- Can someone explain how (name of student) saw the dots?
- Please raise your hand if you understanding what ___ just shared.

Sources:


Number Talks at-a-Glance

Teacher Moves

1. Think
   → Say and write equation on board (model completed equations with a question mark or empty box for the unknown part); add context to numbers
   → Wait until most students have a thumb up

2. Listen/Share
   → Call on 4-5 students to share answers only; write answers on the board
   → Accept all answers (even incorrect ones) without saying if they’re correct
   → Ask: can both/all these answers be correct? *(this isn’t an everyday step, just once in awhile as a reminder that there can only be one correct answer for each equation)*

3. Explain/Defend
   → Select a student to share his/her solution to the equation
   → Chart student thinking on board—try to chart exactly what students say, even if incorrect; give them opportunities to correct/clarify their own thinking before jumping in to “save” them
   → take time to name the strategy used (i.e. counting on, making a ten, using landmark numbers)

4. Question *[this may come later with younger students, after they’ve grown more comfortable with the Number Talks routine]*
   → Allow students to question each other about their thinking or the strategy they chose
   → Have students identify similarities/differences between strategies

Silent Signals

- READY → closed fist on chest
- I HAVE AN ANSWER → put thumb up
- I HAVE ANOTHER STRATEGY → put out a finger for each additional strategy
- SAME THINKING → move hand back and forth to show agreement
Possible next patterns:

1. & a (fact family thinking)
2. & B (number line thinking)
3. & C (ten frame thinking)
4. & D (base ten thinking)
5. & E (double thinking)
6. & F (number line thinking)

Remember: What is the pattern you do next? and why?

Step 4: In reflecting on this Number Talk, what do you want to be able to do? and why?

Step 1: Anticipate different strategies students might use for solving the problem (or how they might “see” a dot pattern).

Step 2: How will you record each of these strategies?

Step 3: What questions might you ask to fully understand and represent a student’s thinking and/or method?

Step 5: How do you know these are total dots?

How do you know these are total dots?

I need to make sure I got it.

Let me say this back to you.

Do I have your thinking correct?

Where do you see the “four and one”?

How did you see the dots?

Grade 2
### Planning a Number Talk Template

<table>
<thead>
<tr>
<th>Step 1: What will you hear students say as they explain their thinking?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How might you address them?</strong> (Mathematical, instructional, other)</td>
</tr>
<tr>
<td><strong>Talk, what challenges might your students face?</strong></td>
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<th>Step 2: How will you record each of the strategies your students share?</th>
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<td><strong>Represent a student’s thinking and/or solution method?</strong></td>
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Planning a Number Talk Template

Follow-Up Reflection Questions

1. Compare the experience of executing the Number Talk in the Planning Template you prepared. What was different?

2. Coding and recording student thinking—what challenges did you have? When reflecting on recording, what about the execution that you had anticipated? What surprises did you encounter? What changes did you make?

3. After implementing your Number Talk, choose a Math Teaching Practice and make specific connections to your teaching experience. Coding and recording student thinking—what challenges did you have? When reflecting on recording, what could you make to the standards for mathematical practices?