

RANGE 1 NUMBER TALKS

Materials:

Arrangement Cards

Arrangements of groups of 2-6 objects that can be seen in a variety of ways using:

Dot Cards, Toothpick Cards, Tile Cards, Number Shapes

Unifix Towers primarily up to 6

Emphasize:

- recognizing small groups.

Include:

- determining 1 more/1 less/same for numbers to 4–6.
- looking for parts of number within 6.

Presenting the Problems

Show the card or tower.

Ask: *How many?*

Collect answers from 4 or 5 children.

Ask: *How did you find out?*

Have 3 or 4 children share their solutions.

Notice the mathematics the children use.

Sometimes write down the math using symbols.

Show the next card or tower.

Repeat the cycle.

FOCUS: Recognizing Small Groups to 4/5

- How Many? Using One Arrangement
- Is It More, Less, or the Same?
- What Do You Think I Did?

ALSO INCLUDE: Number Relationships

Determining One More/One Less to 6

- 1 More and 1 Less: Cover and Uncover
- 1 More and 1 Less: What if?

Looking for Parts of Numbers Within 6

- Can You Find a Group Like This?

Putting It All Together

- Classroom Observation
- Reflections

Number Talk Examples

FOCUS: RECOGNIZING SMALL GROUPS TO 4/5

When beginning Range 1 experiences, the primary focus will be on recognizing small groups. It is important that children work with multiple arrangements of each number and not just memorize traditional (dice) groupings. When children see many different arrangements of the same number, they will have the opportunity to develop the understanding that a quantity remains the same no matter how it is arranged.

We will fail to notice what young children know about recognizing small groups and what they still need to learn if we only look at whether they got the right or wrong answers. For example, watch the child's body language as they figure out the number of dots. This will help you know if they knew how many dots without counting, or if they needed to count to find out.

Over time, some children will learn to identify groups of 2s and 3s and some groups of 4s. Choose the cards based on what you see the children doing. If you see many of them are counting the groups that are larger than 3, show mostly 2s, 3s and a few 4s. Once in a while present arrangements of larger numbers like 5 and 6 even though most of the children will not recognize these groups and will count to find out how many. This not only adds variety but also makes the Number Talk less predictable and keeps the children engaged. If you find most of the children know 2s and 3s, show mainly 4s and 5s and some 6s.

One way children demonstrate they are beginning to think about the quantities and not just about the task of counting is when they spontaneously recount to see if they landed on the right number. This means they are starting to pay attention to where they landed and are becoming aware they should always get the same number. This is very different from what children do if they have been told to check to make sure they are right. Checking because "the teacher said" is following directions. Starting to realize they should get the same number and recounting to check is the beginning of understanding quantity. Eventually, when they are sure they know how many in a group, they will not feel the need to recount to see if they are right.

The Critical Learning Phases (pp. 11-15) are the essential ideas that are milestones or hurdles in children's growth in understanding. These learning phases are highlighted throughout this instructional range. Children gain the important mathematical insights described in the following pages when they have many opportunities to find out for themselves the number of objects on a variety of arrangement cards. These insights can't be taught directly but must come from their own thinking and their own observations.

● **CHILD'S INSIGHT**

It's 4. 1, 2, 3, 4. I'm right!

● **CRITICAL LEARNING PHASE**

Spontaneously checks by recounting to see if the result is the same.

● **CHILD'S INSIGHT**

Wait, last time I got 4 but this time I got 5. I better count again.

● **CRITICAL LEARNING PHASE**

Notices when recounting a group results in a different number.

How Many? Using One Arrangement

► Show one card.



Children's Responses

Notice what mathematics the children use.

Do they guess?

"7, 7!"

Do they count with error(s)?

"1, 2, 4, 5. It's 5."

Do they count all?

"1, 2, 3, 4."

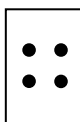
Do they see parts and count all?

"I saw 2 and 2 more. That makes—1, 2, 3, 4."

Do they know without counting?

"I know. It's 4!"

"I saw 2 and 2 and I know that's 4."



Say: *Thumbs up when you know how many.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.

► Show another card.



Children's Responses

Notice what mathematics the children use.

Do they not see any relationship to the previous card?

"1, 2, 3, 4."

Do they notice the relationship after they count?

"1, 2, 3, 4—hey, it's 4 again."

Do they notice the relationship?

"Hey. It's the same! It's just crooked."

Do they guess?

"5!" "6!"

Do they count with error(s)?

"1, 2, 3, 4, 5."

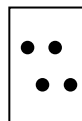
"1, 2, 4, 5."

Do they count all?

"1, 2, 3, 4."

Do they know without counting?

"I see a 2 and a 2 and that makes 4."



Say: *Thumbs up when you know how many.*

Collect answers.

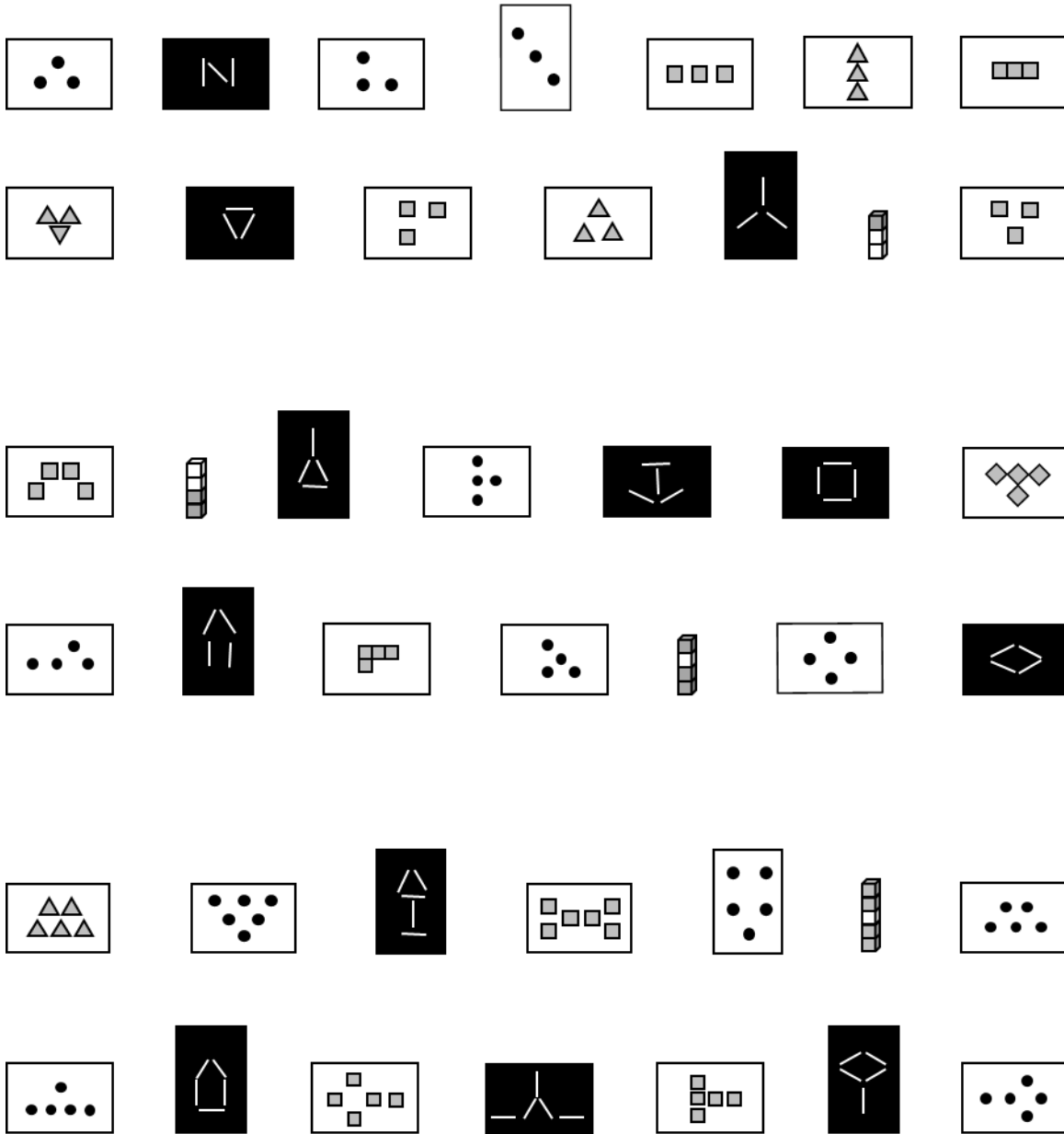
Ask: *How did you find out?*

Have children share their thinking.

► Show two or three more arrangements, one at a time. Be sure to include a variety of numbers.

The arrangements used here are intended to be examples only of the types of cards or towers that could be used. Use the cards that you have available.

Other Examples:



Provide Ongoing Practice Using a Variety of Arrangements over Time

Children need many experiences within a small range of numbers. The way to keep this challenging and interesting is to vary the materials and the arrangements of the numbers. Children will be challenged and will stay engaged as long as they still need to count or are learning to use what they know about one about one card to figure out another. Don't "teach" them the relationships as this will stop their thinking.

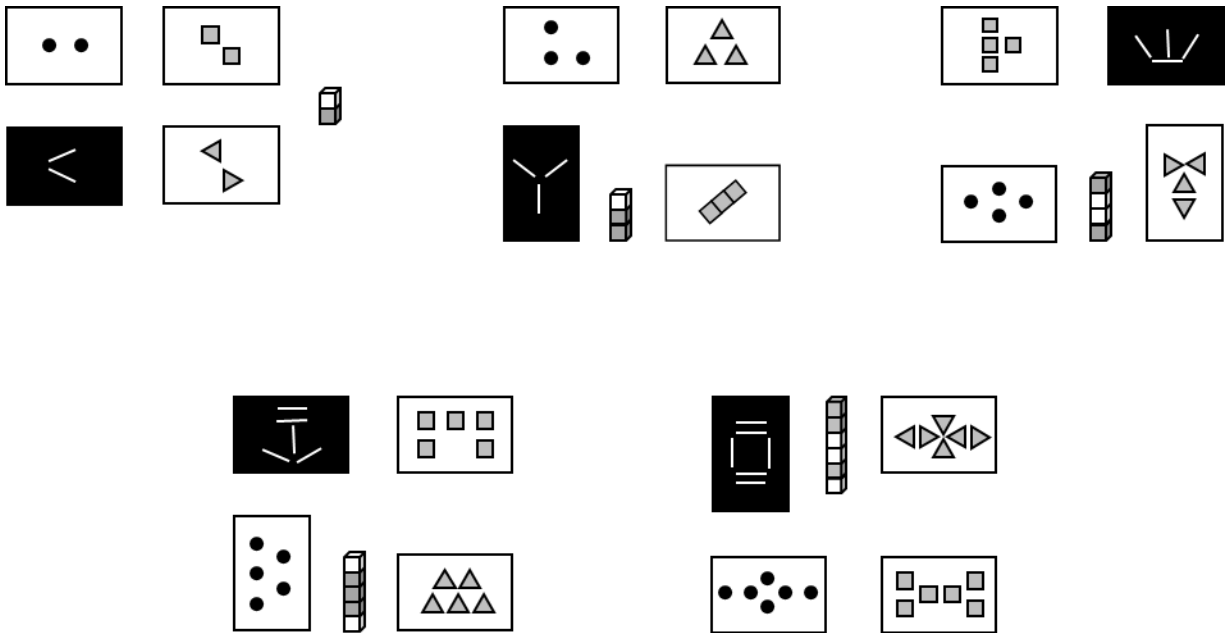
Use the same cards over and over and over again.

The same cards can be used over and over and still be new to the children. When any one card is shown with a variety of other cards, children will notice different relationships depending on which cards are presented.

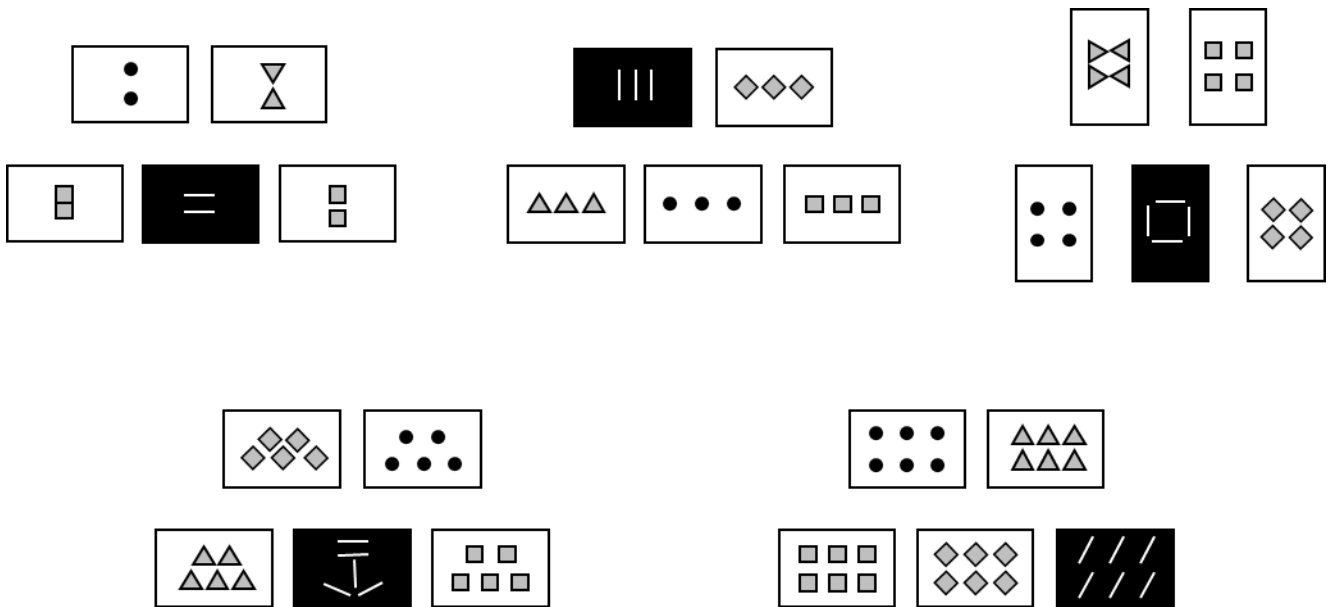
Provide variety by using cards/towers that are the same number but in a different arrangement.



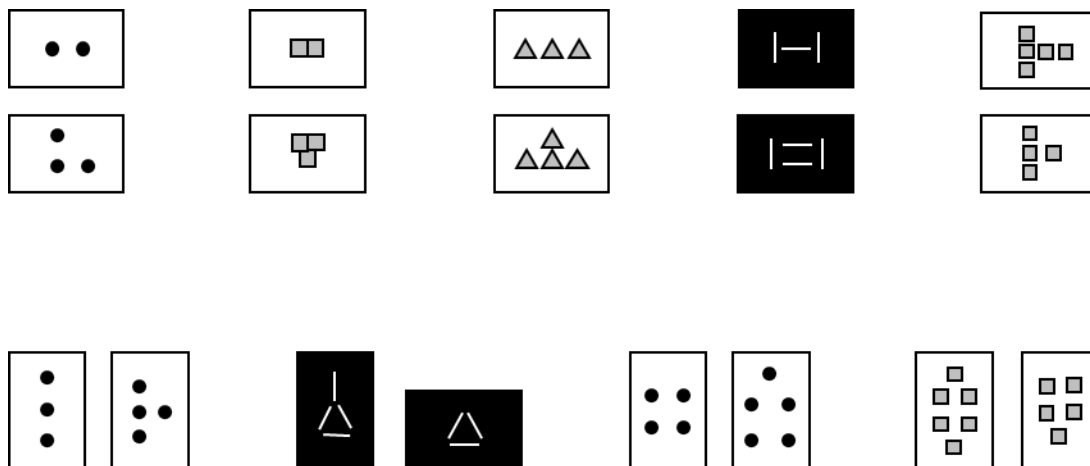
Use cards that are the same number but made from a different material.



Sometimes show cards that are arranged in the same way but are made from a different material.



Sometimes show cards where some parts are the same, but the totals are different.



RESPOND TO WHAT THE CHILDREN DO

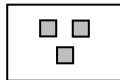
Provide Support: If you have students who do not yet recognize groups, continue to provide a range of numbers, but make sure you include groups of 2. This will help them see what it feels like to "know." Move between those they know and those they count to help them become more aware of what they know.

Provide a Challenge: If you have students who know most of the arrangements without counting, occasionally include some larger numbers and ask how many there would be if you added one more or took one away.

Is It More, Less, or the Same?

Add variety and get children to think about relationships between numbers by asking them to figure out if a card is more, less or the same as another card. Children will typically count and tell you how many on a card before they will say whether the second card is more, less, or the same as the first card.

► Show one card.



Say: *Thumbs up when you know how many.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.

Children's Responses

Notice what mathematics the children use.

Do they guess?

"7, 7!"

Do they count with error(s)?

"1, 2, 3, 4. It's 4."

Do they count all?

"1, 2, 3."

Do they see parts and count all?

"I saw 2 and 1 more. That makes—1, 2, 3."

Do they know without counting?

"I know. It's 3!"

"I saw 2 and 1 and I know that's 3."

►Keep the first card visible and show another card.



Ask: *Is it more, less, or the same?*

Say: *Thumbs up when you know.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.



Children's Responses

Notice what mathematics the children use to find out.

Do they guess?

"8!"

Do they count with error(s)?

"1, 2, 4, 5."

Do they count all?

"1, 2, 3, 4."

Do they see parts and count all?

"I saw 3 right there and 1 more up there. That makes 1, 2, 3, 4."

Do they know without counting?

"That's 4!"

"I saw 3 and 1 and that's 4."

Notice if they knew there were more, less or the same.

Are they correct?

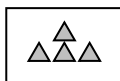
"The toothpicks are more!"

"I counted 3 and then I counted 4. 4 is more."

Are they incorrect?

"Same, same. I think they are the same."

►Show one card.



Say: *Thumbs up when you know how many.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.



Children's Responses

Notice what mathematics the children use.

Do they guess?

"6, 6!"

Do they count with error(s)?

"1, 2, 3, 5. It's 5."

Do they count all?

“1, 2, 3, 4.”

Do they see parts and count all?

“I saw 2 and 2 more. That makes—1,2, 3, 4.”

Do they know without counting?

“I know. It’s 4!”

“I saw 2 and 2 and I know that’s 4.”

► Keep the first card visible and show another card.



Children’s Responses

Notice what mathematics the children use.

Do they guess?

“I think it’s 6.”

Do they count with error(s)?

“1, 2, 4.”

Do they count all?

“1, 2, 3.”

Do they see parts and count all?

“I saw 2 and 1. That makes 1, 2, 3.”

Do they know without counting?

“That’s 3!”

“I saw 2 and 1 and that’s 3.”

Notice if they knew there were more, less or the same.

Are they correct?

“I think that card has less.”

“I think it is littler because 1 is gone.”

Are they incorrect?

“They are both triangles.”

Ask: *Is it more, less, or the same?*

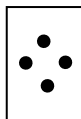
Say: *Thumbs up when you know.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.

► Show one card.



Say: *Thumbs up when you know how many.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.

Children's Responses

Notice what mathematics the children use.

Do they guess?

"6, 6!"

Do they count with error(s)?

"1, 2, 3, 4, 5. It's 5."

Do they count all?

"1, 2, 3, 4."

Do they see parts and count all?

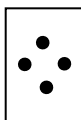
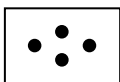
"I saw 2 and 2 more. That makes—1, 2, 3, 4."

Do they know without counting?

"I know—it's 4!"

"I saw 2 and 2 and I know that's 4."

► Keep the first card visible and show another card.



Children's Responses

Notice what mathematics the children use.

Do they guess?

"7!"

Do they count with error(s)?

"1, 2, 4, 5, 6. It's more!"

Do they count all?

"1, 2, 3, 4."

Do they see parts and count all?

"I saw 2 right there and 2 right there. 1, 2, 3, 4."

Do they know without counting?

"That's 4! It's the same!"

"I saw 2 and 2 and that makes 4."

Ask: *Is it more, less, or the same?*

Say: *Thumbs up when you know.*

Collect answers.

Ask: *How did you find out?*

Have children share their thinking.