

Understanding the Think-Share-Compare Instructional Routine and Best Practices

1. Think-Share-Compare Routine

- What is it?
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Think-Share-Compare Routine

What Is It?

The *Ready* Think-Share-Compare Routine helps children achieve greater mathematical proficiency and rigor within a collaborative structure. Children develop greater understanding of mathematical models and strategies using think time, partner talk, individual writing, and whole class discourse.

When to Use It

Use the Think-Share-Compare Routine during the Introduction, Modeled Instruction and Guided Instruction sections of each *Ready* lesson.

Why It Matters

There are many ways to approach mathematical thinking and solutions to problems, but when only one way is presented, children may think they “didn’t do it right,” even when their solution process or thinking is accurate. Exposing children to a number of models and approaches helps them:

- Build mathematical confidence.
- Make connections between representations.
- Develop flexible thinking.
- Deepen and extend conceptual understanding.
- Construct viable arguments and politely critique the reasoning of others.
- Stay engaged, focused, and motivated.

Management Tips

Allow time for productive struggle.

- **Have children talk with a partner about their ideas** or try another strategy.
- **Avoid telling children** whether their approach or answers are incorrect. Instead, prompt children:
 - *Do you agree with [child’s] answer?*
 - Why or why not?*

Create classroom discussion guidelines.

- **Have children listen carefully** to their partners.
- **Tell children to ask questions** if they don’t understand, such as *I was confused when you said...*
- **Guide children to respect others’ ideas** and add on to them.

Prepare for the classroom conversations.

- **Circulate** as children work.
- **Identify strategies and models** to highlight in the classroom discussion.
- **Sequence the strategies** you want to discuss. You may want to start with a child who has an incorrect answer or solution process to address common misconceptions and promote discussion.



Talking can help us better understand math.

Think-Share-Compare Routine

1. Make Sense of the Problem

Read and understand the problem or question. Think about the key information.

Read the problem together as a class. Make sure children understand what they are being asked to do. Ask a few children to describe what the problem is about. Have several children explain what the problem is asking them to do and what information they know.

2. Solve and Support Your Thinking

Include pictures, models, and/or explanations in your solutions. If you have time, show another way to solve it.

Allow enough time for children to persevere as they think through their solutions. Make sure children are showing the models and strategies they use.

3. Discuss

Explain your thinking to a partner. Discuss how your strategies are alike and different.

Have partners discuss their strategies. Circulate to hear conversations and select and sequence solutions to discuss with the whole class.

4. Compare

Compare your strategies with the class, including the strategies in the *Ready* book.

Call on children to share their answers and solution strategies with the class. Ask children if they agree or disagree with a child's strategy, rather than telling if the strategy is right or wrong. Show a *Ready* strategy for comparison.

5. Connect and Reflect

Complete and discuss the *Connect It* questions.

Choose key questions from the Teacher Resource book to help children make connections and reflect on their learning.

6. Apply

Apply what you have learned to a new problem. Be sure to support your answer.

Use practice problems corresponding to the lesson in *Practice and Problem Solving* to give children an opportunity to apply learning in a new, similar problem.

Math Talk

What Is It?

Math Talk guidelines help all children participate in communicating about their reasoning and problem solving strategies. Standard practices for communicating verbally and non-verbally enable pairs, small groups, and whole classes to engage in productive math discussions.

When to Use It

Introduce Math Talk hand signals and conversation protocols at the beginning of the year to establish practices that can be used throughout the Ready lessons when children are engaging in whole class, small group, or partner conversations.

Why It Matters

Conducting effective mathematical discussions works well when children know what is expected. Consistent use of these cues reinforces positive behaviors.

These practices:

- Set the expectation that participation is valued and ensure that every child has a voice.
- Provide positive modeling for respectful, balanced interactions among children.
- Empower and enable children to talk with each other authentically and independently.
- Allow children to use silent signals to indicate their readiness to share without interfering with other children's thinking.
- Encourage risk-taking by demonstrating how learning results from mistakes.
- Increase engagement of all children.

Management Tips

To promote good discussion habits, you may wish to:

Create guidelines for talking.

- Have children **use hand signals and a louder voice** to communicate with the whole class.
- Guide children to **look** at others **and listen** carefully when they speak.
- Have **partners use “6-inch” voices**.
- Have children **ask questions** if they don't understand something.
- Encourage children to **respect others'** ideas and share their own ideas.
- Tell children **it's okay to make mistakes**—when they happen, they help us learn.

Post discussion starters for children.

- Display Discussion Starters found in Step 3 of Lesson 0. Add to the list by creating your own.
- Refer to discussion starters to help children begin talking.
- Discussion starters that fall into these general categories ensure that conversations have variety and balance:
 - **Share thinking.**
 - **Listen to the thinking of others**
 - **Ask clarifying questions.**
 - **Disagree or agree respectfully.**



Partner Talk



Use a
6-inch voice.



Look at your
partner.



Listen to your
partner.



Ask
questions.

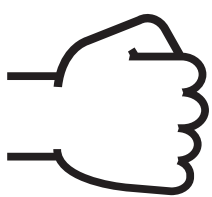


Mistakes
are OK.

Tell children that today they will learn rules for talking with a partner to solve math problems.



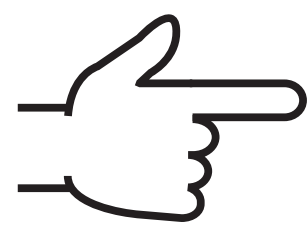
Whole-Class Talk



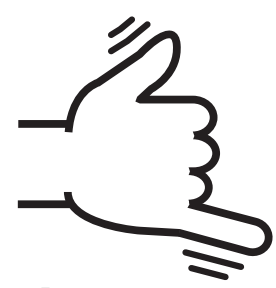
I'm thinking.



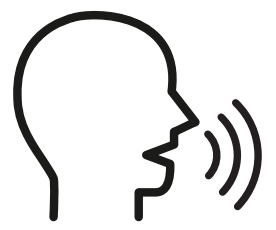
I have an idea.



I have another idea.



I agree.



Use a whole-class voice.



Ask questions.



Look at the speaker.



Mistakes are OK.

Tell children that today they will learn rules for talking in whole-class discussions to solve math problems.

Hands-On Learning

What Is It?

Hands-On Learning engages children through the use of both concrete objects (mathematical manipulatives and common objects that can represent ideas) and physical interactions (hands and fingers, kinesthetic experiences, use of space, and acting out mathematical situations).

When to Use It

Use Hands-On Learning to engage children in exploration during problem-solving. Make familiar tools available for children to choose strategies while they develop conceptual understanding and reinforce skills during practice. Use manipulatives often so that they are seen as a common element of mathematical learning.

Why It Matters

Using manipulatives and hands-on learning experiences helps children to relate concrete, visual, and abstract ideas in a developmentally appropriate sequence.

It helps children:

- Explore different ideas.
- Engage in productive struggle as they solve problems.
- Change their solutions or fix errors easily.
- Make their thinking visual more easily than in writing.
- Establish a model to refer to as they communicate their thinking verbally.

Management Tips

To promote good habits for hands-on learning, you may wish to:

Create guidelines for handling manipulatives.

- Guide children to treat objects as **math tools**.
- Discuss how the tools **connect to mathematical ideas**.
- Model and reinforce correct **usage** and **safety**.
- Prepare and provide **appropriate quantities** for the activity.
- Set expectations and routines for **storage**, **distribution**, and **sharing** of materials during use.

Post a list of common tools with their names and pictures.

- Show a **picture of the tool** along with its name.
- Encourage children to refer to manipulatives by **name** when sharing their thinking.
- Direct children's attention to the pictures of manipulatives for **ideas** when they struggle to begin solving a problem.
- Teach children to **draw simple representations** of the manipulatives to create their models.
- Refer to **SMP 5 (Use appropriate tools strategically)** to guide children in making decisions about which tools are appropriate for which problem-solving situations.