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

1. Think-Share-Compare Routine
   - What is it?
   - When to use it
   - Why it Matters
   - Management Tips

2. Annotated guide to Routine poster

   - With presentation slides for display

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.
Think-Share-Compare Routine

1. Make Sense of the Problem
   Read and understand the problem or question. Think about the key information.

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.

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

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

5. Connect and Reflect
   Complete and discuss the Connect It questions.

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

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.

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

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

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.

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

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

- Use a 6-inch voice.
- Look at your partner.
- Listen to your partner.
- Ask questions.
- Mistakes are OK.
Whole-Class Talk

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.