

DMT INSTITUTE

Developing Mathematical Thinking Institute (DMTI)



Professional
Development



Curricular
Resources



Assessment

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About the DMTI Targeted Activities

These DMTI Targeted Activities modules are designed to be played or completed with a partner or in small groups. These supplement the Primary Math Assessment and DMTI curricular materials.

The activities are intended for teachers or caregivers to play with children to build necessary math skills and math language. Each activity can be played for 10 to 20 minutes. And if there are additional activities in a module, they are built to be more advanced.

PMA – Grade 1

Relational Thinking

Relational Thinking

What's involved:

- Seeing the equal sign as a relational symbol rather than strictly computational
- Understanding different equations can be correct even if they are structured in non-conventional ways (e.g. $8=4+4$; $9+2=12-1$)
- Equivalence is not the same as congruence
 - Example: $4 + 1 = 1 + 4 = 2 + 3 = 5 + 0$
 - The above examples are all *equal* but not *exactly the same*.

Why it matters:

- Builds flexible thinking and decomposition of numbers
- Lays the foundation for algebraic thinking
- Broadens students' understanding of equivalence

Relational Thinking: Make Them the Same

Materials

- 2 Regular Dice (DMTI Math Pack)
- Red and Yellow Chips (DMTI Math Pack)
- Dice Mat

Relational Thinking: Make Them the Same

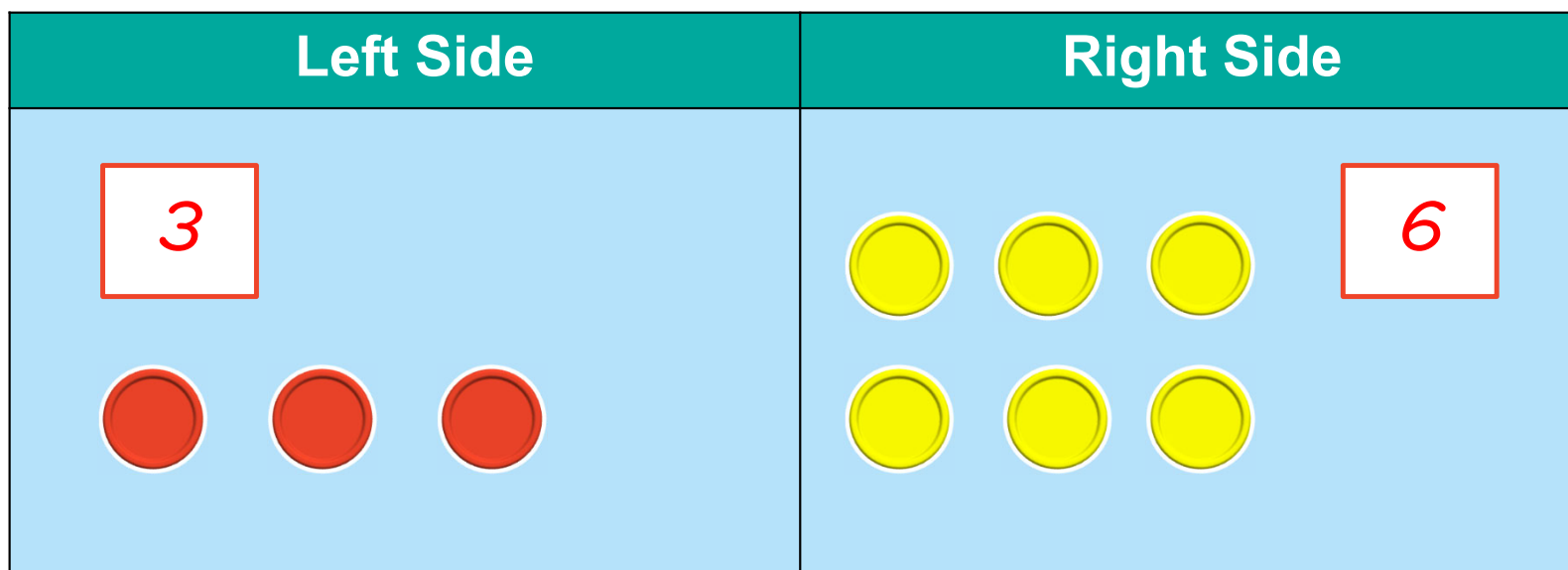
Activity I

1. Using the Dice Mat, roll one die on the left side and one die on the right side.
2. Place the number of red chips on the left side and the number of yellow chips on the right side.
3. Next, ask the child the following question?
 - How can you make all of the boxes the same?
4. Have the child use one of the following sentence frame:
 - I can remove ___ chips from the left side.
 - I can remove ___ chips from the right side.
 - I can add ___ chips to the left/right side.
 - I can move ___ chips from the left/right side and move them to the other side.

Dice Mat

Left Side	Right Side

Dice Mat (Example)



There are 3 on the left and 6 on the right. I could remove 3 yellow chips from the right. Now there would be 3 and 3.

Relational Thinking: Make Them the Same

Activity II

Repeat Activity I using dice with larger numbers.

Dice



← Tetrahedron die or 4 face die



← Hexahedron or Cube die or 6 face die



← Dodecahedron die or 12 face die



← Icosahedron die or 20 face die



← Decahedron die or 10 face die



← Octahedron die or 8 face die



← Decahedron die or 10 face die



“The Developing Mathematical Thinking Institute (DMTI) is dedicated to enhancing students’ learning of mathematics by supporting educators in the implementation of research-based instructional strategies through high-quality professional development, curricular resources and assessments.”

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