

AT Quick Guide

Math Manipulatives

Each elementary school in MCPS received one Math manipulative set per every 60 students at the start of the 2011-2012 school year. This quick guide illustrates the individual components of the math kit with the MSDE accommodation decision.

- Manipulatives help students learn through concrete hands on experimentation with tools representing math concepts.
- They can be used as instructional models and for guided practice – for individual students in guided math groups.
- It is suggested that the manipulatives are available as an option for students during every appropriate lesson, students may improve their learning through providing choice of materials.

Individual Components of Each Math Kit

Weighted Numbers



1 2 3 4 5 6 7 8 9 10



Description: Numbers have relative weights so that they add up to their value. They support the transition from adding with objects to adding with symbols. (Grade levels)

MSDE Accommodation decision:

Not allowed as an accommodation on the MSA. This is can be used during instruction only.

360 ° Angle View



Description: This angle view with color contrast provides a more concrete representation of the size of an angle. It also eliminates the need to rotate the angle or protractor. The red color makes it clear which part of the angle is being measured.

MSDE Accommodation decision:

Acceptable as a 2-J: Calculation Accommodation (Manipulative)

Base ten clear blocks



Description: Transparent flats, longs and ones blocks. The 100 chart is visible through the blocks. Blocks come in both red and blue.

MSDE Accommodation decision:

Acceptable as a 2-J: Calculation Accommodation (Manipulative)

Elapsed Time Line

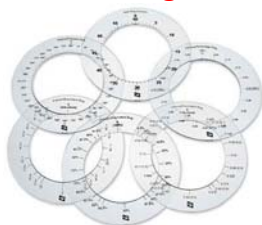


Description: This is a line that represents the 24 hour clock – a full day. It allows students to solve problems of elapsed time even if they are unable to calculate, through moving the pointers along the hour and minute markers on the time line.

MSDE Accommodation decision

Acceptable as a
2-J: Calculation Accommodation (Manipulative)

Fraction Rings



Description: Plastic measurement circles used with fraction circles to represent equivalencies among fractions, minutes, percentages, decimals, and degrees (e.g. $1/4$, 15 minutes, 25%, 0.25, 90 degrees)

MSDE Accommodation decision

Not allowed as an accommodation on the MSA. This can be used during instruction only.

Expanded Fraction Pattern Blocks set

| Pattern Blocks in a Standard Set | Additional Pattern Blocks for an Expanded Set |
|-------------------------------------|---|
| yellow hexagon | pink double hexagon |
| red trapezoid shape (quadrilateral) | black hexagon |
| orange square | brown trapezoid shape (quadrilateral) |
| blue rhombus shape (quadrilateral) | purple triangle |
| tan rhombus shape (quadrilateral) | |
| green triangle | |

Description: This expanded set of pattern block allows teachers to represent more and smaller fractions. It contains the usual blocks and a double helix, a chevron and blocks representing $1/4$ and $1/12$ of a helix.

MSDE Accommodation decision

Acceptable as a
2-J: Calculation Accommodation (Manipulative)

Gear Math Clocks



Description

The hands on this clock move in the same fashion as an analog clock. As the minute hand moves around the clock for 60 minutes the hour hand moves one hour.

MSDE Accommodation decision:

Acceptable as a
2-J: Calculation Accommodation (Manipulative)

Note: These devices/tools can only be used by students with IEPs that document the use of the 2-J (calculation devices) accommodation.

Tip: Divide the contents of each math kit to assemble grade appropriate kits