



Adaptations to key mastering number manipulatives for pupils with SEND

Manipulatives play a vital role in supporting communication, oracy, and mathematical reasoning by providing pupils with concrete tools to explore, explain, and justify their thinking. For all learners to fully access these opportunities — particularly those with additional needs — everyday manipulatives may require thoughtful adaptation. These adaptations can be simple changes in how resources are used, modifications to existing tools (such as adding texture or contrast), or the creation of bespoke items to meet specific needs. The table below outlines common manipulatives used in the Mastering Number programme and provides examples of how they can be adapted to ensure all pupils are able to participate meaningfully in mathematical dialogue and reasoning.

Manipulative	Visual Impairment	Wheelchair User	Fine Motor Difficulties	Attention Difficulties	Communication Needs	Need for Structure / Routine
Rekenrek (Bead String)	Use high-contrast tactile beads; add audio cues	Accessible table; vertical orientation option	Larger beads with spacing	Short, clear tasks; reduce distractions	Gestures or written prompts	Consistent use and position
Ten Frame/ (Hungarian ten frame)	Raised borders (e.g. puffy paint); high-contrast counters	Accessible, stable table or tray	Large or magnetic counters	Timers; 'first/then' boards	Pointing or arranging counters	Consistent layout and format
Number Tracks / Lines	Large print or tactile lines; braille versions	Table-level strips or vertical mount	Magnetic/Velcro markers	Chunk tasks; cue transitions	Visual sequence cards	Same track each time; colour coding
Dot Cards	Embossed dots; high-contrast designs	Present at adjustable height and angle	Sturdy or mounted cards	Flash or (feel) briefly then allow time	Hold up matching cards	Same format; minimal variation (?)
Counters / Discs	Tactile counters with high contrast. Double sided counters, textured on one side.	Tray/organiser on lap or table	Larger counters with grip	Short bursts; visual rewards	Sort into labelled bowls	Consistent colours and types (Specific or contrasting colours)
Interlocking Cubes	Textured or high-contrast cubes	Tray with lip to prevent movement	Pre-connected or easy-grip cubes	Break into build-and-rest steps	Non-verbal arrangement explanations	Provide model to copy
Pattern Blocks	Tactile edges or raised shapes	Tilt board or lap tray	Magnetic or foam blocks	Limit number of pieces; focus on target	Pointing or matching shapes	Predictable sequences (e.g. always 3 shapes)