

Math Activity Cards for Gifted Learners, Ages 5–6

Ten self-contained activities, each with materials, a play script, an extension, and a research note. Print double-sided on cardstock, cut along the dashed lines, and work through them in any order.

CARD	ACTIVITY	SKILL FOCUS
1:1	Mystery Number Detective	<i>Logical deduction · number properties</i>
1:2	Pattern Machines	<i>Growing patterns · algebraic thinking</i>
1:3	Balance the Scale	<i>Equality · early equations</i>
1:4	Shape Shifters	<i>Spatial reasoning · composing shapes</i>
1:5	The Sorting Machine	<i>Classification · Venn logic</i>
1:6	Doubling Treasure	<i>Multiplicative thinking · growth</i>
1:7	Measure the House	<i>Nonstandard units · estimation</i>
1:8	Number Line Jumps	<i>Skip counting · mental math</i>
1:9	Fair Shares	<i>Division · early fractions</i>
1:10	The Broken Calculator	<i>Flexible computation · decomposition</i>

PROGRESS TRACKER

Write the date you played each card, and a note on what your child noticed.

1:1	_____	1:6	_____
1:2	_____	1:7	_____
1:3	_____	1:8	_____
1:4	_____	1:9	_____
1:5	_____	1:10	_____



NUMBER SENSE 1:1

FOR AGES 5–6

Mystery Number Detective

*Logical deduction · number properties***YOU WILL NEED**

Paper, pencil, number cards 1–20

HOW TO PLAY

Think of a secret number between 1 and 20. Your child may ask only yes/no questions: “Is it bigger than 10?” “Is it even?” “Can you count to it by fives?” Write each clue down and cross off the numbers it rules out.

STRETCH IT

Let your child hold the secret number and answer instead. Challenge them to stump you in under five questions.

THE SCIENCE

Ruling out options while holding clues in mind exercises working memory and inhibitory control — executive function skills that underpin math reasoning.

Source: Center on the Developing Child, A Guide to Executive Function



NUMBER SENSE 1:2

FOR AGES 5–6

Pattern Machines

*Growing patterns · algebraic thinking***YOU WILL NEED**

Blocks, buttons, or cereal pieces

HOW TO PLAY

Build a growing pattern instead of a repeating one: 1 block, then 3, then 5, then 7. Ask: “What comes next? How do you know? How many would be in the 10th step?”

STRETCH IT

Try a doubling pattern (1, 2, 4, 8) beside the first one and ask which pattern grows faster — and why.

THE SCIENCE

Patterning ability in early childhood is a distinct and strong predictor of later mathematics achievement, independent of counting skill.

Source: Rittle-Johnson et al., Early Childhood Research Quarterly



NUMBER SENSE 1:3

FOR AGES 5–6

Balance the Scale

*Equality · early equations***YOU WILL NEED**

Coat-hanger balance or a drawn scale, small identical objects

HOW TO PLAY

Place 7 objects on one side and 3 on the other. Ask: “How many more do we need to make it fair?” Then write it together as $3 + ? = 7$.

STRETCH IT

Put objects on both sides at once: $2 + ? = 4 + 3$. This teaches that “=” means “the same as,” not “the answer comes next.”

THE SCIENCE

Many children learn “=” as a signal to compute rather than a statement of sameness. Building the relational meaning early prevents a misconception that blocks algebra later.

Source: Mathematical Thinking and Learning, understanding of the equal sign



NUMBER SENSE 1:4

FOR AGES 5–6

Shape Shifters

*Spatial reasoning · composing shapes***YOU WILL NEED**

Paper squares cut into triangles and rectangles

HOW TO PLAY

Give your child four paper triangles. Ask them to make a square, then a larger triangle, then a slanted parallelogram. Trace each solution on paper to keep a record.

STRETCH IT

Ask how many different squares they can build, and whether two solutions that are just rotations of each other should count as the same.

THE SCIENCE

Composing and decomposing shapes builds the spatial vocabulary and mental rotation skills linked to stronger mathematical performance.

Source: NAEYC, Developing Your Preschooler’s Spatial Skills



NUMBER SENSE 1:5

FOR AGES 5–6

The Sorting Machine

*Classification · Venn logic***YOU WILL NEED**

Two loops of yarn, a pile of mixed small objects

HOW TO PLAY

Label one loop “red” and the other “round.” Hand over a red ball and let your child work out what to do — they will invent the overlapping region themselves.

STRETCH IT

Add a third loop, or hide the labels entirely and have your child guess the secret sorting rule from where objects land.

THE SCIENCE

Switching between sorting rules and holding two attributes at once strengthens cognitive flexibility, a core executive function skill.

Source: Center on the Developing Child, Enhancing and Practicing Executive Function Skills



NUMBER SENSE 1:6

FOR AGES 5–6

Doubling Treasure

*Multiplicative thinking · growth***YOU WILL NEED**

Pennies or dried beans, a muffin tin

HOW TO PLAY

Put 1 bean in the first cup, 2 in the next, then 4, 8, 16. Before each cup, ask for a prediction: “How many next? Will we have enough?”

STRETCH IT

Offer a choice: 10 beans a day for a week, or start with 1 bean and double each day. Let your child test which deal is better.

THE SCIENCE

Predict-then-check routines with concrete materials are a hallmark of effective early math interventions, building number sense alongside reasoning.

Source: DREME Network, Research and Interventions in Early Childhood Mathematics



NUMBER SENSE 1:7

FOR AGES 5–6

Measure the House

*Nonstandard units · estimation***YOU WILL NEED**

A shoe, a length of string, sticky notes

HOW TO PLAY

Measure the hallway in “shoes,” then in “steps.” Ask why the two numbers are different, and which unit is the better choice for something long.

STRETCH IT

Have them estimate first, then measure, and record the gap between guess and result. Track accuracy across several objects.

THE SCIENCE

Measuring with repeated nonstandard units connects counting to length and is closely tied to children’s developing number knowledge.

Source: Educational research summary, number knowledge and young children’s measuring



NUMBER SENSE 1:8

FOR AGES 5–6

Number Line Jumps

*Skip counting · mental math***YOU WILL NEED**

Masking-tape number line on the floor, 0–20

HOW TO PLAY

Call out jumps: “Start at 3, make four jumps of 2.” Then reverse it: “You landed on 11 after three equal jumps from 2 — how big was each jump?”

STRETCH IT

Extend the line to the left of zero and jump below zero. This introduces negative numbers through the body before the symbols.

THE SCIENCE

Whole-body movement along a number line gives children a spatial, embodied representation of magnitude that supports mental calculation.

Source: Support of mathematical thinking through embodied cognition



NUMBER SENSE 1:9

FOR AGES 5–6

Fair Shares

*Division · early fractions***YOU WILL NEED**

Playdough, paper circles, a plastic knife

HOW TO PLAY

Share 3 cookies fairly among 4 people. Your child must cut, not just hand out whole pieces. Talk about what to call each piece they create.

STRETCH IT

Compare $\frac{1}{2}$ and $\frac{1}{3}$ by cutting two equal discs, then ask why a bigger bottom number makes a smaller piece.

THE SCIENCE

Fair-sharing tasks give young children an intuitive route into division and fractions well before formal notation is introduced.

Source: Fair sharing and division in preschool, research paper



NUMBER SENSE 1:10

FOR AGES 5–6

The Broken Calculator

*Flexible computation · decomposition***YOU WILL NEED**

Paper and pencil, or a real calculator

HOW TO PLAY

The rule: the 5 key is broken. Make the number 15 anyway. Collect as many solutions as possible — $9 + 6$, $20 - 4 - 1$, $7 + 8$, and more.

STRETCH IT

Break two keys, or require exactly three steps. Then ask which solution is the most elegant, and what makes it so.

THE SCIENCE

Constraints create productive struggle: effortful, supported problem solving leads to deeper and more durable mathematical understanding.

Source: AAAS ARISE, Productive Struggle in Mathematics Learning