

5 Ways to Play with Numbers



PLAY BASED MATHS IDEAS FOR CHILDREN

This Number Day, put away the worksheets and PLAY with maths! These activities are designed to get children thinking mathematically through games, movement, construction and open-ended challenges. Use them with groups, as whole-class challenges or within your continuous provision and learning environment.

1. HIT THE TARGET

YOU NEED

Number cards, dice, counters or a whiteboard.

PLAY!

Choose a target number, for example:

24

Roll three dice or select three number cards.

Children must use the numbers they have to get as close to the target as possible.

For example, if they roll:

3, 5 and 6

They might try:

$$6 \times 5 - 3 = 27$$

Or

$$5 \times 3 + 6 = 21$$

Encourage children to find more than one solution.

ASK

- How close can you get?
- Can you hit the target exactly?
- Is there another way?
- Which method is the most efficient?
- Can you prove there isn't a better solution?

LEVEL IT UP!

- Allow all four operations, brackets or four numbers instead of three.
- You could also ask children to create their own target challenge for somebody else to solve.

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2. The Human Co-ordinate Grid

YOU NEED

Chalk, masking tape or playground markings.

PLAY!

Create a giant co-ordinate grid on the playground or classroom floor.

Children become the coordinates.

Call out a coordinate and children move to the correct position.

Then introduce challenges such as:

Move 3 squares right and 2 squares up. Where are you now?

Children can also give one another instructions or create routes across the grid.

ASK

- Start at (2,3). Move 4 right. Where are you?
- Can you create a square using four co-ordinates?
- What co-ordinates would complete this rectangle?
- Can you describe a route without naming the final co-ordinate?

LEVEL IT UP!

Introduce all four quadrants for older children or explore translations, reflections and shapes on the grid.

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3. NUMBER ARCHITECTS

YOU NEED

Blocks, cubes, LEGO bricks, sticks, straws or other construction materials.

PLAY!

Give children a mathematical building challenge.

For example:

Build a structure with a perimeter of exactly 40cm.

or

Build a cuboid using exactly 24 cubes.

The important part is that children must design, test and adapt their structure until it meets the mathematical criteria.

ASK

- How do you know it meets the challenge?
- Could you build it in a different way?
- What could you change while keeping the perimeter the same?
- Which measurements matter?

LEVEL IT UP!

Give children several conditions at once.

For example:

Build a rectangular enclosure with a perimeter of 36cm and an area greater than 60cm².

Can children find more than one solution?

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4. FRACTION CAFE

YOU NEED

Paper plates, play food, loose parts, counters or fraction pieces.

PLAY!

Open a Fraction Café!

Children receive customer orders and have to prepare the correct amounts.

For example:

Order 1:

$\frac{1}{2}$ of a pizza

$\frac{1}{4}$ of another pizza

Order 2:

$\frac{3}{4}$ of a cake shared equally between 3 customers.

Or give children a whole and challenge them to create different equivalent combinations.

ASK

- How much have you served altogether?
- Which fraction is larger?
- How could you make the same amount in another way?
- How do you know these fractions are equivalent?

LEVEL IT UP!

Introduce prices.

For example:

One whole pizza costs £18. What should $\frac{1}{2}$ cost? What about $\frac{1}{4}$? Amend the numbers to meet the abilities of the children in your class.

Children could then create their own Fraction Café menu.

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5. CODE BREAKER

YOU NEED

Number cards, clue cards, mini whiteboards or paper.

PLAY!

Create a secret number and give children mathematical clues to crack the code.

For example:

What's my number?

I am greater than 40.

I am less than 70.

I am a multiple of 6.

My digits add to 9.

What number am I?

Children solve the mystery, explaining how each clue helped them eliminate possibilities.

Then let them create their own number riddles for classmates.

ASK

- Which clue helped you most?
- Which numbers can you eliminate?
- Could there be more than one answer?
- What extra clue would guarantee only one solution?

LEVEL IT UP!

Create multi-digit codes where each digit has its own clue, or use fractions, decimals, factors, multiples or prime numbers.

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ENHANCE YOUR CONTINUOUS PROVISION

Introduce a Maths Investigation Station

Create a permanent Maths Investigation Station containing open-ended materials that children can use independently to explore mathematical problems.

INCLUDE THINGS SUCH AS

- dice
- playing cards
- dominoes
- cubes
- counters
- rulers and tape measures
- string
- calculators
- weighing scales
- tangrams
- multiplication grids
- blank number cards
- mini whiteboards

Then regularly change the challenge, rather than the resource.

MMT PLAY TIP

Over Number Day, give children a problem to investigate, not a procedure to follow.

The most powerful mathematical play in KS2 often begins with questions such as:

What do you notice?
What happens if...?
How many ways can you...?
Can you prove it?

By providing familiar resources alongside open-ended mathematical challenges, children can

TRY THESE INVESTIGATIONS:

Number:

How many different calculations can you create with an answer of 1000?

Measure:

Can you find three objects with a combined length as close to 1 metre as possible?

Geometry:

How many different shapes can you create with a perimeter of 24cm?

Fractions:

Can you represent $\frac{3}{4}$ in at least five different ways?

Money:

You have £21.75. Create three different shopping baskets that spend exactly the full amount.

Statistics:

Invent a question about your class. Collect the data and decide the clearest way to present it.