

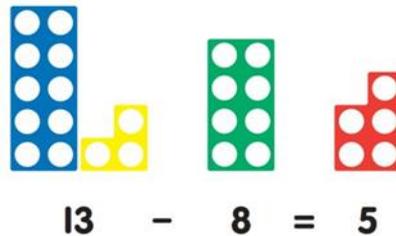
Parents Guide to mathematics in Reception

End of year expectations

- Count reliably with numbers from 1 to 20
- Place numbers 1 to 20 in order and say which number is one more or one less than a given number
- Using quantities and objects, add and subtract two single-digit numbers and count on or back to find the answer
- Solve problems, including doubling, halving and sharing
- Use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems
- Recognise, create and describe patterns
- Explore characteristics of everyday objects and shapes and use mathematical language to describe them

Concrete, Visual, Abstract

The principle of the CVA approach is that for children to have a true understanding of a mathematical concept there are three phases they need to master: concrete, pictorial and abstract. Reinforcement is achieved by going back and forth between these representations.



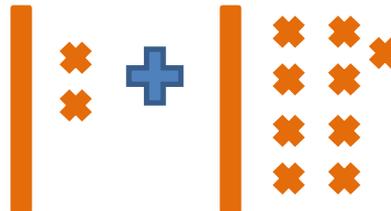
$$13 - 8$$

Active/concrete



Building visual images

Abstract

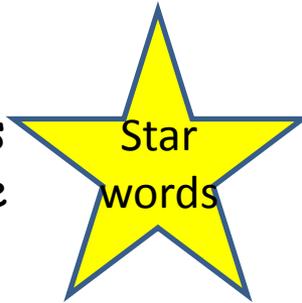


$$12 + 19$$

Language & Reasoning

The 2014 National Curriculum is explicit in articulating the importance of children using the correct mathematical language as a central part of their learning.

The Talk Task is a crucial opportunity for children to perform tasks where recording is at a minimum with the focus instead being on the correct use of mathematical language.



Write as many words meaning '+' symbol as possible in 15 seconds.

Megan has made a 3-digit number with these cards.



What is the largest number you can make with these cards?
Explain your answer.



Why not?



Problem solving

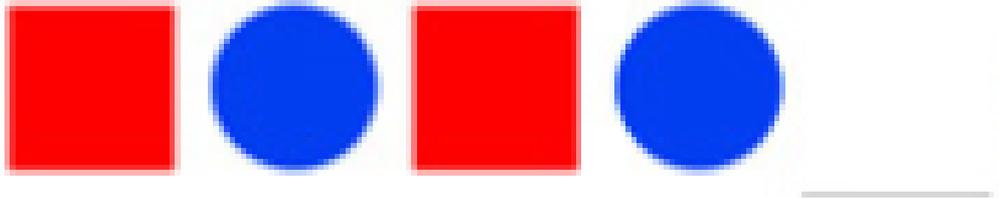


Word problems:

*There are 10 people on a bus. 4 people get off.
How many people are left on the bus?*

Finding patterns:

*What shapes comes next? What colour would it
be? How do you know?*



Maths in reception is taught using the teaching and learning tool, Mathematics Mastery.



Key Principles

Mathematical thinking

Pupils deepen their understanding by giving an examples, by sorting or comparing, or by looking for patterns and rules in the representations they are exploring problems with.

Conceptual understanding

Conceptual understanding

Pupils deepen their understanding by representing concepts using objects and pictures, making connections between different representations and thinking about what different representations stress and ignore.

Mathematical problem solving

Mathematical thinking

Language and communication

Language and communication

Pupils deepen their understanding by explaining, creating problems, justifying and proving using mathematical language. This acts as a scaffold for their thinking deepening their understanding further.

Addition & subtraction in Reception



Joining two groups together and recounting/ taking away the ones



Joining two groups together and counting on/back



Multiplication & division in Reception

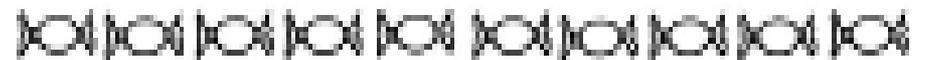


Solving problems, including doubling, halving and sharing using concrete resources.

Making/sharing equal groups and counting the total.



There are 10 sweets. Ring groups of 2.



There are _____ groups of 2.

How you can support at home



Measuring

- **Cooking**- weighing and following instructions
- **Measure yourself!** - make a height strip. Keep a graph to show your growth! How much have you grown?
- **Measure stuff!** - use a tape measure
- **Telling the time**- how long until...? Analogue /digital time, Days of the week, dates, keep a calendar/

Picnic or Party maths:

- Preparing food for a group of people is a real problem solving opportunity; how many cups can we fill with one jug, how many pieces of pizza can we cut from each one? A great opportunity to use terms like 'half' 'quarter' 'double' and put those tables into practice.



How you can do Maths at Home



Shopping games:

- Set up a mini supermarket in the kitchen and give the children some real money to go shopping with.
- Change can be the trickiest concept and needs to be taught in 'real' shopping activities which can be done really well at home.

Number games

- Board games
- Snakes and ladders
- Dominoes
- Playing card games eg snap, doubles
- Dice games eg exchange game
- Have fun playing with a calculator and try out those signs!



Shapes everywhere

- **Shopping Shape Sort**; let your child loose on the packages and sort them into cuboids, cylinders, cubes
- **2-D shape pictures and patterns**
- Which shapes can you draw? you will need a ruler for some of them!



Props around the house

Ideas taken from **Maths for Mums and Dads** Eastaway, R. and Askew, M. (2010)

- **A prominent clock**- digital and analogue is even better. Place it somewhere where you can talk about the time each day.
- **A traditional wall calendar**-Calendars help with counting days, spotting number patterns and
- **Board games that involve dice or spinners**-helps with counting and the idea of chance
- **A pack of playing cards**- Card games can be adapted in many ways to learn about number bonds, chance, adding and subtracting
- **A calculator**- A basic calculator will help with maths homework when required, there are also many calculator games you can play, too.
- **Measuring Jug**-Your child will use them in school, but seeing them used in real life is invaluable. Also useful for discussing converting from metric to imperial
- **Dried beans, Macaroni or Smarties**- for counting and estimating
- **A tape measure and a ruler**- Let your child help when measuring up for furniture, curtains etc
- **A large bar of chocolate** (one divided into chunks)- a great motivator for fractions work
- **Fridge magnets with numbers on**- can be used for a little practice of written methods
- **Indoor/outdoor Thermometer**- especially useful in winter for teaching negative numbers when the temperature drops below freezing
- **Unusual dice**- not all dice have faces 1-6, hexagonal dice, coloured dice, dice from board games all make talking about chance a little more interesting
- **A dartboard with velcro darts**- Helps with doubling, trebling, adding and subtracting.

<http://www.mathsisfun.com/>

<http://www.mathletics.co.uk/>

<http://www.bbc.co.uk/education>

Glossary

Abstract – Written down calculation

Concrete – Hands on, practical resources

Digit – A symbol used to make numerals 0-9

Mathematics Mastery - A tool to used to assist the teaching and learning from Reception to Year 4, on a rolling programme

Visual – Mathematical concepts represented by pictures