



Primary SEND Planning Tools

HIAS Mathematics Team

Professional Development
Accredited Lead

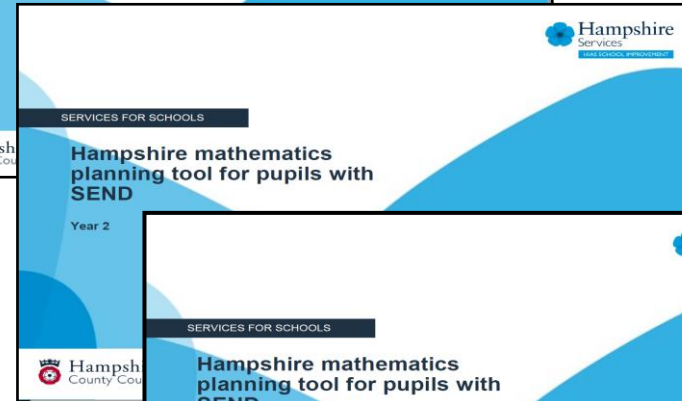
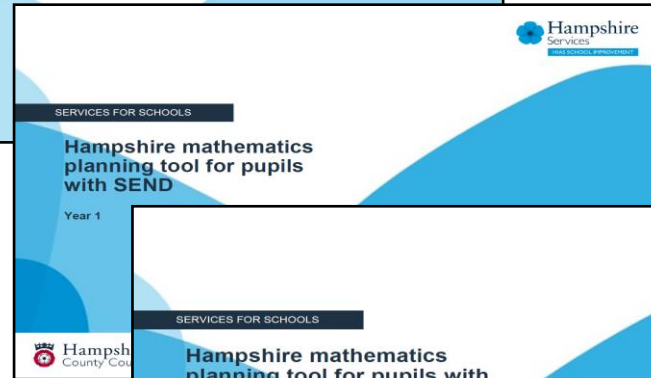
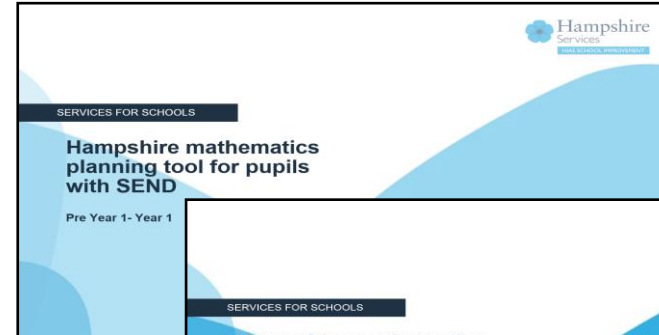
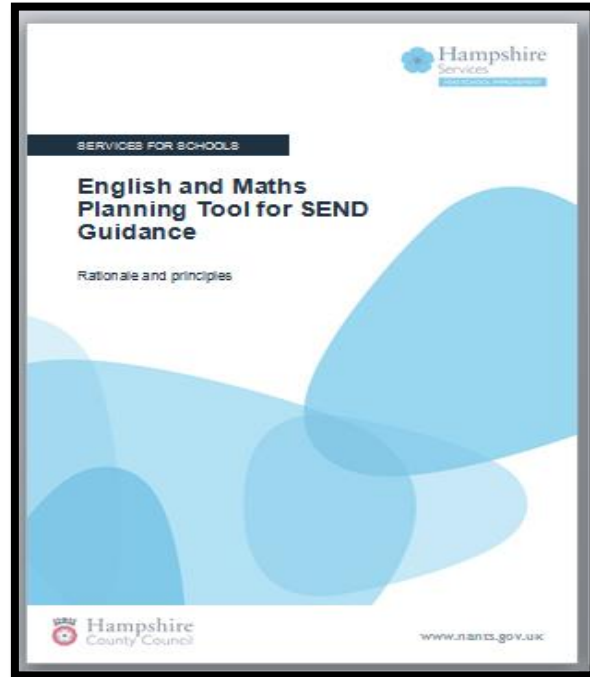


National Centre
for Excellence in the
Teaching of Mathematics

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Hampshire Mathematics planning tools for pupils with SEND



Primary SEND Tool kits:

- Pre Year 1 to Year 1
- Year 1
- Year 2
- Year 3

<https://maths.hias.hants.gov.uk>

Course materials



SEND Planning
Tool Course

Session 2

- Review outcomes from session 1
- Domains focus: multiplication and division, fractions
- Using the tools to support planning and teaching: structure and organisation
- Pedagogy supporting high quality provision and aspirations
- Assessment inc examples of bespoke school assessment
- Role of SENCo and MM in whole school dissemination: strategies
- Action Planning



Special educational needs and disabilities code of practice: 0-25 years

Special educational needs and disability code of practice: 0 to 25 years

Statutory guidance for organisations which work with and support children and young people who have special educational needs or disabilities

January 2015

‘Our vision for children with special educational needs and disabilities is the same as for all children and young people – that they achieve well in their early years, at school and in college, and lead happy and fulfilled lives.

This new Special Educational Needs and Disability Code of Practice will play a vital role in underpinning the major reform programme.’

‘... **Their special educational needs and disabilities will be picked up at the earliest point with support routinely put in place quickly, and their parents will know what services they can reasonably expect to be provided. Children and young people and their parents or carers will be fully involved in decisions about their support and what they want to achieve. Importantly, the aspirations for children and young people will be raised through an increased focus on life outcomes, including employment and greater independence.** ‘

Key documents: teaching and learning

- EEF: Making best use of Teaching Assistants
- EEF: Improving Mathematics in the Early Years and Key stage 1
- EEF: Special Educational Needs in Mainstream Schools

- NCETM Mastery Task booklets
- DfE June 2020 Mathematics Guidance Non- Statutory.

inc 'Ready to progress' criteria



SEN assessment in Early Years

Early years outcomes

A non-statutory guide for practitioners and inspectors to help inform understanding of child development through the early years

September 2013

5. Mathematics

The tables below set out what you should be observing a child doing at each stage, if they are developing typically for their age.

Numbers

Age	Typical behaviour
Birth to 11 months	<ul style="list-style-type: none">Notices changes in number of objects/images or sounds in group of up to 3.
8 to 20 months	<ul style="list-style-type: none">Develops an awareness of number names through their enjoyment of action rhymes and songs that relate to their experience of numbers.Has some understanding that things exist, even when out of sight.
16 to 26 months	<ul style="list-style-type: none">Knows that things exist, even when out of sight.Beginning to organise and categorise objects, e.g. putting all the teddy bears together or teddies and cars in separate piles.Says some counting words randomly.
22 to 36 months	<ul style="list-style-type: none">Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.Recites some number names in sequence.Creates and experiments with symbols and marks representing ideas of number.Begins to make comparisons between quantities.Uses some language of quantities, such as 'more' and 'a lot'.Knows that a group of things changes in quantity when something is added or taken away.
30 to 50 months	<ul style="list-style-type: none">Uses some number names and number language spontaneously.Uses some number names accurately in play.Recites numbers in order to 10.

In assessing progress of children in the early years, practitioners can use the non-statutory Early Years Outcomes guidance as a tool to assess the extent to which a young child is developing at expected levels for their age. The guidance sets out what most children do at each stage of their learning and development

EYFSP handbook

HIAS maths team resources



- Progression in counting
- Progression in addition and subtraction
- Progression in multiplication and division
- Progression in fractions, decimals and percentages
- Key Number Facts from Year R to Year 3

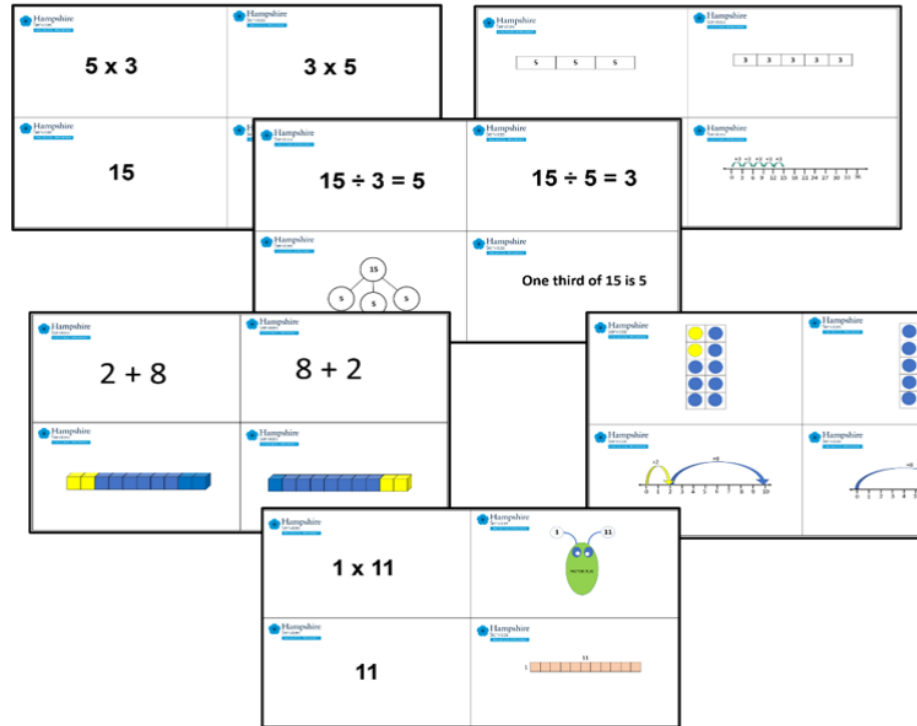
Open resources

<https://maths.hias.hants.gov.uk>



Moodle Plus: HIAS maths team resources

Primary Number
Facts: Matching
cards to support
recall and
retrieval



- Number bonds to 10
- Number bonds to 20
- Complements to 10
- Complements to 100
- Fractions: halves, quarters, eighths
- Multiplication tables and linked division facts

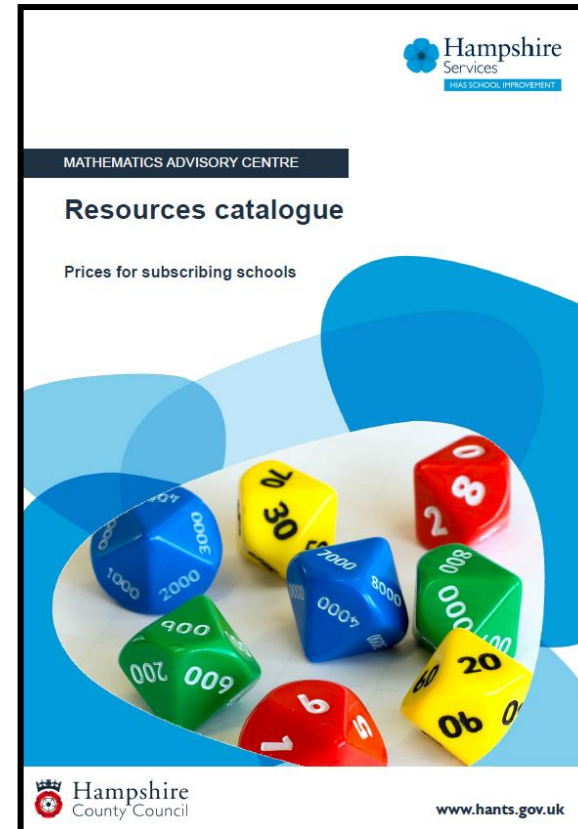
Moodle+

<https://maths.hias.hants.gov.uk>



Maths Centre Resources: e.g. NPV

- Place value /dienes arrow cards
- Pack of Ten Frames with double sided counters
- Number lines:
 - 0-10; 0-20; 0-100; 0-30;
 - 0-100 (multiples of tens)
 - Large horizontal Number line
- Bead string
- Numbers and Images (multiple representation cards)



Multiplication and Division

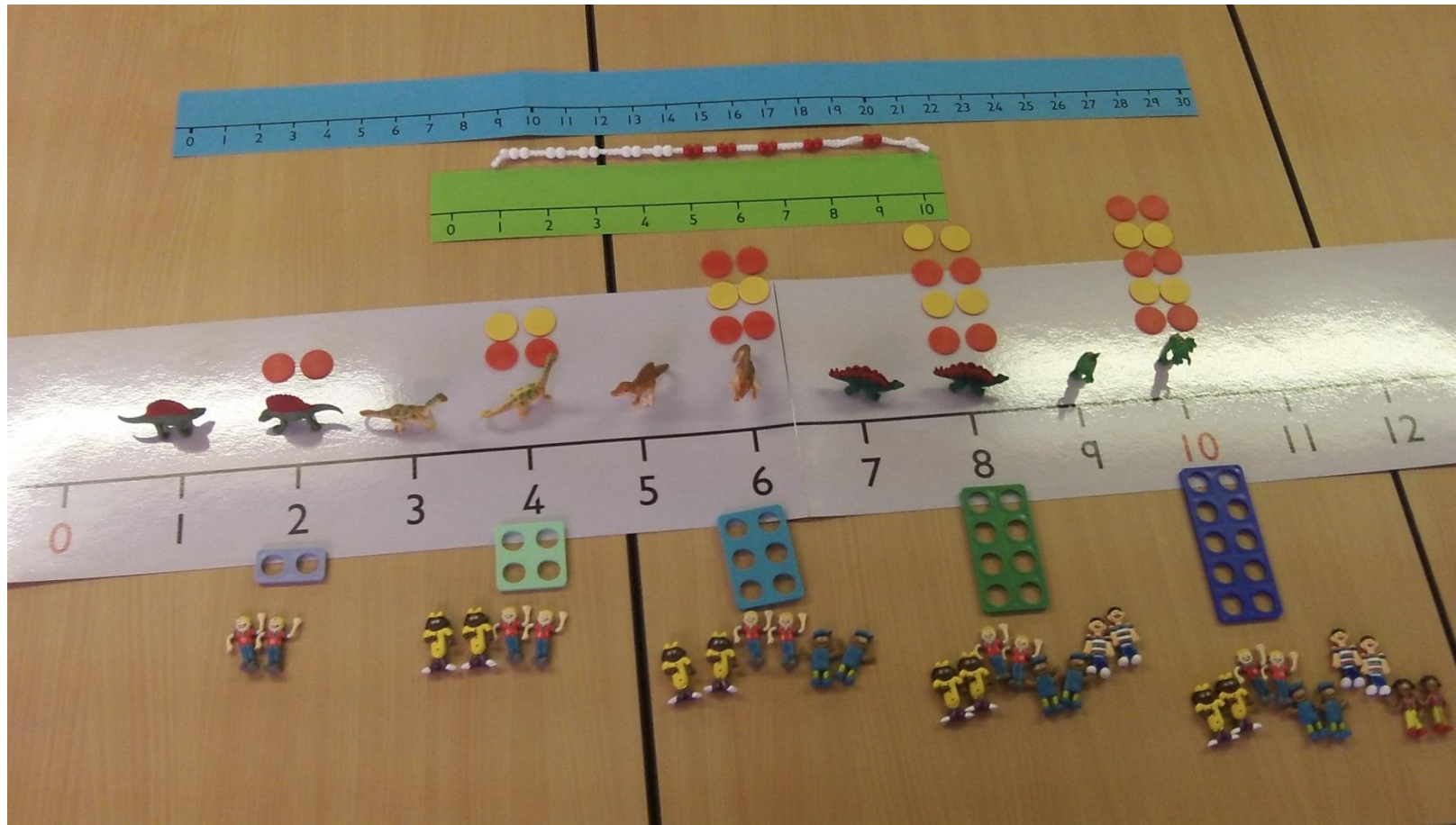
- **Multiplication and division facts** (counting in steps; vocabulary of 'groups of'; using arrays; using number lines; using bar models)
- **Mental calculations** (recall of facts \times ; recall of facts \div ; deriving facts)
- **Written calculations** (pictorial recording; using signs and symbols)
- **Inverse operations, estimating and checking answers**
- **Problem solving**

Conceptual and procedural fluency

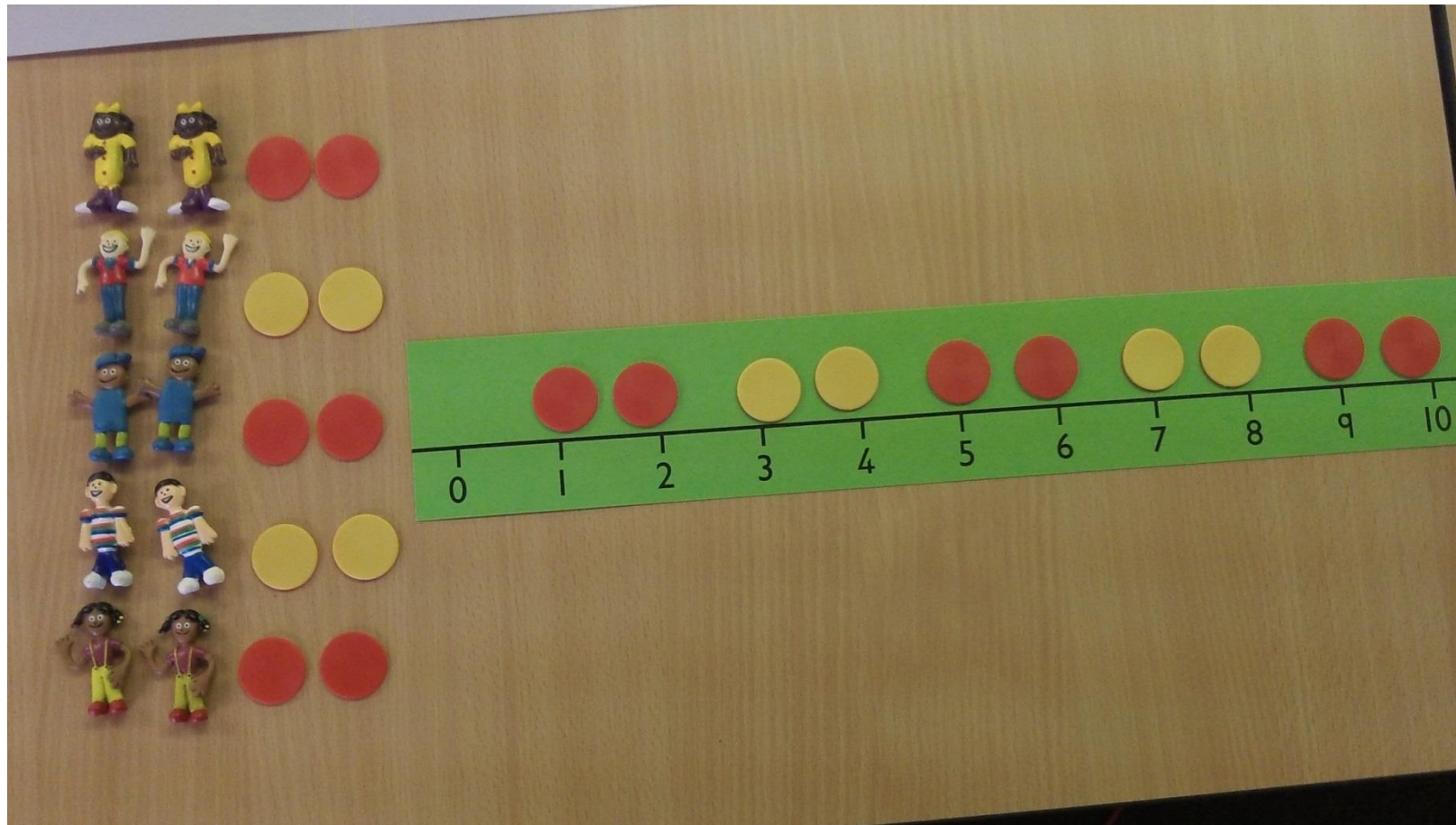
Key structured concrete resources
Outcomes from pupil conferencing



Concrete Pictorial Abstract (CPA)



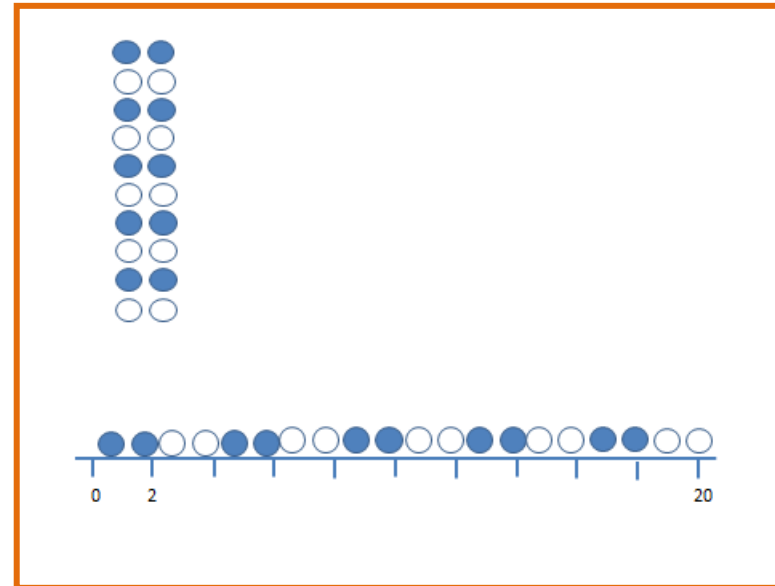
Concrete Pictorial Abstract (CPA)



Step Counting

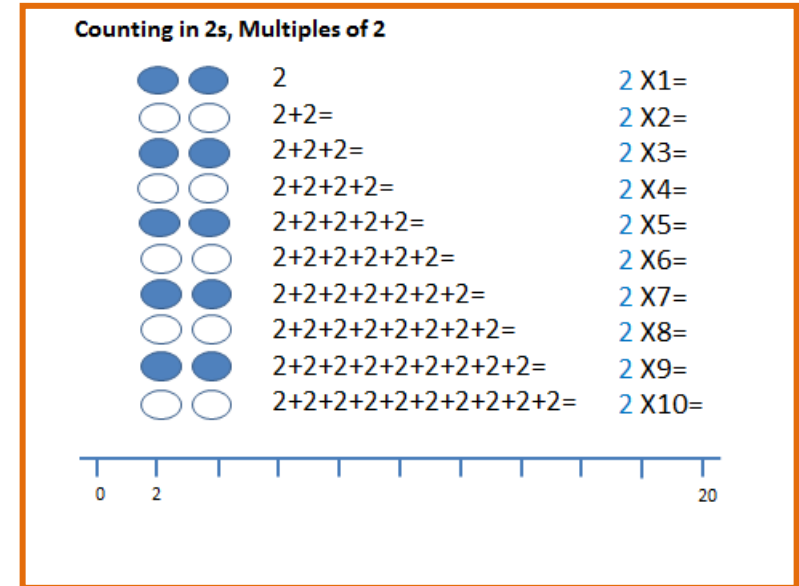
Conceptual variation


•• 2	●●
•• 2+2=	○●
•• 2+2+2=	●●
2+2+2+2=	○●
2+2+2+2+2=	●●
2+2+2+2+2+2=	○●
2+2+2+2+2+2+2=	●●
2+2+2+2+2+2+2+2=	○●
2+2+2+2+2+2+2+2+2=	●●
2+2+2+2+2+2+2+2+2+2=	○●





Counting in 2s, Multiples of 2


●● 2	2 X 1=
○● 2+2=	2 X 2=
●● 2+2+2=	2 X 3=
○● 2+2+2+2=	2 X 4=
●● 2+2+2+2+2=	2 X 5=
○● 2+2+2+2+2+2=	2 X 6=
●● 2+2+2+2+2+2+2=	2 X 7=
○● 2+2+2+2+2+2+2+2=	2 X 8=
●● 2+2+2+2+2+2+2+2+2=	2 X 9=
○● 2+2+2+2+2+2+2+2+2+2=	2 X 10=







 $2 \times 1 = 2$


0 2 4 6 8 10 12 14 16 18 20



 $2 \times 2 = 4$



0 2 4 6 8 10 12 14 16 18 20



 $2 \times 3 = 6$



0 2 4 6 8 10 12 14 16 18 20

Building patterns...


 $2 \times 3 = 6$


0 2 4 6 8 10 12 14 16 18 20

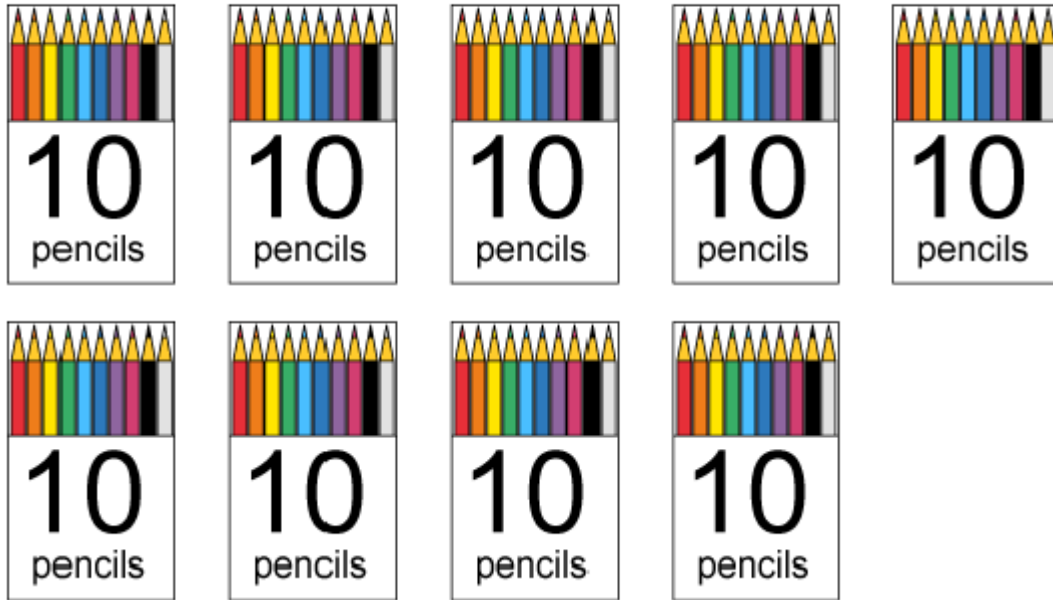

 $2 \times 4 = 8$


0 2 4 6 8 10 12 14 16 18 20



Language focus from year 1

How many pencils are there?



“The pencils are in groups of 10, so we will count in tens.”

“Ten, twenty, thirty...”

“1 group of 10, 2 groups of 10, 3 groups of 10...”

In time, shortened to:

“1 ten, 2 tens, 3 tens...”

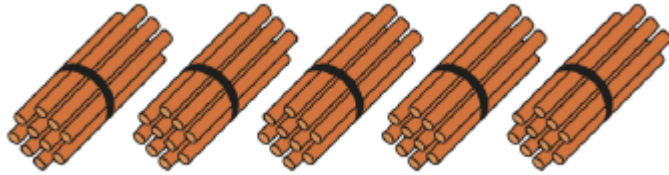
DfE RTP

1NF-2



Counting - End of Year 1

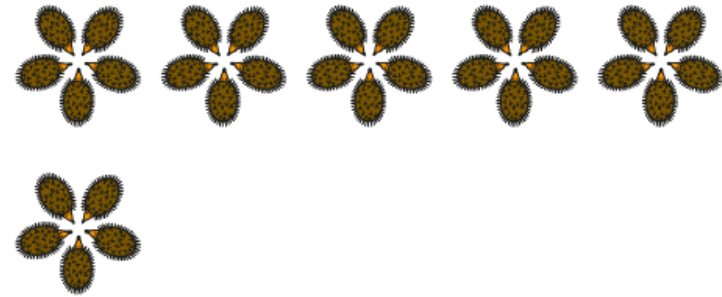
These sticks are grouped into bundles of 10. How many sticks are there altogether?



How many wheels are there altogether?
Count in groups of 2.



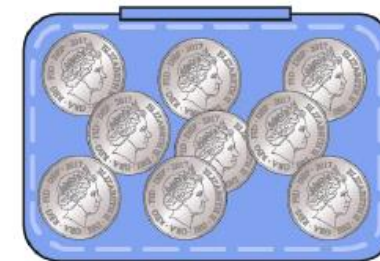
There are 5 hedgehogs in each group. How many hedgehogs are there altogether?



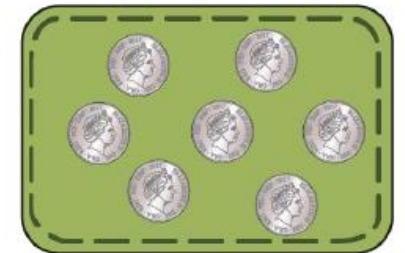
How much money is in each purse?



2p coins



10p coins

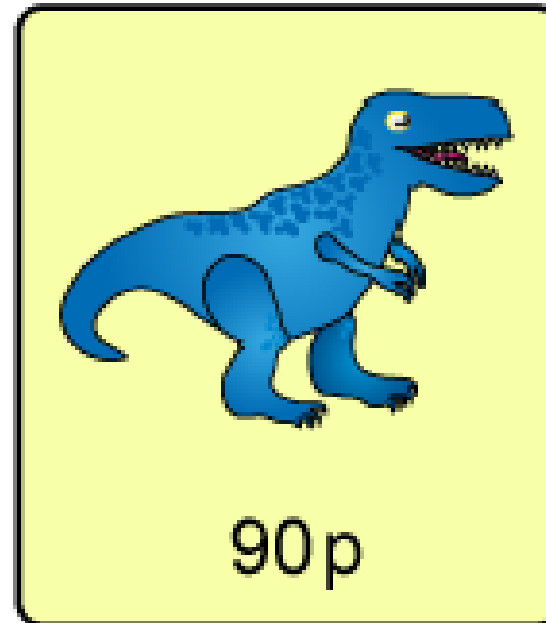
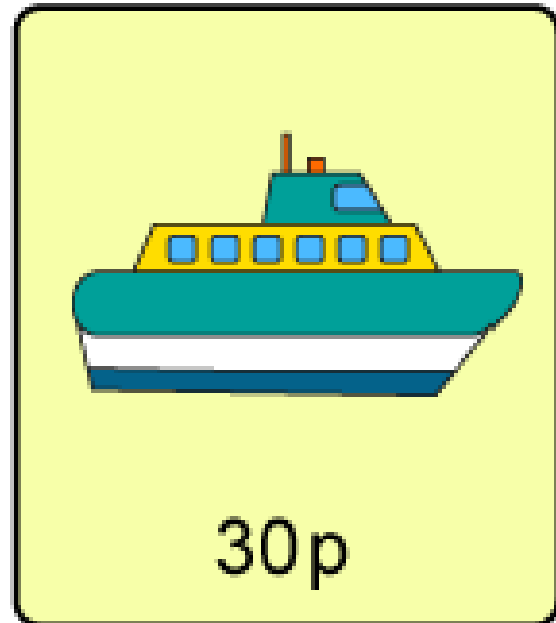
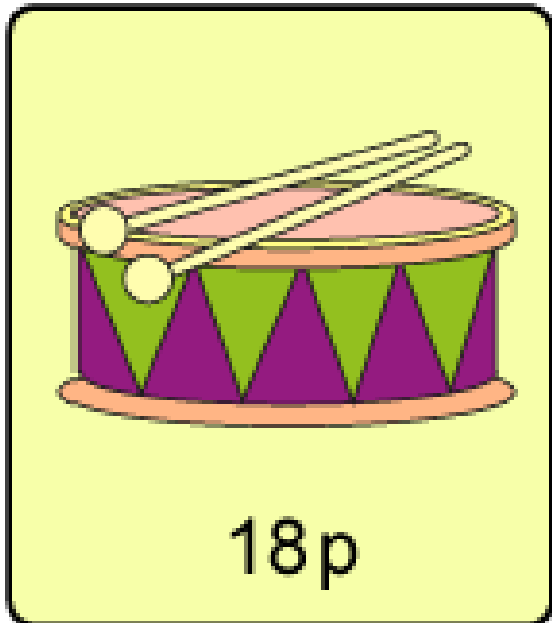


5p coins

End of year 1

Task: Provide each pupil with 2p, 5p and 10p coins (real or otherwise), then ask pupils to show how to pay for:

- the drum with 2p coins
- the boat with 5p coins
- the dinosaur with 10p coins



DfE RTP
1NF-2



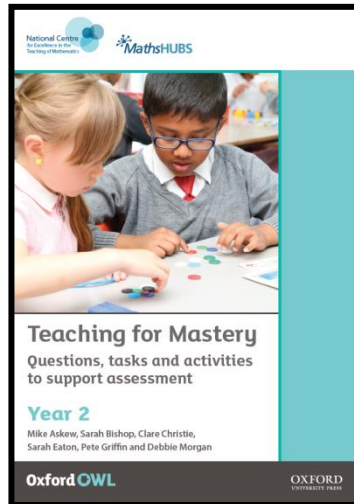
Write these addition sentences as multiplication sentences. The first one has been completed.

$$5 + 5 + 5 + 5 + 5 = 5 \times 5$$

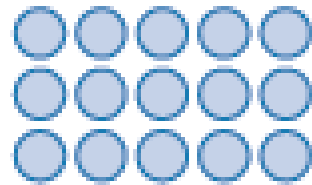
$$2 + 2 + 2 + 2 + 2 =$$

$$2 + 2 + 2 =$$

$$10 + 10 + 10 + 10 =$$



This array represents $5 \times 3 = 15$.



Consider links with number bonds imagery..

Write three other multiplication or addition facts that this array shows.
Write one division fact that this array shows.



By end of year 2 –recognise and record repeated addition, and record as multiplication. 2x 5x, 10x



“There are 3 equal groups of eggs.”

“There are 5 eggs in each group.”

“There are 3 groups of 5.”

Pupils must be able to explain how each term in a multiplication expression links to the context it represents.

“The 3 represents the number of groups.”

“The 5 represents the number of eggs in each group.”

“The 15 represents the total number of eggs.”

Pupils must also be able to understand equivalence between a repeated addition expression and a multiplication expression:

$$5+5+5 = 3 \times 5 \quad (\text{three groups of } 5)$$

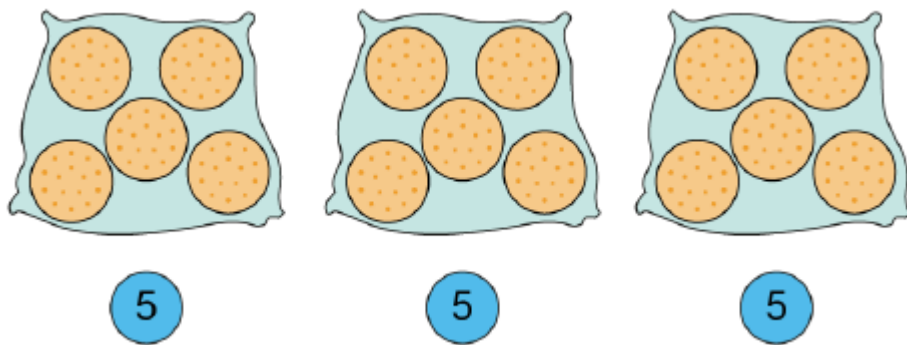


By end of Year 2- grouping problems

Pupils need to be able to represent problems where the total quantity and group size is known, using multiplication equations with missing factors.

For example,

“There are 15 biscuits. If I put them into bags of 5, how many bags will I need?”



Pupils should then learn that unknown-factor problems can also be represented with division equations (quotitive division), for example, They should be able to use skip counting or their multiplication-table fluency to find the quotient: $15 \div 5 = ?$ $15 \div 5 = 3$

Pupils should be able to describe how each term in the division equation links to the context and describe the division equation in terms of ‘division into groups’.

“The 15 represents the total number of biscuits.”

“The 5 represents the number of biscuits in each bag.”

“The 3 represents the number of bags.”

“15 divided into groups of 5 is equal to 3.”

Pupil Conferencing Questions: Multiplication and Division

Counting in steps:

Can you count forward/ back ward in 2s, 10s, 5s?

- Starting from zero
- Starting from a single digit number
- Starting from any number
- Can you count forward/ back ward in multiples of 5?

Multiplication:

I have 4 sweets in one party bag. How many sweets would be in 2 bags?

(Use other multiples where known facts might be used and where children have to use other strategies)

Does the child

- Use objects to solve the calculation
- Use pictorial recording
- Write a number sentence to match the calculation needed
- Use repeated addition
- Count in multiples
- Use multiplication facts
- Use a number line or other informal recording
- Use an array

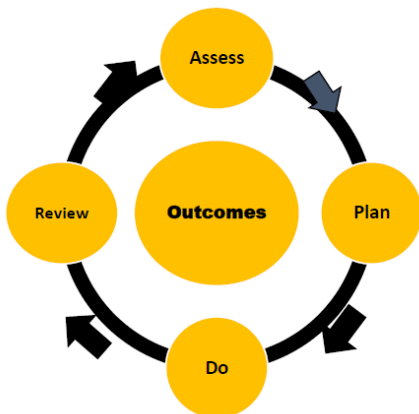
Division:

If I have 6 cakes and share them between 2 people, how many will each person have? (sharing)

If I have 6 cakes for a party and I need to put 2 cakes on each plate, how many plates will I need? (grouping)

Does the child

- Use objects to solve the calculation
- Use pictorial recording
- Write a number sentence to match the calculation needed
- Count in multiples
- Use multiplication/ division facts
- Use a number line or other informal recording



Finding starting point to work towards NC statements e.g. multiplication and division

Using day to day assessment and any specific conferencing to identify the correct planning tool ie Y1, Y2 or Y3 in this domain for the pupil.

- Start from year 1 and work up.
- Use domain non- statutory guidance and ‘key concepts’

– *E.g. For this domain this pupil is working towards end of year 2 expectations*

- Select from the domain strands key aspects to work on so that there is a linked combination of those strands in the bespoke plan.

National Curriculum written assuming previous knowledge and skills understood

Multiplication and Division

Year 2: National Curriculum Notes and Guidance (non-statutory)

Pupils use a variety of language to describe multiplication and division.

Pupils are introduced to the multiplication tables. They practice to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other. They connect the 10 x multiplication table to place value, and the 5 x multiplication table to the divisions on the clock face. They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.

Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition. They begin to relate these to fractions and measures (for example, $40 \div 2 = 20$, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (for example, $4 \times 5 = 20$ and $20 \div 5 = 4$).

Key concepts

- Counting in steps from 0 can be recorded as repeated addition and as multiplication.
- There are links and relationships between counting in steps of 2, 5 and 10 eg doubling and halving, commutativity.
- Each tables fact can be represented with an array, number line and bar model.
- Knowing a tables fact mean you can derive a division fact.
- Division can be sharing or grouping.
- Use the language of ‘equal groups of’, when multiplying or dividing.
- Knowing how each number in a multiplication and division number sentence relates to a problem eg there were 10 oranges put into bags with five in each bag. How many bags are needed? $10 \div 5 = 2$ where 10 = the oranges, 5 is the number in each bag and 2 is the number of bags needed.

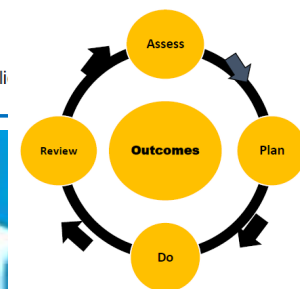
Curriculum strands

Within the document, the national curriculum programme of study domain addition and subtraction is broken down into smaller curriculum strands to support precise identification of need. The curriculum strands identified are:

- multiplication and division facts
- mental calculations
- written calculations
- inverse operations and checking answers

Problem Solving

Teacher assessment should consider to what extent the pupil is able to apply conceptual understanding of multipli solve problems.



Which of these prompts help to create a bespoke target for the pupil?

Curriculum strand – Multiplication and division facts

Skills, Knowledge and Concepts	Expectations – Year 2
Can use counting objects to put into groups of 2 (10, 5, 3).	Can count in 2s to 10. Can count in 2s to 20.
Can organise a multiple of two (10, 5, 3) into an array using counters/ objects with adult support.	Can count in 10s (5s) to 50. Can count in 10s to 100.
Can identify how many groups of 2 (10, 5, 3) there are in a collection of objects.	Can count in 3s to 30.
Can organise groups of objects on a number line 2s (3s, 5s, 10s) and mark each multiple.	Can describe an array in two ways: eg 4 x 2 and 2 x 4.
Can relate doubles of a number to 2 x using a bar model.	Can relate half a number to $X \div 2$ using a bar model.
Recall fluently multiples of 2s to 20 and understand why these are all even products.	Recall division facts for each multiplication fact 2 x (10 x, 5 x).
Recall fluently multi	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
Recall fluently multi	

Pupils need to

- use models and images, concrete resources and signs and symbol notation
- discuss/ model their reasoning to support independence
- engage in problem solving tasks

High Quality Inclusive teaching

Building a coherent analysis of pupils' needs in each domain enables teachers to adapt tasks that:

- provide appropriate level of challenge
- address gaps in curriculum knowledge, errors or misconceptions
- precisely focus practise leading to greater independence and fluency
- are 'problematic' requiring pupils to 'use what they know' and develop problem solving strategies including a CPA approach to recording solutions



Fractions

- **Counting in fractional steps** (number line)
- **Recognising fractions** (reading and writing ; shape, number, time, length, capacity & volume)
- **Equivalence** (bar model, array, number and shape)
- **Problem solving**

Conceptual and procedural fluency

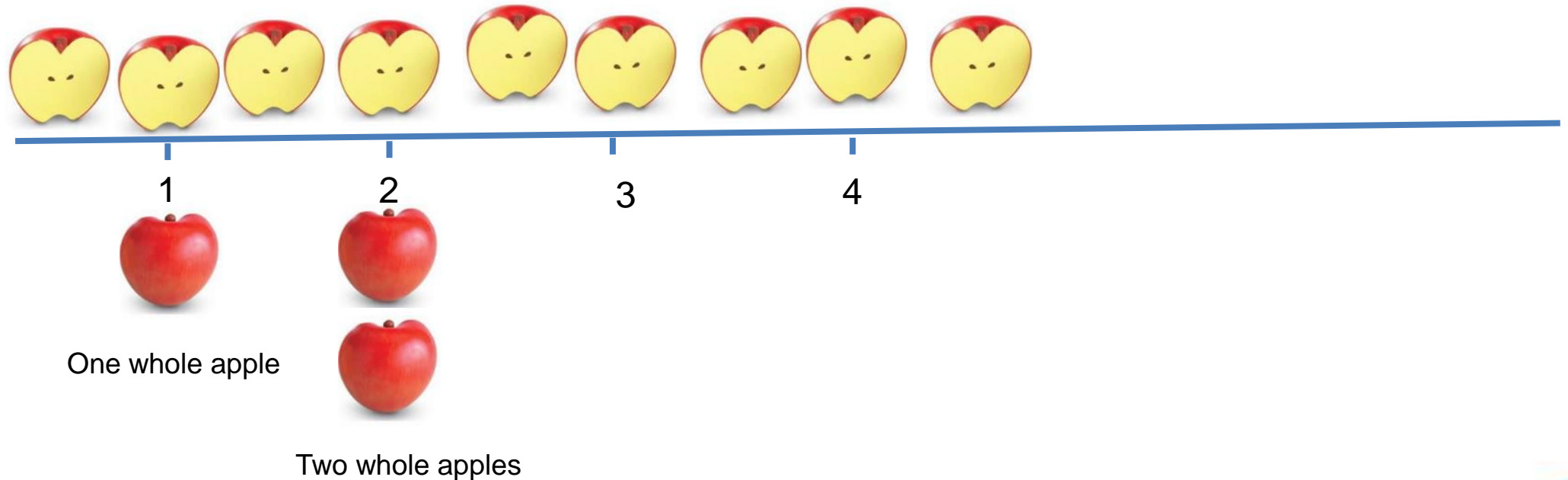
Key structured concrete resources

<https://www.ncetm.org.uk/resources/44558>



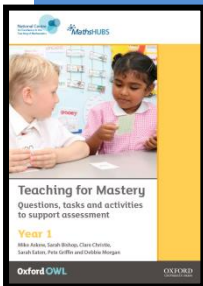
Counting in halves

There are two halves of apple in one whole apple so there are 4 halves of apple in 2 whole apples



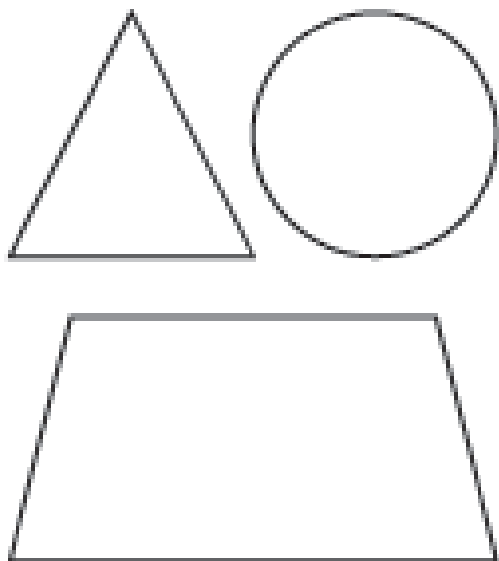
How many apples will I need for 6 halves of apples?





NCETM Mastery Booklet Year 1: Progression in Fractions

Colour half of each whole shape:

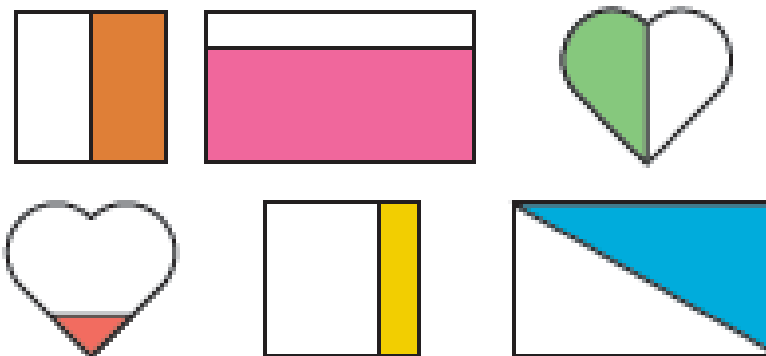


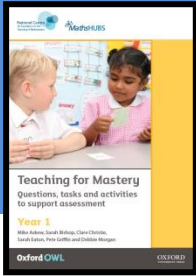
Check that pupils do not think that just dividing a shape into any two pieces is halving but understand that they need to be equal pieces.

Which of these show half of each whole shape?

Explain your reasoning.

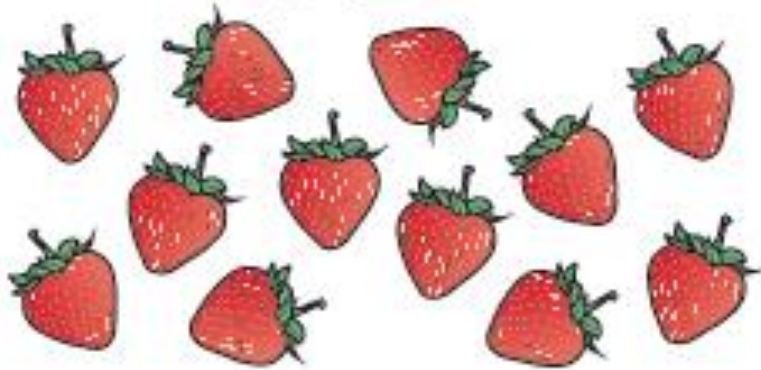
Children should talk about the two parts needing to be equal parts of the whole.



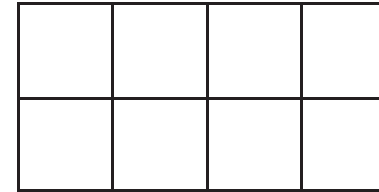


NCETM Mastery Booklet Year 1: Fractions

Circle half of this group of strawberries.



Shade to show half of the whole shape.



Complete this halving wall.

20	
10	

Choose any number and create your own halving wall.

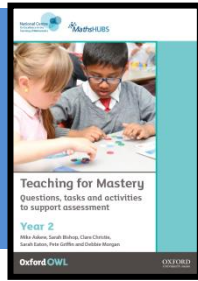
Four children share a pizza equally. Draw a diagram to show how much pizza each child gets.

What fraction of the pizza does each child eat?

Four children share a bag of 12 marbles equally. Draw a diagram to show how many marbles each child gets.

What fraction of the bag of marbles does each child get?





NCETM Mastery Booklet Year 2: Fractions

Jo bought a bag of 12 cherries.
Jo ate half the number of cherries in the bag.
How many cherries did Jo eat?

Complete:

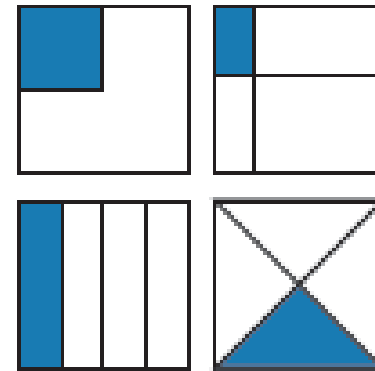
Half of 12 is

$\frac{2}{4}$ of 12 is

$\frac{1}{4}$ of 20 =

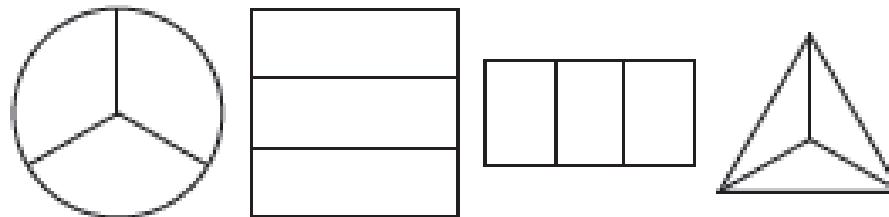
$\frac{3}{4}$ of 20 =

Which of these diagrams have $\frac{1}{4}$ of the whole shaded?



Explain your reasoning.

Shade $\frac{1}{3}$ of each shape.



Diagnostic Assessment: Fractions

Half (quarter) of a shape

- Given different shapes with folds (not all that fold into halves), can you show me which have been folded in half?
- How do you know these are folded in half?
- Can you fold this square (triangle, rectangle, circle, etc) in half (quarters)?
- Strips of paper in different lengths, can you fold them in half (quarters)?

Counting in halves / quarters

- How many halves make one (two, three, etc) whole?
- How many halves do you have if you have two and a half apples?
- How many quarters make one whole one?
- Can you count in halves (quarters)?
- If one quarter of a pizza is eaten, what fraction of the pizza is left?
- If one quarter of children go home from school for lunch, what fraction of children have lunch at school?

Symbolisation

- How do you record one half (one quarter) in symbols?

Half / quarter of a quantity

- Show me half of these fish (start with 6 fish, build up quantity as appropriate) Pupil to use chosen objects to show how they are working out their answer
- Show me one quarter of....
- Shade half of a shape, when the shape is divided into an even number of equal pieces
- Shade one quarter of a shape when the shape is divided into 8 (12, 16, 20, etc) pieces

Fractions of a quantity

- Use a bar model to show half of eight (10, 12, 18, etc)
Pupils to use objects to access this if necessary
- Use a bar model to show one quarter of 8 (12, 16, 20, etc)
- If half of class are boys, and there are ten boys. How many children are there in the class?
- One quarter of the cookies are chocolate and there are five chocolate cookies. How many cookies are there altogether?



Finding starting point to work towards NC statements e.g. fractions

Using day to day assessment and any specific conferencing to identify the correct planning tool ie Y1, Y2 or Y3 in this domain for the pupil.

- Start from year 1 and work up.
- Use domain non- statutory guidance and ‘key concepts’

– *E.g. For this domain this pupil is working towards end of year 2 expectations*

- Select from the domain strands key aspects to work on so that there is a linked combination of those strands in the bespoke plan.

National Curriculum written assuming previous knowledge and skills understood

Fractions

Year 2: National Curriculum Notes and Guidance (non-statutory)

Pupils use fractions as ‘fractions of’ discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet $\frac{3}{4}$ as the first example of a non-unit fraction. $\frac{3}{4}$

Pupils should count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (for example, $1\frac{1}{4}$, $1\frac{2}{4}$ (or $1\frac{1}{2}$), $1\frac{3}{4}$, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one.

Key Concepts

- Fractions involve a relationship between a whole and equal parts of a whole. Ensure children express this relationship when talking about fractions. For example, ‘If the box of 20 chocolates is the whole, then 5 sweets are one quarter of the whole box of chocolates.’

Curriculum strands

Within the document, the national curriculum programme of study domain fractions is broken down into smaller curriculum strands to support precise identification of need. The curriculum strands identified are:

- counting in fraction steps.
- recognising fractions.
- equivalence.

Problem-solving

Pupils should have opportunities to solve a range of simple problems involving part-whole reasoning



Which of these prompts help to create a bespoke target for the pupil?



Skills, Knowledge and Concepts		NC expectations – Year 2
Can show $\frac{1}{4}$ s of shapes by folding accurately in half and half again and can label $\frac{1}{4}$, $\frac{2}{4}$ (and know is equal to half) and $\frac{3}{4}$ (as above).	Makes links between halving and 2 x multiplication facts (dividing by 4 and $\frac{1}{4}$ of, dividing by 3 and $\frac{1}{3}$ of).	Write simple fractions eg of $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.
For a variety of shapes can divide into quarters and shade in one half of the whole shape.	Knows half of a number is equal to $\frac{2}{4}$ of the same number.	

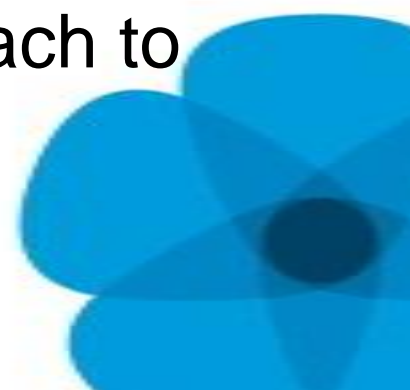
Pupils need to

- use models and images, concrete resources and signs and symbol notation
- discuss/ model their reasoning to support independence
- engage in problem solving tasks

High Quality Inclusive teaching

Building a coherent analysis of pupils' needs in each domain enables teachers to adapt tasks that:

- provide appropriate level of challenge
- address gaps in curriculum knowledge, errors or misconceptions
- precisely focus practise leading to greater independence and fluency
- are 'problematic' requiring pupils to 'use what they know' and develop problem solving strategies including a CPA approach to recording solutions



Managing whole class and SEN

How will you ensure

- SEN pupils develop independence even though they might have an adult to support them?
- CT work in partnership with other adults supporting pupils with SEN, maintain an overview of their progress and attainment and set appropriate goals
- Pupils with SEN are supported to maintain links with whole class unit of work as far as possible

Recording progress: day to day

Pupils need opportunities to develop reasoning through:

- Talking and sharing their thinking with peers and adults
- Using concrete resources, both 'small world' and structured mathematical resources
- Pictures, models and images
- Self reflection

Teachers

- Qualitative notes/ annotations on pupil work

Sharing the Planning Tool

How will you...

- Disseminate the key principles to all of the staff using the document?
- Ensure that all teachers are confident in how to use/ apply it?
- Overcome barriers and problems that teachers may experience when planning/ teaching children with SEND?
- Share successes and best practice?
- Track the progress of children with SEND?



Ideas

- Lesson study – a collaborative plan/teach/review cycle focusing on just the pupils with SEND
- A snowball model – train some members of staff up to be experts, then they support others
- A cascade model – share with everyone and then monitor successes by providing opportunities for feedback/ review
- A pilot – trial the planning tool with a small group of teachers for a given period of time then meet to share any barriers/ best practice before sharing with others

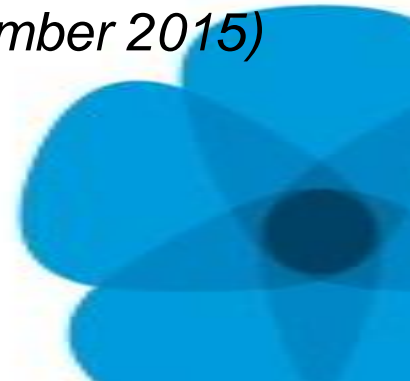


The challenge for schools: create an approach for day to day (formative) assessment

“...which works for pupils with special education needs, some of whom may be following an alternative curriculum..”

“Any assessment methods and tools used should reflect this and support a personalised approach.”

(Final report of the Commission on Assessment without levels, p16, September 2015)



Action Planning: Teaching and learning; management

- Teaching and learning for a pupil
- Communicating with colleagues (SENCO, CTs, LSAs)
- Refer to summary of Code of Practise
 - Chapter 6: graduated approach



SEN Support: The graduated Approach



‘...take action to remove barriers to learning and put effective special educational provision in place. This SEN support should take the form of a four-part cycle through which earlier decisions and actions are revisited, refined and revised with a growing understanding of the pupil’s needs and of what supports the pupil in making good progress and securing good outcomes. **This is known as the graduated approach.** It draws on more detailed approaches, more frequent review and more specialist expertise in successive cycles in order to match interventions to the SEN of children and young people’

The graduated approach (CoP ch 6)

Assess (review regularly)

- Class teacher, subject teacher and SENCO
- draws on teacher's assessment and experience of the pupil,
- previous progress and attainment
- the individual's development in comparison to their peers and national data,
- the views and experience of parents,
- the pupil's own views,
- if relevant, advice from external support services.
- Schools should take seriously any concerns raised by a parent.

Plan

- All teachers and support staff who work with the pupil should be made aware of their needs, the outcomes sought, the support provided and any teaching strategies or approaches that are required. This should also be recorded on the school's information system.
- The support and intervention provided should be selected to meet the outcomes identified for the pupil, based on reliable evidence of effectiveness, and should be provided by staff with sufficient skills and knowledge

Do

- The class or subject teacher should remain responsible for working with the child on a daily basis.
- Where the interventions involve group or one-to-one teaching away from the main class or subject teacher, they should still retain responsibility for the pupil. They should work closely with any teaching assistants or specialist staff involved, to plan and assess the impact of support and interventions and how they can be linked to classroom teaching.
- The SENCO should support the class or subject teacher in the further assessment of the child's particular strengths and weaknesses, in problem solving and advising on the effective implementation of support.