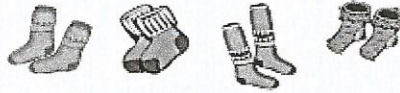


Year 1

Informal grouping and sharing of objects into equal groups

Grouping

Sorting objects into 2s, 3s, 4s etc
How many pairs of socks are there?



Practical Grouping

For example, in PE 12 children get into teams of 4 to play a game. How many teams are there?



Sharing

Six sweets are shared between two people.
How many do they have each?





Year 3

Year 4

Progression in Calculations

TU ÷ U where divisor is 2, 3, 4, 5 or 6

TU multiple of 10 ÷ 10

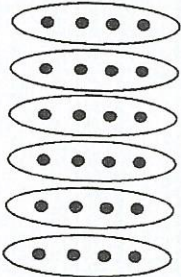
HTU multiple of 10 ÷ 10



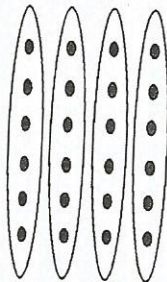
Strategies

Grouping using arrays

$$24 \div 4 = 6$$

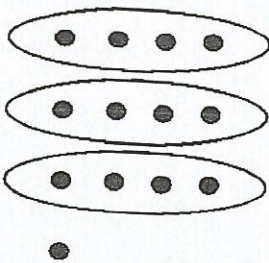


$$24 \div 6 = 4$$



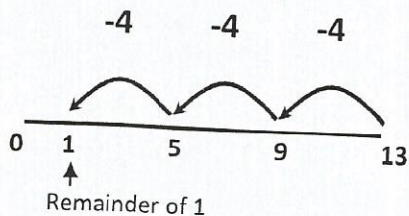
Moving onto calculations involving remainders

$$13 \div 4 = 3 \text{ r } 1$$



Grouping using the number line

$$13 \div 4 = 3 \text{ r } 1$$



Finding missing numbers, using inverse operation

$$26 \div 2 = \square \quad 24 \div \square = 12 \quad \square \div 10 = 8$$

$$2 \times \square = 26 \quad \square \times 12 = 24 \quad 10 \times 8 = \square$$

Progression in calculations

TU ÷ U

HTU multiple of 10 ÷ 10 or 100

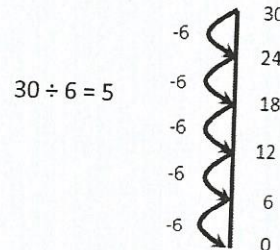
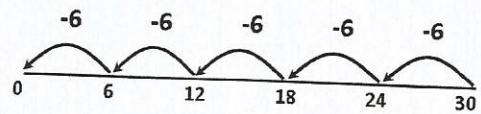
Give a remainder as a whole number



Strategies

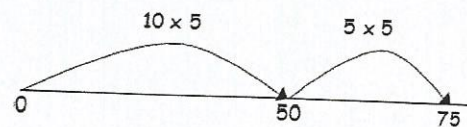
Informal written methods

Abstracting the idea of arrays and recording on a *number line*



$$30 \div 6 = 5$$

$$75 \div 5 = 15$$



For $75 \div 5$, the dividend of 75 is partitioned into 50 (the highest multiple of 5 that is also a multiple of 10) and 25.

Each number is then divided by 5.

$$75 \div 5 = (50 + 25) \div 5$$

$$= (50 \div 5) + (25 \div 5)$$

$$= 10 + 5$$

$$= 15$$

Deciding whether to round up or down after division depending on the context; e.g.

Rounding up: I have £ 62. Tickets cost £ 8 each. How many people can I take?
 $£62 \div 8 = 7 \text{ r } 6$. I can take 7 people and I have £6 left over.

Rounding down: Mr Smith has 40 eggs. He can put 6 eggs in each egg box. How many egg boxes does he need for all his eggs?
 $40 \div 6 = 6 \text{ r } 4$

He needs 7 boxes.

Types of number

2, 4, 6, 8, 10, etc. are _____ numbers.

1, 3, 5, 7, 9, etc. are _____ or _____ numbers.

Number sequences

What are the next two numbers in the sequences? Explain why to your partner.

1, 2, 4, 8, 16, ____ ____

1, 2, 4, 7, 11, ____ ____

0, 1, 1, 2, 3, 5, 8, 13, ____ ____

2, 6, 18, 54, 162, ____ ____

1, 4, 9, 16, 25, ____ ____

Number boxes

Use each number in the box only ONCE to produce a result of 24.

9	4
10	7

=24

Answer: $10-9=1, 7-1=6, 6 \times 4=24$, or $9-7=2, 2 \times 10=20, 20+4=24$,
or $4 \times 10=40, 40-9=31, 31-7=24$

4	5
10	7

=24

4	8
9	10

=24

1	10
4	3

=24

9	5
2	6

=24



Year 5

Year 6

Expanded Method TU x TU

$$\begin{array}{r}
 68 \\
 \times 34 \\
 \hline
 32 \quad (4 \times 8) \\
 240 \quad (4 \times 60) \\
 240 \quad (30 \times 8) \\
 + 1800 \quad (30 \times 60) \\
 \hline
 2312 \\
 \hline
 11
 \end{array}$$

Compact Method TU x TU

$$\begin{array}{r}
 12 \\
 \times 23 \\
 \hline
 36 \\
 + 240 \\
 \hline
 276
 \end{array}$$

Compact Method TU x TU with Carrying

$$\begin{array}{r}
 68 \\
 \times 34 \\
 \hline
 272 \\
 + 2040 \\
 \hline
 2312 \\
 \hline
 \begin{array}{c} \cancel{x} \quad \cancel{x} \\ 1 \end{array}
 \end{array}$$

Compact Method TU x TU with Carrying (As Year 5)

$$\begin{array}{r}
 68 \\
 \times 34 \\
 \hline
 272 \\
 + 2040 \\
 \hline
 2312 \\
 \hline
 \begin{array}{c} \cancel{x} \quad \cancel{x} \\ 1 \end{array}
 \end{array}$$

Decimal Multiplication

$$1.3 \times 6 =$$

$$1 \times 6 = 6$$

$$0.3 \times 6 = 1.8$$

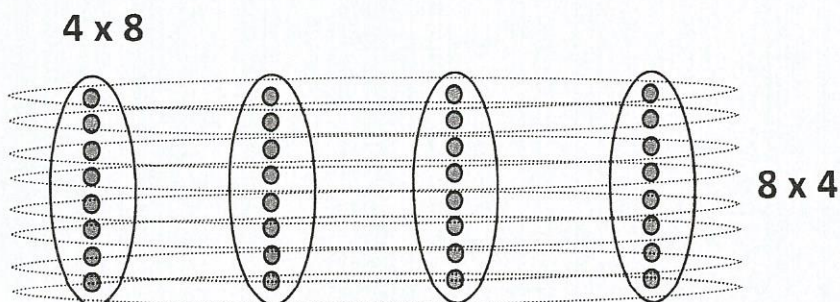
$$7.8$$

$$\begin{array}{r}
 1.3 \quad \longrightarrow \quad 13 \\
 \times 2.2 \quad \longrightarrow \quad \times 22 \\
 \hline
 2.86 \quad \longleftarrow \quad 26 \\
 \hline
 260 \\
 \hline
 286
 \end{array}$$



Year 2

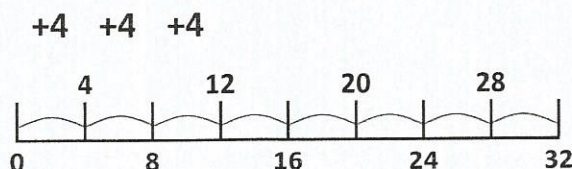
Arrays



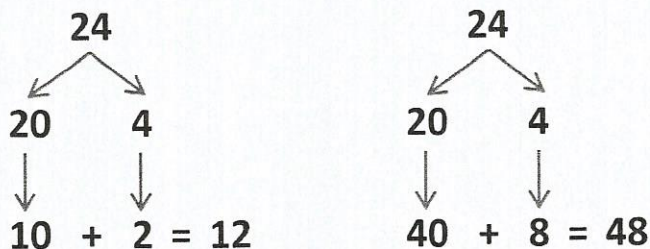
Repeated Addition



Number Line Jumps



Halving & Doubling

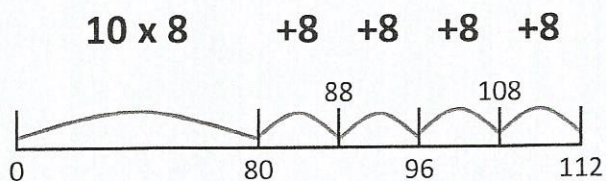


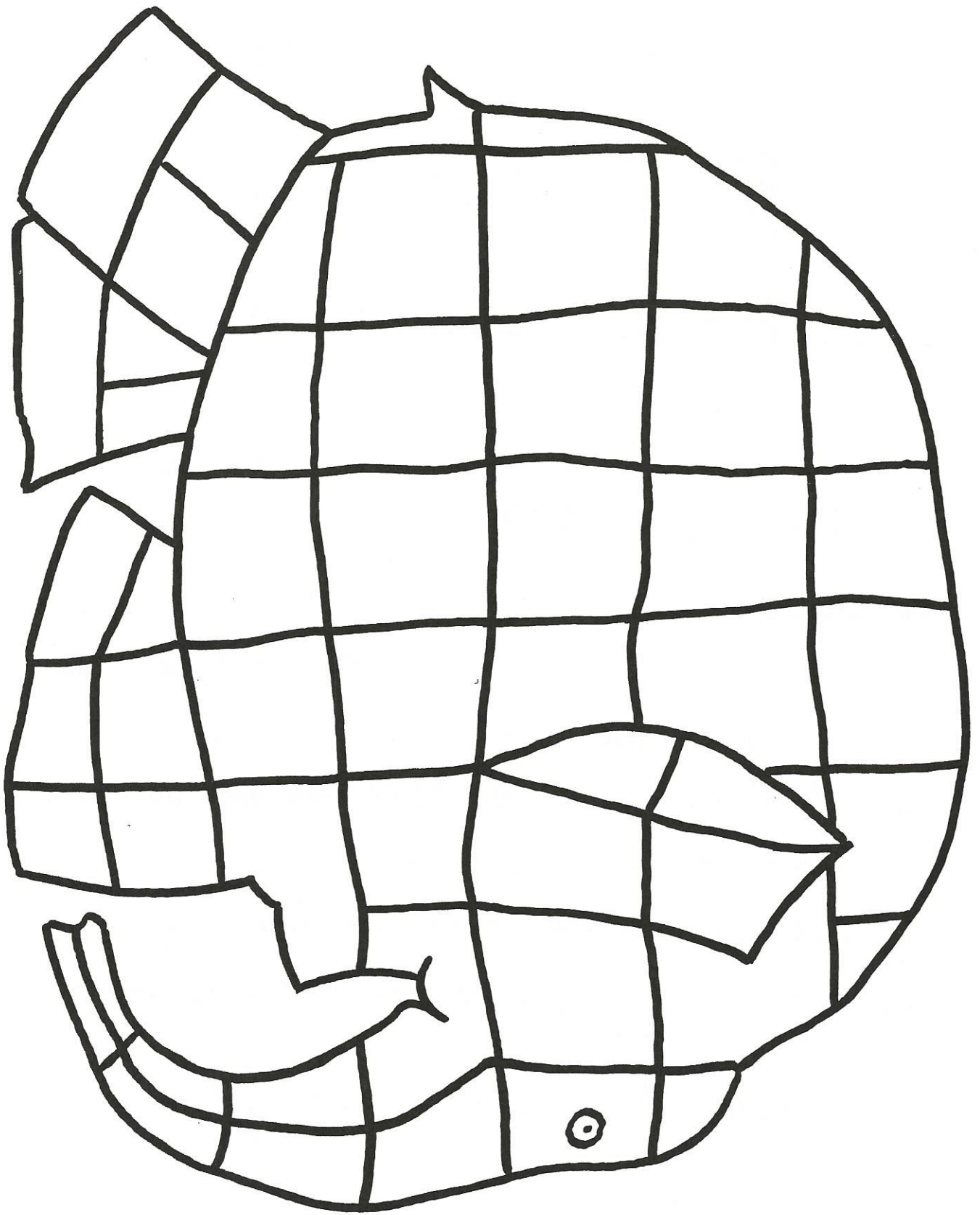
Partition

$14 \times 8 =$
 $10 \times 8 = 80$
 $4 \times 8 = 32$

$80 + 30 = 110 \quad 0 + 2 = 2$

$8 \quad 0 \quad + \quad 3 \quad 2 \quad = \quad 112$





4.4 Find someone who ...

Activity type

information exchange

Vocabulary

see worksheet

Aims

to review the pattern of *play* plus sports, musical instruments and games; to practise asking and answering everyday questions

Interaction

individuals, then whole class (mingling)

Extra materials

none

Preparation

- Photocopy one worksheet per student.

Method

- You may wish to practise forming the questions and answers before doing the activity.
e.g. *play/football*
Do you play football?
Yes, I do. or No, I don't.
- Students go through the questions and tick the activities they do.
- Students mingle in the classroom and ask other students the questions.
- They write the names of the students who answer *yes* in the box.
- Encourage students to find a different person for each activity (if students are working in pairs or small groups, obviously they can put the same name more than once).
- Get students to give feedback. Ask the class who they found who played football/tennis, etc.

Follow-up and extension activities

- List all the names of students who do the activities; students could make a bar chart about the class.
- Use the individual worksheets to get students to practise language such as:
Both and I play
Neither nor I play
I play but doesn't.
I don't play but does.
- Get students to brainstorm other activities and make a new questionnaire about other sports, games or musical instruments.

Classroom objects

- | | |
|----------------------------------|--|
| 1 hole punch(er) | 16 rubber (UK) /eraser (US) |
| 2 stapler and staples | 17 correction fluid |
| 3 pocket calculator | 18 highlighter pen |
| 4 ruler (plastic, wooden, metal) | 19 protractor /prə'træktə(r)/ |
| 5 scissors /'sɪzəz/ | 20 a compass / a pair of compasses |
| 6 Sellotape | 21 geometry set |
| 7 paper clip | 22 chalk |
| 8 pushpin / drawing pin | 23 blackboard rubber (UK) blackboard eraser (US) |
| 9 pencil sharpener | 24 board pen |
| 10 ring file / ring binder | 25 lined, plain and squared paper |
| 11 plastic files | 26 scrap paper |
| 12 paper file | 27 glue stick |
| 13 teacher's desk with drawers | 28 overhead projector |
| 14 data projector | 29 classroom cupboard with shelves |
| 15 guillotine /'gɪləti:n/ | 30 screen |

Describing objects

Work in pairs. Think of a classroom object and describe it to your partner using the language below. Your partner must guess what it is.

- **What** do you call the object for ... + *-ing*?
- It's made of ...
- It's for ... + *-ing*
- You use it for ... + *-ing*
- **What** do you call it?
- + It's a ...

Describing how things work

Work in pairs. Point to one of the classroom objects and ask your partner what it is for. Then ask your partner how it works.

- + What's this for?
- It's for ... + *-ing*
- It's used for ... + *-ing*
- It's a device/instrument for ... + *-ing*
- + Oh, I see. **How** does it work?

Useful classroom language for learners:

- + Can I borrow your ... , please?
- Yes of course you can. Here you are.
- + Thank you.

Animal	Where does it live?				
	on a farm	underground	in the jungle	in water	in a tree
COW	✓				

Write 5 sentences.
 Example: A cow lives on a farm.

- 1
- 2
- 3
- 4
- 5