FDPRproblemNC

1. half e.g.There are 8 cars, half of the cars are blue. How many cars are blue?
2. e.g. $\frac{1}{5}$ of 35
3. e.g $\frac{1}{5}$ of 150
4. e.g. $\frac{3}{5}$ of 350
5. fraction of NOT
6. e.g 20% of £250
7. final amount after e.g 20% increase or decrease of £250

proportionalFormulaNC

1. **scaffold to** solve a proportional formula problem e.g. F = ma {only multiply} **scaffold is** given 2 formula triangles (one with formula, one blank)
2. **scaffold to** solve a proportional formula problem e.g. F = ma {only divide} **scaffold is** given 2 formula triangles (one with formula, one blank)
3. **scaffold to** solve a proportional formula problem e.g. F = ma {either multiply or divide} **scaffold is** given 2 formula triangles (one with formula, one blank)

secretADDsign

1. picture of context
2. word problem: O + O (no picture)
3. word problem: 1O + O (no carry) {students who have learned column addition may be better learning layers 3 to 5 after mastering layers 6 to 9}
4. word problem: TO + O (no carry)
5. word problem: TO + O (units carry)
6. word problem: TO + TO (no carry)
7. word problem: TO + TO (units carry)
8. word problem: TO + TO (tens carry)
9. word problem: TO + TO (tens and units carry) {students who have learned column addition may need to return to learn layers 3 to 5 after mastering layers 6 to 9}
10. word problem: add cost of 2 items {given in pounds}

secretSUBsign

1. **scaffold to** interpret **same** or **more** e.g. tick which is true J and M have the same number of books or J has more books or M has more books or who has more books **scaffold is** pictures of the books above and below a horizontal line
2. **scaffold to** how many more **scaffold is** diagram showing e.g. O books above and o below horizontal line (see layer 1)
3. **scaffold to** how many left **scaffold is** diagram: O symbols above and o symbols below line
4. **scaffold to** know whether to add or subtract **scaffold is** given 2 word problems in almost same context - decide which is add and which subtract
5. word problem: O - o
6. word problem: TO - to (no borrow)
7. word problem: To - tO (borrow)
8. word problem: TO - o (no borrow)
9. word problem: To - O (borrow)
10. word problem: find change given cost and amount tendered
11. word problem: find cost given amount tendered and change

secretADDnSUB

1. Given a list of 3 to 5 items to buy and prices for all (up to 4 of the same) AND amount tendered: work out the change
2. Given a list of 3 to 5 items (up to 3 of the same) to buy and prices for all **except one** and amount tendered and change: work out the missing price
3. add and subtract a few items e.g. passengers getting on and off a bus at a few stops
4. Given a list of 3 to 5 items (up to 3 of the same) to buy and prices for all **except one thing, where 2 to 4 of this thing are bought**, amount tendered and change: work out the missing price for one of the thing
5. Complete table of profit/loss or goal difference etc

secretXsign

1. **scaffold to** know whether to add or multiply **scaffold is** given 2 word problems in almost same context - decide which is add and which multiply
2. word problem: {2 or 10} × O
3. word problem: {5 or 9} × O
4. word problem: {3, 4, 6, 7 or 8} × O
5. word problem: teen × O e.g. 14 × 7
6. word problem: TO × O e.g. 84 × 6
7. word problem: e.g 84 × 7 pence, give answer in pounds
8. word problem: TO × TO e.g. 84 × 37
9. is there enough? e.g. party food {needs 2 multiply calculations and comparison}
10. word problem: TO × £ e.g 34 × £6.70
11. estimate word problem: e.g. price of petrol and number of litres
12. word problem: TO × £ e.g 34 × £6.73
13. word problem: HTO × TO in non money context e.g. weight or volume

secretDIVsign

1. **scaffold to** recognise the meaning of share in word problems **scaffold is** correct number of boxes
2. recognise the meaning of divide and share in word problems// 3 friends have 21 marbles//they share the marbles equally//How many marbles do they each get? (no boxes)
3. **scaffold to** know whether to multiply or divide 2 small numbers **scaffold is** given 2 word problems in almost same context - decide which is multiply and which divide
4. word problem: divide by {2, 10} answer is O
5. word problem: divide by {5, 9} answer is O
6. word problem: divide by {3, 4, 6, 7, 8} answer is O
7. word problem: divide by O answer is 1O e.g. 17 or 12
8. word problem: divide by O answer is TO e.g. 78
9. word problem: divide by O, answer O and a remainder. Sensible answer w.r.t. context
10. word problem: divide by TO with TO answer
11. word problem: divide byTO, answer has a remainder. Sensible answer w.r.t. context

secretMULTIsigns

2. word problem BOGOF or B2GOF or buy one get one half price
3. word problem whereTOLD how much want to buy e.g. chairs and tables OR just chairs decide which deal is cheapest
6. word problem which needs O $\times$ {TO or HTO} and another operation
7. word problem estimate {$\times$ only } state whether over or under estimate
8. word problem which needs TO $\times$ {TO or HTO}, and a change of unit