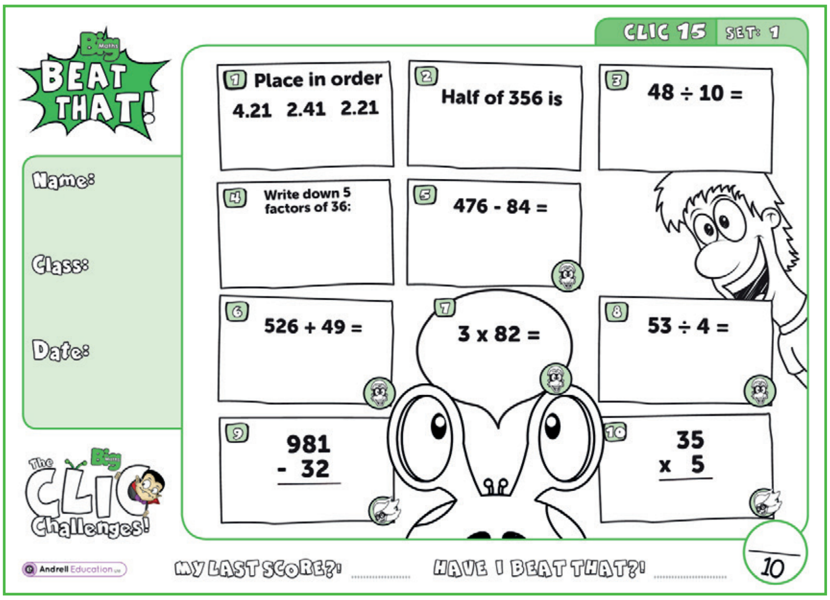
Big Maths

A Guide for Home Learning

CLIC 15

Introduction - CLIC 15

In school, each week, children complete a CLIC challenge. The answers that they provide tell their teacher what skils they understand and allow teachers to focus on teaching the skills that they don't (as well as new skills that will be taught). If your child completes their challenges online at school, you may have been sent a link to log on at home. This pupil log on only allows children to complete one challenge a week. We are currently building a new pupil area, which will help with home learning.



This guide provides you with a copy of a CLIC challenge, a description of the skill each question is challenging and some sample resources for each question to help with home learning. (A description of each of these resources is on the next page.) The key is to keep it fun, no pressure and limit the time to less than 20 minutes a day, unless your child wants to carry on!

Please seek and follow advice from your child's teacher and school!

What skill does each question challenge?

Question 1
I can understand 2dp numbers

Question 2
I can halve any 3d number

Question 3
I can find Mully using Smile Multiplication

Question 4
I can find factors

Question 5
I can solve 3d - 2d

Question 6
I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Question 7
I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Question 8
I can solve any 4d - 4d

Question 9
I can solve any 3d x 1d

Question 10
I can solve a 4d ÷ 1d (using any table) with no remainders in the answer

Remember To's

Every step of learning (skill) in Big Maths has 'Remember to…'s. These are simple reminders for children to 'Remember to' do this, this, etc…

In Big Maths, we have divided complicated skills into small steps, provided 'Remember to…'s and examples to keep it simple for children.

A Progress Drive is a collection of skill steps that progress a child's learning to the point of mastering the larger objective.

Repeat Sheets

Repeat sheets contain a number of questions (usually 10) that you can use for repeat practice of a particular step. Please feel free to create your own repeat questions to avoid children simply memorising the questions and answers.

Revisit Sheets

Revisit sheets contain a number of questions (usually 10) that you can use which include a unit of measure applied to the numbers (It's Nothing New!) of a particular step. Please feel free to create your own revisit questions to avoid children simply memorising the questions and answers.

Real Life Maths Sheets

Real Life Maths sheets contain a number of questions (usually 5) where the questions have been placed into worded scenarios for a particular step, increasing the complexity and challenge further. Please feel free to create your own real life maths questions to avoid children simply memorising the questions and answers.

Select Sheets

Select sheets contain a number of worded questions (usually 5) which no longer automatically relate to the step we are on. These increase the complexity and challenge further still. Please feel free to create your own select questions to avoid children simply memorising the questions and answers.

CLIC 15

The following CLIC challenge is an example for you to use to practice at home. We have included the answer sheet as well. Please feel free to create your own additional questions by changing the numbers for any that your child gets wrong. In this pack, there is additional advice for each question, with resources that can help with home learning. It is important that you use the correct challenge level as provided by your teacher.

Big Maths BEAT THAT!

Name:

Class:

Date:

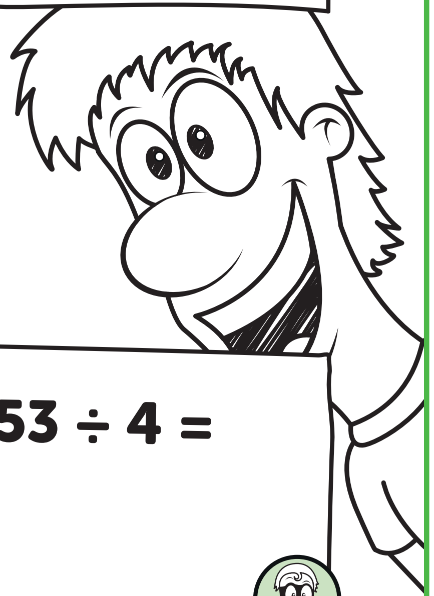
1. Place in order
   4.21   2.41   2.21

2. Half of 356 is

3. $48 \div 10 =$

4. Write down 5 factors of 36:

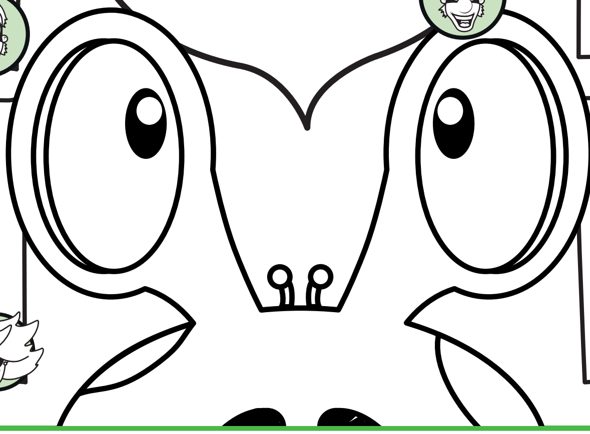
5. $476 - 84 =$



6. $526 + 49 =$

7. $3 \times 82 =$

8. $53 \div 4 =$



9.
$$\begin{array}{r} 981 \\ -\ \ 32 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 35 \\ \times\ \ 5 \\ \hline \end{array}$$

The Big Maths CLIC Challenges!

MY LAST SCORE?! ....

HAVE I BEAT THAT?! ....

/10

Big Maths BEAT THAT!

Name:

Class:

Date:

1. Place in order
   4.21 2.41 2.21
   2.21 2.41 4.21

2. Half of 356 is
   178

3. 48 ÷ 10 =
   4.8

4. Write down 5 factors of 36:
   6 1 9 2
   4 36 18

5. 476 - 84 =
   392

6. 526 + 49 =
   575

7. 3 x 82 =
   246

8. 53 ÷ 4 =
   13 r 1

9. 981 - 32 = 949

10. 35 x 5 = 175

The Big Maths CLIC Challenges!

Question 1

This question challenges a child's ability to understand 2dp numbers

The 'Remember to...'s for this step are:

Remember To:

- order the numbers by their whole numbers
- then, if they have the same whole number, order by the tenths digit
- then, if they have the same tenths digit, order by the hundredths digit

Place in order

4.21 2.41 2.21

Round decimals with two decimal places to the nearest whole number and to one decimal place.

Big Maths

Repeat Questions

Step 7 — Mastery of Numbers

I can understand 2dp numbers

Remember To:

1. **1.15 < 7.51**	2. **5.42 < 6.29**
3. **9.56 > 6.91**	4. **4.37 < 5.02**
5. **3.91 > 2.91**	6. **5.17 > 4.99**
7. **8.71 < 8.63**	8. **3.75 > 3.29**
9. **6.11 < 5.05**	10. **9.21 > 9.21**

Big Maths Repeat Answers

Step 7 Mastery of Numbers

I can understand 2dp numbers

Remember To:

1 true	2 true
3 true	4 true
5 true	6 true
7 false	8 true
9 false	10 false

Revisit Questions

Step 7 Mastery of Numbers

I can understand 2dp numbers

Remember To:

- order the numbers by their whole numbers
- then, if they have the same whole number, order by the tenths digit
- then, if they have the same tenths digit, order by the hundredths digit

1 2.45m < 8.61m	2 3.22cm < 7.29cm
3 9.43km > 7.41km	4 3.36g < 6.52g
5 4.66mg > 4.65mg	6 5.99L > 4.99L
7 8.64ml < 8.63ml	8 6.75s > 5.29s
9 6.11mm < 5.05mm	10 9.21kg > 9.21kg

Big Maths Revisit Answers

Step 7 — Mastery of Numbers

I can understand 2dp numbers

Remember To:

- order the numbers by their whole numbers
- then, if they have the same whole number, order by the tenths digit
- then, if they have the same tenths digit, order by the hundredths digit

1. true
2. true
3. true
4. true
5. true
6. true
7. false
8. true
9. false
10. false

Question 2

This question challenges a child's ability to halve any 3d number.

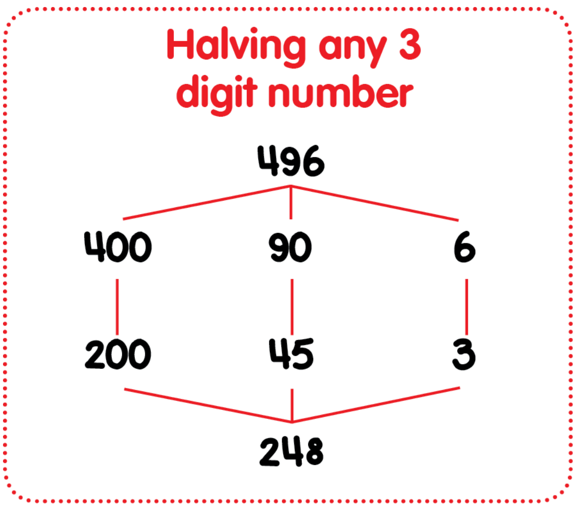
The 'Remember to...'s for this step are:

Remember To:

- partition the 3d number
- half the hundreds
- half the tens
- half the units
- put them back together again

Half of 356 is

Now the learner has everything in place to halve any 3d number (including ones with odd units digits). Notice how careful use of the Progress Drive means children are again 'pre-loaded' for success when they get to this step!



Big Maths Repeat Questions

Step 6

Halving With Pim

I can halve any 3d number

Remember To:

- partition the 3d number
- half the hundreds
- half the tens
- half the units
- put them back together again

1 **Half of 345 is**

2 **Half of 188 is**

3 **Half of 987 is**

4 **Half of 573 is**

5 **Half of 300 is**

6 **Half of 420 is**

7 **Half of 821 is**

8 **Half of 765 is**

9 **Half of 123 is**

10 **Half 273 of is**

Repeat Answers

Step 6

Halving With Pim

I can halve any 3d number

Remember To:

- partition the 3d number
- half the hundreds
- half the tens
- half the units
- put them back together again

1 **Half of 345 is 172.5**

2 **Half of 188 is 94**

3 **Half of 987 is 493.5**

4 **Half of 573 is 286.5**

5 **Half of 300 is 150**

6 **Half of 420 is 210**

7 **Half of 821 is 410.5**

8 **Half of 765 is 382.5**

9 **Half of 123 is 61.5**

10 **Half 273 of is 136.5**

Big Maths

Revisit Questions

Step 6 — Halving With Pim

I can halve any 3d number

Remember To:

- partition the 3d number
- half the hundreds
- half the tens
- half the units
- put them back together again

1 **Half of 573g is**

2 **Half of 188cm is**

3 **Half of 987km is**

4 **Half of 345m is**

5 **Half of 300mg is**

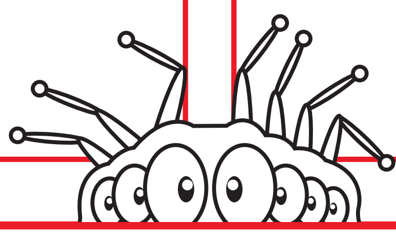
6 **Half of 420L is**

7 **Half of 821ml is**

8 **Half of 765s is**

9 **Half of 123mm is**

10 **Half 273kg of is**



Big Maths Revisit Answers

Step 6 Halving With Pim

I can halve any 3d number

Remember To:

- partition the 3d number
- half the hundreds
- half the tens
- half the units
- put them back together again

1 **Half of 573g is 286g and a half**

2 **Half of 188cm is 94cm**

3 **Half of 420L is 210L**

4 **Half of 345m is 172m and a half**

5 **Half of 300mg is 150mg**

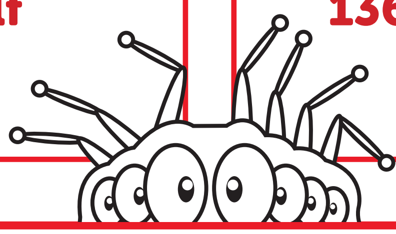
6 **Half of 987km is 493km and a half**

7 **Half of 821ml is 410ml and a half**

8 **Half of 765s is 382s and a half**

9 **Half of 123mm is 61mm and a half**

10 **Half 273kg of is 136kg and a half**



Real Life Maths Questions

Step 6 — **Halving With Pim**

I can halve any 3d number

Remember to:

- partition the 3d number
- halve the hundreds
- halve the tens
- halve the ones (units)
- put them back together again

1. **Pim has 532 oranges. He shares them between 2 friends. How many oranges does each friend have?**

2. **Pom has 784L of water. He pours it into 2 barrels. How much water is in each barrel?**

3. **Mully has 379kg of salt. He puts it into 2 piles. How much salt is in each pile?**

4. **What is half of 975?**

5. **Pim shared £468 between two friends. How much money does each friend have?**

Real Life Maths Answers

Step 6

Halving With Pim

I can halve any 3d number

Remember to:

- partition the 3d number
- halve the hundreds
- halve the tens
- halve the ones (units)
- put them back together again

1 **Pim has 532 oranges. He shares them between 2 friends. How many oranges does each friend have?**

They have 266 oranges each.

2 **Pom has 784L of water. He pours it into 2 barrels. How much water is in each barrel?**

There is 392L of water in each barrel.

3 **Mully has 379kg of salt. He puts it into 2 piles. How much salt is in each pile?**

There is 189.5kg of salt in each pile.

4 **What is half of 975?**

The answer is 487.5.

5 **Pim shared £468 between two friends. How much money does each friend have?**

They have £234 each.

Question 3

This question challenges a child's ability to find Mully using Smile Multiplication.

The 'Remember to…'s for this step are:

Remember To:

- start by letting the Smile Multiplication fact 'jump out' at you

$$48 \div 10 =$$

Keep Smiling! If children are familiar with the multiples that appear in the appropriate times tables from their 'Learn Its' schedules, and if they are comfortable with 3 digit numbers, then the concept of Smile Multiplication makes an easy link to the Smile Multiplication multiples. In other words: 3, 6, 9, 12, 15 etc becomes 30, 60, 90, 120, 150 etc. The earlier section in this chapter shows how this link can be made. The notion of Smile Multiplication tables is important, and yet the Smile Multiplication multiples have no official name and no publicity.

Multiples of 20 and 50 are used in reading scales. Multiples of 30 and 60 are useful for calculating time. Multiples of 90 are useful for measuring turn. More importantly though when faced with 500 divided by 7 as a mental challenge, numerate people can see that 490 is a multiple of 7, they can see that it must be the 70th multiple and that out of the 10 remaining one more 7 can be obtained with 3 left over…71 remainder 3.

Step 3 is about coaching that mindset to look for Smile Multiplication multiples. Children are given numbers just above INN: Multiplication multiples (e.g. 364 for multiples of 6…360 should jump out, 327 for multiples of 8…320 should jump out, etc). So long as learners know their multiplication facts, understand Smile Multiplication and are comfortable with numbers up to 1000 then they are ready to meet with success at this step. Remembering the three teacher questions that support the 'Where's Mully?' game, it is a good idea to build up this questioning gradually at this step. So, to begin with the teacher asks just for the multiple. Once children are used to that then the follow through question of which multiple it is (1st, 2nd, 3rd etc) and how you know can start to be added in to the conversation. This is important since in terms of a division question it is this that provides the 'answer' rather than the actual multiple. Finally, looking at the gap left to the maximum number makes sense as a further question and this of course is the remainder in terms of a division question.

Repeat Questions

Step 3

INN: Finding Multiples

I can find Mully using Smile Multiplication

Remember to:

- start by letting the Smile Multiplication fact 'jump out' at you

Example

He's hiding behind the biggest multiple of 9 without going past 275. So...

Where's Mully?

Where is Mully hiding?

Which multiple is it and how do you know?

How many are left over at the end?

270

1. He's hiding behind the biggest multiple of 2 without going past 121.
2. He's hiding behind the biggest multiple of 7 without going past 354.
3. He's hiding behind the biggest multiple of 8 without going past 562.
4. He's hiding behind the biggest multiple of 4 without going past 123.
5. He's hiding behind the biggest multiple of 5 without going past 402.
6. He's hiding behind the biggest multiple of 8 without going past 167.
7. He's hiding behind the biggest multiple of 9 without going past 545.
8. He's hiding behind the biggest multiple of 3 without going past 212.
9. He's hiding behind the biggest multiple of 4 without going past 363.
10. He's hiding behind the biggest multiple of 6 without going past 243.

Big Maths Repeat Answers

Step 3 — INN: Finding Multiples

I can find Mully using Smile Multiplication

Remember to:

- start by letting the Smile Multiplication fact 'jump out' at you

Answer Key: Answer, Smile Multiple, Remainder

Example

He's hiding behind the biggest multiple of 9 without going past 275. So...

Where's Mully?

Where is Mully hiding?

Which multiple is it and how do you know?

How many are left over at the end?

270

1. He's hiding behind the biggest multiple of 2 without going past 121.
   120, 60, 1
2. He's hiding behind the biggest multiple of 7 without going past 354.
   350, 50, 4
3. He's hiding behind the biggest multiple of 8 without going past 562.
   560, 70, 2
4. He's hiding behind the biggest multiple of 4 without going past 123.
   120, 30, 3
5. He's hiding behind the biggest multiple of 5 without going past 402.
   400, 80, 2
6. He's hiding behind the biggest multiple of 8 without going past 167.
   160, 20, 7
7. He's hiding behind the biggest multiple of 9 without going past 545.
   540, 60, 5
8. He's hiding behind the biggest multiple of 3 without going past 212.
   210, 70, 2
9. He's hiding behind the biggest multiple of 4 without going past 363.
   360, 90, 3
10. He's hiding behind the biggest multiple of 6 without going past 243.
    240, 40, 3

Big Maths Revisit Questions

Step 3 INN: Finding Multiples

I can find Mully using Smile Multiplication

Remember to:

- start by letting the Smile Multiplication fact 'jump out' at you

Example

He's hiding behind the biggest multiple of 9 without going past 275. So...

Where's Mully?

Where is Mully hiding?

Which multiple is it and how do you know?

How many are left over at the end?

270

1. He's hiding behind the biggest multiple of 4g without going past 202g.
2. He's hiding behind the biggest multiple of 7cm without going past 342cm.
3. He's hiding behind the biggest multiple of 8L without going past 780L.
4. He's hiding behind the biggest multiple of 2m without going past 145m.
5. He's hiding behind the biggest multiple of 3s without going past 334s.
6. He's hiding behind the biggest multiple of 8km without going past 500km.
7. He's hiding behind the biggest multiple of 9ml without going past 678ml.
8. He's hiding behind the biggest multiple of 5mg without going past 459mg.
9. He's hiding behind the biggest multiple of 4mm without going past 453mm.
10. He's hiding behind the biggest multiple of 6kg without going past 231kg.

Revisit Answers

Step 3

INN: Finding Multiples

I can find Mully using Smile Multiplication

Remember to:

- start by letting the Smile Multiplication fact 'jump out' at you

Example

He's hiding behind the biggest multiple of 9 without going past 275. So...

Where's Mully?

Where is Mully hiding?

Which multiple is it and how do you know?

How many are left over at the end?

270

1. 200g. 50g. 2g.
2. 336cm. 48cm. 6cm.
3. 776L. 97L. 4L.
4. 144m. 72m. 1m.
5. 333s. 111s. 1s.
6. 496km. 62km. 4km.
7. 675ml. 75ml. 3ml.
8. 450mg. 91mg. 4mg.
9. 452mm. 113mm. 1mm.
10. 228kg. 38kg. 3kg.

Big Maths Real Life Maths Questions

Step 3 **INN: Finding Multiples**

I can find Mully using Smile Multiplication

Remember to:

- start by letting the Smile Multiplication fact 'jump out' at you

1. **Mully is hiding behind an orange. It is the highest multiple of 4 without going past 202. Where is he hiding?**

2. **Mully is hiding behind a rock. It is the highest multiple of 8 without going past 645. Where is he hiding?**

3. **Mully is hiding behind a barrel. It is the highest multiple of 3 without going past 92. Where is he hiding?**

4. **Mully is hiding behind a building. It is the highest multiple of 9 without going past 635. Where is he hiding?**

5. **Mully is hiding behind a tree. It is the highest multiple of 4 without going past 241. Where is he hiding?**

Real Life Maths Answers

Step 3 — **INN: Finding Multiples**

I can find Mully using Smile Multiplication

Remember to:

- start by letting the Smile Multiplication fact 'jump out' at you

1. **Mully is hiding behind an orange. It is the highest multiple of 4 without going past 202. Where is he hiding?**

   He's hiding behind the 200th orange.

2. **Mully is hiding behind a rock. It is the highest multiple of 8 without going past 645. Where is he hiding?**

   He's hiding behind the 640th rock.

3. **Mully is hiding behind a barrel. It is the highest multiple of 3 without going past 92. Where is he hiding?**

   He's hiding behind the 90th barrel.

4. **Mully is hiding behind a building. It is the highest multiple of 9 without going past 635. Where is he hiding?**

   He's hiding behind the 630th building.

5. **Mully is hiding behind a tree. It is the highest multiple of 4 without going past 241. Where is he hiding?**

   He's hiding behind the 240th tree.

Question 4

This question challenges a child's ability to find factors.

Write down 5 factors of 36:

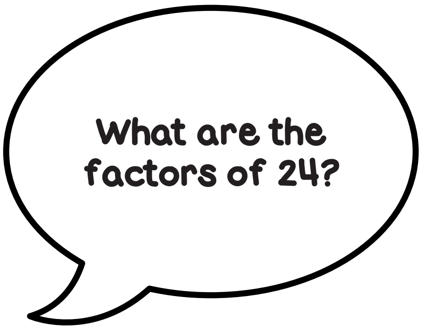
As soon as children can see that 24 is a multiple of 3 then they can be told that this means 3 is a factor of 24. Using the alien character 'Pom' helps children to see and understand factors. Again, assess by asking for factors of 12 rather than asking for a definition.

Repeat Questions

Step 2

Multiple-Factor-Prime

I can find factors



Example

1. What are the factors of 36?
2. What are the factors of 48?
3. What are the factors of 28?
4. What are the factors of 66?
5. What are the factors of 56?
6. What are the factors of 74?
7. What are the factors of 78?
8. What are the factors of 18?
9. What are the factors of 62?
10. What are the factors of 75?

Big Maths Repeat Answers

Step 2

Multiple-Factor-Prime

I can find factors

What are the factors of 24?

Example

1. What are the factors of 36?
   1, 2, 3, 4, 6, 9, 12, 18, 36
2. What are the factors of 48?
   1, 2, 3, 4, 6, 8, 12, 16, 24, 48
3. What are the factors of 28?
   1, 2, 4, 7, 14, 28
4. What are the factors of 66?
   1, 2, 3, 6, 11, 22, 33, 66
5. What are the factors of 56?
   1, 2, 4, 7, 8, 14, 28, 56
6. What are the factors of 74?
   1, 2, 37, 74
7. What are the factors of 78?
   1, 2, 3, 6, 13, 26, 39, 78
8. What are the factors of 18?
   1, 2, 3, 6, 9, 18
9. What are the factors of 62?
   1, 2, 31, 62
10. What are the factors of 75?
    1, 3, 5, 15, 25, 75

Question 5

This question challenges a child's ability to solve 3d - 2d.

The 'Remember to...'s for this step are:

Remember To:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

476 - 84 =

Here we tackle 3d - 2d, but it is important to note from the outset that some 3d - 2d questions are very challenging to solve brain only. So, here we teach all children a full written method that is high on understanding that will enable them to solve any 3d - 2d question. The degree to which the learner can move this ability along the FAB continuum to a complete brain only process is dependent on two things:

- the numbers involved in the question
- the child's ability to hold numbers and solve addition in their head

To begin with then, let's look at how we can solve any 3d - 2d with high understanding, ready to move to brain only. We enter this 3d subtract 2d moment armed with confidence that any child that has progressed through all of the steps thus far will be successful. They have all of the pre-requisite skills they need, and they have learnt them all thoroughly and in isolation.

A look at the 'Remember to...' statements presented here provide a reminder of the steps we have progressed through, as well as being the teaching points for this 3d - 2d process, as well as being the 'success criteria' tick-list for the children to self evaluate against. This step therefore involves the learners setting up a number line with the gap on (by physically swapping the two numbers over from the question),

Big Maths Repeat Questions

Step 30

Subtraction

I can solve 3d - 2d

Remember To:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1. **218 - 66 =**
2. **623 - 32 =**
3. **693 - 93 =**
4. **297 - 43 =**
5. **286 - 57 =**
6. **301 - 10 =**
7. **344 - 91 =**
8. **622 - 13 =**
9. **704 - 70 =**
10. **287 - 11 =**

Big Maths Repeat Answers

Step 30

Subtraction

I can solve 3d - 2d

Remember To:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1 218 - 66 = 152

2 623 - 32 = 591

3 693 - 93 = 600

4 297 - 43 = 254

5 286 - 57 = 229

6 301 - 10 = 291

7 344 - 91 = 253

8 622 - 13 = 609

9 704 - 70 = 634

10 287 - 11 = 276

Big Maths Revisit Questions

Step 30 — **Subtraction**

I can solve 3d - 2d

Remember To:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1. **220m - 60m =**

2. **523cm - 21cm =**

3. **690km - 90km =**

4. **397g - 43g =**

5. **286mg - 57mg =**

6. **301L - 10L =**

7. **344ml - 91ml =**

8. **622s - 13s =**

9. **704mm - 70mm =**

10. **287kg - 11kg =**

Revisit Answers

Step 30

Subtraction

I can solve 3d - 2d

Remember To:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1. 220m - 60m = **160m**

2. 523cm - 21cm = **502cm**

3. 690km - 90km = **600km**

4. 397g - 43g = **354g**

5. 286mg - 57mg = **229mg**

6. 301L - 10L = **291L**

7. 344ml - 91ml = **253ml**

8. 622s - 13s = **609s**

9. 704mm - 70mm = **634mm**

10. 287kg - 11kg = **276kg**

Big Maths Real Life Maths Questions

Step 30 | **Subtraction**

I can solve 3d - 2d

Remember to:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1. **Pim has 132 berries. He gave his friend 21 berries. How many berries does Pim have now?**

2. **Pim made a pile of 312 coins. He took away 45 coins from the pile. How many coins are in the pile now?**

3. **Pim went to the shop with £256. He bought a guitar for £34. How much money does he have left?**

4. **Pim has 652ml of water in a jug. He poured out 79ml. How much liquid is in the jug?**

5. **Pom is 727cm tall. Pim is 53cm tall. How much taller is Pom?**

Real Life Maths Answers

Step 30 — **Subtraction**

I can solve 3d - 2d

Remember to:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1 **Pim has 132 berries. He gave his friend 21 berries. How many berries does Pim have now?**

Pim now has 111 sweets.

2 **Pim made a pile of 312 coins. He took away 45 coins from the pile. How many coins are in the pile now?**

There are 267 coins in the pile.

3 **Pim went to the shop with £256. He bought a guitar for £34. How much money does he have left?**

He has £222 left.

4 **Pim has 652ml of water in a jug. He poured out 79ml. How much liquid is in the jug?**

There is 573ml of water in the jug.

5 **Pom is 727cm tall. Pim is 53cm tall. How much taller is Pom?**

Pom is 674cm taller.

Select Questions

Step 30

Subtraction

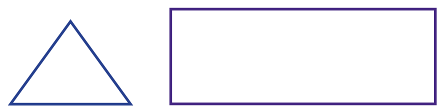
I can solve 3d - 2d

Remember To:

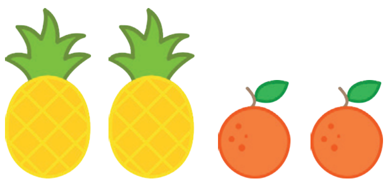
- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1

An equilateral triangle has sides of 25mm. A rectangle measures 110mm by 18mm. How much longer is the perimeter of the rectangle than the triangle?



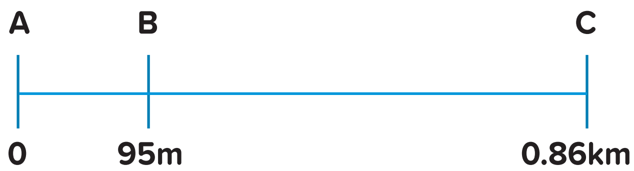
2



Jamie buys two pineapples and two oranges and gets 92p change from £4. If the oranges cost 28p each, then what is the cost of a pineapple?

3

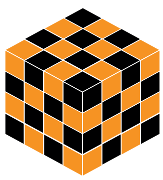
The distance between A and B is 95m. The distance between A and C is 0.86km. What is the distance between B and C?



4

Rory buys two bottles of water each holding 330ml. He drinks one fifth of the water from one of the bottles. His friend, Kate, drinks one third of the water from the other bottle. Which bottle has more water left in it? How much more?

5



Becky says that you would need twenty seven cubes to build this larger cube. Do you agree or disagree? Can you prove it? How many more cubes would you need to build an even larger cube that had thirty six cubes on each face?

Select Answers

Step 30 | **Subtraction**

I can solve 3d - 2d

Remember To:

- show the gap on a number line
- draw a line at 100
- jump to 100
- jump from 100
- add the two jumps

1

The perimeter of the rectangle is 181mm longer than the perimeter of the triangle.

2

The cost of a pineapple is £1.56

3

The distance between B and C is 765m.

4

Rory's water bottle has more water left. Rory drank 66ml of water. Kate drank 110ml of water.

5

No, I disagree as the cube is 4 cubes wide and high so therefore you would need 64 cubes.
If a face had 36 cubes then the cube is 6 x 6 x 6. You would need 216 cubes to make this cube.

Question 6

This question challenges a child's ability to I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

The 'Remember to...'s for this step are:

Remember To:

- use your Learn Its and Fact Families to give the answer
- say the remainder

$$526 + 49 =$$

In this step all of the 1d x 1d multiplication facts are used to find division facts as opposed to just using the 2, 3, 4 and 5 times tables like we did in earlier steps.

The remainders provide only the slightest extra challenge since learners at this point have already been through the conceptual progression of moving from 'straight' tables questions presented as division problems, to ones with remainders.

Big Maths Repeat Questions

Step 21 — Division

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember To:

- use your Learn Its and Fact Families to give the answer
- say the remainder

1. $15 \div 7 =$

2. $75 \div 9 =$

3. $27 \div 6 =$

4. $43 \div 6 =$

5. $19 \div 9 =$

6. $34 \div 6 =$

7. $33 \div 8 =$

8. $47 \div 8 =$

9. $25 \div 7 =$

10. $21 \div 6 =$

Repeat Answers

Step 21 — **Division**

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember To:

- use your Learn Its and Fact Families to give the answer
- say the remainder

1. $15 \div 7 =$ **2 r1**
2. $75 \div 9 =$ **8 r3**
3. $27 \div 6 =$ **4 r3**
4. $43 \div 6 =$ **7 r1**
5. $19 \div 9 =$ **2 r1**
6. $34 \div 6 =$ **5 r4**
7. $33 \div 8 =$ **4 r1**
8. $47 \div 8 =$ **5 r2**
9. $25 \div 7 =$ **3 r4**
10. $21 \div 6 =$ **3 r3**

Big Maths Revisit Questions

Step 21

Division

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember To:

- use your Learn Its and Fact Families to give the answer
- say the remainder

1. **34m ÷ 4 =**
2. **82cm ÷ 9 =**
3. **22km ÷ 3 =**
4. **9g ÷ 2 =**
5. **13mg ÷ 2 =**
6. **58L ÷ 6 =**
7. **33ml ÷ 4 =**
8. **47s ÷ 8 =**
9. **45mm ÷ 6 =**
10. **39kg ÷ 6 =**

Big Maths Revisit Answers

Step 21 — **Division**

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember To:

- use your Learn Its and Fact Families to give the answer
- say the remainder

1. 34m ÷ 4 = 8m r2m
2. 82cm ÷ 9 = 9cm r1cm
3. 22km ÷ 3 = 7km r1km
4. 9g ÷ 2 = 4g r1g
5. 13mg ÷ 2 = 6mg r1mg
6. 58L ÷ 6 = 9L r4L
7. 33ml ÷ 4 = 8ml r1ml
8. 47s ÷ 8 = 5s r2s
9. 45mm ÷ 6 = 7mm r3mm
10. 39kg ÷ 6 = 6kg r3kg

Real Life Maths Questions

Step 21 | **Division**

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember to:

- use your 'Learn Its' and Fact Families to give the answer
- say the remainder

1. **Pim has 67 cards. He shared them between 7 people. How many cards does each person get? How many cards are left over?**

2. **Pim has 56 apples. He puts them into 6 boxes. How many apples are in each box? How many apples are left over?**

3. **A chocolate bar costs £9. Pim has £76. How many chocolate bars can he buy? How much money is left over?**

4. **Pim has a jug containing 70L of water. He pours it into 8 jugs. How much liquid is in each jug? How much water is left over?**

5. **What is 32 shared by 6? What's the remainder?**

Real Life Maths Answers

Step 21 — Division

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember to:

- use your 'Learn Its' and Fact Families to give the answer
- say the remainder

1. **Pim has 67 cards. He shared them between 7 people. How many cards does each person get? How many cards are left over?**

   Each person gets 9 cards. There are 4 cards left over.

2. **Pim has 56 apples. He puts them into 6 boxes. How many apples are in each box? How many apples are left over?**

   There are 9 sweets in each box. There are 2 apples left over.

3. **A chocolate bar costs £9. Pim has £76. How many chocolate bars can he buy? How much money is left over?**

   He can buy 8 chocolate bars. There is £4 left over.

4. **Pim has a jug containing 70L of water. He pours it into 8 jugs. How much liquid is in each jug? How much water is left over?**

   There is 8L in each jug. There is 6L left over.

5. **What is 32 shared by 6? What is the remainder?**

   The answer is 5. The remainder is 2.

Select Questions

Step 21 — **Division**

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember To:

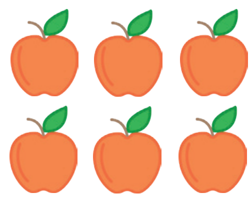
- use your Learn Its and Fact Families to give the answer
- say the remainder

1

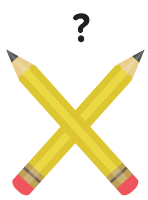
The blue rectangle is 4cm long. What is length of a red rectangle?

2

Apples are sold in packs of six. Children in two year 4 classes will be given a packed lunch for a school trip. The packed lunch will include one apple. There are 26 children in one class and 27 children in the other class. How many packs of apples will be needed?



3



Rita wants to divide this box of pencils into groups with the same number in each group. If she tries to make six groups then there is four left over. If she makes eight groups then there are the same number of pencils in each group! How many pencils in the box?

4

Is the value of ‘n’ the same in these three examples? Can you prove it?

$$75 \div n = 8 \text{ r}3 \qquad 60 \div 7 = n \text{ r}4$$

$$\frac{1}{4} \text{ of } 54 = n$$

5

Is it possible to share this amount of money between eight people so that they each get the same amount. How do you know ?

Select Answers

Step 21 Division

I can use a Tables Fact to find a division fact (with remainders) (x6, 7, 8, 9)

Remember To:

- use your Learn Its and Fact Families to give the answer
- say the remainder

1

The length of a red rectangle is 7.4cm

2

9 packs of apples will be needed.

3

There are 40 pencils in the box.

4

The value of n is **NOT** the same in these 3 examples.

$75 \div 9 = 8 \text{ r}3$ $\frac{1}{4}$ of $54 = 13.5$ $60 \div 7 = 8 \text{ r}4$

5

No, it is not as 66 is not divisible by 8.

Question 7

This question challenges a child's ability to combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9).

The 'Remember to...'s for this step are:

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

3 x 82 =

Key Point:

Success at this step doesn't mean the learner can solve any 2d ÷ 1d brain only, but it does mean they are far better equipped to decide if they can solve any particular question without needing to rely on the support of a written method (as well as the resources of pen, paper and time!).

Children should enter this step having acquired quite a rhythm of adding 2 multiples together (with probably the 10th multiple being the first one). This means is that they will continue exactly as they have been, but now they will end up with the final answer noting the remainder of the starting pile. The key point to be explicit about is that there is insufficient to even make one 'lot of' from it and so it must be the remainder.

On completion of this step we can now introduce formal written 'Column Method Division'. Although Column Method division will quickly become a set of 'doings' (i.e. we tend to just whizz along the columns without too much thought to what is really happening),we can see that the learner will be able to access the understanding initially since they have progressed through Steps 1 - 15 which laid the conceptual foundations for division.

Repeat Questions

Step 23

Division

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

1. $29 \div 6 =$

2. $31 \div 9 =$

3. $80 \div 7 =$

4. $93 \div 6 =$

5. $108 \div 7 =$

6. $25 \div 9 =$

7. $81 \div 8 =$

8. $27 \div 6 =$

9. $74 \div 6 =$

10. $100 \div 8 =$

Big Maths Repeat Answers

Step 23 Division

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too

1. 29 ÷ 6 = **4 r5**
2. 31 ÷ 9 = **3 r4**
3. 80 ÷ 7 = **11 r3**
4. 93 ÷ 6 = **15 r3**
5. 108 ÷ 7 = **15 r2**
6. 25 ÷ 9 = **2 r7**
7. 81 ÷ 8 = **10 r1**
8. 27 ÷ 6 = **4 r3**
9. 74 ÷ 6 = **12 r2**
10. 100 ÷ 8 = **12 r4**

Big Maths Revisit Questions

Step 23 — **Division**

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

1. **31m ÷ 2 =**
2. **27cm ÷ 2 =**
3. **99km ÷ 7 =**
4. **87g ÷ 7 =**
5. **58mg ÷ 3 =**
6. **25L ÷ 2 =**
7. **81ml ÷ 6 =**
8. **27s ÷ 2 =**
9. **74mm ÷ 6 =**
10. **100kg ÷ 8 =**

Big Maths Revisit Answers

Step 23

Division

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too

1. 31m ÷ 2 = 15m r1m

2. 27cm ÷ 2 = 13cm r1cm

3. 99km ÷ 7 = 14km r1km

4. 87g ÷ 7 = 12g r3g

5. 58mg ÷ 3 = 19mg r1mg

6. 25L ÷ 2 = 12L r1L

7. 81ml ÷ 6 = 13ml r3ml

8. 27s ÷ 2 = 13s r1s

9. 74mm ÷ 6 = 12mm r2mm

10. 100kg ÷ 8 = 12kg r4kg

Real Life Maths Questions

Step 23 — **Division**

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember to:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

1. **What is 97 shared by 8? What is the remainder?**

2. **Mully makes 9 piles from 111g of sugar. How much does each pile weigh? How much sugar is left over?**

3. **Pim has 93kg of sand. He makes 7 piles. How much does each pile weigh? How much sand is left over?**

4. **Pom has £75. A bag of pears costs £6. How many bags of pears can he buy? How much money is left over?**

5. **There are 6 people at a party. Pim has 71 sweets to share. How many sweets does each person get? How many sweets are left?**

Real Life Maths Answers

Step 23 — **Division**

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember to:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

1. **What is 97 shared by 8? What is the remainder?**

   The answer is 12. The remainder is 1.

2. **Mully makes 9 piles from 111g of sugar. How much does each pile weigh? How much sugar is left over?**

   Each pile weighs 12g. There is 3g of sugar left over.

3. **Pim has 93kg of sand. He makes 7 piles. How much does each pile weigh? How much sand is left over?**

   Each pile weighs 13kg. There is 2kg of sand left over.

4. **Pom has £75. A bag of pears costs £6. How many bags of pears can he buy? How much money is left over?**

   He can buy 12 bags of peares. There is £3 left over.

5. **There are 6 people at a party. Pim has 71 sweets to share. How many sweets does each person get? How many sweets are left?**

   Each person gets 11 sweets. The remainder is 5.

Big Maths **Select** Questions

Step 23 — **Division**

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

1

Samantha can run a kilometre in about 9 minutes. If she was able to keep running at this pace how far would she expect to run in two hours?

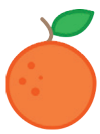
2

Rory and Sarah are making 2D shapes with different lengths of ribbon. They agree that the lengths of any shapes that they make will be a whole number of centimetres. The shapes will also all be regular. Starting with a length of ribbon $1\frac{1}{4}$ m long, what is the largest heptagon they can make?

3

Bottled water is sold is packs of six. A school is organising a 5Km walk for charity and wants to ensure that every walker can have one bottle of water. For safety reasons, the school has limited the number of participants to one hundred people. How many packs of water should they buy?

4



Oranges are sold individually. Ruby could buy six oranges for exactly £1.68. If she only has £2 to spend, could she buy 7 oranges? Convince me!

5

Input → ÷ 8 → + 5 → Output

Input	Output
176	a
b	40

What are the values of the letters ‘a’ and ‘b’?

Big Maths **Select** Answers

Step 23 | **Division**

I can combine 2 or more Tables Facts to solve division (with remainders) (x6, 7, 8, 9)

Remember To:

- think of 10 lots
- see how many more there are
- add on how many lots this is too
- find the remainder

1

She would expect to run just over 12km.

2

The largest heptagon they can make would use 1.4m of the ribbon.
This sides of the heptagon would be 0.2m in length.

3

They should buy 17 packs of water.

4

Yes, she could buy 7 oranges as it would cost £1.96 altogether.

5

a= 27, b = 280

Question 8

This question challenges a child's ability to solve any 4d - 4d.

$$53 \div 4 =$$

Again, there is very little new learning here, we simply acknowledge the introduction of subtracting a 4d number for the first time. As before, the same lines of progression within this step should be followed.

Just to recap, these are:

- Increasing the amount of 'borrowing' required.
- Increasing the number of digits in the number being subtracted.
- Moving into the context of measures by 'swapping the thing' (the constant use of 'Swapping the Units').
- Moving the context into real life scenarios (Outer Numeracy).
- Challenging children to solve mentally if no 'borrowing' is required.
- Giving children questions that are already set up in columns, and then questions where they need to set up the question themselves.

Big Maths **Repeat** Questions

Step 7 **Subtraction Column Methods**

I can solve any 4d - 4d

Example

$$\begin{array}{r} {}^{4}\cancel{5}\,{}^{1}6\,{}^{7}\cancel{8}\,{}^{1}6 \\ -\ 4749 \\ \hline 937 \\ \hline \end{array}$$

1 **9724 - 7823**

2 **9241 - 7342**

3 **1254 - 1120**

4 **6734 - 5312**

5 **9544 - 7632**

6 **7173 - 4591**

7 **9732 - 9235**

8 **9000 - 8732**

9 **6341 - 5672**

10 **3869 - 2658**

Big Maths Repeat Answers

Step 7
Subtraction Column Methods

I can solve any 4d - 4d

Example

$$\begin{array}{r} {}^{4}\cancel{5}\,{}^{1}6\,{}^{7}\cancel{8}\,{}^{1}6 \\ -\ 4749 \\ \hline 937 \\ \hline \end{array}$$

1. 9724 - 7823 = 1901
2. 9241 - 7342 = 1899
3. 1254 - 1120 = 134
4. 6734 - 5312 = 1422
5. 9544 - 7632 = 1912
6. 7173 - 4591 = 2582
7. 9732 - 9235 = 497
8. 9000 - 8732 = 268
9. 6341 - 5672 = 669
10. 3869 - 2658 = 1211

Question 9

This question challenges a child's ability to solve any 3d x 1d.

$$\begin{array}{r} 981 \\ -\quad 32 \\ \hline \end{array}$$

There is very little new learning here, except now we also have a hundreds digit to multiply by the single digit number. Naturally, the same principles of carrying the digits across into the next column apply as we work from right to left.

Again we can explain the understanding to the learner as we can see the INN: Multiplication question of the hundreds digit being multiplied by the single digit number as an 'amount of hundreds'.

In fact children may well learn to solve this step 'brain only' as they move along the FAB continuum.

Big Maths Repeat Questions

Step 3 Multiplication Column Methods

I can solve any 3d x 1d

Example

$$\begin{array}{r} {}^{5\,3}\\ 385 \\ \times \quad 6 \\ \hline 2310 \\ \hline \end{array}$$

1. 654 x 5
2. 962 x 3
3. 377 x 4
4. 496 x 6
5. 987 x 7
6. 157 x 6
7. 345 x 9
8. 568 x 4
9. 287 x 7
10. 632 x 6

Big Maths Repeat Answers

Step 3 **Multiplication Column Methods**

I can solve any 3d x 1d

Example

$$\begin{array}{r} {}^{5\,3}\\ 385 \\ \times\quad 6 \\ \hline 2310 \\ \hline \end{array}$$

1 **654 x 5 = 3270**

2 **962 x 3 = 2886**

3 **377 x 4 = 1508**

4 **496 x 6 = 2976**

5 **987 x 7 = 6909**

6 **157 x 6 = 942**

7 **345 x 9 = 3105**

8 **568 x 4 = 2272**

9 **287 x 7 = 2009**

10 **632 x 6 = 3792**

Question 10

This question challenges a child's ability to solve a 4d ÷ 1d (using any table) with no remainders in the answer.

$$\begin{array}{r} 35 \\ \times \quad 5 \\ \hline \end{array}$$

This is a further small nudge of progression up the Progress Drive as we now move into using our tables knowledge to divide a 4d number by any 1d number (still with no remainder in the answer).

Big Maths

Repeat Questions

Step 5

Division Column Methods

I can solve a 4d ÷ 1d (using any table) No remainders inside the answer

Example

$$9\,\overline{)\,3654}\quad = 406$$

1. **3555 ÷ 5**

2. **9900 ÷ 9**

3. **8016 ÷ 8**

4. **7147 ÷ 7**

5. **5094 ÷ 9**

6. **6114 ÷ 6**

7. **7399 ÷ 7**

8. **8776 ÷ 8**

9. **6294 ÷ 6**

10. **5340 ÷ 5**

Repeat Answers

Step 5

Division Column Methods

I can solve a 4d ÷ 1d (using any table) No remainders inside the answer

Example

$$9\overline{)3654}^{\,406}$$

1. 3555 ÷ 5 = 711
2. 9900 ÷ 9 = 1100
3. 8016 ÷ 8 = 1002
4. 7147 ÷ 7 = 1021
5. 5094 ÷ 9 = 566
6. 6114 ÷ 6 = 1019
7. 7399 ÷ 7 = 1057
8. 8776 ÷ 8 = 1097
9. 6294 ÷ 6 = 1049
10. 5340 ÷ 5 = 1068