Divide by 3. *Stg E6 x/÷* Name: _____

Sadly, there is no super easy trick for dividing by 3… Or is there? If you know your 3 times tables you might be alright! Using the family of facts will help you to divide multiples of 3 by 3.

E.g. What is **9 ÷ 3**? We know that **3 x 3 = 9**, so using the 'family' we know 9 ÷ 3 = **3**
Try these ones to build up your division basic facts:

1.	3 x 4 = ___	So __ ÷ 3 = 4	and	___ ÷ 4 = 3
2.	3 x 7 = ___	So __ ÷ 3 = 7	and	___ ÷ 7 = 3
3.	3 x 5 = ___	So __ ÷ 3 = 5	and	___ ÷ 5 = 3
4.	3 x 9 = ___	So __ ÷ 3 = 9	and	___ ÷ 9 = 3
5.	3 x 11 = ___	So __ ÷ 3 = 11	and	___ ÷ 11 = 3
6.	3 x 2 = ___	So __ ÷ 3 = 2	and	___ ÷ 2 = 3
7.	3 x 8 = ___	So __ ÷ 3 = 8	and	___ ÷ 8 = 3
8.	3 x 12 = ___	So __ ÷ 3 = 12	and	___ ÷ 12 = 3
9.	3 x 6 = ___	So __ ÷ 3 = 6	and	___ ÷ 6 = 3
10.	3 x 10 = ___	So __ ÷ 3 = 10	and	___ ÷ 10 = 3

Son: "My teacher is crazy".
Mother: "Why?"
Son: "Yesterday she told us that five is 4+1; today she is telling us that five is 3 + 2."

Ok, but what if the number I'm dividing doesn't fit? Like if it's not a multiple of 3? Now it starts to get interesting, because we start to learn about 'remainders' – the leftover bits.

E.g **20 ÷ 3 = ??** Oh no, it doesn't fit! We know that 18 ÷ 3 = 6, and that 21 ÷ 3 = 7. Hmm. We just choose the one that fits inside 20 (18), then take away 18 from 20 (**20 – 18 = 2**) So **20 ÷ 3 = 6 r2** That's 6 with a 'remainder' of 2. Well that makes sense! Let's try:

1.	8 ÷ 3 = __ r __	3 x ___ = 6	8 - 6 = ___ (remainder)
2.	5 ÷ 3 = __ r __	3 x ___ = 3	5 - 3 = ___ (r)
3.	13 ÷ 3 = __ r __	3 x ___ = 12	13 - 12 = ___ (r)
4.	29 ÷ 3 = __ r __	3 x ___ = 27	29 - 27 = ___ (r)
5.	26 ÷ 3 = __ r __	3 x ___ = 24	26 - 24 = ___ (r)
6.	34 ÷ 3 = __ r __	3 x ___ = 33	34 - 33 = ___ (r)
7.	23 ÷ 3 = __ r __	3 x ___ = 21	23 - 21 = ___ (r)
8.	10 ÷ 3 = __ r __	3 x ___ = 9	10 - 9 = ___ (r)
9.	43 ÷ 3 = __ r __	3 x ___ = 42	43 - 42 = ___ (r)
10.	50 ÷ 3 = __ r __	3 x ___ = 48	50 - 48 = ___ (r)

Tip: to check if a number is divisible by 3, add up its digits. If they add up to a multiple of 3, you can ÷ 3! Check:
36: 3 + 6 = 9
27: 2 + 7 = 9
24: 2 + 4 = 6
105: 1 + 0 + 5 = 6

You'll notice that the remainders are either 1 or 2. It can't be 3 or more or else it becomes another multiple.

Why do we need to know about remainders? They help us with the next level of chopping up, called 'long division'. Long division can help us to divide any number by 3 (or whatever). All we need is our basic facts and to know what remainders are!

Dave Moran 2015

Divide by 3. *Stg 6 x/÷* Name: _____

Learning how to do long division is something you've always wanted, I can tell. It's the sort of request that Santa gets all the time. Well maybe not, but it is a handy skill. Here's the thing, interesting numbers hardly ever divide neatly into sets. So how do we solve a nasty like 234 ÷ 3? The answer (as it often is) is to split it into smaller easier bits! In this case it's actually kind of fun too!

```
  78
3|234
  r2
  24
```

1. Look at numbers that can be divided by 3, starting on the left. The '2' in the 100s column is too small, so go to '**23**'.
2. **23 ÷ 3 = 7 r2** (23-21=2) Put the '**7**' above on the answer line
3. Put the **r2** in the 10s column underneath.
4. Slide the 4 from the 1s column alongside, to make '24'
5. **24 ÷3 = 8**. Put the '**8**' in the 1s place on the answer line – all done! Answer: **78**

What? Don't worry, it does get easier with practice. You may have noticed that there is a less messy way to note your division already. Why have all