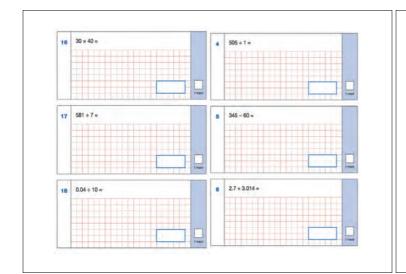# GLOW PowWow
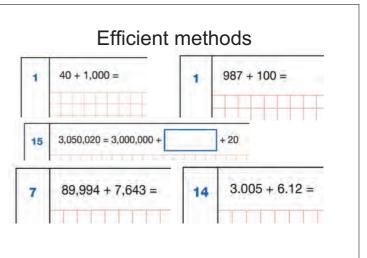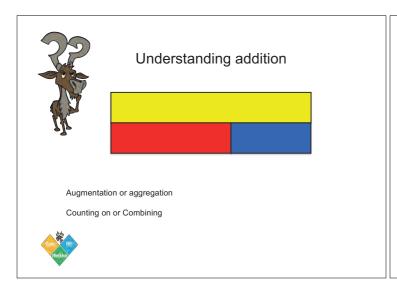## 30th Jan 2019

liz@lizhopkinseducation.co.uk

During the session…

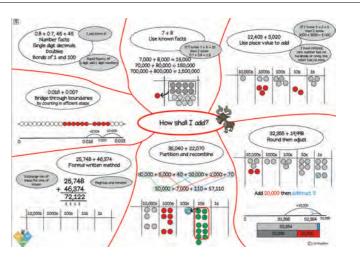- engage in maths activities
- explore practical resources, models and images to support calculating
- confirm the development of written methods – with practical resources

---

16	30 × 40 =	4	505 ÷ 1 =
17	581 ÷ 7 =	5	345 − 60 =
18	0.04 ÷ 10 =	6	2.7 + 3.014 =

Efficient methods

| 1 | 40 + 1,000 = | 1 | 987 + 100 = |

$$15 \quad 3,050,020 = 3,000,000 + \boxed{} + 20$$

| 7 | 89,994 + 7,643 = | 14 | 3.005 + 6.12 = |

Understanding addition

Augmentation or aggregation

Counting on or Combining

Slide 1: Let's play!

```
   __ 6 __
+  3 __ 7
-----------

-----------
```

How close to 800 can you get?

Slide 2: Reasoning with understanding

```
6 4 7 2 ☐
+ 2 6 1 ☐
6 7 3 4 ☐
```

```
  C O L
+ C O C
-----
L L N O
```

Write the three missing digits to make this addition correct.

```
  5 3 2 ☐ 9
+   ☐ 7 4 2
-----------
☐ 0 6 7 6
```

Slide 3

```
  3 5 2 4 2
+   7 2 2 ☐
-----------
4 ☐ 4 ☐ 1
```

```
  6 4 7 2 ☐
+   2 6 1 ☐
-----------
6 7 3 4 ☐
```

```
  4 8 1 ☐ 8
+   ☐ 2 ☐ 1
-----------
5 3 4 ☐ 9
```

Slide 4: Let's play!

```
  8 _ 2
- _ 7 _
-------

-------
```

How close to 300 can you get?

Slide 5: Understanding Subtraction

- Partitioning structure – 12 birds on a fence. 3 fly away. How many are left?
- Comparison structure – 12 blue cubes, 3 red cubes, how many more blue than red? (less, difference?)
- Complement of a set structure – 12 eggs, 3 hatched. How many had **not** hatched? (Very similar to partitioning structure)
- Reduction structure – counting back – Price was £12, reduced by £3. What is the price now?
- Inverse of addition structure – I have £3 and want to buy a toy for £12. How much more do I need?

Slide 6: What does it look like?

- Put out set of 12 cubes, take away 3
- Put out set of 12 and set of 3 to compare
- Put out a set of 12 cubes, 3 of which are red
- Put out a set of 12 cubes, reduce it by 3
- Put out set of 3 cubes and count on to reach 12

Make sense of:
- $6 - (-3) = 9$

Verbal miscues

Does 'less' mean subtract?

What does it mean?
What does it look like?

Towards a written method

Make 43
Subtract 8

Describe what happens

Reasoning with understanding

6 ☐ 2
− 2 6 ☐
4 ☐ 4

It can't be…
because…

If …
then…
because…

Understanding multiplication

Repeated addition and arrays

Ten times greater

Towards a written method

How many squares in a grid:
4 by 3?
14 by 3?
34 by 23?

---

19    $33,630 = 354 \times 95$

Use this multiplication to complete the calculations below.

$354 \times 9.5 = $ ☐

$3,540 \times 95 = $ ☐

$3,363 \div 95 = $ ☐   2 marks

Understanding division

15 ÷ 3 = ?
What does it mean?
What does it look like?

Sharing or grouping?

Using reasoning

21   5,542 ÷ 17 = 326

Explain how you can use this fact to find the answer to **18 × 326**

1 mark