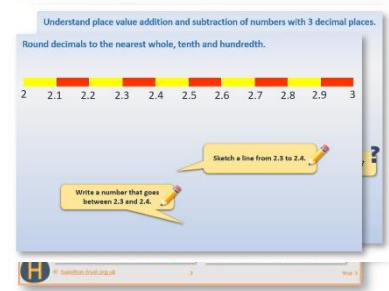


Week 15, Day 4

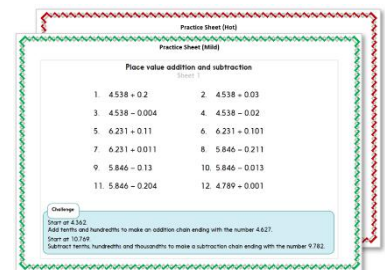
Investigating addition on a number grid

Each day covers one maths topic. It should take you about 1 hour or just a little more.

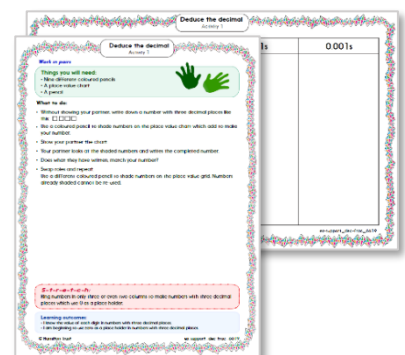
1. Start by reading through the **Learning Reminders**.



2. Think you've got it? Have a go at the **Investigation**.



3. Have I mastered the topic? A few questions to **Check your understanding**.



Learning Reminders

Investigating addition on number grid.

For today's investigation
we will be adding pairs of
3-digit numbers.

Some can be done mentally
using place value.

e.g. $112 + 123 = 234$.

Others may be better solved
by column addition.
e.g. $168 + 179$.

$$\begin{array}{r} 168 \\ + 179 \\ \hline 11 \\ \hline 347 \end{array}$$

Investigation

Exploring addition on a number grid

You will need:

- 101-200 grid provided on next page

What to do:

- Start by drawing a 3 by 3 square on the grid, e.g.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

- Add the numbers in the opposite corners, i.e. $112 + 134$ and $114 + 132$.
- What do you notice?
- Now add the numbers on the opposite sides, i.e. $113 + 133$ and $122 + 124$.
- What do you notice?
- Compare the pairs of numbers... Can you explain what is happening?
- The number **123** is in the centre of the marked square.
- Can you make a connection to the 'magic number' **123** and the answers you have found to the additions?

- Draw another 3 by 3 square on the grid and repeat.
 - What happens?
- Draw a larger square on the grid, **4 by 4** or **5 by 5**.
 - Do those squares have a 'magic number answer' too?
- What if you drew a rectangle, **2 by 3** or **3 by 4**?
 - Do rectangles have a 'magic number' answer too?
- Add the opposite corners of the whole square, i.e. $101 + 200$ and $110 + 191$.
 - What answers do you get?
 - How many more pairs of numbers on the grid will give that **same** answer?

Investigation

Exploring addition on a number grid

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

Check your understanding

Questions

Which of these would you solve mentally? Why?

Find the answers.

Which would you prefer to set out in columns? Why?

Set them out and solve.

1. $341 + 102$

2. $235 + 269$

3. $305 + 503$

4. $276 + 138$

5. $457 + 362$

6. $212 + 221$

Fold here to hide answers

Check your understanding

Answers

1. **443**, 2. **504**, 3. **808**, 4. **414**, 5. **819**, 6. **433**.

Numbers 1, 3 and 6 might best be solved mentally as no 'carrying' between columns is needed.