Ambrose has five boxes in front of him and one of them has a secret key in it. Ambrose is only allowed to open one of them. The box with the key has an answer greater than 50 but less than 60. Work out the answers and let him know which box to open!

Problem Solving

1) Roger picked 175 plums from his aunt’s plum tree. He gave 125 plums to his aunt, and kept the rest. How many plums did Roger keep?

2) What subtraction question has been worked out using these place value diagrams. Explain your thoughts.

Reasoning

1) Using the partitioned method is always the best option to solve a subtraction question. 
   *Do you agree? Is this always true?*
Ambrose has to press five coloured buttons in a row to open a secret door in Farley Towers. Each button has a question on it that you must work out the answer to.

The buttons need to be pressed in ascending order (starting with the smallest and ending with the largest). Which order should Ambrose press the buttons in?

Problem Solving

1) Choose one number from each box to create a subtraction sentence. Can you create more than one number sentence?

```
150  250  350  450
- 200  400
= 50 150 250 350
```

2) Look at the pictures. What is the difference between the lightest and heaviest kitten?

```
360 g  410 g  305 g  375 g
```

3) Rosie wants to work out 102 − 98 in her head. Explain a method that Rosie could use.

Reasoning

1) What are the missing numbers? Explain how you know.

```
200  ?
- ? 10 ?
---
100 10 2
```
Ambrose needs to work out a secret password to open a door at Farley Towers. To find the code out, you first need to solve each subtraction question.

\[
\begin{align*}
449 - 224 &= 225 \\
566 - 161 &= 405 \\
452 - 132 &= 320 \\
508 - 399 &= 109 \\
359 - 140 &= 219 \\
\end{align*}
\]

Now, look at your five answers as these will help you crack the code. The final 2 digits will help you work out the correct letter. For example, if your answer was 120, your final two digits would be 20 which would match to the letter T.

What is the secret password?

**Problem solving**

1) Fill in the missing numbers.

\[
593 - 20 \square = 3 \square 1
\]

2) Use three of these five digits to make this correct. How many different options can you think of?

\[
550 - \square \square \square \square \square \square \text{ is less than 200}
\]

**Reasoning**

**Mini Investigation**

Milly starts with the number 888. She rolls three dice to create a 3 digit number and subtracts this from her starting number to find the difference. She repeats this a number of times.

1) What is the smallest answer she could get? Explain why.

2) What is the largest answer she could get? Explain why.

3) Will the answer ever be a multiple of ten? Explain why.

4) Is she more likely to get an odd or even answer? Explain why.