

# Mathematics Department Workshops

## Topic: Place Value

### Resource Sheet HT2.PLV.2

For this activity you will need cards printed from **HT2.PLV.2.1**, **HT2. PLV.2.2**, **HT2. PLV.2.3**, **HT2. PLV.2.4** on card large enough for all learners to be able to read. If possible print the different sets on different coloured cards e.g. red for thousands, blue for hundreds, yellow for tens and white for units.

- Write a number like 2435 on the board and ask the learners how many of each card you will need to make up the representation e.g. 2 reds, 4 blue, 3 yellow and 5 white. Blu-tak the cards on to the whiteboard under the appropriate column. Invite learners to suggest other numbers that you can represent.
- Take the opportunity to discuss the fact that we can count eleven white cards but when the value is represented as 11 we use place value.
- Introduce the idea of using index notation to “keep a record of” repeated multiplication.

Conduct a whole class discussion about the numbers that could be represented using cards printed from

- **HT2.PLV.2.6**, **HT2.PLV.2.7**, **HT2.PLV.2.8**. If possible keep the same colours as before e.g. red for  $10^3$ , blue for  $10^2$ , yellow for  $10^1$ . Repeat the previous exercise with some numbers.
- Ask the class to predict the next power of ten that will be needed below  $10^1$  and the need to have a units column.
- Now add the cards with  $10^0$ , that are white **HT2.PLV.2.5**. Now repeat the exercise of representing the numbers on the board using the complete set of cards.
- Divide the class into pairs and give each pair a set of cards **HT2.PLV.2.5**, **HT2.PLV.2.6**, **HT2.PLV.2.7** and **HT2.PLV.2.8**. One learner gives a number and the second learner has to count the correct number of cards in the correct place.
- Invite learners to say what they think is the value of ten to the power zero, explaining their reasoning. Encourage discussion, establishing that  $10^0 = 1$
- As an extension exercise at this stage invite learners to speculate about what happens before  $10^0$  in the number system using index notation.

HT2.PLV.2.1

<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

## HT2.PLV.2.2

<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>
<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>
<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>

### HT2.PLV.2.3

<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

**HT2.PLV.2.4**

<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>
<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>
<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>

## HT2.PLV.2.5

$10^0$	$10^0$	$10^0$	$10^0$
$10^0$	$10^0$	$10^0$	$10^0$
$10^0$	$10^0$	$10^0$	$10^0$
$10^0$	$10^0$	$10^0$	$10^0$

**HT2.PLV.2.6**

<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>
<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>
<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>
<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>	<b><math>10^1</math></b>

**HT2.PLV.2.7**

$10^2$	$10^2$	$10^2$	$10^2$
$10^2$	$10^2$	$10^2$	$10^2$
$10^2$	$10^2$	$10^2$	$10^2$
$10^2$	$10^2$	$10^2$	$10^2$



**HT2.PLV.2.8**

$10^3$	$10^3$	$10^3$	$10^3$
$10^3$	$10^3$	$10^3$	$10^3$
$10^3$	$10^3$	$10^3$	$10^3$
$10^3$	$10^3$	$10^3$	$10^3$