$3y^{\frac{4}{3}}$	$10x^0$	$3y$
$x^{-\frac{3}{2}} \times x$	$y^{\frac{1}{6}} \times y^{\frac{1}{2}}$	$\left(2x^{\frac{1}{2}}\right)^2$
A	**B**	**C**
$\dfrac{24}{y^2}$	x	$x^{-\frac{1}{2}}$
$\dfrac{12x^{\frac{1}{3}}}{2x^{\frac{1}{12}}}$	$\left(3y^{\frac{1}{6}}\right)^2$	$\dfrac{2x^2 y \times 3x^{-5} y^3 \times 2xy^{-1}}{-2x^{-1} y \times 2x^{-2} y^2}$
D	**E**	**F**
$-3x$	$x^{-\frac{3}{2}}$	$6x^{\frac{1}{4}}$
$2y^{-\frac{1}{3}}\left(x^{\frac{1}{4}}\right)^5$	$4y^2 \times 6y^{-4}$	$\dfrac{2x^{-\frac{7}{2}}}{4x^{-\frac{5}{2}}}$
G	**H**	**I**

$\dfrac{1}{2}x^{-1}$	$y^{\frac{2}{3}}$	$4x$
$y^{\frac{1}{3}} \times y^{\frac{2}{9}} \times 3y^{\frac{14}{18}}$	$x^{-\frac{1}{4}} y^{\frac{1}{3}}$	$x^{\frac{3}{2}} \times x^{\frac{-1}{2}}$
J	**K**	**L**
$9y^{\frac{1}{3}}$	$2x^{\frac{5}{4}} y^{-\frac{1}{3}}$	$x^{-\frac{1}{4}} y^{\frac{1}{3}}$
$\left(\dfrac{2x^{\frac{1}{5}}}{2x^{-\frac{3}{10}}}\right)^{-3}$	$\dfrac{5x^{-\frac{3}{7}} \times 2x^{\frac{1}{3}}}{x^{-\frac{2}{21}}}$	$\left(\dfrac{y^{\frac{4}{3}}}{3y^{\frac{7}{3}}}\right)^{-1}$
M	**N**	**O**

When you have the cards in order, substitute the values

$$x = 16 \quad \text{and} \quad y = 8$$

into each expression in the shaded sections to obtain a numerical value for each card, then find the corresponding letter from the table below to reveal a secret message.

W	L	K	W	F	R	O	B	D	N	E	A	E	L	O
24	10	64	$\dfrac{1}{64}$	$\dfrac{1}{32}$	16	18	$\dfrac{3}{8}$	32	$\dfrac{1}{4}$	1	12	48	4	-48

Teaching notes

This set of 16 cards can be used as:

- a treasure hunt – enlarged onto A3 paper, cut out and stuck up around the classroom
- dominoes – photocopied onto A4 paper for students to work individually or in pairs. Cards are not given in any order, so can be given to students to cut out.

Students should simplify the expression in the *unshaded* portion of each card to give the next card in the sequence (note that the expression on card K cannot be simplified). If using the activity as a treasure hunt, students will need to record the order of the answers (the expressions in the *shaded* portions).

When the cards have been ordered, provide students with the information on the final card (e.g. enlarge the card and put it at the front of the room, or provide one card per student/pair). The hidden message is found when **read backwards** (to avoid guesswork!):

FAB WORK WELL DONE

The cards form a loop so any starting card can be used, or you may wish to mark card A as the first card in the sequence to help students decipher the hidden message.

Answers

Card	A	F	G	N	B	K	O	C
Number	48	$\frac{1}{4}$	-48	32	10	4	1	24
Letter	E	N	O	D	L	L	E	W

Card	L	E	M	H	D	I	J
Number	64	16	18	$\frac{1}{64}$	$\frac{3}{8}$	12	$\frac{1}{32}$
Letter	K	R	O	W	B	A	F