
















Number and Algebra:

Fractions and Decimals: Decimal Disco

Australian Curriculum This lesson plan could be used to support the teaching and learning of the following Content Descriptions from the Australian Curriculum. Y6: Number and Algebra, Fractions and Decimals Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123) Multiply and divide decimals by powers of 10 (ACMNA130)		
Child-Friendly Aim: To multiply and divide whole numbers and decimals by 10, 100 and 1000.	Success Criteria: I can multiply and divide numbers by 10 by moving each digit one place to the left or right. I can multiply and divide numbers by 100 by moving each digit two places to the left or right. I can multiply and divide numbers by 1000 by moving each digit three places to the left or right.	Resources: Lesson Pack
Key/New Words: Decimal point, tenths, hundredths.		Preparation: Differentiated Decimal Disco Activity Sheets – one per child Place Value Grids – as required Disco Lights Self-Assessment Cards - cut up one per child

Prior Learning: It will be helpful if the children can multiply and divide whole numbers by 10, 100 and 1000.

Learning Sequence

	Decimal Dancing: Numbers up to two decimal places are revealed on the screen. If the number is larger than the preceding one, then dance high (arms in the air!) If it is lower, then dance low (how low can you go?). This warm-up game can be played silently or with music.	
	Multiplying and Dividing by 10, 100 and 100: Check that the children remember how to multiply and divide whole numbers by 10, 100 and 1000 using the examples on the Lesson Presentation .	
	The Decimal Point: Explain how to divide by 10, moving across into tenths and hundredths. Remind the children how to read numbers with decimals using the prompts on the Lesson Presentation .	
	Practise: Children work in pairs to multiply and divide by 10, 100 and 1000.	
	Decimal Disco: All groups complete differentiated Decimal Disco Activity Sheets , multiplying and dividing numbers by 10, 100 and 1000. Can the children multiply and divide whole numbers and decimals by 10, 100 and 1000?	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Children multiply and divide by 10, 100 and 1000 using a Place Value Grid.</p> </div> <div style="text-align: center;">  <p>Children multiply and divide by 10, 100 and 1000 with increasingly larger numbers.</p> </div> <div style="text-align: center;">  <p>Children multiply and divide by 10, 100 and 1000, including working with numbers beyond a million and completing missing number problems.</p> </div> </div>	
	Disco Lights: The children self-assess their progress and confidence in multiplying and dividing numbers by 10, 100 and 1000, using the Disco Lights Self-Assessment Cards .	

Explore it Checkit: Children work through this _____ to check their understanding of multiplying and dividing by 10, 100 and 1000. Filmit: Children work in small groups to produce a film to teach others how to multiply and divide by 10, 100 and 1000. They could use animation or act in the film themselves.



Mathematics

Number and Algebra

Decimal Disco



Aim

- To multiply and divide whole numbers and decimals by 10, 100 and 1000.

Success Criteria

- I can multiply and divide numbers by 10 by moving each digit one place to the left or right.
- I can multiply and divide numbers by 100 by moving each digit two places to the left or right.
- I can multiply and divide numbers by 1000 by moving each digit three places to the left or right.

Decimal Dancing



How are your dance moves today?



Decimal Dancing



Get dancing!



Multiplying and Dividing by 10, 100 and 1000



How do we **multiply** whole numbers by 10, 100 and 1000?

This will make
number 10, 100
1000 times bigger

Don't forget to
add zeros as place
holders before the
decimal point.

Move each digit in
the place value grid
one, two or three
places to the left.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
				2	4	6	.	

Multiplying and Dividing by 10, 100 and 1000



How do we **divide** whole numbers by 10, 100 and 1000?

167 000 ÷ 100 = 1670

This will make the number 10, 100 or 1000 times smaller.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
	1	6	7	0	0	0	•	

The Decimal Point

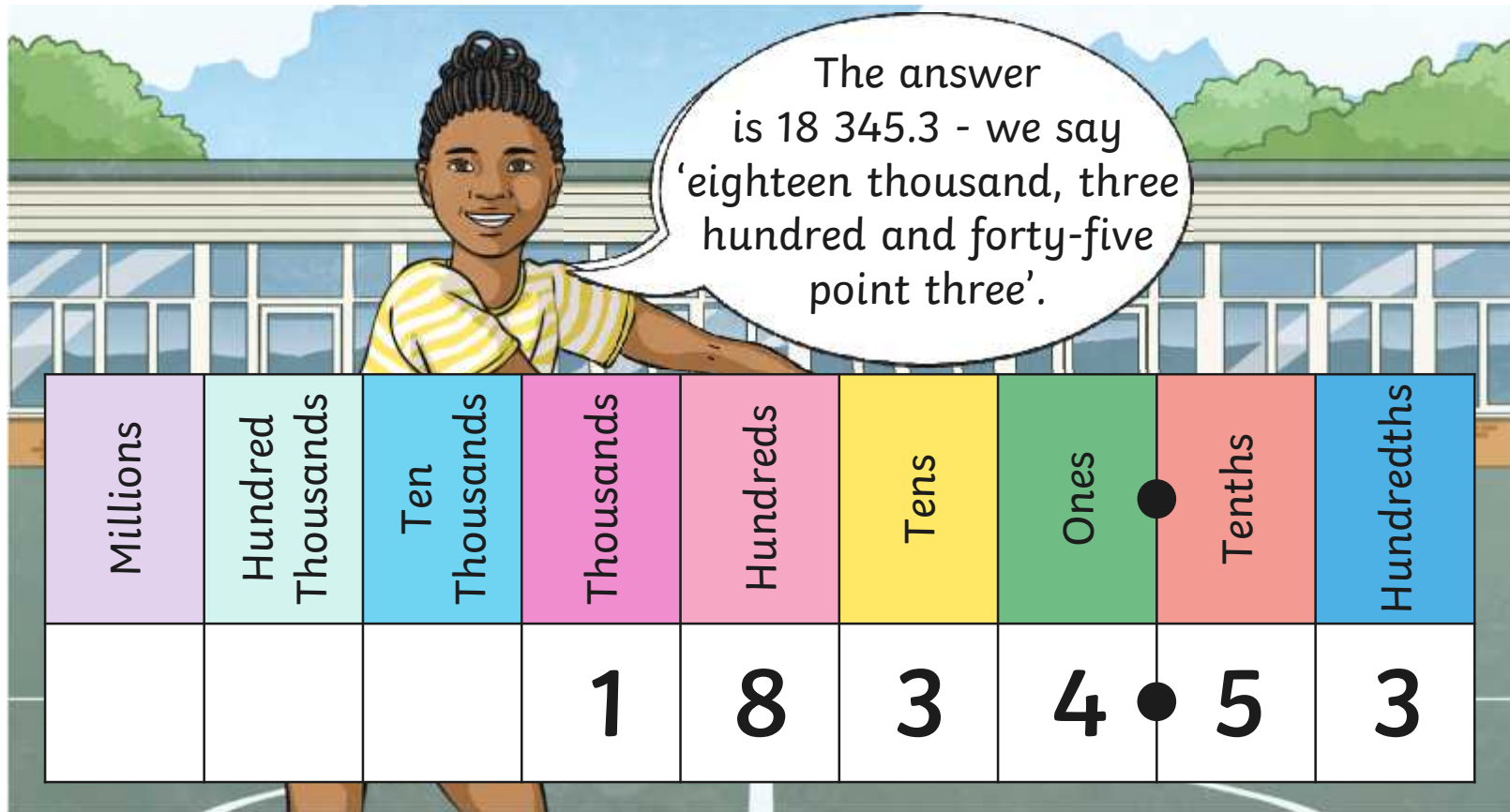
When we calculated $167\ 000 \div 100$,
we moved each digit two places to the right.

What happens
if the digits aren't
zeros though?

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
	1	6	7	0	0	0	.	

The Decimal Point

Let's work out 1834.53×10 .

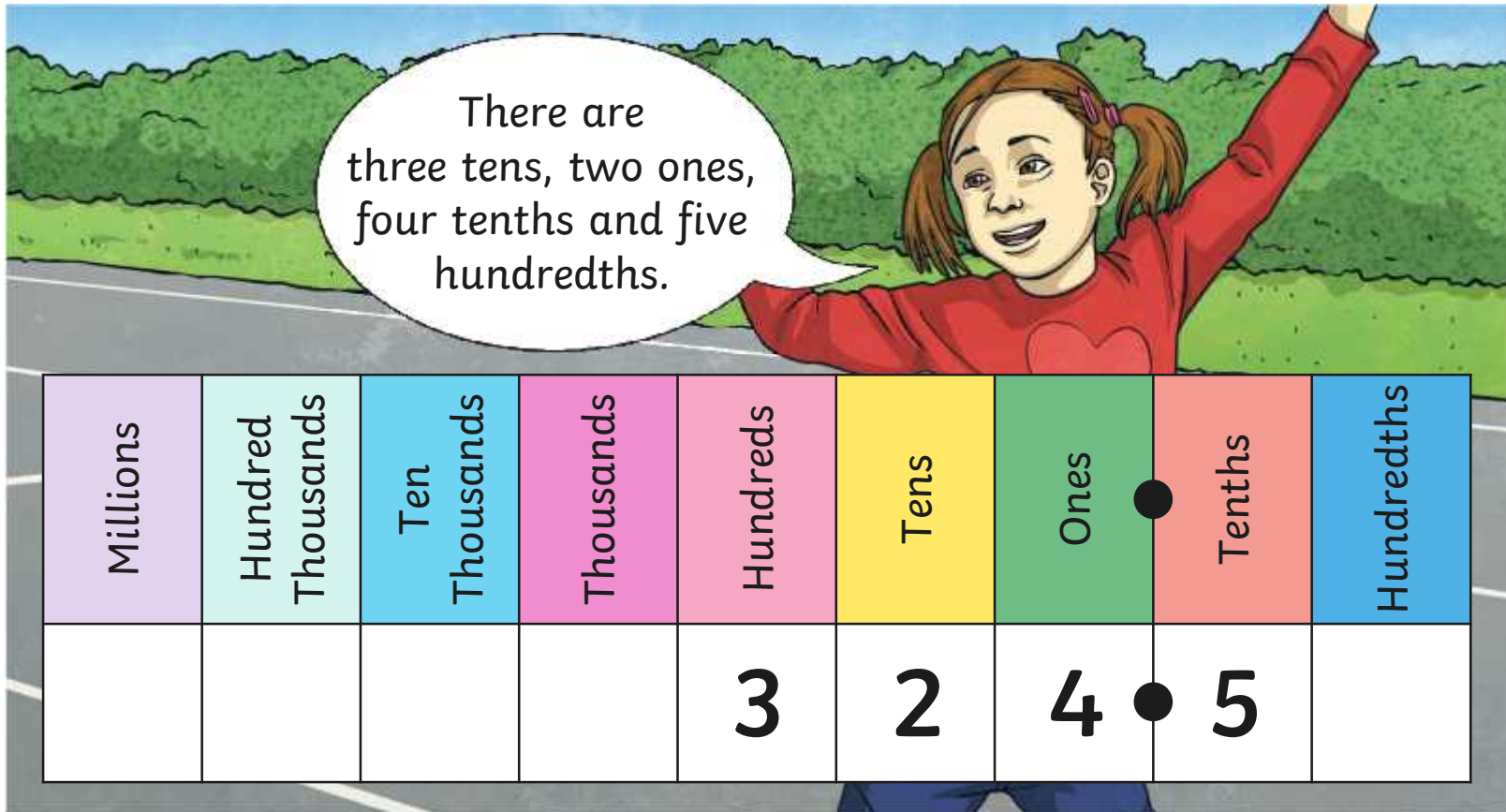


The answer is 18 345.3 - we say 'eighteen thousand, three hundred and forty-five point three'.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
			1	8	3	4	5	3

The Decimal Point

Let's work out $324.5 \div 10$.

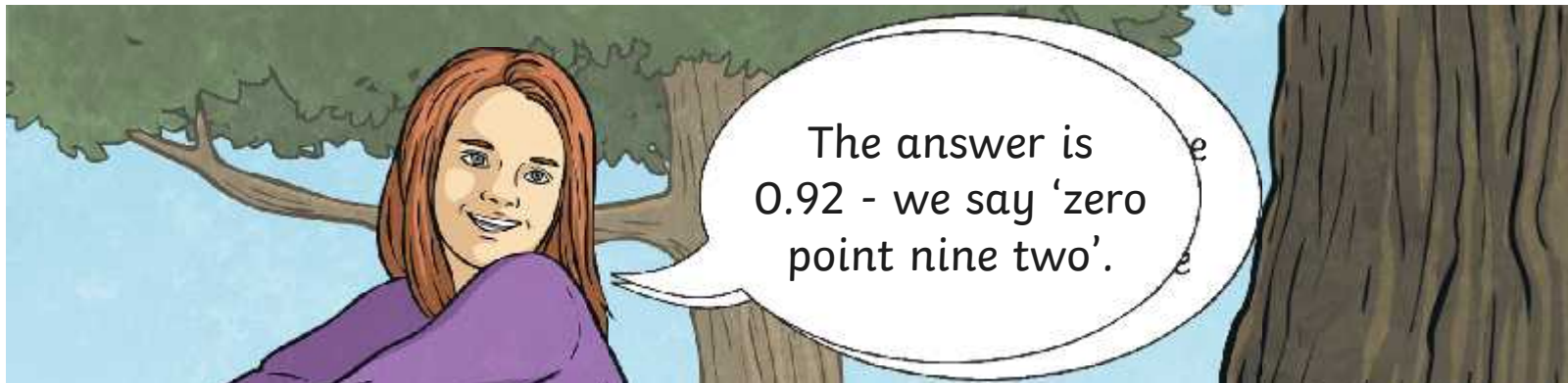


There are three tens, two ones, four tenths and five hundredths.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
				3	2	4	5	

The Decimal Point

Let's work out $92 \div 100$.



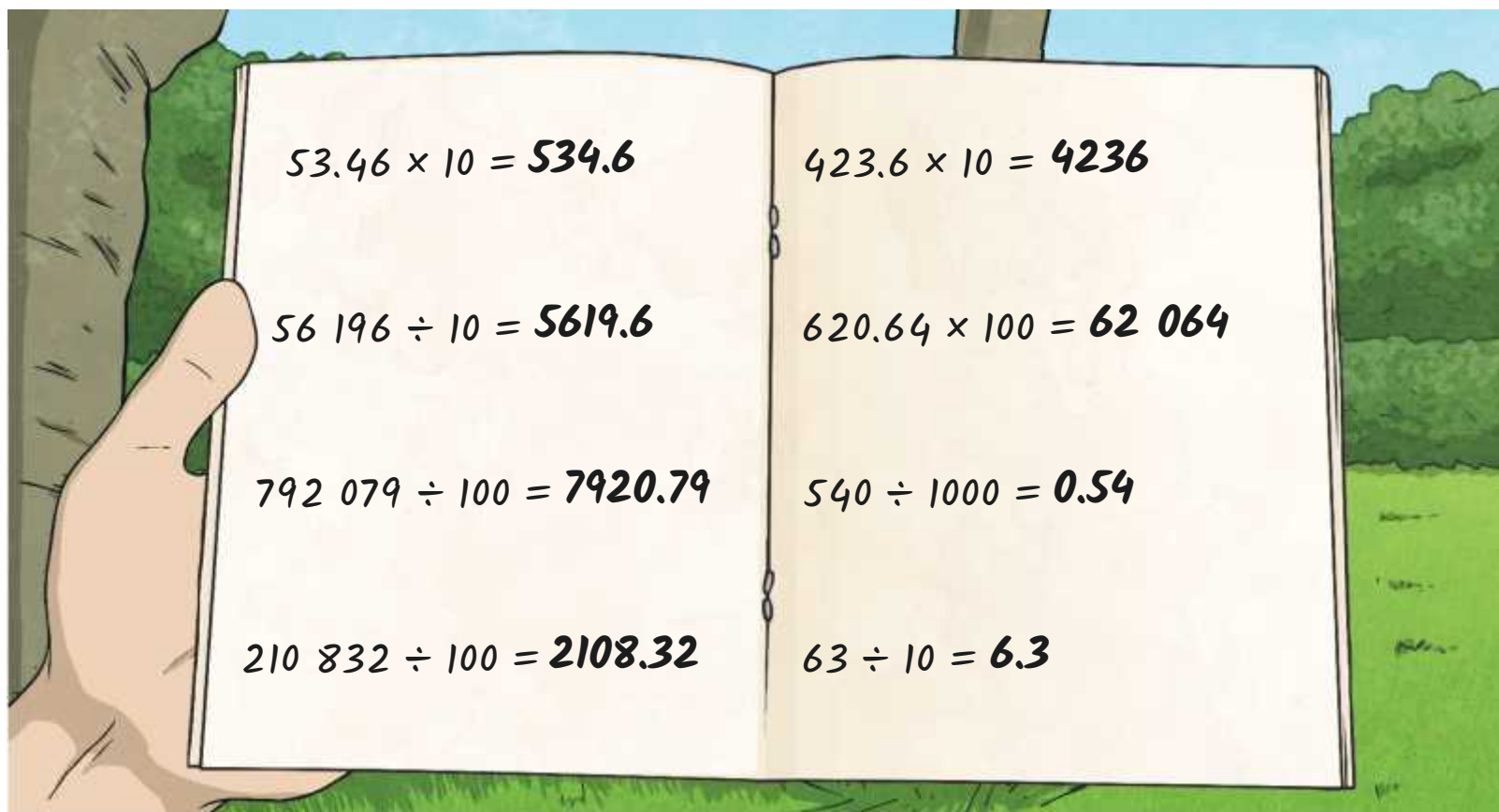
The answer is 0.92 - we say 'zero point nine two'.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
					9	0	.	

Practise



Time to show us your moves! Complete these calculations.
Check with your partner to see if they got the same answers as you.



Decimal Disco



Use your marvellous mathematic skills to complete these activities:

Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.

Use your **Place Value Grid** to help you to work out the answers to these calculations.

1) Multiplying and Dividing by 10.

a) $55.8 \times 10 =$ _____ d) $9342 \div 10 =$ _____
 b) $72.40 \div 10 =$ _____ e) $12347 \div 10 =$ _____
 c) $639.67 \times 10 =$ _____

2) Multiplying and Dividing by 100.

a) $55.67 \times 100 =$ _____ d) $128 \div 100 =$ _____
 b) $46 \div 100 =$ _____ e) $14.525 \div 100 =$ _____
 c) $209.46 \times 100 =$ _____

3) Multiplying and Dividing by 1000.

a) $4.1 \times 1000 =$ _____ d) $10\ 000 \div 1000 =$ _____
 b) $730 \div 1000 =$ _____ e) $14\ 000 \div 1000 =$ _____
 c) $199.02 \times 1000 =$ _____

4) "Roll and roll" three dice to make a three-digit number. Multiply and divide by 10, 100 and 1000. Repeat this five times.

Number	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$

Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.

Work out the answers to these calculations:

1) Multiplying and Dividing by 10.

a) $55.8 \times 10 =$ _____ d) $180\ 342 \div 10 =$ _____
 b) $1232.9 \div 10 =$ _____ e) $132\ 507 \div 10 =$ _____
 c) $6399.67 \times 10 =$ _____

2) Multiplying and Dividing by 100.

a) $6738 \times 100 =$ _____ d) $9534 \div 100 =$ _____
 b) $461.1 \div 100 =$ _____ e) $621\ 400 \div 100 =$ _____
 c) $2249.46 \times 100 =$ _____

3) Multiplying and Dividing by 1000.

a) $4.13 \times 1000 =$ _____ d) $100\ 000 \div 1000 =$ _____
 b) $3460 \div 1000 =$ _____ e) $2\ 345\ 000 \div 1000 =$ _____
 c) $2199.52 \times 1000 =$ _____

4) "Roll and roll" four dice to make a four-digit number. Multiply and divide this by 10, 100 and 1000. Repeat this five times.

Number	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$

Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.

1) Work out the answers to these calculations:

a) $23.8 \times 100 =$ _____ i) $2544 \div 100 =$ _____
 b) $9832.9 \div 10 =$ _____ j) $927\ 400 \div 1000 =$ _____
 c) $5109.07 \times 1000 =$ _____ k) $46.3 =$ _____ $\div 100 = 46\ 300$
 d) $190\ 412 \div 100 =$ _____ l) _____ $\times 1000 = 92.89$
 e) $22\ 547 \times 1000 =$ _____ m) $83.12 =$ _____ $\div 100 = 83\ 120$
 f) $1008 \div 100 =$ _____ n) _____ $\div 1000 = 1000$
 g) $321.2 \div 10 =$ _____ o) _____ $\div 100 = 8745$
 h) $2940.6 \times 1000 =$ _____

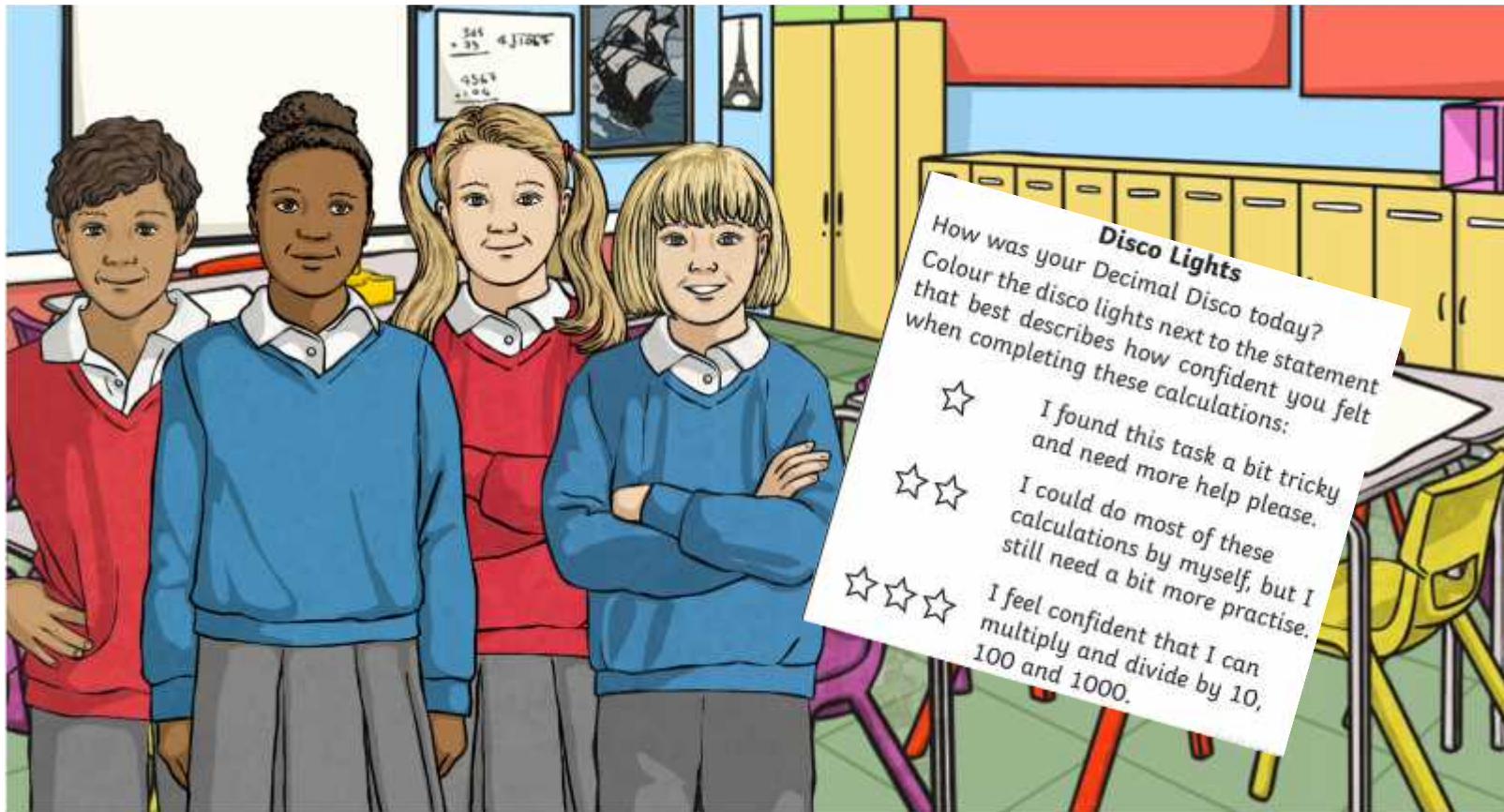
2) "Roll and roll" five dice to make a five-digit number. Multiply and divide this by 10, 100 and 1000. Repeat this five times.

Number	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$	$\div 1000$

Disco Lights



Use your **Disco Lights Card** to show how confident you feel about multiplying and dividing by 10, 100 and 1000 across a decimal point.



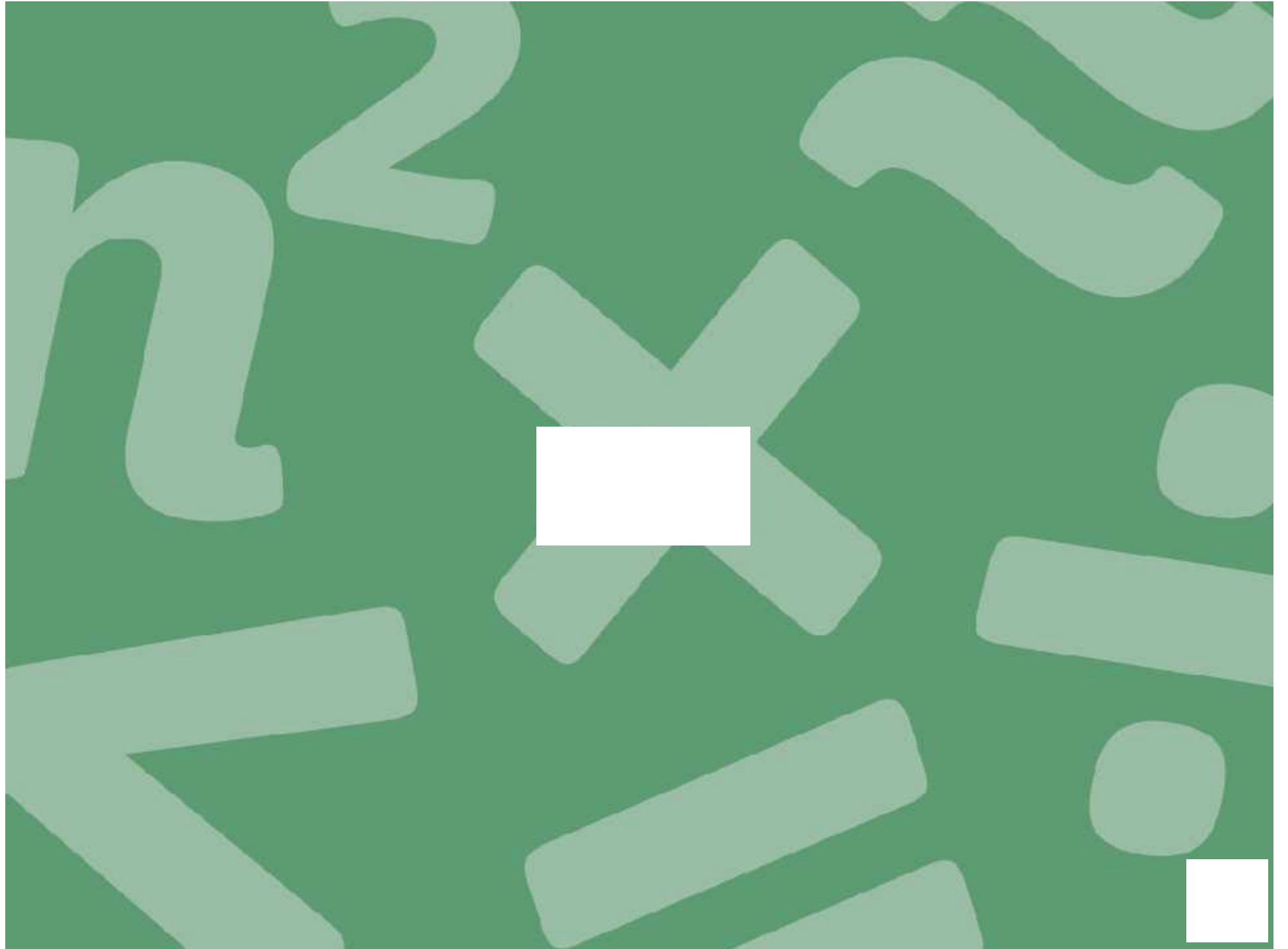
Aim



- To multiply and divide whole numbers and decimals by 10, 100 and 1000.

Success Criteria

- I can multiply and divide numbers by 10 by moving each digit one place to the left or right.
- I can multiply and divide numbers by 100 by moving each digit two places to the left or right.
- I can multiply and divide numbers by 1000 by moving each digit three places to the left or right.



Aim: To multiply and divide whole numbers and decimals by 10, 100 and 1000.				Date:					
				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can multiply and divide numbers by 10 by moving each digit one place to the left or right.				Notes/Evidence					
I can multiply and divide numbers by 100 by moving each digit two places to the left or right.									
I can multiply and divide numbers by 1000 by moving each digit three places to the left or right.									
Next Steps									
) _____									
) _____									

T	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

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I can multiply and divide numbers by 1000 by moving each digit three places to the left or right.									
Next Steps									
) _____									
) _____									

T	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice



Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.



Use your **Place Value Grid** to help you to work out the answers to these calculations:

1) Multiplying and Dividing by 10.

a) $65.6 \times 10 =$ _____

d) $5342 \div 10 =$ _____

b) $72.40 \div 10 =$ _____

e) $12\,547 \div 10 =$ _____

c) $639.67 \times 10 =$ _____

2) Multiplying and Dividing by 100.

a) $65.67 \times 100 =$ _____

d) $118 \div 100 =$ _____

b) $46 \div 100 =$ _____

e) $14\,523 \div 100 =$ _____

c) $209.46 \times 100 =$ _____

3) Multiplying and Dividing by 1000.

a) $4.1 \times 1000 =$ _____

d) $10\,000 \div 1000 =$ _____

b) $230 \div 1000 =$ _____

e) $14\,000 \div 1000 =$ _____

c) $199.02 \times 1000 =$ _____

4) 'Rock and roll' three dice to make a three-digit number. Multiply and divide your number by 10, 100 and 1000. Repeat this five times.

Number	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$	$\div 1000$



Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.



Work out the answers to these calculations:

1) Multiplying and Dividing by 10.

a) $65.9 \times 10 =$ _____

d) $180\ 342 \div 10 =$ _____

b) $1232.9 \div 10 =$ _____

e) $132\ 507 \div 10 =$ _____

c) $6399.67 \times 10 =$ _____

2) Multiplying and Dividing by 100.

a) $6738 \times 100 =$ _____

d) $9534 \div 100 =$ _____

b) $461.1 \div 100 =$ _____

e) $623\ 400 \div 100 =$ _____

c) $2249.46 \times 100 =$ _____

3) Multiplying and Dividing by 1000.

a) $4.13 \times 1000 =$ _____

d) $100\ 000 \div 1000 =$ _____

b) $3480 \div 1000 =$ _____

e) $2\ 345\ 000 \div 1000 =$ _____

c) $2199.52 \times 1000 =$ _____

4) 'Rock and roll' four dice to make a four-digit number. Multiply and divide this by 10, 100 and 1000. Repeat this five times.

Number	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$	$\div 1000$



Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.



1) Work out the answers to these calculations:

a) $25.8 \times 100 =$ _____

i) $2544 \div 100 =$ _____

b) $9832.9 \div 10 =$ _____

j) $927\,400 \div 1000 =$ _____

c) $5309.07 \times 1000 =$ _____

k) $46.3 \times$ _____ $= 46\,300$

d) $190\,412 \div 100 =$ _____

l) _____ $\div 1000 = 92.89$

e) $22\,547 \div 1000 =$ _____

m) $63.12 \times$ _____ $= 63\,120$

f) $1008 \times 100 =$ _____

n) _____ $\div 1000 = 1000$

g) $321.2 \div 10 =$ _____

o) _____ $\div 100 = 8745$

h) $2940.4 \times 1000 =$ _____

2) 'Rock and roll' five dice to make a five-digit number. Multiply and divide this by 10, 100 and 1000. Repeat this five times.

Number	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$	$\div 1000$



Decimal Disco Answers

1.	Multiplying and Dividing by 10.		
a	$65.6 \times 10 = \mathbf{656}$	d	$5342 \div 10 = \mathbf{534.2}$
b	$72.40 \div 10 = \mathbf{7.24}$	e	$12\,547 \div 10 = \mathbf{1254.7}$
c	$639.67 \times 10 = \mathbf{6396.7}$		
2.	Multiplying and Dividing by 100.		
a	$65.67 \times 100 = \mathbf{6567}$	d	$118 \div 100 = \mathbf{1.18}$
b	$46 \div 100 = \mathbf{0.46}$	e	$14\,523 \div 100 = \mathbf{145.23}$
c	$209.46 \times 100 = \mathbf{20\,946}$		
3.	Multiplying and Dividing by 1000.		
a	$4.1 \times 1000 = \mathbf{4100}$	d	$10\,000 \div 1000 = \mathbf{10}$
b	$230 \div 1000 = \mathbf{0.23}$	e	$14\,000 \div 1000 = \mathbf{14}$
c	$199.02 \times 1000 = \mathbf{199\,020}$		
4.	'Rock and roll' three dice to make a three-digit number. Multiply and divide your number by 10, 100 and 1000. Repeat this five times.		
	Multiple answers possible.		



Decimal Disco Answers

1.	Multiplying and Dividing by 10.		
a	$65.9 \times 10 = \mathbf{659}$	d	$180\,342 \div 10 = \mathbf{18\,034.2}$
b	$1232.9 \div 10 = \mathbf{123.29}$	e	$132\,507 \div 10 = \mathbf{13\,250.7}$
c	$6399.67 \times 10 = \mathbf{63\,996.7}$		
2.	Multiplying and Dividing by 100.		
a	$6738 \times 100 = \mathbf{673\,800}$	d	$9534 \div 100 = \mathbf{95.34}$
b	$461.1 \div 100 = \mathbf{4.611}$	e	$623\,400 \div 100 = \mathbf{6234}$
c	$2249.46 \times 100 = \mathbf{224\,946}$		
3.	Multiplying and Dividing by 1000.		
a	$4.13 \times 1000 = \mathbf{4130}$	d	$100\,000 \div 1000 = \mathbf{100}$
b	$3480 \div 1000 = \mathbf{3.48}$	e	$2\,345\,000 \div 1000 = \mathbf{2345}$
c	$2199.52 \times 1000 = \mathbf{2\,199\,520}$		
4.	'Rock and roll' four dice to make a four-digit number. Multiply and divide this by 10, 100 and 1000. Repeat this five times.		
	Multiple answers possible.		



Decimal Disco Answers

1.	Work out the answers to these calculations:		
a	$25.8 \times 100 = \mathbf{2580}$	i	$2544 \div 100 = \mathbf{25.44}$
b	$9832.9 \div 10 = \mathbf{983.29}$	j	$927\,400 \div 1000 = \mathbf{927.4}$
c	$5309.07 \times 1000 = \mathbf{5\,309\,070}$	k	$46.3 \times \mathbf{1000} = 46\,300$
d	$190\,412 \div 100 = \mathbf{1904.12}$	l	$\mathbf{92\,890} \div 1000 = 92.89$
e	$22\,547 \div 1000 = \mathbf{22.547}$	m	$63.12 \times \mathbf{1000} = 63\,120$
f	$1008 \times 100 = \mathbf{100\,800}$	n	$\mathbf{1\,000\,000} \div 1000 = 1000$
g	$321.2 \div 10 = \mathbf{32.12}$	o	$\mathbf{8\,74\,500} \div 100 = 8745$
h	$2940.4 \times 1000 = \mathbf{2\,940\,400}$		
2.	'Rock and roll' five dice to make a five-digit number. Multiply and divide this by 10, 100 and 1000. Repeat this five times.		
	<i>Multiple answers possible.</i>		

Disco Lights

How was your Decimal Disco today?

Colour the disco lights next to the statement that best describes how confident you felt when completing these calculations:



I found this task a bit tricky and need more help please.



I could do most of these calculations by myself, but I still need a bit more practise.



I feel confident that I can multiply and divide by 10, 100 and 1000.

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Place Value Grid

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	●	Tenths	Hundredths	Thousandths
HTh	TTh	Th	H	T	O	●	t	h	th
						●			

Place Value Grid

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	●	Tenths	Hundredths	Thousandths
HTh	TTh	Th	H	T	O	●	t	h	th
						●			

Place Value Grid

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	●	Tenths	Hundredths	Thousandths
HTh	TTh	Th	H	T	O	●	t	h	th
						●			

Number and Algebra | Decimal Disco

To multiply and divide whole numbers and decimals by 10, 100 and 1000.		
I can multiply and divide numbers by 10 by moving each digit one place to the left or right.		
I can multiply and divide numbers by 100 by moving each digit two places to the left or right.		
I can multiply and divide numbers by 1000 by moving each digit three places to the left or right.		

Number and Algebra | Decimal Disco

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Number and Algebra | Decimal Disco

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