Multiply by 10, 100 and 1,000

1 Complete the calculations and sentences.

Use place value counters to help you.

Th	H	T	O	Tth	Hth

a) $2.3 \times 10 =$ | 23 |

When the number is multiplied by 10 the counters move | 1 | place to the left.

b) $2.3 \times 100 =$ | 230 |

When the number is multiplied by 100 the counters move | 2 | places to the left.

c) $2.3 \times 1,000 =$ | 2,300 |

When the number is multiplied by 1,000 the counters move | 3 | places to the left.

2 Complete the diagram.

| 3.06 | → $\times 10$ → | 30·6 | → $\times 10$ → | 306 |
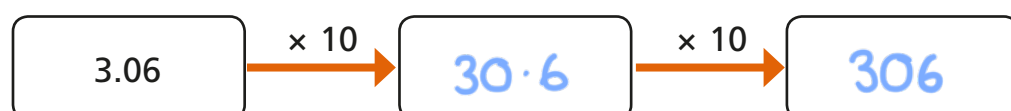
3 **a)** Draw counters on the place value charts to represent each calculation.

4.4×1

Th	H	T	O	Tth	Hth

4.4×10

Th	H	T	O	Tth	Hth

4.4×100

Th	H	T	O	Tth	Hth

$4.4 \times 1,000$

Th	H	T	O	Tth	Hth

b) Complete the calculations.

$4.4 \times 1 =$ | 4·4 |

$4.4 \times 10 =$ | 44 |

$4.4 \times 100 =$ | 440 |

$4.4 \times 1,000 =$ | 4,400 |

What do you notice?

4 Complete the calculations.

a) $13.44 \times 10 = \boxed{134.4}$

d) $4.4 \times \boxed{1,000} = 4,400$

b) $41.4 \times 100 = \boxed{4,140}$

e) $\boxed{103} = 1.03 \times 100$

c) $0.415 \times 1,000 = \boxed{415}$

f) $30.44 = \boxed{3.044} \times 10$

5 Complete the diagrams.
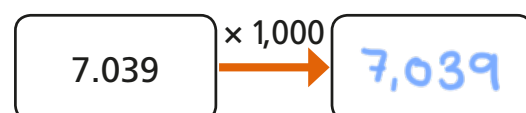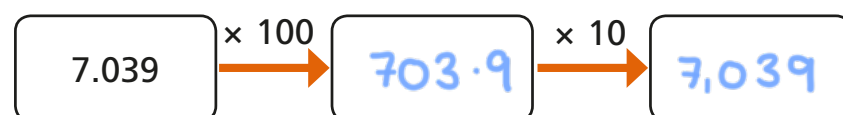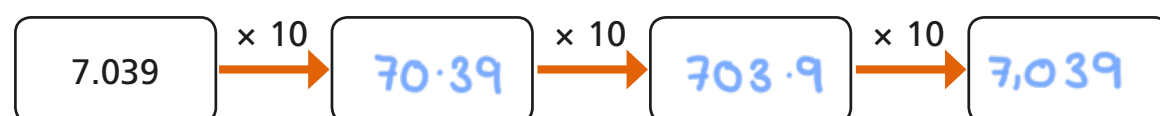
$\boxed{7.039} \xrightarrow{\times 10} \boxed{70.39} \xrightarrow{\times 10} \boxed{703.9} \xrightarrow{\times 10} \boxed{7,039}$

$\boxed{7.039} \xrightarrow{\times 100} \boxed{703.9} \xrightarrow{\times 10} \boxed{7,039}$

$\boxed{7.039} \xrightarrow{\times 1,000} \boxed{7,039}$

What do you notice? Why does this happen?

They all give the same final answer because
$10 \times 10 \times 10 = 100 \times 10 = 1,000$

6 Write >, < or = to compare the number sentences.

$1.4 \times 10 \times 10 \times 10 \;\boxed{=}\; 1.4 \times 1,000$

$1.4 \times 10 \times 100 \;\boxed{=}\; 1.4 \times 1,000$

$1.4 \times 10 \times 10 \;\boxed{<}\; 1.4 \times 1,000$

$1.4 \times 10 \times 2 \;\boxed{<}\; 1.4 \times 100$

7 Kim is calculating 14.3×200

She writes this as her answer.

$$14.3 \times 200 = 28.600$$

Explain Kim's mistake.

She has multiplied by 2 and added two zeros. She hasn't considered the place value of each digit. $14.3 \times 200 = 2860$

8 Use the cards to complete the calculation.

You can use each card more than once.

$\boxed{\times 1} \quad \boxed{\times 10} \quad \boxed{\times 100} \quad \boxed{\times 1,000}$

E.g. $0.002 \boxed{\times 10} \boxed{\times 100} \boxed{\times 1,000} = 2,000$

How many ways is it possible to complete this calculation?

Talk about it with a partner.

Divide by 10, 100 and 1,000

1 Complete the calculations and sentences.

Use place value counters to help you.

Th	H	T	O	Tth	Hth
	●	●● ●●			

a) $140 \div 10 =$ | 14 |

When the number is divided by 10 the counters move | 1 | place to the right.

b) $140 \div 100 =$ | 1·4 |

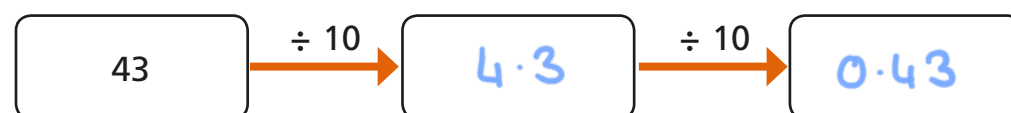When the number is divided by 100 the counters move | 2 | places to the right.

c) $140 \div 1,000 =$ | 0·14 |

When the number is divided by 1,000 the counters move | 3 | places to the right.

2 Complete the diagram.

| 43 | $\xrightarrow{\div 10}$ | 4·3 | $\xrightarrow{\div 10}$ | 0·43 |

3 **a)** Draw counters to represent the calculations.

$123 \div 1$

H	T	O	Tth	Hth	Thth
O	O O	O O O			

$123 \div 10$

H	T	O	Tth	Hth	Thth
O	O O	O O O			

$123 \div 100$

H	T	O	Tth	Hth	Thth
O	O O	O O O			

$123 \div 1,000$

H	T	O	Tth	Hth	Thth
O	O O	O O O			

b) Complete the calculations.

$123 \div 1 =$ | 123 |

$123 \div 10 =$ | 12.3 |

$123 \div 100 =$ | 1.23 |

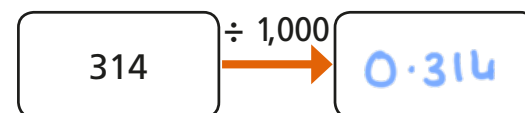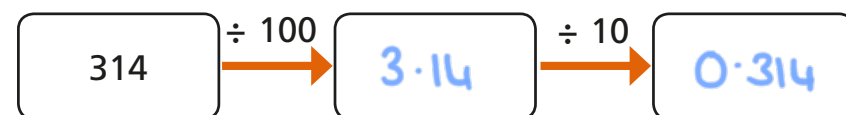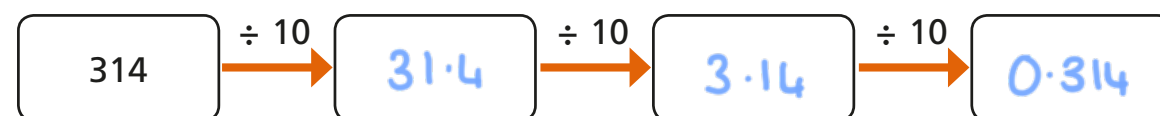$123 \div 1,000 =$ | 0.123 |

What do you notice?

4 Complete the calculations.

a) $16 \div 10 = \boxed{1.6}$

d) $332 \div \boxed{1,000} = 0.332$

b) $43.4 \div 100 = \boxed{0.434}$

e) $2.4 \div 200 = \boxed{0.012}$

c) $614 \div 1,000 = \boxed{0.614}$

f) $5.09 = \boxed{101.8} \div 20$

5 Complete the diagrams.

$$\boxed{314} \xrightarrow{\div 10} \boxed{31.4} \xrightarrow{\div 10} \boxed{3.14} \xrightarrow{\div 10} \boxed{0.314}$$

$$\boxed{314} \xrightarrow{\div 100} \boxed{3.14} \xrightarrow{\div 10} \boxed{0.314}$$

$$\boxed{314} \xrightarrow{\div 1,000} \boxed{0.314}$$

What do you notice? Why does this happen?

They all give the same final answer because
$10 \times 10 \times 10 = 100 \times 10 = 1,000$
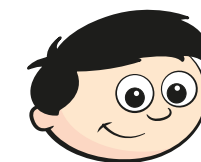
6 Write >, < or = to compare the number sentences.

$5,400 \div 10 \div 10 \div 10 \quad \boxed{=} \quad 5,400 \div 1,000$

$60 \div 100 \div 10 \quad \boxed{<} \quad 600 \div 100$

$5.7 \div 10 \quad \boxed{=} \quad 57 \div 100$

$5,601 \div 1,000 \quad \boxed{>} \quad 5.601 \div 10$

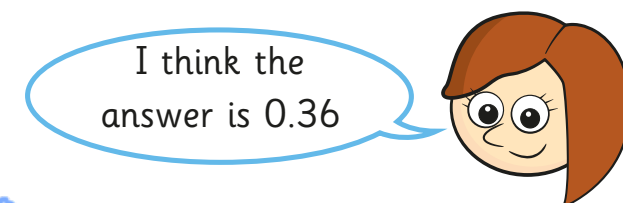**7** Dexter is solving the calculation $5,400 \div 100$

> I think the answer is 54.00

Is Dexter correct? __Yes__

Explain your reasoning.

54.00 is the same as 54

8 Rosie is solving the calculation $3,600 \div 200$

> I think the answer is 0.36

Is Rosie correct? __No__

Explain your reasoning.

She has divide by 100 twice (10,000) she should
have divided by 100 then 2 to give an answer of 18