Year 5 Maths: Week 1

Each session contains a main activity and problem solving or reasoning challenges.

Remember to check your working out carefully!

Remember to keep working on your Times Tables Rock Stars too.

Monday

To read, write and compare decimals to three decimal places.

Examples of 1 place decimals

1.3   4.5   7.8   45.6   123.5

Examples of 2 place decimals

1.34   5.46   76.87   3.56   134.78

Examples of 3 place decimals.

1.234   5.467   56.876   345.986

Can you explain the rule?

10s	1s	$\frac{1}{10}$s 0·1s	$\frac{1}{100}$s 0·01s	$\frac{1}{1000}$s 0·001s

How would you write these decimal numbers on the place value chart above?

12.123

2.34

0.456

Answers

10s	1s		$\frac{1}{10s}$ 0·1s	$\frac{1}{100s}$ 0·01s	$\frac{1}{1000s}$ 0·001s
1	2	.	1	2	3
	2	.	3	4	
	0	.	4	5	6
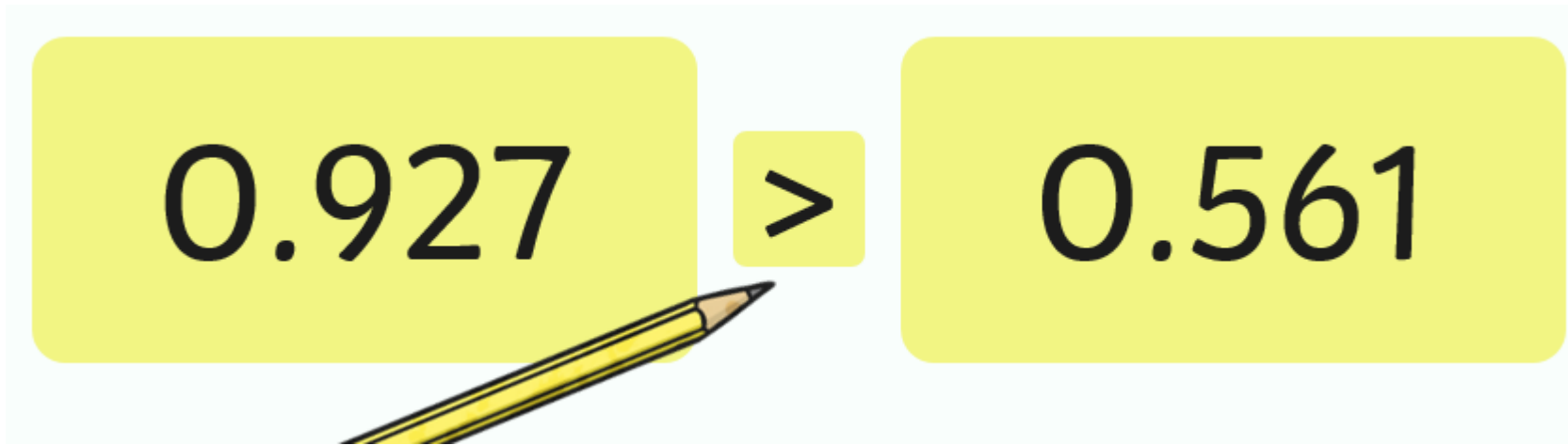
This shows that 0.927 is greater than 0.561

< means less than
> Means greater than

Main activity

| 0.526 | 0.625 | 0.562 | 0.256 |

1. Order these numbers from smallest to greatest.
2. Write 6 statements using the symbols < > and the numbers above to compare the decimals.
3. Write the following numbers in figures (number digits)
a) One one, nine tenths, three hundredths, two thousandths.
b) Six ones, four tenths, one hundredth, seven thousandths.
c) Zero ones, eight tenths, five hundredths, one thousandth.
d) Two ones, three tenths, eight thousandths.
4. How many 3 place decimals come between 0.23 and 0.24? Write them all down.

Answers

0.526　0.625　0.562　0.256

1. 0.256, 0.526, 0.562, 0.625

3.

a) 1.932

b) 6.416

c) 0.851

d) 2.308

4. There are 9.

0.231, 0.232, 0.233, 0.234, 0.235, 0.236, 0.237, 0.238, 0.239

Challenge activity

Ian says 2.345 is greater than 2.4.
Ian is incorrect. Explain why.

_____

_____

Using each digit card only once, find 5 possible solutions that complete this statement.

| 1 | 2 | 2 | 3 | 3 |

2 . ☐ ☐ 5 < 2 . ☐ ☐ ☐

_____

_____

_____

These decimal numbers are in ascending order. Put digits in the empty boxes to make the order correct.

a)   0.___0___, 0.0___ ___, 0.03___, 0.1___ ___, 0.___6___

b)   Now complete the decimals, using the digits 0-8 once only so that the decimal numbers are in ascending order.

0.___0___, 0.0___ ___, 0.03___, 0.1___ ___, 0.___6___

Looking for learning!

1) Name something you learnt or improved today.

2) Have you improved on something today?

3) Did you enjoy what you learnt, why?

4) How could you improve or develop what you learnt today?

5) How confident are you at comparing decimals?

6) WHY do you think you were learning to compare decimals?

Tuesday

To multiply and divide decimal numbers by 10, 100 and 1000.

What number is shown on the place value chart?

HTh	TTh	Th	H	T	O
			•• ••	••• •••	•••• ••••

468

Complete the sentences:

If I multiply this number by 10, it becomes _____ .

The digits move _____ place to the _____ .

I need to put a _____ in the empty column to act as a _____.

If I multiply this number by 100, it becomes _____.

The digits move _____ places to the _____.

If I multiply this number by 1000, it becomes _____.

The digits move _____ places to the _____.

What number is shown on the place value chart?

HTh	TTh	Th	H	T	O
			•• ••	••• •••	•••• ••••

468

Complete the sentences:

If I multiply this number by 10, it becomes __4680__ .

The digits move __one__ place to the __left__ .

I need to put a __zero__ in the empty column to act as a __place holder__.

If I multiply this number by 100, it becomes __46 800__.

The digits move __two__ places to the __left__ .

If I multiply this number by 1000, it becomes __468 000__ .

The digits move __three__ places to the __left__ .

Match each planet to its moon to complete the calculation.

63 x 100

___ x 10

782 x ___

3078 x 10

57 x ___

705 x 1000

78 200

6300

30 780

705 000

8020

57 000

Match each planet to its moon to complete the calculation.

63 x 100   **802** x 10   782 x **100**   3078 x 10   57 x **1000**   705 x 1000

78 200   6300   30 780   705 000   8020   57 000

Main activity

Multiplying and dividing by 10, 100 and 1000

1. $0 \cdot 216 \times 1000 = \square$
2. $2320 \div 100 = \square$
3. $4 \cdot 302 \times 1000 = \square$
4. $0 \cdot 175 \times 100 = \square$
5. $325 \cdot 5 \div 100 = \square$
6. $3 \cdot 26 \div 10 = \square$
7. $125 \div 1000 = \square$
8. $0 \cdot 812 \times 10 = \square$
9. $62 \cdot 83 \div 10 = \square$
10. $0 \cdot 321 \times 1000 = \square$
11. $3872 \div 100 = \square$
12. $25 \cdot 842 \times 10 = \square$
13. $4562 \div 1000 = \square$
14. $0 \cdot 067 \times 100 = \square$
15. $3 \cdot 333 \times 1000 = \square$
16. $1 \cdot 9 \div 100 = \square$

17. The answer to a calculation is $0 \cdot 2$. The calculation involves multiplying or dividing by 10, 100 or 1000. What might the calculation be? Write several possibilities.

Answers

Multiplying and dividing by 10,100 and 1000

1. $0·216 × 1000 = 216$
2. $2320 ÷ 100 = 23·2$
3. $4·302 × 1000 = 4302$
4. $0·175 × 100 = 17·5$
5. $325·5 ÷ 100 = 3·255$
6. $3·26 ÷ 10 = 0·326$
7. $125 ÷ 1000 = 0·125$
8. $0·812 × 10 = 8·12$
9. $62·83 ÷ 10 = 6·283$
10. $0·321 × 1000 = 321$
11. $3872 ÷ 100 = 38·72$
12. $25·842 × 10 = 258·42$
13. $4562 ÷ 1000 = 4·562$
14. $0·067 × 100 = 6·7$
15. $3·333 × 1000 = 3333$
16. $1·9 ÷ 100 = 0·019$

17. The answer to a calculation is 0·2. Answers will vary, e.g. $0·02 × 10$, $0·002 × 100$, $2 ÷ 10$, $20 ÷ 100$...

Challenge activity

Maths Mastery Challenge Cards

Multiply by 10

1. Correct the calculations that are incorrect:

34 × 10 = 340

0.6 × 10 = 60

5.7 × 10 = 57

0.003 x × 10 = 0.3

8900 × 10 = 890

902 × 10 = 9200

8.03 × 10 = 80.3

Maths Mastery Challenge Cards

Divide by 100

5. Correct the calculations that are incorrect:

6 ÷ 100 = 0.06

34 ÷ 100 = 0.034

5.7 ÷ 100 = 0.057

0.3 ÷ 100 = 0.03

8900 ÷ 100 = 89

902 ÷ 100 = 0.92

8.03 ÷ 100 = 0.083

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Looking for learning!

1) Name something you learnt or improved today.

2) Have you improved on something today?

3) Did you enjoy what you learnt, why?

4) How could you improve or develop what you learnt today?

5) How confident are you at multiplying and dividing by 10, 100 and 1000?

Wednesday

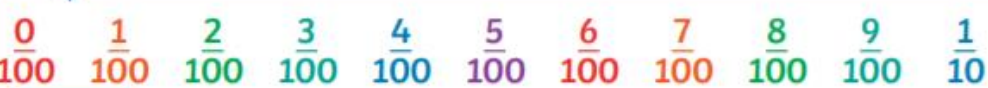To place decimals on a number line and round decimal numbers.
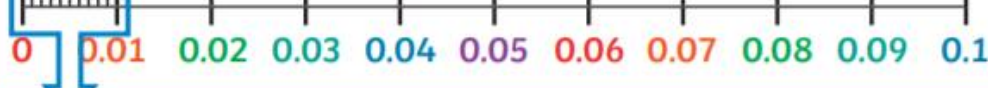
Decimals

Key Vocabulary
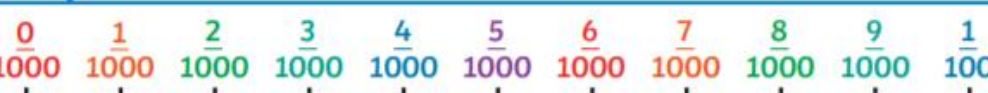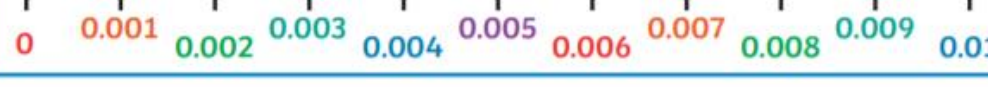
- tenths
- hundredths
- decimal tenths
- decimal hundredths
- decimal equivalents
- part-whole model
- rounding
- decimal point
- place value

Tenths, Hundredths and Thousandths

Number line (tenths):
$\frac{0}{10}$ $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

0   0.1   0.2   0.3   0.4   0.5   0.6   0.7   0.8   0.9   1

Number line (hundredths):
$\frac{0}{100}$ $\frac{1}{100}$ $\frac{2}{100}$ $\frac{3}{100}$ $\frac{4}{100}$ $\frac{5}{100}$ $\frac{6}{100}$ $\frac{7}{100}$ $\frac{8}{100}$ $\frac{9}{100}$ $\frac{1}{10}$

0   0.01   0.02   0.03   0.04   0.05   0.06   0.07   0.08   0.09   0.1

Number line (thousandths):
$\frac{0}{1000}$ $\frac{1}{1000}$ $\frac{2}{1000}$ $\frac{3}{1000}$ $\frac{4}{1000}$ $\frac{5}{1000}$ $\frac{6}{1000}$ $\frac{7}{1000}$ $\frac{8}{1000}$ $\frac{9}{1000}$ $\frac{1}{100}$

0   0.001   0.002   0.003   0.004   0.005   0.006   0.007   0.008   0.009   0.01

Place value blocks: $\frac{1}{1}$ ÷10 → $\frac{1}{10}$ ÷10 → $\frac{1}{100}$ ÷10 → $\frac{1}{1000}$ (×10 in reverse)

Order and Compare Numbers with Three Decimal Places

Ones	Tenths	Hundredths	Thousandths
	$\frac{1}{10}$ $\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{1000}$
0 .	2	1	3

Ones	Tenths	Hundredths	Thousandths
1		$\frac{1}{100}$ $\frac{1}{100}$	$\frac{1}{1000}$ $\frac{1}{1000}$
1 .	0	2	2
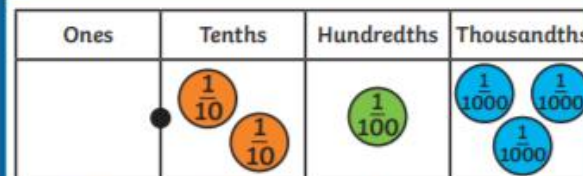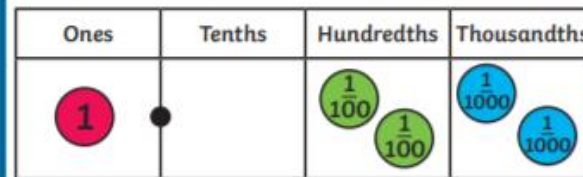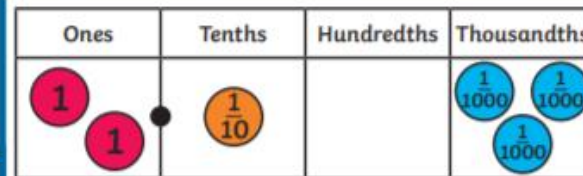
Ones	Tenths	Hundredths	Thousandths
1 1	$\frac{1}{10}$		$\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{1000}$
2 .	1	0	3

Decimal Numbers as Fractions

$$0.71 = \frac{71}{100} = \frac{7}{10} + \frac{1}{100}$$

$$0.37 = \frac{37}{100} = \frac{3}{10} + \frac{7}{100}$$

Rounding Decimals

1 ← 1.1 1.2 1.3 1.4 | 1.5 1.6 1.7 1.8 1.9 → 2

If the tenths digit is 1, 2, 3 or 4, we round down to the nearest whole number.

If the tenths digit is 5, 6, 7, 8 or 9, we round up to the nearest whole number.

1.1 ← 1.11 1.12 1.13 1.14 | 1.15 1.16 1.17 1.18 1.19 → 1.2

If the hundredths digit is 1, 2, 3 or 4, we round down to the nearest tenth.

If the hundredths digit is 5, 6, 7, 8 or 9, we round up to the nearest tenth.

Main activity

Arrange all the digits to make a 4-digit number with 2-decimal places that meets the given criteria.

1. Between 23 and 25:
   6, 9, 4, 2

		·		
T	O	·	t	h

2. Between 29 and 31:
   1, 0, 3, 5

		·		
T	O	·	t	h

3. Between 52 and 54:
   3, 7, 5, 8

		·		
T	O	·	t	h

4. Between 15 and 17:
   2, 6, 1, 3

		·		
T	O	·	t	h

5. Between 97 and 99:
   8, 0, 4, 9

		·		
T	O	·	t	h

6. Between 61 and 63:
   5, 3, 6, 2

		·		
T	O	·	t	h

7. Between 43 and 45:
   7, 4, 5, 4

		·		
T	O	·	t	h

8. Between 71 and 73:
   2, 7, 7, 4

		·		
T	O	·	t	h

9. Between 81 and 83:
   9, 8, 2, 8

		·		
T	O	·	t	h

10. How many 4-digit numbers with 2-decimal places can you make using the following digits: **7, 5, 0, 3**

11. Arrange the following digits to make the largest 4-digit number with 2-decimal places possible: **3, 2, 8, 1**

		·		
T	O	·	t	h

12. Use the same digits to make the smallest 4-digit number with 2-decimal places.

		·		
T	O	·	t	h

Answers

1. 24.69, 24.96
2. 30.15, 30.51
3. 53.78, 53.87
4. 16.23, 16.32
5. 98.04, 98.40
6. 62.35, 62.53
7. 44.57, 44.75
8. 72.74, 72.47
9. 82.89, 82.98
10. 75.30, 75.03, 57.30, 57.03, 73.05, 73.50, 53.07, 53.70, 70.05, 70.50, 50.37, 50.73, 30.75, 30.57, 35.07, 35.70, 37.05, 37.50
11. 83.21
12. 12.38

Challenge activity

Round the following decimal numbers to the nearest whole number.

3.54		3.57		6.17	
7.42		8.69		7.48	
8.44		4.09		1.23	
4.34		8.95		7.47	
6.71		4.68		0.01	
6.75		6.42		0.92	
8.54		5.54		7.71	
1.39		3.33		6.3	

Answers

3.54	**4**	3.57	**4**	6.17	**6**
7.42	**7**	8.69	**9**	7.48	**7**
8.44	**8**	4.09	**4**	1.23	**1**
4.34	**4**	8.95	**9**	7.47	**7**
6.71	**7**	4.68	**5**	0.01	**0**
6.75	**7**	6.42	**6**	0.92	**1**
8.54	**9**	5.54	**6**	7.71	**8**
1.39	**1**	3.33	**3**	6.3	**6**

Looking for learning!

1) Name something you learnt or improved today.

2) Have you improved on something today?

3) Did you enjoy what you learnt, why?

4) How could you improve or develop what you learnt today?

5) How confident are you at placing and rounding decimals?

Thursday

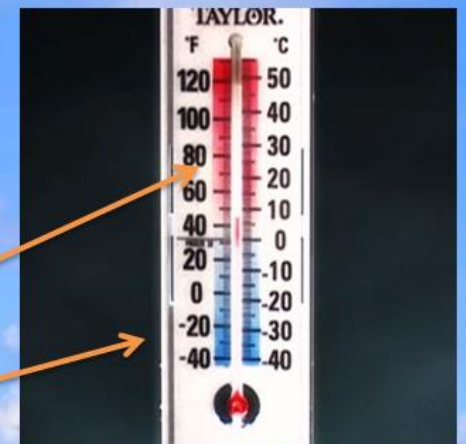To use negative numbers in the context of temperature.

MY NUMBER LINE -10 TO 10

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
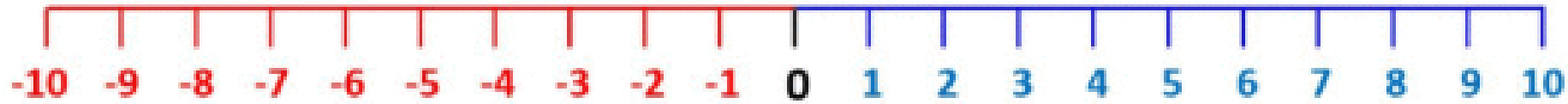
What is a negative number?

A negative number is a number that goes <u>below</u> 0.

Such as... -2   -5   -19

Temperature

How do you think thermometers use negative numbers?
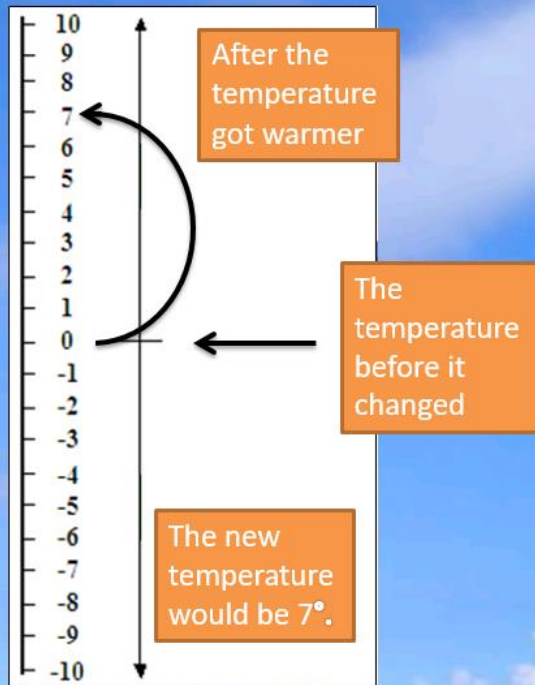
Think about the colours!
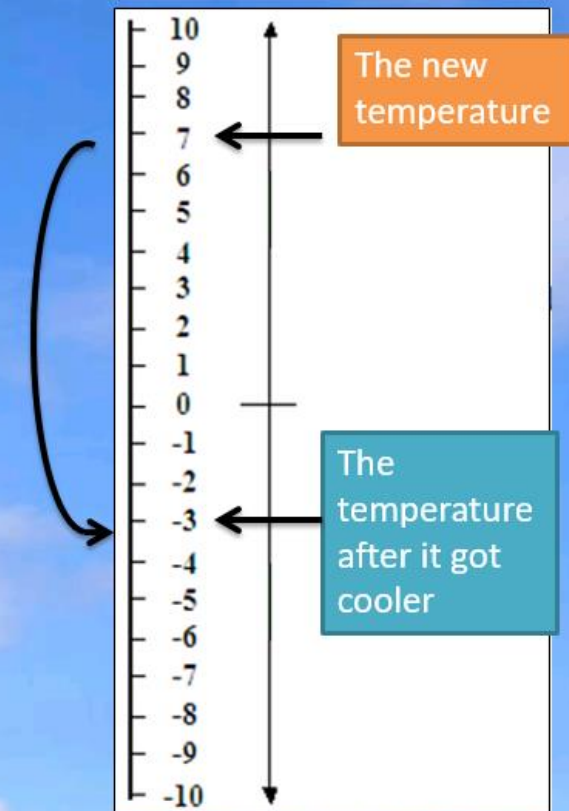
Main activity

1) Mary is watching the weather forecast. In Iceland, it is -7°C and in Alaska, it is -17°C. Mary says it is warmer in Alaska than in Iceland because 17 is greater than 7. Why is Mary incorrect?

_____

_____

_____

2) This alien recorded the temperature on their home planet at the same time every day for a week.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Temperature	-13°C	-4°C	2°C	-10°C	-5°C	1°C	-19°C

Are these statements true or false? Prove it!

a) Saturday was 5°C warmer than Friday.

_____

_____

b) Sunday was the coldest day.

_____

_____

c) Tuesday was colder than Friday.

_____

_____

Answers

1) Mary is incorrect because, with negative numbers, as you move in steps further away from zero, the digits increase but, in fact, the number is getting smaller. −17 is further away from zero than −7 and is therefore colder in terms of temperature.

2) a) False. The difference between −5 and 1 is 6. It was 6°C warmer.

   b) True. −19 is the lowest number and therefore represents the coldest temperature.

   c) False. −4 is greater than −5 therefore Tuesday was 1°C warmer.
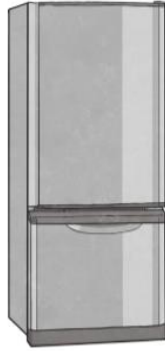
Challenge activity

1   Temperature Word Problems

The temperature inside is 15°C and outside is -2°C. What is the difference in temperature?

2   Temperature Word Problems

The temperature in the fridge is 4°C. The temperature in the freezer is 21°C lower. What is the temperature in the freezer?

3   Temperature Word Problems

The temperature at midday is 13°C. The temperature at midnight is -6°C. What is the difference in temperature?
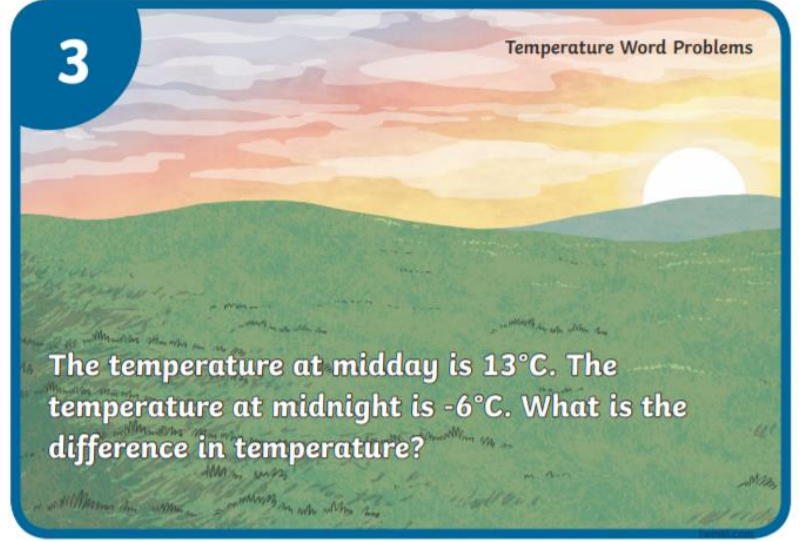
4   Temperature Word Problems

Ice cream is served at -11°C. The temperature in the room is 21°C. How much warmer is the room than the ice cream when served?

5   Temperature Word Problems

When salt is added to ice, the temperature drops. Before the salt was added, the temperature was -2°C. After the salt was added the temperature was -13°C. By how much did the temperature drop?

Looking for learning!

1) Name something you learnt or improved today.

2) Have you improved on something today?

3) Did you enjoy what you learnt, why?

4) How could you improve or develop what you learnt today?

5) How confident are you at using negative numbers?

Other learning ideas for this week:

- Find real life examples of how decimals are used e.g. money, weight, lengths etc.

- Make a poster to explain how to round decimals to the nearest whole number.

- Make your own tutorial video to explain how negative numbers are used in temperature.

- If you have a thermometer at home, take the temperature in a place in your home every day. Can you make chart to show how the temperature changes over the week? Do you think any of the temperatures will be negative at this point in the year? Why do you think this?

Friday

To multiply and divide numbers with up to two decimal places by 10 and 100.

What a I? True or false

Tth Ten Thousands 10 000	Th Thousands 1000	H Hundreds 100	T Tens 10	O Ones 1	t Tenths 0.1	h Hundredths 0.01	th Thousandths 0.001
			4	1·8	5		
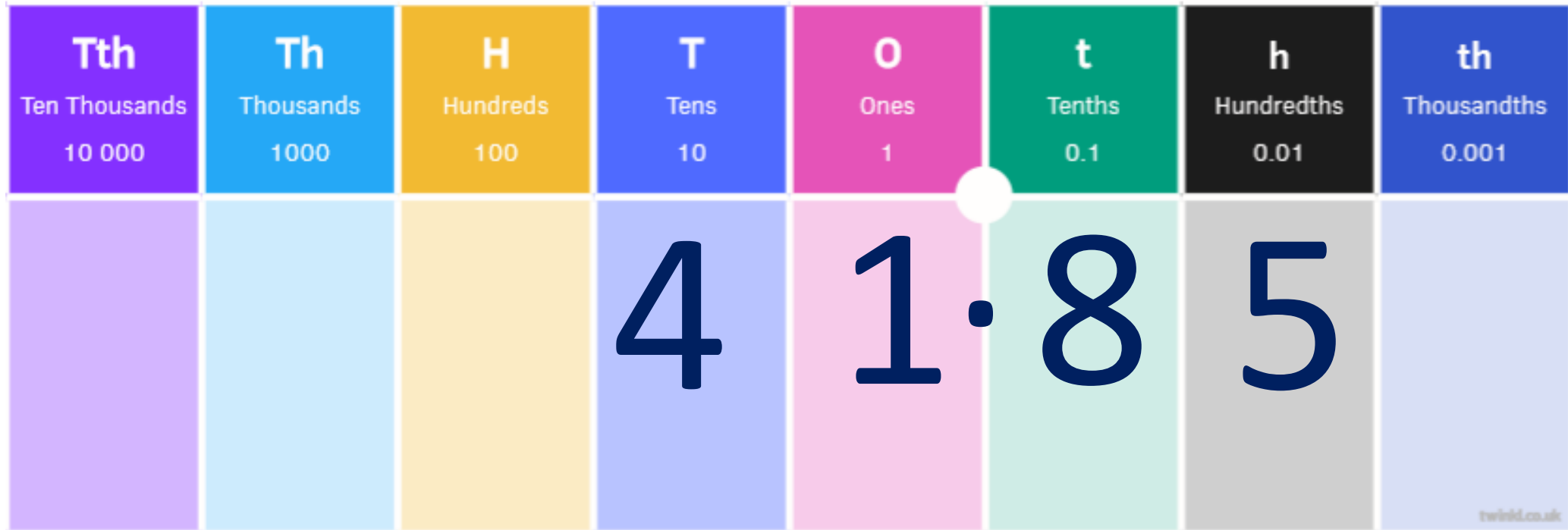
"the tenths digit is 4 more than the tens digit"

What a I? True or false

Tth	Th	H	T	O	t	h	th
Ten Thousands 10 000	Thousands 1000	Hundreds 100	Tens 10	Ones 1	Tenths 0.1	Hundredths 0.01	Thousandths 0.001
			9	2·0		6	

"the tenths digit is 3 more than the ones digit"

What a I? True or false

Tth Ten Thousands 10 000	Th Thousands 1000	H Hundreds 100	T Tens 10	O Ones 1	t Tenths 0.1	h Hundredths 0.01	th Thousandths 0.001
			9	2·	3	6	

"the tens digit is 3x more than the tenths digit"

100s	10s	1s	.	0.1s	0.01s
	3	7	.	0	5

Multiplying by 10 (x 10)

The numbers move one to the left ←

100s	10s	1s	0.1s	0.01s
	5	0 .	7	

Multiplying by 10 (x 10)

The numbers move one to the left ←

100s	10s	1s	0.1s	0.01s
		0	7	2

Multiplying by 100 (x 100)

The numbers move two to the left ←

100s	10s	1s	0.1s	0.01s
	1	4 .	5	5

Multiplying by 100 (x 100)

The numbers move two to the left ←

100s	10s	1s	0.1s	0.01s
		4 .	5	

Dividing by 10 (÷ 10)

The numbers move one to the right →

100s	10s	1s	.	0.1s	0.01s
		8	.	2	

Dividing by 10 (÷ 10)

The numbers move one to the right →

100s	10s	1s	.	0.1s	0.01s
	4	0	.	2	

Dividing by 100 (÷ 100)

The numbers move two to the right →

100s	10s	1s	0.1s	0.01s
	2	6 .	7	

Dividing by 100 (÷ 100)

The numbers move two to the right →

Your turn:

1) 2·8 × 10
2) 0·7 × 100
3) 1·2 4 × 10
4) 0·0 8 ÷ 10
5) 1·89 ÷ 100
6) 1·4 _____ = 10.4

Answers:

1) 28
2) 70
3) 1 2· 4
4) 0 · 008
5) 0.0189
6) x 10

Shown below are some questions and answers.

$200 \div 10$	0.2
$0.2 \div 10$	20
0.2×10	2
$2 \div 10$	0.02
$2 \div 1000$	0.002

Match the correct questions and answers.
The first one has been completed for you.