



Year 5 Maths Distance Teaching and Learning

Week beginning: 18th May 2020

Lesson 4		
Learning Intention: WALT: solve word problems involving multiplication and decimals	Key Vocabulary: multiplication formal method place holder digits value times groups of altogether product	What you will need: Paper Pencil Ruler Ipad/Laptop/internet access Year 5 Week 5 video 4
Starter		
<p>Please use Timestable Rockstars. Spend at least 10 minutes doing Studio games or a GIG.</p> <p>Remember that the GIG is only available once you have completed enough games (or when you first ever log in) and your score and speed has improved enough.</p> <p>Here is the website link. If you are viewing this online you should be able to click on the link or copy and paste to the website.</p> <p>https://play.ttrockstars.com/auth/school/student/84789</p> <p>Your login is the first 3 letters of you first name and the first 3 letters of your surname e.g. Jack Smith would have the login jacsmi</p> <p>The password is Welcome1 -This is case sensitive (you need to use a capital W)</p> <p>If you can't go online then please answer all of these multiplications as quickly as you can.</p> <p>9x4= 7x7= 6x6= 10x8= 12x12= 7x4= 3x5= 12x2= 8x8= 4x6= 5x7= 11x11= 4x5= 7x3=</p>		

Main Teaching

Short vs Long Multiplication recap:

Today we will look at word problems that involve multiplication and some may have decimal numbers in them.

Example 1

1) Mary runs 3.6 miles every day. If she runs for a week, how far does she run?

What calculation do you think we need to do?

That's right 3.6×7 because there are 7 days in the week.

Let's use the short multiplication method to solve this. Where you put the $\times 7$ is up to you, but it is important to place the decimal in the correct place, otherwise you will get the wrong answer.

Mary travels 25.2 miles in a week.

Try some of these so you can get the hang of placing the decimal point then read on to check your answers.

4.3×5

24.6×3

45.8×4

$4.3 \times 5 = 21.5$ $24.6 \times 3 = 73.8$ $45.8 \times 4 = 183.2$
 $\begin{array}{r} 4.3 \\ \times 5 \\ \hline 21.5 \end{array}$ $\begin{array}{r} 24.6 \\ \times 3 \\ \hline 73.8 \end{array}$ $\begin{array}{r} 45.8 \\ \times 4 \\ \hline 183.2 \end{array}$

Example 2

If Riley eats 2.5 biscuits a day, how many does he eat in 3 weeks?

What calculation do you think we need to do? Write it down then check.

That's right 2.5×21 because 3 weeks is $3 \times 7 = 21$

Even though 2.5 is the smaller number, it is better to put it at the top when we solve this using long multiplication. Here is how to do it.

2.5×21

Method 1 or Method 2

$\begin{array}{r} 2.5 \\ \times 21 \\ \hline 2.5 \times 1 \\ 50.0 \times 20 \\ \hline 52.5 \end{array}$ $\begin{array}{r} 2.5 \\ \times 21 \\ \hline 2.5 \times 1 \\ 50.0 \times 20 \\ \hline 52.5 \end{array}$

So Riley ate 52.5 biscuits in 3 weeks

Try this calculation just to check you can do long multiplication with a decimal.

234.2×32

234.2 × 32

Method 1

$$\begin{array}{r} 234.2 \\ \times 32 \\ \hline 468.4 \times 2 \\ 7026.0 \times 30 \\ \hline 7494.4 \end{array}$$

Method 2

or

$$\begin{array}{r} 234.2 \\ \times 32 \\ \hline 468.4 \times 2 \\ 7026.0 \times 30 \\ \hline 7494.4 \end{array}$$

decimals are lined up

234.2 × 32 = 7494.4

Now try the independent tasks. Good luck and don't forget to check your answers

Independent Tasks

Challenge 1: Contains no decimals.

1) Alisha went on a shopping spree and bought 12 pairs of shoes. Each pair cost £15. How much did she spend?



2) If Riley eats 5 biscuits a day, how many does he eat over 234 days?



3) Mr Burroughs wants to replace the school's footballs. Each football costs £9 and he wants to order 134. How much will they cost?



4) Emma buys a jar full of 126 sweets. She wants to get enough sweets to last her all year, so she buys another 4 jars. How many sweets are there in all the jars?

5) Miss Huntley needs to order some new whiteboard pens. She orders 6 boxes. Each box contains 24 pens. How many pens are ordered?



6) Brandon goes to watch the football 17 times in a month. How many times does he watch the football over 12 months?

Challenge 2

1) Hayden plays 6 Xbox games. He scores 3.2 points in each game. How many points does he score altogether?

2) Olivia runs 5.4 miles every day. If she runs for 8 days, how far does she run?

- 3) Riley does a sponsored silence. For every hour, he must be silent he raises £8.50. How much will he raise if he stays silent for half a day?
- 4) Miss Huntley walks 3.6 miles to school. How many miles does she walk over a school week?
- 5) Miss Huntley decides to walk home as well, so she walks 7.2 miles a day. How many miles does she walk in 3 school weeks?
- 6) Caitlyn draws a square. Each side is 15.8cm. What is the perimeter of the square?
- 7) Brandon's car drives 6.3 miles on one litre of petrol. How many miles will he cover on 4 litres of petrol?
- 8) Reece's hair grows 0.8 cm per month. How many cm will his hair grow in a year?
- 9) Alexander measures rainfall over 2 years. The rain fall is 0.6 cm each month. How much rain has fallen over the 2 years?
- 10) Elvin buys a new pair of shoes with four shoe laces. Each shoe lace is 32.3cm long. How long are all four shoe laces put together?

Challenge 3

- 2 step word problems-

- 1) Mrs Le Surf-Hall in the office is counting the dinner money. Three classes have sent £10.47 each. They send the same amount of money for 2 days. How much money is sent to the office altogether?
- 2) I need to buy some new equipment for the class. I need $3\frac{1}{2}$ books for each child. There are 32 children in my class. There are 6 classes of 32 pupils in the school. How many books will I need to buy for the whole school?
- 3) Pencil cases cost £6.36 each, pens cost £1.27 each and a calculator cost £2.34 each. How much would it cost for 20 of each in total?

Challenge X

Create your own 2 step problem to solve. Include a way of finding the answer (you might hide this under a post-it note or write it upside down).

Review

Label these problems as either needing addition, subtraction or multiplication. You do not need to solve them.

The product of 36 and 24.

I have 43 sweets and then I am given 100 more. How many do I have now?

4 bags have 12 sweets in each of them. How many sweets are there?.

67,865 sweets are eaten. There were 100,008 sweets to begin with. How many are left?

I score 20 points. My friend scores double that what was his score?

Mark Scheme – Lesson 1

Starter

$$9 \times 4 = 36$$

$$7 \times 7 = 49$$

$$6 \times 6 = 36$$

$$10 \times 8 = 80$$

$$12 \times 12 = 144$$

$$7 \times 4 = 28$$

$$3 \times 5 = 15$$

$$12 \times 2 = 24$$

$$8 \times 8 = 64$$

$$4 \times 6 = 24$$

$$5 \times 7 = 35$$

$$11 \times 11 = 121$$

$$4 \times 5 = 20$$

$$7 \times 3 = 21$$

Independent Tasks

Challenge 1

- 1) Alisha went on a shopping spree and bought 12 pairs of shoes. Each pair cost £15. How much did she spend?

$$\underline{12 \times 15 = \pounds 180}$$



- 2) If Riley eats 5 biscuits a day, how many does he eat over 234 days?

$$\underline{5 \times 234 = 1,170 \text{ biscuits}}$$



- 3) Mr Burroughs wants to replace the school's footballs. Each football costs £9 and he wants to order 134. How much will they cost?

$$\underline{9 \times 134 = \pounds 1204}$$



- 4) Emma buys a jar full of 126 sweets. She wants to get enough sweets to last her all year, so she buys another 4 jars. How many sweets are there in all her jars?

$5 \times 126 = 630$ 630 sweets

- 5) Miss Huntley needs to order some new whiteboard pens. She orders 6 boxes. Each box contains 24 pens. How many pens are ordered?

$6 \times 24 = 144$ 144 pens

- 6) Brandon goes to watch the football 17 times in a month. How many times does he watch the football over 12 months?

$17 \times 12 = 204$ times

Challenge 2

- 1) Hayden plays 6 Xbox games. He scores 3.2 points in each game. How many points does he score altogether? $6 \times 3.2 = 19.2$

- 2) Olivia runs 5.4 miles every day. If she runs for 8 days, how far does she run?

$5.4 \times 8 = 43.2$ miles

- 3) Riley does a sponsored silence. For every hour, he must be silent he raises £8.50. How much will he raise in half a day? $8.5 \times 12 = £102$

- 4) Miss Huntley walks 3.6 miles to school. How many miles does she walk over a school week?

$3.6 \times 5 = 18$ miles

- 5) Miss Huntley decides to walk home as well, so she walks 7.2 miles a day. How many miles does she walk in 3 school weeks?

3 school weeks is $3 \times 5 = 15$ days so it's $7.2 \times 15 = 108$ miles

- 6) Caitlyn draws a square. Each side is 15.8cm. What is the perimeter of the square?

- 7) A square has 4 sides and perimeter is when you add all the sides together.

$15.8 \times 4 = 63.2$ cm. The perimeter is 63.2cm.

- 8) Brandon's car drives 6.3 miles on one litre of petrol. How many miles will he cover on 4 litres of petrol?

$4 \times 6.3 = 25.2$ miles

9) Reece's hair grows 0.8 cm per month. How many cm will his hair grow in a year?
 $0.8 \times 12 = 9.6$ cm

10) Alexander measures rainfall over 2 years. The rainfall is 0.6 cm each month. How much rain has fallen over in those 2 years?

A year is 12 months so 2 years is 24 months. So it is $0.6 \times 24 = 14.4$ cm

11) Elvin buys a new pair of shoes with four shoelaces. Each shoelace is 32.3cm long. How long are all four shoe laces put together?

$32.3 \times 4 = 129.2$ cm long

Challenge 3

- 2 step word problems-

1) Mrs Le Surf-Hall in the office is counting the dinner money. Three classes have sent £10.47 each. They send the same amount of money for 2 days. How much money is sent to the office altogether?

$10.47 \times 3 \times 2$ or 10.47×6 Both equal £62.82

2) I need to buy some new equipment for the class. I need $3 \frac{1}{2}$ books for each child. There are 32 children in my class. There are 6 classes of 32 pupils in the school. How many books will I need to buy for the whole school?

$3.5 \times 32 \times 6$

$3.5 \times 32 = 112$ Then $112 \times 6 = 672$.

672 book are needed

3) Pencil cases cost £6.36 each, pens cost £1.27 each and a calculator cost £2.34 each. How much would it cost for 20 of each in total?

Method 1

$6.36 \times 20 = £127.20$

$1.27 \times 20 = £25.4$

$2.34 \times 20 = £46.8$



$$127.2 + 25.4 + 46.8 = \text{£}199.40 \quad \text{It cost } \text{£}199.40$$

Method 2

$$(6.36 + 1.27 + 2.34) \times 20 = \text{£}199.40$$

Challenge X

Create your own 2 step problem to solve. Include a way of finding the answer (you might hide this under a post-it note or write it upside down.

ASK AN ADULT TO SOLVE YOUR PROBLEM

Review

Label these problems as either needing addition, subtraction or multiplication. You do not need to solve them.

The product of 36 and 24. multiplication

I have 43 sweets and then I am given 100 more. How many do I have now? Addition

4 bags have 12 sweets in each of them. How many sweets are there? multiplication

67,865 sweets were eaten. There were 100,008 sweets to begin with. How many are left? subtraction

I score 20 points. My friend scores double that what was his score? Multiplication or addition because double can mean $\times 2$.