Reasoning and Problem Solving
Multiplication and Division – Year 3

About This Resource

This resource is aimed at Year 3 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Spring Block 1 Multiplication and Division.

The questions are based on a selection of the same 'small steps' that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

Small Steps

Comparing Statements
Related Calculations
Multiply 2 digits by 1 digit
Divide 2 digits by 1 digit
Scaling
How many ways?

National Curriculum Objectives

Mathematics Year 3: (3C6) Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
Mathematics Year 3: (3C7) Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
Mathematics Year 3: (3C8) Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Did you like this resource? Don't forget to review it on our website.

Captain Barnacle Patch is looking for new recruits to join his motley crew of pirates. The chance to sail the seven seas on adventures to lands anew, to gather unclaimed treasures and return with a few jewels of your own.

It's a tough life and a long voyage, with months of preparation ahead.

To earn your place on the voyage, prove your mathematical skills to the Captain – he only accepts the best and gets rid of the rest!!

Multiply and divide as if your life depends on it... it just might!

1. Captain Barnacle Patch has placed 8 posters around the town, in taverns and on posts, to generate some interest in his latest voyage. Captain Patch never learnt his time tables and NEVER listened in school, so he needs your help!

How many applicants will he get if each poster attracts:
5 replies? 7 replies? 11 replies?

Oh No! there was a dreadful storm in the night and only the 3 posters in the Taverns have survived! Quickly, recalculate to give the Captain the answers he needs!

2. The posters have done their job and the applicants have arrived. Captain Barnacle Patch is planning to test the pirates agility using a rope obstacle course around his galleon, the 'Marie Rose'. He needs to wheedle out those who may not have what it takes.

Pirates have to run the length of the ship four times, the width of the ship eight times and one time around the perimeter. Captain Patch has written the ship's measurements here:

Marie Rose she be in paces 12 across while 50 paces long,
as pirate's pace to go around, 124 will bring you home.

Calculate how far the shipmates have to run in paces.

Now translate this to metres using the conversion 4 paces = 1 metre.

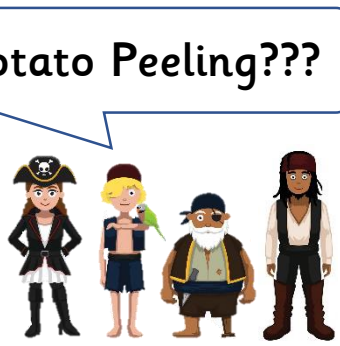
3. Next challenge, "CLIMB THE RIGGING!" screeches the Captain. The pirates run to the mast. The fastest pirate can climb up and down in just 4 seconds! The other pirates take nearer to 8 seconds. How many times can they each climb all the way up and down again in one minute?

Fastest pirate:

Other pirates:

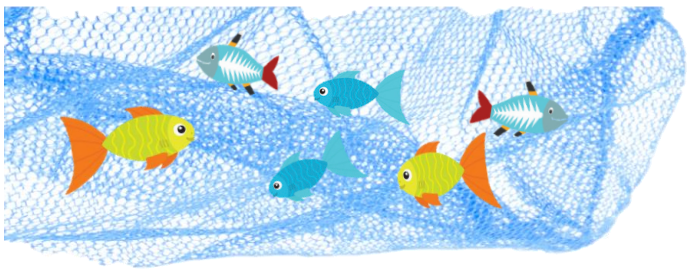
The pirates nervously await their next command. Lined up and ready for action, each one hopes they will be selected and not made to walk the plank! The shark infested waters below the ship are not safe for even a second.

The Captain decides to split the pirates into teams: one team has 3 pirates, the other has 4. Each pirate dreams of adventure and action on the high seas... but the next challenge is revealed to groans from all! "POTATO PEELING!" yells Captain Barnacle Patch. Once at sea, they will all need to pitch in to feed everyone on board. A quick peeler feeds more!



4. During the test, the first team of 3 peeled 15 potatoes each, while the second team of 4 only managed 12 potatoes each. Which team peeled the most?

5. Potatoes and fish are a pirate's main sustenance; making nets is the next challenge. This time, team one think they have a good chance as they have super speedy fingers and can tie knots as fast as lightening. In the 5 minute challenge, team one – with their 3 members – knot 51 metres of net altogether. Team two manage 72 metres of net altogether. How many metres did each pirate knot?



Team One	Team Two

Captain Barnacle Patch is impressed with your maths so far, you are last in line for the plank and so have the best chance of survival. Beware, this could change at any minute! Finally, the crew have been selected and you are amongst them.

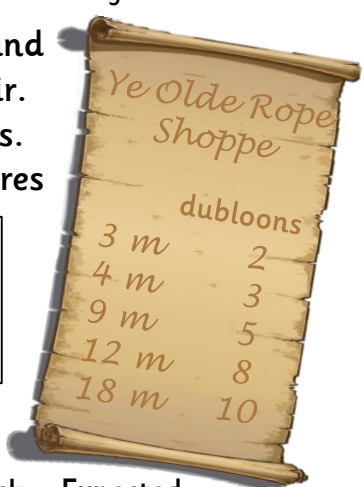
6. Now to get the Marie Rose ship shape and ready to sail! There are many repairs to be carried out and a lot of wood will be needed. The pirates are sent to cut down just enough trees to make their repairs. Each tree will make 4 planks and you need 96 planks in total. An argument breaks out between the pirates – who is correct?

Thomas: We need 24 trees because 4 x 24 = 96.

Bones: We need to work out 96 ÷ 4.

Mad Morgan: There are four of us so we need to cut down 6 trees each.

7. The rigging is sagging from the earlier climbing competition and needs repair. The Captain needs 360 metres of rope for the repair. He wants to buy just enough and save money for other provisions. What would be the cheapest way for the Captain to get 360 metres of rope?



8. Time to order the sails before you set off on your adventures. The Marie Rose needs three sails: the first should be a height 4 times as wide as the galleon itself, the second a height 2 times as wide as the galleon, and the third should be 5 times the height of the second. Calculate the height of the three sails in metres.

9. Now you are all true pirates, the Captain has a surprise for you. He opens a box. Inside, there are four telescopes, five cutlasses and a cage with three parrots. You can all have two different items each. How many ways could he share the items?

10. Your first job as first mate is to decipher the map clues. Almost time to set off on the voyage of a lifetime...

To the north, take 26 x 3 steps; to the west, take 34 x 4 steps.

Turn left, take 124 ÷ 4 steps, and three times as many again where you will find the spot marked by X.

You did it – you are the Captain's First Mate! He has chosen you for your fantastic maths. You will be a great asset on the trip. Your First Mate hat is yours to keep and wear with pride!

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1. 8 x 5 = 40 8 x 7 = 56 8 x 11 = 88

   3 x 5 = 15 3 x 7 = 21 3 x 11 = 33

2. 4 x 50 = 200 8 x 12 = 96 1 x 124 = 124

   The whole race is 420 paces long.
   So in metres, 420 paces ÷ 4 = 105m

3. FASTEST
   60 ÷ 4 = 15 climbs

   OTHERS
   60 ÷ 8 = 7.5 so 7 full climbs.

4. 3 x 15 = 45 4 x 12 = 48

   The second team peeled 3 more potatoes.

5. Team One
   51 ÷ 3 = 17 metres each

   Team Two
   72 ÷ 4 = 18 metres each

6. They are all correct but calculated in different ways.

7. 360 ÷ 3 = 120
   120 x 2 = 240 dubloons

   360 ÷ 4 = 90
   90 x 3 = 270 dubloons

   360 ÷ 9 = 40
   40 x 5 = 200 dubloons

   360 ÷ 12 = 30
   30 x 8 = 240 dubloons

   360 ÷ 18 = 20
   20 x 10 = 200 dubloons

   So buying either 40 of the 9m or 20 of the 18m is the cheapest choice.

8. First
   4 x 12m = 48m

   Second
   2 x 12m = 24m

   Third
   5 x 24m = 120m

9. Seven different ways, as below:

10. 78 136 31 93