Discussion Problems
Step 3: Divide by 10, 100 and 1,000

National Curriculum Objectives:

Mathematics Year 6: (6F9a) Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places

About this resource:

This resource has been designed for pupils who understand the concepts within this step. It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.
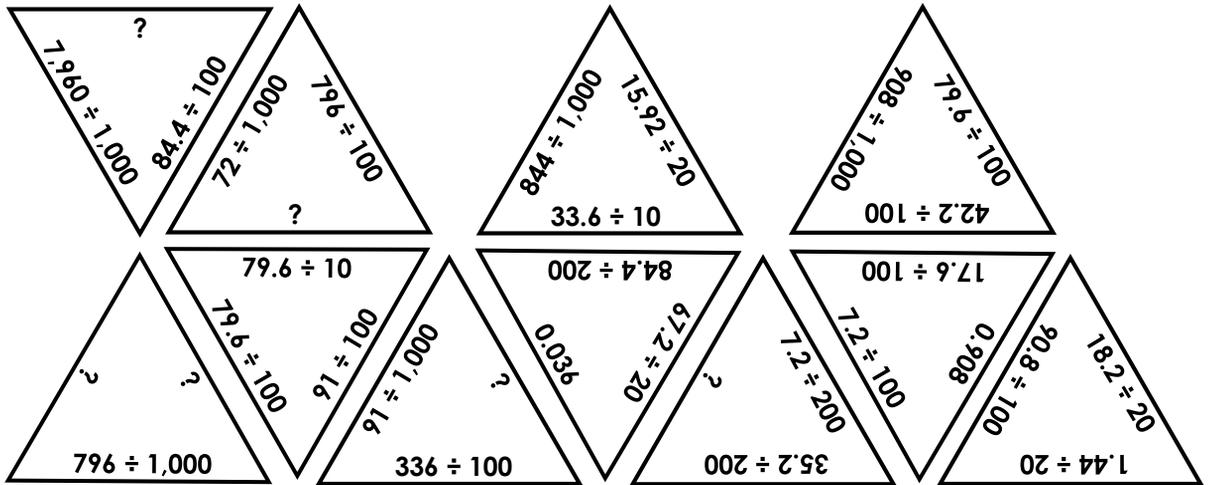
More Year 6 Decimals resources.

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

classroomsecrets.co.uk

Divide by 10, 100 and 1,000

1. Edgar the Explorer has discovered a tomb, but needs to solve a puzzle in order to access it.

He needs to join all of the triangles together, but some of the calculations are missing. Each side that touches must equal the same number.

Triangle calculations (as shown on the tarsia puzzle):

- ?
- $7,960 \div 1,000$
- $84.4 \div 100$
- $72 \div 1,000$
- $796 \div 100$
- ?
- $15.92 \div 20$
- $844 \div 1,000$
- $33.6 \div 10$
- $806 \div 1,000$
- $79.6 \div 100$
- $42.2 \div 100$
- $79.6 \div 10$
- $79.6 \div 100$
- $91 \div 100$
- $84.4 \div 200$
- $17.6 \div 100$
- ?
- ?
- $91 \div 1,000$
- 0.036
- $672 \div 20$
- $7.2 \div 200$
- $7.2 \div 100$
- 908
- $908 \div 100$
- $18.2 \div 20$
- $796 \div 1,000$
- $336 \div 100$
- ?
- $35.2 \div 200$
- ?
- $1.44 \div 20$

What could the missing calculations be? Explore the different possible solutions to solve the puzzle.

DP

---

2. A fishing boat has caught 20,000kg of fish. It unloads a different amount of fish to 3 different factories in an unspecified order.

After unloading at one factory, it then carries the remaining fish until it reaches the next factory to unload.

Factory A ÷ 10

Factory B ÷ 1,000

Factory C ÷ 100

Factory D ÷ 200

Factory E ÷ 40

What could the final weight of the fish left on the boat be, after unloading to 3 different factories? Explore the different possibilities.

Which 3 factories could the boat have visited if the weight of the fish left on the boat is 0.25kg?

DP

---

classroomsecrets.co.uk

Discussion Problems – Divide by 10, 100 and 1,000 – Year 6

Divide by 10, 100 and 1,000

1. Edgar the Explorer has discovered a tomb, but needs to solve a puzzle in order to access it.

He needs to join all of the triangles together, but some of the calculations are missing. Each side that touches must equal the same number.

98.7 ÷ 10   79.6 ÷ 10

72 ÷ 1,000   7,960 ÷ 1,000   796 ÷ 100   84.4 ÷ 100   844 ÷ 1,000   79.6 ÷ 100   15.92 ÷ 20   91 ÷ 100   18.2 ÷ 20   1.44 ÷ 20

876 ÷ 100   33.6 ÷ 10   90.8 ÷ 100
87.6 ÷ 10   67.2 ÷ 20   0.908

91 ÷ 1,000   **115.6 ÷ 20**   **57.8 ÷ 10**   796 ÷ 1,000   79.6 ÷ 100   84.4 ÷ 200   42.2 ÷ 100   0.036   7.2 ÷ 200   17.6 ÷ 100   35.2 ÷ 200   7.2 ÷ 100

336 ÷ 100   908 ÷ 1,000   **9.09 ÷ 10**

What could the missing calculations be? Explore the different possible solutions to solve the puzzle.
Various answers, for example (above):

DP

2. A fishing boat has caught 20,000kg of fish. It unloads a different amount of fish to 3 different factories in an unspecified order.

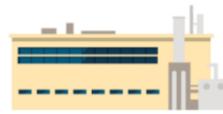After unloading at one factory, it then carries the remaining fish until it reaches the next factory to unload.
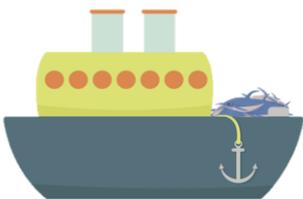
Factory A   Factory B   Factory C
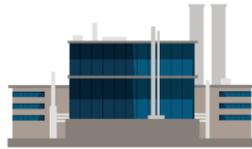
÷ 10   ÷ 1,000   ÷ 100

Factory D   Factory E

÷ 200   ÷ 40

What could the final weight of the fish left on the boat be, after unloading to 3 different factories? Explore the different possibilities.
Various answers, for example: Factory C, Factory A, Factory D = 0.1kg of fish left.
Which 3 factories could the boat have visited if the weight of the fish left on the boat is 0.25kg?
Factory A, Factory D, Factory E = 0.25kg of fish left.

DP

classroomsecrets.co.uk
Discussion Problems – Divide by 10, 100 and 1,000 **ANSWERS**