Reasoning and Problem Solving
Addition and Subtraction Consolidation – Year 4

National Curriculum Objectives

Mathematics Year 4: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
Mathematics Year 4: Estimate and use inverse operations to check answers to a calculation
Mathematics Year 4: Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

About This Resource

This resource is aimed at Year 4 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Autumn Block 2 Addition and Subtraction.

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

Add two 4-digit numbers - one exchange
Add two 4-digit numbers – more than one exchange
Subtract two 4-digit numbers - one exchange
Subtract two 4 digit numbers - more than one exchange
Efficient Subtraction
Estimate answers
Add and Subtract 1s,10, 100s and 1,000s

More Year 4 Addition and Subtraction Resources

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

Mission XY

Ever wanted to be an astronaut? To see what it's like in space? We need your help!

Astronaut Pete and Astronaut Seb have been sent on a space mission.
They have lots to do and many miles to travel. We need you to help them get to Space Station Z and back safely. You will need to use your mathematical brain to help them solve problems along the way.
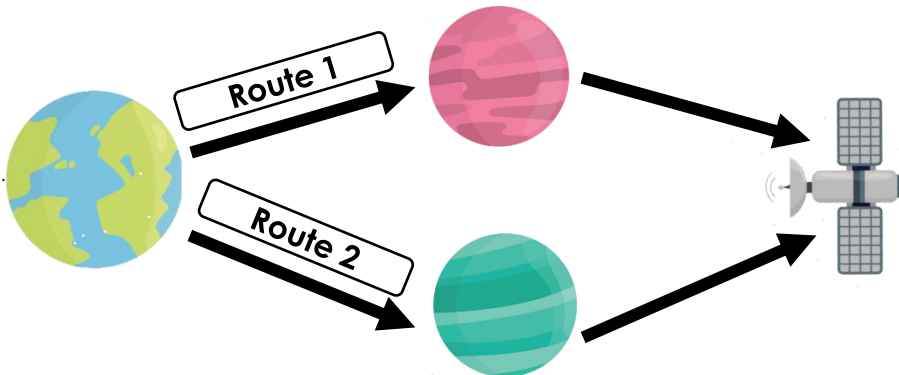
Watch out for those pesky little green aliens who will try to wreck the mission.

Pete and Seb are on their way to Space Station Z. They need to get there but they are running out of fuel. They must take the shortest route to save fuel.

1. Work out the shortest route the astronauts need to take in order to reach Space Station Z to refuel.

Route 1
Earth to Mars = 3,454 miles
Mars to Space Station Z = 2,474 miles

Route 1 =

miles

Route 2 =

miles

Route 2
Earth to Jupiter = 2,456 miles
Jupiter to Space Station Z = 3,374 miles

The shortest route to take is Route:
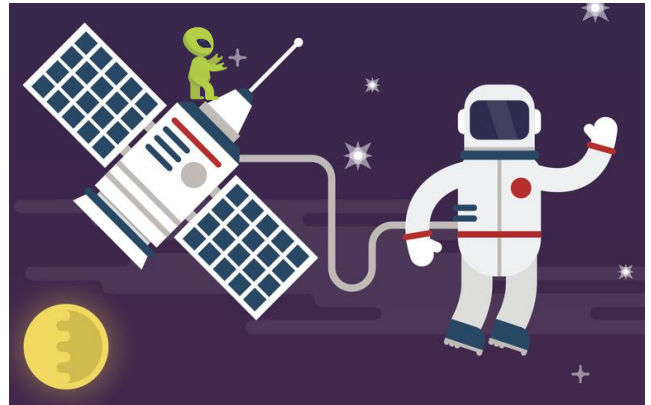
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2. The astronauts have 5,915 miles worth of fuel in their rocket.
How much fuel will they have left over once they reach Space Station Z?

Well done!

You have managed to get the astronauts to Space Station Z without running out of fuel.
Now the mission begins!

Pete and Seb need to get their space suits and helmets on and take some readings from outside the station. They need to read the number on the solar sensor (This tracks the sun's energy on Earth all the way from space – super cool space stuff).

There is a problem!
Some of the numbers appear to have been damaged.
Those pesky aliens!
Work out the missing number so that Pete and Seb can send the information back to Earth.

3. The last reading that was taken was 7,392.
4,536 is the new reading.
How much solar energy has been used?

$$7{,}392 \quad - \quad \boxed{} \quad = \quad 4{,}536$$

Good work team, you have worked out the new reading.
Now lets get back to the rocket.

The lock on the door seems to be stuck! "What's the problem?" Seb asks Pete. "I think the lock has been reset, who could have done that?" replies Pete. "I have a sneaky feeling we have alien company!"

The astronauts need to reset the lock and they're going to need your help. The lock needs two special numbers.

4. We need to find two numbers that when added have an estimated answer of 5,800.

Original Number	Rounded to the nearest 100
3,367	
2,646	
4,015	
5,280	
3,906	
2,431	

The two original numbers are:

Awesome work, the door has opened. Now, lets get back to Earth.

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Ok, team – so far so good! Let's get this rocket on the go.

In order to start the engine, Pete needs your help.

5. The table needs completing so Pete can start the return to Earth:

Number	Subtract 10	Add 100	Subtract 1,000
3,986	⇒	⇒	⇒
7,321	⇒	⇒	⇒
5,210	⇒	⇒	⇒

5... 4... 3... 2... 1... Blast off!

You did it! I knew you could.

Now buckle up those seat belts, it's home time.

6. One last challenge, before you go. Pete has checked the fuel level, there are 4,653 miles left. The journey home is 3,827 miles. Pete said that they will have 1,226 miles left in the tank when they return to Earth. Seb said that he is wrong. Work out who is right and how much fuel will be left in the tank.

Thank you for all your help today. Hope you enjoy your next mission.

1. Route 1 = 3,454 + 2,474 = **5,928** miles
Route 2 = 2,456 + 3,374 = **5,830** miles
Route 2 is the shortest route.

2. **5,915 miles – 5,830 miles = 85 miles worth**

3.

7,392	–	**2,856**	=	4,536

4.

Original Number	Rounded to the nearest 100
3,367	**3,400**
2,646	**2,600**
4,015	**4,000**
5,280	**5,300**
3,906	**3,900**
2,431	**2,400**

3,400 + 2,400 = 5,800

The two original numbers are:

3,367	**2,431**

5.

Number	Subtract 10	Add 100	Subtract 1,000
3,986	**3,976**	**4,076**	**3,076**
7,321	**7,311**	**7,411**	**6,411**
5,210	**5,200**	**5,300**	**4,300**

6. Pete is wrong and Seb is correct. There will be 826 miles of fuel left in the tank. Pete did not exchange in the hundreds column; he subtracted 8 from 6 and gave the incorrect answer of 2. This then made his subtraction in the thousands column incorrect too.

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Reasoning and Problem Solving – Year 4 – Expected ANSWERS