Reasoning and Problem Solving
Converting Units – Year 5

About This Resource

This resource is aimed at Year 5 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Summer Block 4 Converting Units. *For the purpose of this consolidation pack, kilometres are used instead of nautical miles.

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

Kilograms and kilometres
Milligrams and millilitres
Metric units
Imperial units
Converting units of time
Timetables

National Curriculum Objectives

Mathematics Year 5: (5M4) Solve problems involving converting between units of time
Mathematics Year 5: (5M5) Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
Mathematics Year 5: (5M6) Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

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Welcome aboard The Crestfield! Where luxury is not limited to land – where you can travel the seas in comfort and style.

Captain Jane Harris is preparing her cruise ship for the summer. Before she can take to the seas and give lots of holiday makers the cruise of their lives, Captain Harris must first complete all of the jobs on her itinerary to ensure that everybody is safe aboard The Crestfield!

Captain Harris is updating her log book before she departs on her first cruise, she needs to estimate the length of her cruise ship. She knows that the length of a bus is roughly 15m.

1a. Circle the most appropriate answer for the length of the cruise ship.

| 800mm | 3km | 2,000mm | 300m |

The Stuart family have booked a week on the cruise liner. There are 4 members in the family. Each family member has brought their own suitcase. The problem is, some have weighed their suitcases in grams and some have used kilograms.

1b. Complete the table so that all the suitcases are in the same unit of measurement.

Suitcase	Grams	Kilograms
Mrs Stuart		17.2
Mr Stuart	14,550	
Matthew	12,090	
Alec		8.43

1c. The maximum weight that each suitcase can be is 15.5kg.
Whose Suitcase is over the limit? By how much?

Reasoning and Problem Solving – Year 5 – Consolidation Pack – Expected

1d. At the start of the journey, the cruise ship will be visiting 3 different ports: Hanson, Darwin and Merlin. It is 46.2km to Hanson Port, then it is 31,750m to Darwin Port and finally, 8.42km to Merlin Port. In kilometres, how far does the cruise ship travel?

Captain Harris is doing a checklist for the pool and its surrounding areas to ensure that safety is the number one priority!
At its deepest point, the pool is 1.25m. All unsupervised children must be able to reach the bottom if they wish to venture into the deep end.
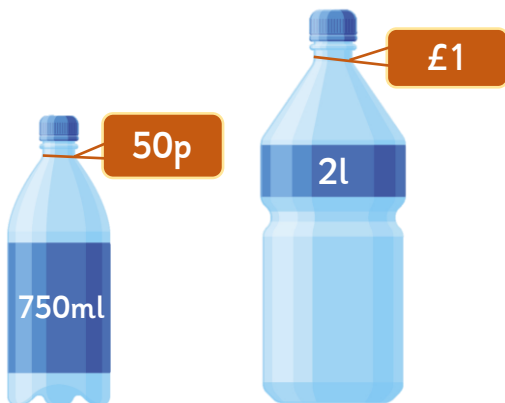
2a. Put a tick next to the children who will be able to touch the bottom of the pool and put a cross next to the children who will not be able to touch the bottom of the pool in the deep end.

Child	Height in mm	✓ or ✗
Adnan	1,200	
Evie-May	1,520	
Eli	1,220	
Theo	1,500	

2b. The poolside café needs to stock up with drinks for the hot summer. Which of these bottles of water is better value for money for the customer? Explain your answer.

50p

£1

2l

750ml

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Whilst onboard the cruise ship, families stay in rooms called cabins. They are small rooms, but are perfect for sleeping and storing belongings.

3a. Each cabin has a storage cupboard for the families' suitcases. The storage cupboard is 125cm in length. The Hassan family have 2 suitcases, one has a length of 0.85m and one is 0.35m. Will both suitcases fit in the storage cupboard? Explain your answer.

3b. Each cabin is a width of 350cm and there are 8 cabins on one corridor. What is the total length of the corridor? Give your answer in metres.

There are different sized beds available in the cabins; the longest that they offer is 190cm in length.

4a. Use the conversion of 1 inch = 2.54cm. Would Mr Hassan, who is 72 inches tall, be able to fit in the bed? Explain your answer.

4b. There are 5 people in the Layton family and they want to order milk for their breakfast. 1 pint of milk is equal to 568ml. Each person needs 250ml of milk. How many pints to they need to order?

4c. Is there any milk left over? How much?

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Brother and sister, Alfie and Anya are going on the cruise with their grandparents for a three night holiday.
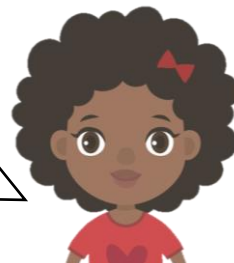
They are discussing how many hours they will get on the cruise ship.

They will board the ship at 9am on Monday and will disembark at 5pm on Thursday.

We will have 72 hours on the ship.

Alfie

We will have 80 hours on the ship.

Anya

5a. Who is correct? Explain your answer.

Captain Harris is calculating the yearly timetable. The cruise ship spends 18 weeks cruising the Mediterranean, 7 weeks cruising the Caribbean, 10 weeks cruising the Atlantic and 5 weeks cruising the Antarctic each year. For the rest of the year, the cruise ship is inactive.

5b. How long is the cruise ship inactive?

Each cruise provides entertainment for children. Below is the timetable of events for children from Monday to Friday.

Day	Activity	Time
Monday	Arts and Crafts	9:15am – 11:30am
Tuesday	Team Games	1:30pm – 4:00pm
Wednesday	Water Sports	10:30am – 2:10pm
Thursday	Circus Skills	11:45pm – 3:20pm
Friday	Dancing	2:50pm – 4:10pm

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6a. How long do children spend doing Art and Crafts on a Monday?

6b. Which of the 5 activities is the longest?

6c. At 7:15pm every night, the cruise holds the 'Cruise Kids' Crazy Cowabunga!' There is music and dancing, party games and lots of other fun things to do for 2 hours and 35 minutes!

What time does the 'Cruise Kids' Crazy Cowabunga!' finish?

Oh no! The time is 7:13pm and the Halliwell's have not even left their cabin for the party! Mrs Halliwell knows that from their cabin, it takes 36 seconds to reach the end of the corridor, 41 seconds to get to the upper deck and then 25 seconds to get to the function suite.

6d. Will they get to the party before it starts? How much time will they have to spare?

Captain Harris and her team have definitely made sure that everyone gets to enjoy their cruise onboard The Crestfield! They thank you for all of your help and hope to see you soon!

Where would you like to go on your cruise?

You need to start packing!

PASSPORT

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1a. 300m

1b.

Suitcase	Grams	Kilograms
Mrs Stuart	17,200	17.2
Mr Stuart	14,550	14.55
Matthew	12,090	12.09
Alec	8,430	8.43

1c. Mrs Stuart's suitcase is over the limit by 1.7kg or 1,700g.

1d. 86.37km

2a.

Child	Height in mm	✓ or ✗
Adnan	1,200	✗
Evie-May	1,520	✓
Eli	1,220	✗
Theo	1,500	✓

2b. 2l would be the best value for money. £1 will buy either one 2l bottle or two 750ml bottles which equivalent to 1.5l.

3a. Yes, both will fit. The two suitcases together would equal 1.2m or 120cm.

3b. 28m

4a. Mr Hassan will fit in the bed. 72 inches = 182.88cm

4b. They would need 3 pints of milk. 250ml x 5 = 1,250ml. 568ml x 3 = 1,704ml

4c. There would be 454ml left over.

5a. Anya is correct. 15 + 24 + 24 + 17 = 80 hours.

5b. 12 weeks

6a. 2 hours and 15 minutes

6b. Water sports is the longest – 3 hours and 40 minutes.

6c. 9:50pm.

6d. Yes. They will have 18 seconds to spare.