Education Scotland
Foghlam Alba

I am a Mathematician!

Multiplying Milli

Dividing Dec

Maths resource for families to learn together

I am a Mathematician!
fishing
engineering
grouping
gaming
number
!
fun
subtraction
baking
cooking
space
multiplication
?
shopping
farming
quantity
dream
counting
adding
Let's explore Maths together!

MATHS IS FUN!

Hello! We're ***Multiplying Milli*** and ***Dividing Dec*** and we are your mathematicians! We're looking forward to taking you through this booklet.

Throughout the document there are links to a glossary at the foot of each page where you will find further support. All the links are also provided at the back of the resource.

What is Maths?

Mathematics is important in our everyday life, allowing us to make sense of the world around us and to manage our lives.

We use it every day in our lives, at work, leisure and at home. Parents and carers can play a vital role in reinforcing the importance of Maths to their children promoting a positive attitude towards it and making it a fun activity to do together as a family.

Every day can be a Maths day for families. If you would like to tell us how you got on or share some fun photos, you can contact us at parentzone@educationscotland.gsi.gov.uk

The workbook is split into sections depending on the age and stage of your child. So look around, find out, ask questions and try things out together and see what happens. Maths is fun for all the family!

Developing Scotland's Young Workforce

Developing the Young Workforce is a seven-year programme that aims to better prepare children and young people from 3–18 for the world of work. This programme builds on the foundations already in place as part of Curriculum for Excellence. The programme's main aim is to reduce youth unemployment by 40% by 2021.

Career Education Standard (3-18)

The Career Education Standard 3 - 18 (CES) recognises the journeys children and young people make as they learn about the world of work from the early years to the senior phase. It sets out what children and young people will learn and what parents/carers, teachers/practitioners, employers and Skills Development Scotland will do to support their learning.

Related to the CES are the Work Placements Standard and the School/Employer Partnership Guidance which aim to help teachers, employers and parents to create learning opportunities that allows children and young people to make real-life connections with the world of work.

Learn more..

Dec and Milli will be using their skills in the workplace throughout the workbook. Join them to explore the world of work!

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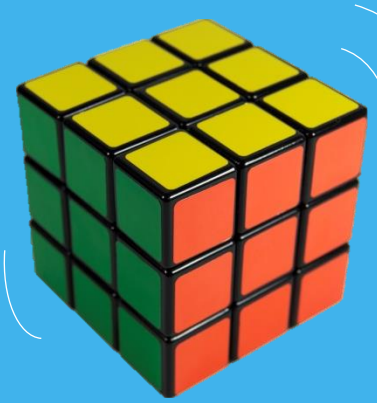

Clever Counters

- Adding fruit at home
- Working in the shop
- Making a packed lunch
- On the farm
- Off to the baker's shop
- Creative cakes
- Time to go
- At the photo shoot

Cool Calculators

- Time for work
- Shopkeeping
- How many do we order?
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- Measuring the dose
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- Saving up
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- Weather patterns
- June temperatures
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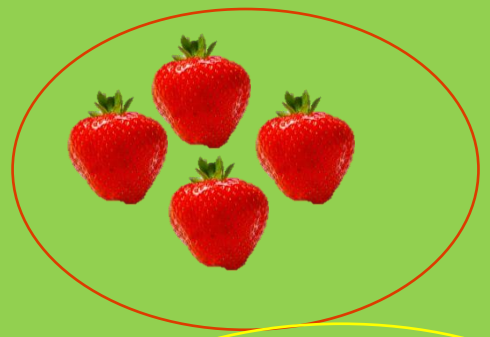
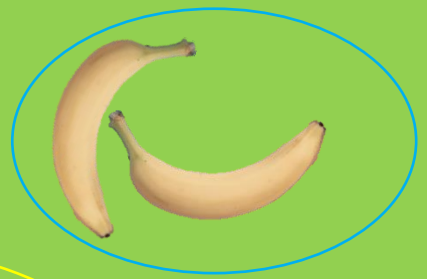
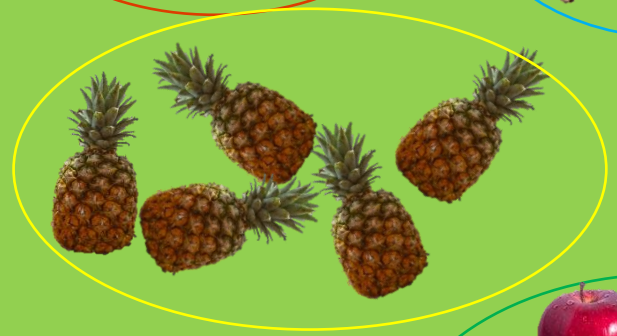
- Runway safety

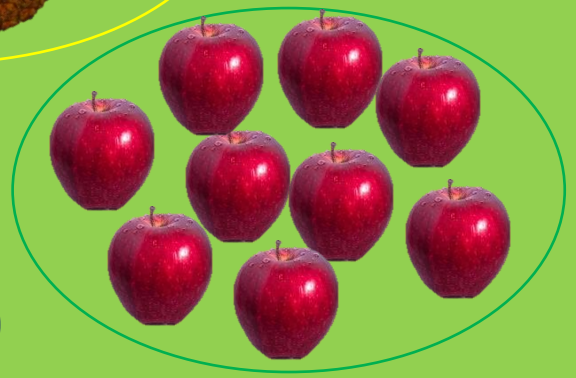
Clever Counters

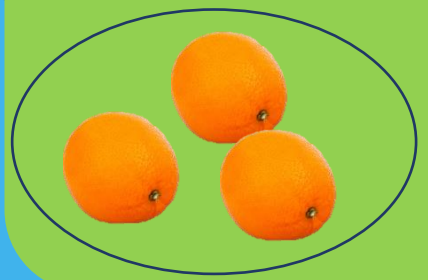
Dec and Milli are going to the shops. Count how many of each item they will be buying? Do you know what they are?











Oranges

Apples

Pineapples

Bananas

Strawberries

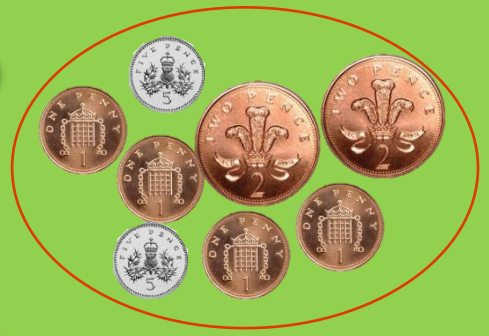
Home Activity! Practise counting with your child by giving them real objects to count e.g. toys, books.

Learn more..

Where are Milli and Dec working today?

= p

= p



= p

= p

Our job today is to help Mr Singh collect money in his shop. Please help us to count out some money.

Home Activity! Practise counting at home with real coins. Challenge each other with different amounts.

Learn more..

Dec and Milli are going to the farm today. They have to take a packed lunch. Count and identify the ingredients they put into their sandwiches. They also take other things for their lunch box. What they are? An adult will help you write them out.

How many ingredients are in the sandwich?

List the ingredients

What else are Milli and Dec taking?

Get a parent to cut the sandwiches in half, how many pieces are there altogether?

Home Activity
Why not make a sandwich at home together? Count how many ingredients you use.

Learn more..

Where are Milli and Dec working today?

Dec and Milli are working with Farmer Angus today. He has found these eggs in the hen coup. How many eggs does he have altogether?

=

On the way to the farmhouse 4 eggs drop and break. How many are left?

Home Activity!
With an adult, hard boil some eggs at home. Boil them for 5 minutes and use a timer to keep check. When they are cool, use paints, pens or crayons to make a pattern on your egg.

Learn more..

Milli and Dec are going to Mrs Black's Bakery shop. Count how many steps they take to the shops?

Milli took 28 steps and Dec took 25 steps.

Who took more steps?

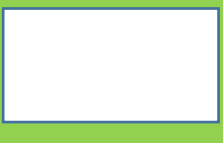
How many more?

Why do you think Milli took more steps than Dec to go the same distance?

Learn more..

Home Activity!
Next time you are out with your child, try counting how many steps you each take to reach the bus stop, the corner of the street, the first lamppost etc.

Where are Milli and Dec working today?



Dec and Milli are working with Mrs Black in her bakery today. She has asked us to match the cakes to the shape cutters. Help us match the right ones.

Learn more..

Home Activity!
Which of the shapes can you name?
Can you spot any of these shapes at home?

Dec and Milli are going to get their hair cut at Gary's Hair Salon. They need to be there at 10am. Pick out the clock which shows 10 o'clock.

Home Activity!
Talk with your child about what time they get up in the morning, have tea, go to bed etc.

Learn more..

Where are Milli and Dec working today?

Gary has asked Dec and Milli to help him at a photo shoot. He asked us to count out the hairclips. How many are there?

=

Gary has 10 clients coming in to the photo shoot. Each model needs 2 hairclips. How many more does Gary need?

Learn more..

Home Activity!
Take a photo of the members of your family. Remember to ask permission. How many people are in your family?

Cool Calculators

Milli and Dec are going to help out Mr Singh at the shop again today. Before they go they have to work some timings out.

Milli and Dec arrive at Mr Singh's shop at 8.45 am. The shop opens at 9.00 am. How long do they have to wait?

The shop closes at lunchtime from 12.15 pm until 1.00 pm. How long does Mr Singh have for his lunch break?

The shop closes at 5.15 pm. How long is it open in the afternoon?

Learn more..

You might want to use a clock while you are working out the times together.

Home Activity!
Try timing yourself when you go out for a walk and track your times over a week.

Where are Milli and Dec working today?

Colin buys an apple and a bottle of water. The apple costs 15p and the water costs 50p. He hands over £1. How much change does Milli give him?

Colin's friend Ryan only has 50p to spend but Colin gives him his change. How much does Ryan have now?

Ryan wants to buy 2 apples and a carton of milk costing 25p. How much change will he have?

Mr Singh sells cereal bars, costing 50p each. Mrs Robertson buys 10 cereal bars. How much does this cost?

Dec and Milli are working in the shop today with Mr Singh. Help us work out some calculations.

Learn more..

Home Activity!
Next time your are at the shops work with your child on estimating totals and change.

Dec and Milli are helping out at the Beauty Salon today with Stewart McIntosh. Stewart wants them to buy some products to bring to the shop. Help Milli and Dec work out how many products are needed?

Beauty Supplies

Make up brushes	packs of 2
Pack of face wipes	boxes of 8
Cotton wool rolls	packs of 6
Bottles of moisturiser	boxes of 5
Bottles of wax	boxes of 4
Bottles of nail polish	boxes of 9

Learn more..

Home Activity!
Look for packs of items in your house e.g. a pack of apples or a box of eggs. Practise multiplication skills by working out how many would be in 2 or more of the packs.

6 packs of makeup brushes	=		makeup brushes
2 boxes of face wipes	=		packs of face wipes
3 packs of cotton wool rolls	=		cotton wool rolls
7 boxes of moisturiser	=		bottles of moisturiser
10 bottles of wax	=		bottles of wax
7 boxes of nail polish	=		bottles of nail polish

Where are Milli and Dec working today?

Kevin has asked us to work at the cash till today. Help us work out some of the change?

Miss McDonald had a massage and handed over three £20 notes. How much change did she receive?

Mrs Logan enjoyed a manicure and pedicure. How much change did she receive from £40?

Ms Kelly had a facial followed by an eyebrow wax. She handed over £50. How much change was she given?

Home Activity!
Why not pick up a leaflet with prices from your local beauty salon. Use this to work out prices and change.

Learn more..

We started the day with £100 in the cash register. When we cashed up the total the cash register had £1,450. How much profit has the shop made today?

Milli and Dec will be helping in Mrs Black's cake shop today. Mrs Black uses the following recipe of her mother's to make shortbread for the shop.

Mrs Black's Shortbread

Ingredients

120g butter
50g caster sugar
180g plain flour

Method

Heat the oven to 190°C
Beat the butter and the sugar together until smooth.
Stir in the flour to get a smooth paste. Turn onto a work surface and gently roll out until the paste is 1cm thick.
Cut into rounds or fingers and place onto a baking tray.
Sprinkle with caster sugar and chill in the fridge for 20 minutes.
Bake in the oven for 15-20 minutes, or until pale golden-brown.
Set aside to cool on a wire rack.

This recipe makes 20 shortbreads. Preparation time takes approximately 30 minutes.

Home Activity! Why don't you make some shortbread at home with your family? They're delicious!

Where are Milli and Dec working today?

Help Dec and Milli in the shop today.

The shortbread can be cut in fingers or rounds. Which do you think would be most economical and why?

Learn more..

The shortbread is very popular - Mrs Black makes and sells 50 shortbreads per day. What weight of butter, sugar and flour does she use per day?

Mrs Black sells the shortbread at 20p each. If she sells <u>all</u> the shortbread every day, how much money does she take in each week from the shortbread?

According to the recipe, how much preparation time does Mrs Black spend each week on the shortbread?

Home Activity! Did you make shortbread with your family? How did you cut them and why?

Dec and Milli will be working at the hairdressers today. Before we go we want to improve our skills working with percentages.

Home Activity! How many different places can you see percentages being used at home and when you are out and about?

Cost at wholesalers	% increase		add a further	VAT at 20%		Actual cost
Red Hair dye £25	10%		+		=	
Perming Solution £15	5%		+		=	
Bleach Spray £5	20%		+		=	
Volume Powder £12	25%		+		=	
Hair Wax £10	15%		+		=	

Learn more..

Where are Milli and Dec working today?

Ruby's' first appointment on Saturday 23 October is a new customer who is having her hair dyed using a mixture with a ratio of 1:2 colour to developer. How much developer is required for 10 millilitres of colour?

The colour is to be left on the client's head for 35 minutes. Ruby finishes putting on the colour at 9.10am. What time is the colour ready to be washed off?

The colour treatment usually costs £60. Ruby has a special offer on today. This reduces the cost by 2.5%. How much will it cost?

Scarlett's client wants to book her next appointment for 6 weeks' time. What date is this?

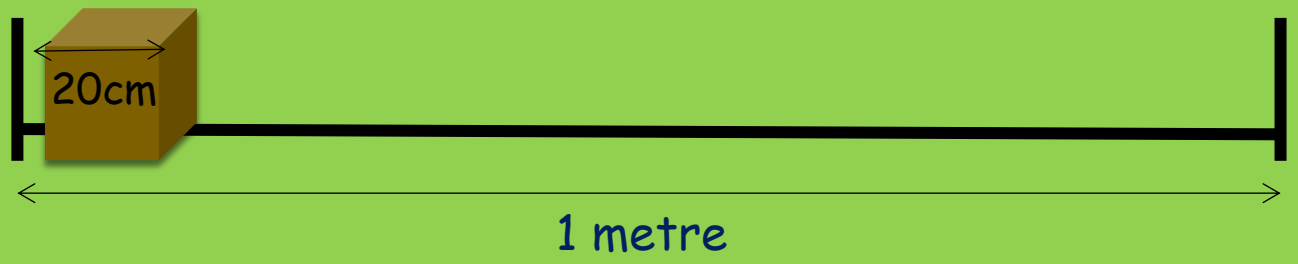
Learn more..

Home Activity!
Find your birthday on a 2017 calendar. How many weeks or days are there between your birthday and Christmas Day?

Number Crunchers

Milli and Dec are working in the local men's clothes shop today with the manager Geoff. Geoff has set a challenge for us to do before we arrive.

Geoff has received an order of 15 pairs of men's shoes. Each of the boxes is 20cm wide. The shelves on the store are each 1 metre long. How many 1 metre shelves will Geoff need to use to store the 15 boxes of shoes side by side as shown in the diagram?



Learn more..

Home Activity! Estimate how many tins of soup you would be able to fit in one row on a 1 metre shelf.

Where are Milli and Dec working today?

For the next two weeks Geoff's shop is having a sale.

Suits from £125 now £15 off

Trousersfrom £42 now 10% off

Shoes from £35 now 20% off

Shirts from £35 now half price

Home Activity!
Work out sale items that you see in the shops and online. Compare the highest and lowest saving.

Geoff has asked Dec and Milli to make new price tags for the goods in the sale. What is the sale price for each of the items?

Original Price

Suits £125

Sale Price

SALE

Original Price

Shirts £35

Sale Price

SALE

Original Price

Shirts £42

Sale Price

SALE

Original Price

Shirts £35

Sale Price

SALE

Learn more..

Milli and Dec are working at the Wildlife Zoo this week with Suzanne the Zookeeper. Suzanne is responsible for looking after the chimpanzees. One of the adult chimpanzees, Lola, has had an infection and is receiving a course of injections. Suzanne has asked Milli and Dec to work out how much she needs and bring it with them.

The drug she is receiving is administered using the formula 0.5ml/kg. Lola weighs around 42kg. What dose of the medicine will Suzanne give her?

Home Activity!
Our medicines e.g. cough syrup, are often given in 5ml doses. What can you use to measure out 5ml?

Learn more..

Where are Milli and Dec working today?

Learn more..

75% of the food Lola eats is fruit. What weight of Lola's weekly diet is fruit?

Lola has approximately 10 servings of food per day. In each serving she eats around 585g of food. Approximately what weight of food (in kilograms) does Lola eat each day?

Home Activity!
Look for food items in the kitchen that are weighed in grams and convert the weights into kilograms (you will need to use a decimal point!). If the weights are given in kilograms convert them to grams.

Milli and Dec are working at the local art gallery this week. They want to buy some art at the end of the week. Can you help them work out how much they have saved through the year to take with them?

Home Activity!
Is there anything that you are saving for? Try to work out how long it will take you to save the money you need.

Dec has saved £1.50 pocket money a week for one year. How much has he saved?

He has also saved £5 a week for one year delivering newspapers. How much has he saved?

Total amount saved for Dec?

Milli has saved £1.75 pocket money a week for one year. How much has she saved?

She has also saved £4.50 a week for one year helping her neighbour with odd jobs. How much has she saved?

Total amount saved for Milli?

Learn more..

Where are Milli and Dec working today?

Sam is planning on hanging some paintings for a show of his work.
The wall he has been given measures 5 metres from one end to the other.

Sam's pictures are all 300mm by 300mm and he is going to hang one row of pictures along the 5 metre wall. He needs to leave a gap of 200mm in between each picture and at each end of the wall.

How many of his pictures will Sam be able to fit in on the wall?

Home Activity!
Find some pictures, posters and photos around your house. Which of them are square and which are rectangular? Which has the biggest perimeter?

Learn more..

Milli and Dec will be working with meteorologist Sonia this week. She is preparing a report on the predicted weather patterns for June. She has the following information from the National Meteorological Society.

June

15% of the days are predicted to have rain
35% of the days are predicted to be sunny
55% of the days are predicted to have some cloud
5% of the days are predicted to be foggy
12.5% of the days are predicted to be windy

How many days are likely to be:

Rainy? _____ Sunny? _____ Cloudy? _____

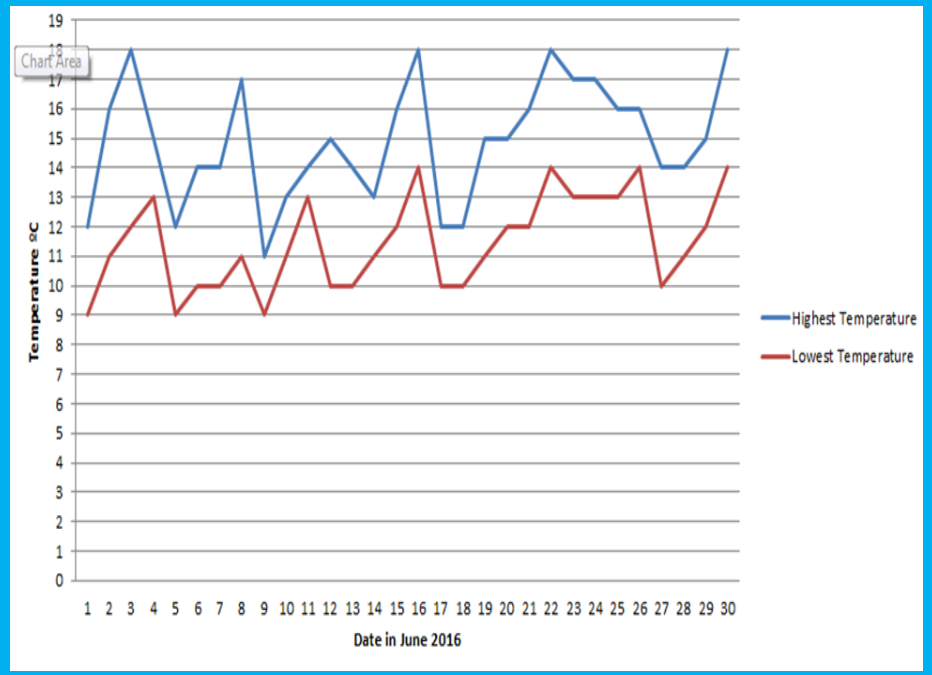
Foggy? _____ Windy? _____

Home Activity!
Look at the weather forecast for your area for the coming week. Keep a note of the weather each day and compare the forecast to the actual weather. How accurate is the forecast?

Learn more..

Remember Scotland can have more than one weather pattern in a day!

Where are Milli and Dec working today?



This graph shows the highest and lowest temperatures in Glasgow during the month of June 2016.

What was the highest temperature recorded in June 2016?

How many times in the month did it reach this temperature?

What was the lowest temperature recorded in June 2016?

How many times in the month did it reach this temperature?

What is the difference between the highest temperature recorded and the lowest temperature recorded?

Learn more..

Home Activity!
Take a note of the temperature in your town for a month. Use the data to create your own graph.

Milli and Dec are working with Angus the farmer today. Before they go they have some measuring to do. They are having their bedrooms decorated.

After the walls are painted there is a border going right round the room at the top of the walls near the ceiling.

In your bedroom estimate how many metres of border you would need and then check by actually measuring the perimeter of your bedroom.

Estimate: Bedroom:

If the border comes in rolls measuring 5 metres, how many rolls will you have to buy?

You will need a measuring tape for this task.

Home Activity!
Why not measure the perimeter of other rooms in your home? Which room has the largest perimeter? Which has the smallest?

Learn more..

Where are Milli and Dec working today?

Angus needs to replace the fence around his field. The field has 4 sides which measure 100m by 120m by 75m by 95m. He has a gate on one side which measures 2m wide. What length of fencing does Angus need?

The fencing is sold in rolls of 30 metres, each costing £60. How many rolls will Angus have to buy and what will this cost him?

Home Activity!
Using the measurements from the activity on the previous page, work out how many strips of wallpaper would be needed to paper your bedroom. Each strip of wallpaper is 75cm wide.

Learn more..

Dec and Milli are working at the airport this week with Liam Mills. Liam has asked them to work out the commute to different airports.

Learn more..

18:30	NORTHWEST	NW 1	HONG KONG
18:30	NORTHWEST	NW 7	SEOUL
18:35	NORTHWEST	NW 27	BANGKOK
18:45	NORTHWEST	SQ 12	LOS ANGELES
18:45	SINGAPORE AIR.	UA 880	HONOLULU
18:45	UNITED	OZ6604	HONOLULU
18:45	ASIANA	AA5834	BANGKOK
18:55	AMERICAN	NW 19	MANILA
19:05	NORTHWEST	SQ 11	SINGAPORE
19:10	SINGAPORE AIR.	AA5825	SAO PAULO
19:20	AMERICAN	NW 10	HONOLULU
20:15	NORTHWEST	NW 18	SAIPAN
20:40	NORTHWEST	SB 801	NOUMEA
20:40	AIRCALIN	NW 22	HONOLULU
20:55	NORTHWEST	UA9680	HONOLULU
21:00	UNITED	AA5978	HONOLULU
21:30	AMERICAN	AF 277	PARIS
21:55	AIR FRANCE	AA5976	HONOLULU
22:00	AMERICAN		

What time does the flight to Los Angeles depart? Write this time using am or pm.

How many flights are there to Honolulu? If I booked a ticket with United to Honolulu and I missed flight number UA 880, how long do I have to wait until the next available United flight to Honolulu?

Passengers are required to be at the gate at least 45 minutes before departure. What is the latest time I can arrive at the gate for flight NW 19 to Manila?

The flight to Paris takes 8 hours and 35 minutes. What time will flight AF 277 land in Paris?

Home Activity!
Go online or into your local train station and look at the timetables for your town. Work out how long the journey is to different towns and cities in Scotland.

Remember to consider time differences when travelling to other countries!

Where are Milli and Dec working today?

Liam is about to order in a delivery of salt and sand in preparation for the winter conditions when the runway has to be salted.

- The long runway is 2,600 metres long and 50 metres wide
- The shorter one is 1,100 metres long and 40 metres wide

From experience, Liam knows that there will be a maximum of 45 days in the winter when the runways have to be gritted.

Liam always does two coats of grit on each runway per day, one at 5am and one at 4pm.

The salt and sand mix comes in 25kg sacks, costing £19.99 and each one holds enough of the mixture to cover an area of 1000m^2.

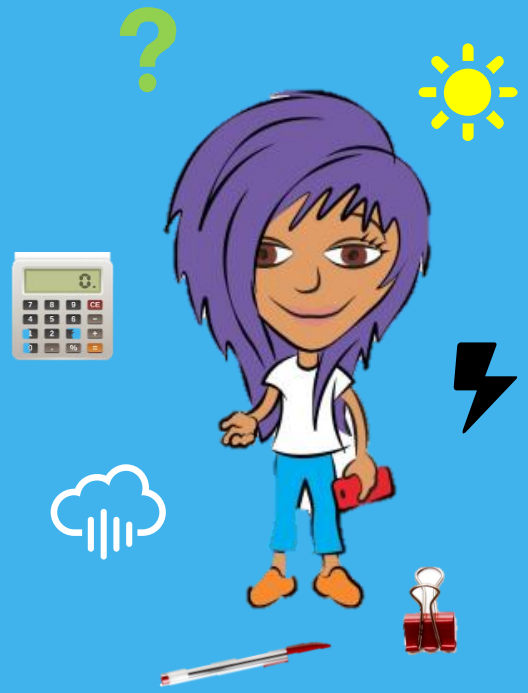
How many bags of salt and sand should Liam order and what will this cost him?

Home Activity!
Why not work out the area of some of the rooms of your house. Which has the largest area?

Learn more..

Now you are a Mathematician !
!
number
physics
fun
subtraction
space
multiplication
?
engineering
quantity
dream
Let's keep exploring Maths together!

Want to learn more?



Curriculum for Excellence Numeracy
https://education.gov.scot/maths

Read Write Count
http://www.readwritecount.scot/

Parentzone Scotland
https://education.gov.scot/parentzone

BBC Schools – Numeracy websites for 4-11 year olds with advice for parents
http://www.bbc.co.uk/schools/websites/4_11/site/numeracy.shtml

Murderous Maths 1 – a problem solving and topic-based challenges for upper primary and secondary pupils
http://www.murderousmaths.co.uk/

I love Maths! – fun maths games and puzzles for primary and secondary pupils
http://www.ilovemathsgames.com/games.html

NRICH – puzzles and games
http://nrich.maths.org/frontpage

Cool maths 4 kids (contains adverts so better with parental supervision)
http://www.coolmath4kids.com/

MathSphere - maths puzzles
http://www.mathsphere.co.uk/resources/MathSphereMathsPuzzles.htm

npfs - Career Education: A World of Possibilities
http://www.npfs.org.uk/wp-content/uploads/2015/09/NPFS_world_of_possibilities_1509_E.pdf

Glossary

Angle, symmetry and transformation
https://education.gov.scot/parentzone/Documents/AngleSymmetryTransformation.pdf

Data and analysis
https://education.gov.scot/parentzone/Documents/DataAnalysis.pdf

Estimation and rounding
https://education.gov.scot/parentzone/Documents/EstimationRounding.pdf

Expressions and equations
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Fractions, decimal fractions and percentages
https://education.gov.scot/parentzone/Documents/FractionsDecimalFractions.pdf

Ideas of chance and uncertainty
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Powers and roots
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Properties of 2D shapes and 3D objects
https://education.gov.scot/parentzone/Documents/Properties2Dshapesand3Dobjects.pdf

Time
https://education.gov.scot/parentzone/Documents/Time.pdf

Thank you to . .

Susan Stewart

Renfrewshire Council

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Parentzone SCOTLAND

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