Cooking with Maths

Edible dominoes

Make edible dominoes using this recipe from Sainsbury's

https://recipes.sainsburys.co.uk/recipes/baking/domino-biscuits

You will need to weigh with grams and measure volume with tablespoons. 1 tablespoon is 15ml, can you convert the amount of milk into ml? What about if you made a double batch? Can you double the other ingredients too? You have to roll out the dough until it is 3mm thick. Use a ruler to check. Last of all cook them for 10 minutes. If you put the dominoes in at 3:30 what time would they be ready? What would that time look like on an analogue clock?

Young children need to practise subitising (instantly recognising the number of objects in a small group without counting them) so put the smarties into a variety of arrangements on the biscuits instead of sticking to the classic dice formations in the picture.

Ask older children to think systematically. If you had a different colour for each number, how many of one colour would you need for all the dominoes with a 6 on? With a 5 on? Etc. Can you use one answer to calculate the next answer more quickly? How?

Play classic dominoes to practise number recognition and matching. Play again but this time, instead of matching numbers, place dominoes touching so that the total where they touch is always 6? Can you make a list of all the possible combinations in order?

Add the numbers on each domino and sort them by total. Can older children work out how many dominoes there will be for each total before checking practically. What if the dominoes could have 7 or 8 on them?

Playdough

Make playdough – you could try this simple no cook recipe
https://www.bbcgoodfood.com/howto/guide/playdough-recipe

If you wanted to make two different colours, how much of each ingredient would you need now? What about if you wanted to make 3 colours or 4?

Use playdough to investigate length and mass through play. Can you roll a sausage that is longer than the spoon? Shorter than the key? Can you make a bun that is heavier than the teaspoon? Help your child to get a feel for how heavy a gram and a kilogram are by using scales and by looking at weights on bags e.g. flour.

Make playdough cupcakes and provide real decorations to put on them. Young children can follow a 'recipe' to decorate their cake making sure they recognise numerals and count accurately. Older children can work on division, multiplication and fractions with questions like. If we wanted to put 3 candles on each cake, how many candles would we need altogether? We have 24 silver balls and 6 cakes. If we want to share them equally how many would be on each cake? We are going to share the cakes between 4 children, how many cakes will they each get? Put a third of the jelly beans on this cake and then share the rest equally. How many will be on that cake?

Mr Twit symmetrical pie

Make a pie with mashed potato on top like a Shepherd's Pie or a Fish Pie.

Use different food ingredients to make a face on top. Can you name the different 2d and 3d shapes and say why they would be good for each body part? E.g. we need a sphere for the eyeball. The eyebrows should be rectangle-shapes. What could we find for that? Try to make your face symmetrical too. The original design (pictured) comes from Roald Dahl's revolting Recipes but you could make an animal face or even yourself.

MR. TWIT'S BEARD FOOD
FROM *THE TWITS*

Roman Ratio cookies

Not every roman household would have been rich enough to have scales. Imagine cooking without scales. The recipe may have been given in parts like on the right. The parts are mass not volume.

flour   sugar   butter

Yikes! We do not have the right amounts...

500 grams   500 grams   300 grams

Puzzle it out before you bake.

Give your child 500g of flour, 500g sugar and 300g butter that they have bought at the Roman market and 10 cups.

They cannot afford to buy more of anything but it is OK to have some ingredients left over. It is important to make as many biscuits as possible from these ingredients while maintaining the correct ratio.

Can they work out a method using just the cups? Ask them to show their logic on a piece of paper with words or pictures before mixing ingredients. (answer upside down below)

(NB: remember 500g of different ingredients don't always take up the same volume e.g. 500g of cornflakes would be more cups than 500g of flour so you can't just do the same volume of sugar and flour.)

You could use your cookies to investigate factors. You can watch the video of The Doorbell Rang for some ideas for 12 cookies. https://www.youtube.com/watch?v=BXtu90JnDkM

Assuming you baked 12 cookies you could represent the recipe using the algebraic equation

$4f + 2s + 3b = 12c$

Using these costs for the original ingredients can you calculate the cost per cookie?

flour cost 20 aureus for 500g, sugar cost 5 aureus for 500g, butter cost 10 aureus for 500g

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Solution to Roman Ratio Cookies
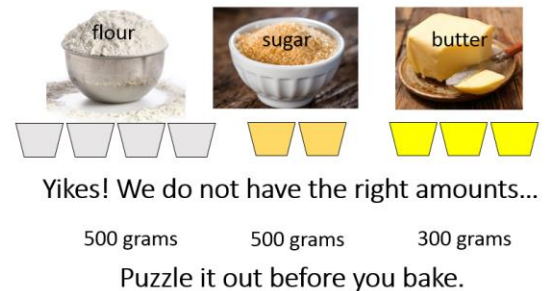
It is important to give children time to investigate options. They may start by wanting to do 4 cups of flour and 2 cups of sugar—see NB in brackets for why this doesn't work. They may then divide flour between 4 cups giving 125g but they won't have enough butter for 3×125g. Hopefully they will realise that splitting butter into 3 gives 100g and they can then use 5 cups to split flour into 5 lots of 100g and sugar into 5 lots of 100g and use the correct number of cups of each. They will have 1/5 of the flour left and 3/5 of the sugar left at the end.

Algebra part of this aimed at year 6 only

$4f + 2s + 3b = 12c$ $(4×4) + (2×1) + (3×2) = 12c$ $16 + 2 + 6 = 12c$ $24 = 12c$ If 12 cookies cost 24 aureus then 1 costs 2 aureus ($c = 24 ÷ 12 = 2$)

First 4 Maths