Maths4Prisons

Money

niace
promoting adult learning

Contents

Section 1 – The Maths Mentor project

About the Maths Mentor project

You've been trained to act as a Maths Mentor through a project established by the National Institute of Adult Continuing Education (NIACE) and funded by the Department for Business, Innovation & Skills.

The Maths Mentor project is part of a wider initiative called Maths4us, which trains maths champions inside and outside prisons to promote the benefits of learning maths and encourage others to 'get maths-active'. Maths mentors do this but also go further: you have been trained to support others to handle some everyday maths situations, tackle some maths topics, become more confident mathematically and make the most of formal and informal maths education opportunities.

Getting started as a maths mentor

We know from our pilots that prisoners may notice your Maths4us t-shirt and ask for help with personal budgeting (for example, with the 'canteen sheet') or with reading dates and times. They may say that they'd like to get better at the times tables, adding or other topics. They may just say that they'd like to be able to help their children with maths. Or they might say they're thinking of joining a maths class but have concerns about it. So your starting point may be just an informal conversation.

Choosing an activity

If your mentee has talked about a particular topic, look at the first page of the 'route map' in the *Maths Mentor Handbook* and then find a suitable activity. If your mentee has just said something like 'I want to get better at maths' or 'I want to be able to help my children' you could browse the route map together or look through the activities in the booklets to find something that looks relevant. You don't have to work through all the activities or do them in a set order; it's better to start with something that looks interesting.

There are four learning activities booklets:

Whole Numbers

Money

Time and Distance

Mathematical Magic

Deciding what to do next

When you and your mentee have done an activity and discussed how it went, decide together what to do next. You could use the route map in the handbook or just browse through the booklets to help with this. You don't have to work through all the activities in a booklet, or do them in any particular order, though the route map does make some suggestions. It's important to remember that the activities booklets are not textbooks that you need to work through from beginning to end. They don't cover all the maths an adult might want to know about; they're just starting points to get things moving.

In addition, you can support your mentee to think about joining a maths class; you could perhaps talk about your own experience of being in a class, or use some of the materials from your *Maths Mentor Handbook* to help your mentee think about what it would be like to be in a class, and what the benefits might be. Remember to use active listening skills during this conversation; your mentee is trying to make a decision and may want to talk things through with you in detail.

Section 2 – Learning activities

Half the problem

Do	Have a number line, some counters or other objects, and pen and paper handy.
Say	*We're going to work on fractions – halves and quarters.*
	For example, if you have £20 and you're going to split it equally with your brother, you each get half of £20. To work out half of £20, you divide £20 by 2. Can you say how much that is?
	Can you make up some more examples?
	Using a number line or some counters may help here.
Check	Has your mentee made up some more examples and worked out half of each? Did your mentee do these in his/her head?
Say and do	For this next section you and your mentee might want to draw some diagrams or pictures to help your mentee understand what's going on.
	If you've worked out half, you can easily work out a quarter, because a quarter is a half of a half. So if you had a brother and two sisters and wanted to split the £20 equally among all four of you, you could work out half – that's £10 – and then half again – that's £5. Each of you would get a quarter of £20, that's £5.
	Can you work out a quarter of each of these amounts of money?
	£100 £60 £50 £36 £28
Check	Has your mentee worked these out correctly? Encourage him/her to use the number line or counters or diagrams if that helps, and to check 'backwards' by multiplying the answers by 2 and by 2 again.

Discuss   Talk with your mentee about other situations where he/she might want to work out halves or quarters. Encourage your mentee to practise outside the session by spotting numbers (in newspapers, leaflets, posters or books) and working out a half and a quarter.

Reflect and record   Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

A third of the problem

Do   Have a number line, some counters or other objects, a completed multiplication chart (see p. 16), and pen and paper handy.

Say   *We're going to work on fractions; thirds this time.*

For example, if you have £24 and you intend to split it equally between you and your two sisters, you each get one third of £24. To work out a third of £24, you divide £24 by 3. Can you say how much that is?

Using a number line, some counters or a multiplication grid may help here.

Can you make up some more examples?

Check   Encourage your mentee to check 'backwards' by multiplying the answer by 3. For instance, if he/she got £8 in the example above, check 3 x £8; you should get back to £24.

Discuss   You may need to work together on how to use the multiplication chart for this activity. See the highlighted example overleaf; to divide 24 by 3 you find 24 in the chart, read up or over to find the 3 and then read the other way to find the answer, which is 8. (The orange squares also have 24 in them, but are no use for this calculation because they deal with dividing by 4 or 6.)

Think together of situations where you might need to divide by 3.

Reflect and record   Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

The multiplication chart – dividing 24 by 3

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Tenths and fifths

Do	Have a number line, some counters or other objects, a multiplication grid (see p. 16), and pen and paper handy.
Say	*We're going to work on fractions; tenths and fifths this time.*
	For example, if you have £30 and you intend to split it equally between you and your nine siblings, you each get one tenth of £30. To work out a tenth of £30, you divide £30 by 10. Can you say how much that is?
	Using a number line or some counters or a multiplication grid may help here.
	Can you make up some more examples?
Check	Encourage your mentee to check 'backwards' by multiplying the answer by 10. For example, if he/she got £3 in the example above, check 10 x £3; you should get back to £30.
Say	*But if you only had four siblings, you'd be sharing £30 among 5 people, so each would get a fifth. Try to work out how to share £30 among 5 people.*
Check	Encourage your mentee to check 'backwards' by multiplying the answer by 5. For example, if he/she got £6 in the example above, check 5 x £6; you should get back to £30.
Discuss	Think together of some situations where you need to divide by 5 or by 10.
Reflect and record	Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

The canteen sheet

Finding your way around it

Do	Have a copy of your canteen sheet handy, or use the sample version on pages 19–21.
Say	*We're going to work on the canteen sheet.*
	Have a look at the different kinds of things you can buy, and make a list of some different kinds of things you could buy, starting with the 'Phone and Stamps' section.
Check	Has your mentee (with your help if necessary) read out at least some of the categories, starting with the Phone and Stamps section and finishing with Biscuits and Bakery? The idea here is just to encourage your mentee to scan the canteen sheet to see that there are different types of things available and to begin to find their way around the sheet; it doesn't matter if they don't list **all** the categories of things they could buy.
Say	*Tell me something you want to buy. What category would it be in?*
	Where would you find wine gums?
	Where would you find envelopes?
	Where would you find toilet roll?
	Now tell me something else you want to buy and find it on the sheet.
Discuss	Your mentee might like to make a list of the things he/she wants to buy. Offer to help with that, and suggest that he/she puts the most important things at the top.
Reflect and record	Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

The canteen sheet

How much do things cost?

Do	Have your canteen sheet handy and a calculator if possible. Be prepared to help your mentee with the reading and writing involved and remember that he/she may not be familiar with pounds and pence. If you don't have a calculator you may need to help with the adding as well. There are other activities that help with adding (you can find them from the route map); you might like to use some of these first and then come back to the canteen sheet.
Say	*Can you make a list of everything you want? You might find it helpful to use the shopping list sheet.*
	If this is difficult, try the activity called 'The canteen sheet: Finding your way around' first (see p. 10).
	Tell me something you want to buy, and find it on the sheet. How much does it cost?
	Can you write down the name of the item and how much it costs?
	Are there other things you want to buy? Find them and see how much they cost.
Check	Has your mentee found various items and their costs?
Say and do	*Now we're going to find out how much all those items would cost. We can add them up on the calculator.*
	What's the total? Do you think you've got that much money?
Discuss	The canteen sheet may list an item costing £0.65 and you may need to help your mentee realise that this is the same as 65 pence.
	If the mentee isn't sure how much money he/she has available to spend, have a look at 'The canteen sheet: Have you got enough money?' (see p. 13).

Reflect and record

Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

The canteen sheet

Have you got enough money?

Do   Have a calculator and a blank copy of the income sheet ready (see p. 18). You'll also need the shopping list your mentee created earlier.

Be prepared to help your mentee with the reading and writing involved. If you don't have a calculator you may need to help with the adding as well. There are activities in the *Whole Numbers* learning activity booklet that will help with adding and subtracting; you might like to look at these and then come back to the canteen sheet.

Say   *Do you know how much money you have left over from last week? Can you write that down?*

Do you know how much 'new' money you'll be getting this week? Wages this week? Other spends this week? Other income this week? Can you write them all down?

Can you work out the total amount of money you can spend this week?

Check Has the mentee added up the 'leftover' plus the 'new' money correctly?

Say   *Is there anything you need to put money aside for, apart from your canteen sheet spendings? Can you put that on the form? Can you work out how much you have left for canteen spending?*

Check If your mentee wants to put aside money for anything else, e.g. savings or victim support, has he/she put that on the income sheet? Has he/she subtracted that from the total to work out how much is available for canteen spending?

Say   *Can you afford all the items on your list? Compare the amount of canteen money you have with your canteen shopping list.*

If not, is there anything you can do without this week? We can take that off the total and see if you can afford what's left.

Check	Has your mentee checked the two amounts correctly? Has he/she removed items from the shopping list if necessary?
Discuss	Your mentee might want to make a note of any items he/she couldn't afford this week so that perhaps they can be bought next week.
Reflect and record	Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

The canteen sheet

Filling in the form

Do	Have a canteen sheet ready to fill in.
Say	*We're going to fill in the canteen sheet. Have you got your shopping list ready?*
Check	Has your mentor checked the shopping total against his/her income? If not, you might suggest doing the 'Canteen sheet: Have you got enough money?' activity first (see p. 13).
Say	*What's the first item on your shopping list? Can you find it on the canteen sheet? Make sure you write in the correct number of packets of sweets, etc.*
	Now find all the other items and write in the correct quantity on the canteen sheet.
	You also need to write in the total number of items you have asked for. Can you do that?
	You also need to write in the total cost. You can copy that from your shopping list.
	That's it!
Discuss	Ask your mentee if he/she feels confident about doing the canteen sheet now. Offer to help next time round if he/she is not confident; but encourage him/her to try it independently as well.
Reflect and record	Reflect on how this activity went. Record the name of the activity your mentee has just done, say how it went and invite your mentee to add comments. Discuss what you want to do at your next session; make a note of this and, if possible, arrange a time and place for the next session.

Appendix

Multiplication chart

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Shopping list

Items I want to buy	Cost
Total cost of all the items:	

Income sheet

Type of income	Amount of income
	£ . p
Left over from last week	.
This week's wages	.
This week's private spends	.
Any other income this week	.
Total income	.

Total income	.
Money I need to put aside before spending on the canteen sheet	.
Money available for spending on the canteen sheet	.

Canteen sheet

Price	Item	Item code	Quantity
Phone and Stamps			
£1.00	Phone credit	PC	
£0.60	1st class stamp	967540	
£0.50	2nd class stamp	967551	
£0.10	10p postage stamp	127551	
£1.65	Worldwide stamp	267551	
Tobacco			
£3.75	Tobacco 12.5g	137551	
£7.31	Tobacco 25g	863899	
£3.82	Cigarettes (10-pack)	773898	
£0.20	Cigarette papers	264567	
£0.40	Cigarette papers (liquorice)	567436	
£0.25	Cigarette papers (green)	564656	
£0.75	Lighter (child resistant)	644788	
Batteries			
£1.75	Battery +C (1s)	955420	
£0.75	Battery C (1s)	098197	
£0.75	Battery D (1s)	098198	
£0.50	Battery AA (1s)	098195	
£0.37	Battery AAA (1s)	098196	
Stationery			
£0.15	Manilla envelope (single)	090294	
£0.40	Manilla envelopes (10s)	131027	
£0.04	Clear multi-punched pocket	126499	
£0.99	A4 plain pad	093878	
£1.19	SE A4 refill pad (80 sheets)	125836	
£0.40	DL envelopes (10-pack)	131042	
£1.49	Coloured pencils (24-pack)	1126455	

Canteen sheet (continued)

Price	Item	Item code	Quantity
General Items			
£2.59	Handwash 960g	789990	
£0.60	Economy washing up liquid	127344	
£1.05	Economy toilet tissue twin	114083	
£2.45	Plain headless model matches	093624	
£0.15	Microwave/Storage container	051688	
£1.99	Flip flops (sizes 8–11)	099046	
£1.00	Playing cards	128317	
Toiletries and Health			
£1.13	Branded hairbrush	967547	
£2.03	Toothpaste 125ml	967553	
£3.09	Toothpaste 45ml	967559	
£1.83	Tooth powder freshmint	967577	
£2.76	Mouthwash 250ml	879467	
£1.32	Dental floss 100ml	879473	
£1.99	Dental floss sticks	478906	
£2.56	Denture cream	478912	
£1.53	Roll-on deodorant 50ml	949923	
£0.70	Economy shower gel 250ml	325567	
£2.59	Branded shower gel 250ml	966896	
Sweets and Snacks			
£1.00	Wine gums bag	128584	
£1.00	Murray mints	101625	
£1.00	Toffees	124856	
£0.99	Midget gems jellies bag	11875	
£0.59	Chocolate bar	549873	
£0.65	Dry roasted peanuts 50g	107626	
£1.59	Tropical fruit & nut 350g	126933	
£0.85	Pork scratchings	084456	
£0.69	Bombay mix 80g	122522	

Canteen sheet (continued)

Price	Item	Item code	Quantity
Biscuits and Bakery			
£0.55	Economy custard creams	128509	
£0.85	Economy ginger nuts	128495	
£0.85	Economy rich tea	128499	
£0.75	Jam rings	124853	

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