# Move On Carefully: numeracy

move on

## Module 1: Making calculations – session plan

Group: ............................................................................................

Tutor: ............................................................................................

Location: ............................................................................................

### Aims

- Develop and/or consolidate numeracy skills around handling numbers confidently relevant to their role in care.
- Prepare for typical questions from the Level 1 National Certificate in Adult Numeracy.

### Outcomes

- Discuss and use approaches to $+ - \times \div$        N1/E3.2–6, N1/E3.9, N1/L1.3
- Discuss and use rounding        N1/E3.7, N1/L1.8
- Consider ways we use to check answers        N1/E3.8, N1/L1.9
- Relate making calculations to their own experience and to their work role

| Activity and time | Tutor activity | Learner activity |
|---|---|---|
| **Icebreaker**<br>10 mins | • **Activity 1**: Ordering numbers. Create a long number line for each small group (e.g. long piece of string, table length, line across the whole board), marking one end as 0 and the other as 1 000, but no numbers in between.<br>• Hand out the number cards and ask participants to place each of their cards where they think it will go onto the line. Encourage them to do this fairly quickly.<br>• Work as a group to re-order any cards that need moving slightly, so all the numbers end up in the right order from smallest to largest.<br>• Use the shaded cards and a line marked from 0 to 2 000 as an extension if appropriate. | • **Activity 1** in threes or fours.<br>• Contribute and respond. |

skillsforcare
NORTH WEST

TRIBAL

| Activity and time | Tutor activity | Learner activity |
|---|---|---|
| | • **Plenary**: As a whole group discuss:<br>  – How was it?<br>  – How did they decide where to put each of their cards?<br>  – Were any more difficult to decide about? Why might this be?<br>  – Can they think of examples of when they use similar skills in work tasks or in real life? | |
| **Introduction**<br>10 mins | • Summary of what was done in the introductory module, if appropriate.<br>• Show **slides 2 and 3**, giving objectives for the session.<br>• Discussion of use of numbers and of the four operations in work roles.<br>• Show of hands: who doesn't ever need adding, subtracting, multiplying or dividing skills in everyday or work contexts? Explain that these are foundation 'background' skills that will help participants' confidence to apply a wide range of broader maths skills to work and everyday contexts. | • Listen and contribute. |
| **Making calculations – symbols and words**<br>15 mins | • **Activity 2**: Four operations. Ask the participants to sort the cards into four piles, one for each of + − × ÷.<br>• Discuss how they decided and which words in particular gave clues about which operation.<br>• What other cue words can they think of?<br>• **Plenary**: Discussion of activity and collation of words which might indicate each of:<br>+ − × ÷ | • **Activity 2** in small groups.<br>• Contribute and respond. |
| **Examples of calculations used at work**<br>10 mins | • Typical work tasks: Brainstorm some typical work tasks that involve + − × ÷.<br>• Offer work forms, if appropriate and encourage participants to identify which of + − × ÷ are needed for different ones. | • Contribute and respond. |

| Activity and time | Tutor activity | Learner activity |
|---|---|---|
| **Approaches to:**<br>**+ − × ÷**<br>20 mins | • **Activity 3**: How would you work out these? Discussion of approaches and methods of calculation.<br>• Discussion of mental versus paper strategies (**slide 4**) and application to work contexts. | • **Activity 4** in threes.<br>• Contribute to plenary.<br>• Identify which approaches used most in work contexts. |
| **Adding, subtracting, multiplying and dividing**<br>20 mins | • **Activities 4a and 4b**: Self-assessment. Group discussion of confidence with different operations (and if appropriate of strategies used).<br>• Error analysis and identification of areas for practice.<br>• Emphasise that the next module will offer lots of opportunity to consolidate and build skills. | • **Activity 4** individually and then discuss in pairs/small groups.<br>• Check answers, discuss and identify aspects confident about and areas for practice. |
| **Break**<br>15 mins | | |
| **Relationships between the four operations**<br>**Activity 5**<br>20 mins | • **Activity 5**: Making equations. Ask participants to cut each numbered strip into individual cards and then arrange the cards in each set so they make an equation. They can put the cards in any order they like and use the blank one(s) to write in additional numbers or symbols.<br>• Use shaded cards as extension activity if appropriate.<br>• **Plenary**: Discussion of activity. How was it? Compare answers. Are there different options?<br>• Draw out the concept of inverse operations (although you don't need to use the terminology unless appropriate) e.g. 4 + 6 = 10, so 10 – 6 = 4. | • **Activity 5** in small groups.<br>• Contribute and respond. |
| **Checking answers**<br>10 mins | • Brainstorm and group discussion on how and when participants check calculations.<br>• Collate suggestions onto flipchart or whiteboard.<br>• Summarise key checking approaches (using **slide 5** if required). | |

| Activity and time | Tutor activity | Learner activity |
|---|---|---|
| **Rounding**<br>15 mins | • Brainstorm examples of when we use rounding. Are there work situations for which it is important?<br>• **Activity 6**: Rounding to the nearest . . .<br>• Ask participants to use the examples to think about how they would explain rounding (up or down) to someone else. (The number lines in **Activity 6a** might be useful for some participants to help them.)<br>• **Plenary**: to share suggestions and discuss. | • Contribute and respond.<br>• **Activity 6** in pairs or threes.<br>• Contribute and respond. |
| **Practice with typical work calculations**<br>15 mins | • **Activities 7a, b and c**:<br>  – Activity 7a: Mileage records<br>  – Activity 7b: Leave records<br>  – Activity 7c: Ordering stock<br>• Encourage participants to choose appropriate activity(s) to practise their skills using the work related records, or use their own examples and work records to practise these skills. | • Choose activities and complete, working in pairs if appropriate. |
| **Practice opportunities with background skills:**<br>**+ − × ÷** | • **Activities 8–12**:<br>  – Activity 8: Subtraction<br>  – Activity 9: Multiplication<br>  – Activity 10: Division<br>  – Activity 11: Rounding<br>  – Activity 12: Using checking back methods<br>• These activities can be offered (as required) to provide contextualised practice of background skills. | • Choose and complete at home if useful. |
| **Summary**<br>15 mins | • Revisit session objectives (**slide 3**).<br>• Feedback, comments and questions.<br>• Programme journal (**slide 6**).<br>• Discuss individual tasks and practice opportunities.<br>• Discuss opportunities to apply skills to work and everyday life between sessions.<br>• Offer practice test questions. | • Reflect on session and identify areas for further practice.<br>• Agree independent learning task(s). |

## Resources/aids

- PowerPoint presentation
- Activity cards: 1, 2, 5
- Activities: 3, 4a, 4b, 6, 7a, b, c, 8, 9, 10, 11, 12
- Practice test questions: Whole numbers
- Programme journals
- Flipchart and markers
- Small whiteboards and pens
- Any suitable supplementary materials

## Assessment evaluation
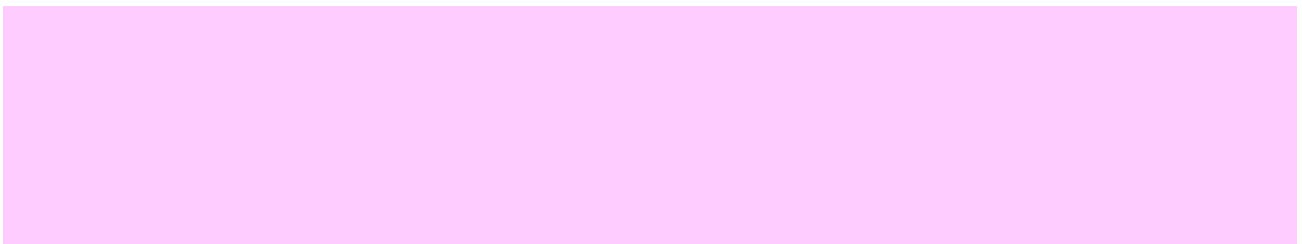
## Individual learning planning

| Learner | Skills | Activity/resources | Evaluation (where next?) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

# Move On Carefully: numeracy

## Module 1: Making calculations – guidance notes

### Icebreaker

Use **activity 1: Ordering numbers** (cards) as an icebreaker. Each participant has several cards to place along the 'number line'. Use a large-scale line as described so that the activity involves physically moving to some extent. Encourage participants to place their numbers fairly quickly and explain that they will get chance to move them later if they want.

Afterwards briefly discuss as a group:
- How was it?
- What skills did they use in deciding where to put their numbers?
- And in deciding how to re-order them (if needed)?

Encourage participants to try to think of any occasions when they use similar skills.

### Introduction

Outline the aims and objectives of the module (show **slides 2 and 3**).

Explain that this first session will give them a chance to think about how they use calculations at work and to build on what they already know and can do, and so build confidence.

Ask for a show of hands of any participants who don't ever use + − × and ÷ in work or everyday life. (This shouldn't be many – if any!) Stress that you don't mean written 'sums', but any situations that involve working our multiples of things, working out how many things 'go into' some amount or sharing amounts out. If necessary give some everyday examples of each of these.

Remind participants of the point made during the taster session that sometimes practice will be provided on key background skills or concepts that are important to help with other maths topics – especially in areas which often hold adults back with their maths skills. Explain that the aim of this session is to help participants become more confident with the four arithmetic operations (+ − × ÷, especially × and ÷). Explain that to help achieve this, the focus of activities will be on getting involved, on exploring approaches and concepts (encouraging them to think about which work best for them) rather than just completing calculations in a mechanical way. Reinforce the value and importance of practising between sessions. Explain that the session may help participants to identify some particular skills they would benefit from practising further, and that you will be able to suggest ways for them to do this and some possible sources for materials to help.

### Making calculations – symbols and words

### Activity 2: Four operations

Give out **Activity 2** cards in small groups and ask participants to sort them into piles, one for each of + − × ÷. Ask them to then look at the cards and pick out any key words that helped them decide which sort of question it was. Get them to think of and list other 'cues' that may indicate which operation is needed for particular calculations.

After the activity, collect the vocabulary they identified as a whole group.

### Examples of calculations used at work

Ask participants for examples of when they use addition, subtraction, multiplication or division in their work roles. Again, emphasise that you are thinking of any situations when they use these skills, not just when they need to write them down as written calculations.

If appropriate, offer some examples of work forms to help them think about this. Ask them to identify from these which operations are used in completing different forms.

### Approaches to + − × ÷

### Activity 3: How would you work out these?

Ask participants to work in threes to discuss how they would tackle the calculations described. Encourage them to think about how they would do this in real situations, rather than as a maths exercise.

For more confident participants, ask them to also show one another a couple of examples of how they would lay out and calculate particular questions if they were writing them as a pen and paper calculation.

As a whole group, share their approaches and strategies:
- How did they tackle the different questions?
- What methods of calculation did they use?

Draw out the idea that we often use different approaches depending on the context, numbers involved and the particular question. (For example, for change we may use a 'counting on' method; in our head we often use our knowledge of the relationships between numbers, e.g. for working out 5s into 100 we may work out how many 10s in 100 and then relate this to 5s).

Use **slide 5** to summarise the fact that we may approach calculations differently depending on whether we are doing them in our head, using a calculator or with pen and paper.

Discuss how this relates to the calculations they need/use at work. Do they tend to be mental, with a calculator, or on paper?

If appropriate emerging from **activities 3 and 4**, facilitate sharing of different methods of calculating and laying out different operations:

- Subtraction – decomposition, partitioning, 'borrow and pay back', etc. (see appendix 1)
- Multiplication – traditional, lattice, grid methods, etc. (see appendix 2)

## Adding, subtracting, multiplying and dividing – self-assessment

### Activity 4a and 4b: Self-assessment

Following on from the above, ask participants to look at **activity 4** and think about which they would be confident to tackle. If appropriate, encourage them to work out the sums and then to check their answers. Explain that it doesn't matter if they are not sure about some of them. **The purpose of the activity is to help them think about what they might need to have help understanding/remembering.** Encourage them to use the activity as an opportunity to reflect on or discuss together which bits (if any) are getting in the way and which it might be useful to practise, such as:

- is it two- or three-digit numbers that are difficult?
- is 'borrowing' a problem in subtraction?
- is it remembering or applying a method to × or ÷? Or is not remembering the × bonds making it difficult?
- do zeros cause problems or uncertainty?

Encourage participants not to get bogged down with questions they aren't confident about as this activity is only to find out where they are starting from and which skills in particular it would be useful to practise more. Emphasise that there will be lots of opportunities to consolidate and build on skills in future modules, especially in the next session, when (amongst other things) strategies to help remember and learn multiplication bonds will be covered. (This is often a problem for adults who lack confidence with maths.)

## Relationships between the four operations

### Activity 5: Making equations

Ask participants to cut each numbered strip into individual cards and then arrange the cards in each set so that they make an equation. They can put the cards in any order they like and use the blank one(s) to write in additional numbers or symbols. Use shaded cards as extension activity if appropriate.

Afterwards, discuss as a whole group:

- How was it?
- Are there different options? Why?

Draw out the concept of inverse operations (although you don't need to use the terminology unless appropriate), e.g. 4 + 6 = 10, so 10 – 6 = 4.

## Checking answers

Brainstorm how and when participants check calculations, collating suggestions onto the flipchart or whiteboard. If appropriate, summarise key checking approaches using **slide 5**.

## Rounding

### Activity 6: Rounding to the nearest . . .

Encourage participants to think of examples of when they use rounding, especially in any work situations.

Ask participants to think about how they would explain rounding (up or down) to someone else. Encourage them to use the 'Rounding to the nearest 10' and 'Rounding to the nearest 100' questions to help them think about this if they want. If some participants need additional, ideas offer them the number lines in **activity 6a**.

Afterwards get together as a whole group to share suggestions and discuss these.

## Practice with typical work tasks

**Activities 7a, b and c:** Encourage participants to choose appropriate activities to practise their skills using the work-related forms:
- Activity 7a: Mileage records (and, for example, work-related form – mileage form 1)
- Activity 7b: Leave records (and work-related form – leave)
- Activity 7c: Ordering stock (and, for example, work-related form – ordering)

If possible, get participants to bring and use their own examples and work records to practise these skills

## Practice with background skills

**Activities 8–12** can be offered (if required) to provide practice of background skills in questions contextualised to a care context:
- Activity 8: Subtraction
- Activity 9: Multiplication
- Activity 10: Division
- Activity 11: Rounding
- Activity 12: Using checking-back methods

## Summary

Revisit the session objectives (**slide 3**) and reflect on how the session went.

Encourage participants to:
- reflect on what worked well for them as individuals and to think about information that helped them to understand, remember or learn more
- identify any aspects they are still unsure about or want to practise further
- identify opportunities to relate what they have learnt to their work context or role between sessions, for example noting any situations when they needed to add, subtract, multiply or divide, or to check or round answers
- record relevant information on a **programme journal**. Use **slide 6** as a cue, if appropriate.

Offer participants the opportunity to try **practice test questions**, or encourage them to do these questions between sessions. Explain that practice questions will be used throughout the course to give participants the opportunity to get familiar with the types and format of the questions in the Level 1 National Test. In a brief plenary (either in this or the next session as appropriate), discuss how they got on with the questions and how they felt doing them.

Encourage them to use the free resources available (**slide 7**) to practise between sessions if appropriate.

## Appendix 1: Subtraction approaches

### Decomposition

```
  8 ²3̷ ¹2
− 4 7 5
_____
      7
```

```
 ⁷8̷¹²3̷¹2
− 4 7 5
_____
  3 5 7
```

Commentary:
2 take away 5 we can't do
If we change the 30 into 20 plus 10 units we can put the 10 units in the units column
Then we have 12 (ten and 2) take away 5 is 7
Write 7 in the units place
Looking at the tens column we have 20 take away 70 which we can't do
We can change the 800 into 700 and 10 lots of 10
120 take away 70 is 50 and then we write 50 in the tens column
700 take away 400 is 300

### Partitioning

Breaking down or splitting the given numbers to make them easier to handle. For example:

|   | 832 | is | 800 | + | 30 | + | 2 |
|---|-----|----|-----|---|----|---|---|
| - | 475 |    | - 400 | + | 70 | + | 5 |
|   | 357 |    |     |   |    |   |   |

|  |  | is | 800 | + | 20 | + | 12 |
|---|---|----|-----|---|----|---|----|
|   |   |    | - 400 | + | 70 | + | 5 |

|  |  | is | 700 | + | 120 | + | 12 |
|---|---|----|-----|---|-----|---|----|
|   |   |    | - 400 | + | 70 | + | 5 |
|   |   |    | 300 | + | 50 | + | 7 |

## Using a number line ('counting on')

Another way to solve this problem involves the use of a number line.
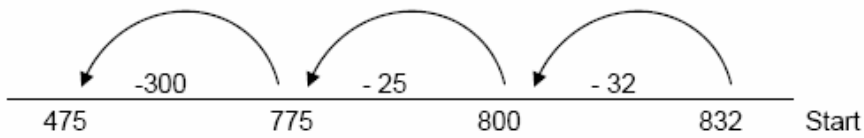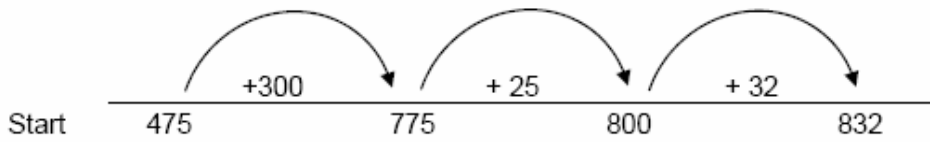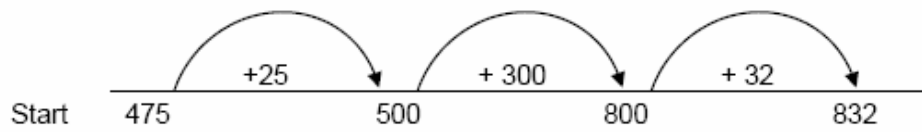
## Appendix 2: Multiplication approaches

**Traditional method**

```
      32
      41  ×
      32
  1 280  +
  1 312
```

Put a zero in the units first (because you are now multiplying tens).

**Grid method**

| ×   | **30**  | **2** |
|-----|---------|-------|
| **40** | 1 200 | 80  |
| **1**  | 30    | 2   |

1 280  +

32

**1 312**

Separate the hundreds, tens and units.

Multiply 30 × 40 = 1 200, etc.

Add the answers across and then down.

**Lattice method**



- Draw a grid with diagonal lines like this.
- Put 32 across the top and 41 down the right-hand side.
- Multiply 2 × 4 = 08
- Split the answers into tens and units:
  – Put the tens on top; if no there's no tens, then put a 0.
  – Put the units on the bottom.
- Multiply 3 × 4 = 12, etc. for each cell of the table.
- To find the answer, add together the numbers in the diagonal lines. Start with the bottom right-hand corner.

**Move On Carefully: numeracy**

**Module 1: Making calculations**

skillsforcare
NORTH WEST

TRIBAL

---

**Aims**

To enable participants to:

- consolidate numeracy skills around handling numbers confidently and relating this to your role(s) in care

- prepare for typical questions from the Level 1 National Certificate in Adult Numeracy.

2

---

**Module objectives**

Participants will:

- discuss and use approaches to + − × ÷
- discuss and use rounding
- consider ways to check answers
- relate making calculations to your own experience and to their work role.

3

---

**Different contexts for calculations**

- In your head
- Using a calculator
- With pen and paper

4

---

**Checking answers**

- Work out a rough answer
- Think 'Is the answer reasonable?'
- Use a 'checking back' method
- Work the calculation out another way

5

---

**Using and improving your maths**

Programme journal:

- What have you learnt?
- How might you use the skills in your working or everyday life?
- What do you want to practise more (if anything)?

6

## Move On contacts

**Move On** web site – www.move-on.org.uk

**BBC Skillswise** – www.bbc.co.uk/skillswise

**Key Skills Support** – www.keyskills4u.com

7

# Move On Carefully: numeracy

## Module 1: Making calculations – activities

### Activity 1: Ordering numbers

Put the following numbers in order:

| | | | |
|---|---|---|---|
| 64 | 124 | 768 | 435 |
| 16 | 89 | 946 | 41 |
| 317 | 521 | 264 | 637 |
| 1492 | 1879 | 1245 | 1067 |
| 1670 | 1760 | 27 | 1514 |
| 1144 | 543 | 1414 | 786 |

## Activity 2: Four rules operations – whole numbers

| | |
|---|---|
| **1** A care worker earned £346 one week, £237 on the second week and £126 on the third. How much did he earn altogether? | **2** You see one service user for 46 minutes and another for 39 minutes. How much time have you used so far? |
| **3** What is the cost of hiring 14 support staff at £35 per day? | **4** Hand wipes are sold in packs of one hundred. How many will be in twelve packs? |
| **5** A cleaner uses 79 cloths out of the stock of 278. How many has he left? | **6** In six weeks a health worker earns £960. How much does she earn per week? |
| **7** You need 56 new uniforms. If they come in boxes of nine, how many boxes will you need? | **8** From a plank 3 600 mm long, a joiner cuts on piece 1 320 mm long and another 985 mm long to make a new unit. What length of plank is left? |
| **9** A contractor charges £840 for a job. The materials cost £284 and the wages come to £327. How much profit did the contractor make? | **10** How many 200 ml glasses of juice can you get from a 1 litre (1 000 ml) carton? |
| **11** On your daily rounds to visit each resident, you spend 16 minutes with the first and nine minutes with the second. How much longer did you spend with the second? | **12** If want to cook 100 g of pasta per person, how much will you need for eight residents? |

**Activity 3: How would you work out each of these?**

**In a small group discuss how you would work out each of the following**. You don't need to actually work out the answers. The main thing is to discuss how you would tackle these situations in real life.

**1**  You are collecting the money for the luncheon club where a meal costs £1.50. A service user pays with a £10 note. What change will you give them?

**2**  You have bought a few items for the centre and need to claim back the money that you spent. You spent the following amounts: 54p, 66p, 90p, £1.20.
How much money do you need to claim back?

**3**  Four care workers have formed a syndicate to do the lottery. They win £120 one week and have to share it between them. How much will each worker get?

**4**  The number of service users visiting a day centre rises from 562 one month to 644 the next month. How many extra users is this?

**5**  How many £5 meal vouchers can you get for £100?

**6**  A support group meet weekly in a village hall that needs 50p pieces for the electricity meter. Mina collects 50p pieces to use in the meter. Sometimes she goes to the bank to change some money into 50p pieces when she is running low on them.
How many 50p pieces will she get for £10?

**7**  A resident is told that they need to lose 20 kg before they have a difficult operation. So far they have lost a quarter of this amount. How many kilos is this?

**8**  What is half of £3.50?

## Activity 4a: Adding and subtracting – self-assessment

**1**  34
   <u>17</u> +

**2**  54
   <u>69</u> +

**3**  574 + 396

**4**  407 + 89

**5**  34
   <u>17</u> −

**6**  504
    <u>69</u> −

**7**  57 − 28

**8**  403 − 49

## Activity 4b: Multiplying and dividing – self-assessment

**1**  34
   <u>17</u> ×

**2**  54
   <u>21</u> ×

**3**  107
    <u>14</u> ×

**4**  520
    <u>32</u> ×

**5**  468 ÷ 4

**6**  368 ÷ 8

**7**  804 ÷ 6

**8**  6 081 ÷ 3

**Activity 5: Making equations using + − × ÷**

**Work on each set of cards below one at a time. Combine the cards from each set to make an equation.** *Add in extra numbers or symbols you need on the spare card(s). You can change the order if you want.*

**1**

| 3 | 21 | 24 | = | |
|---|----|----|---|---|

**2**

| 54 | 61 | − | = | |
|----|----|---|---|---|

**3**

| 2 | 8 | 4 | = | |
|---|---|---|---|---|

**4**

| 11 | 44 | ÷ | = | |
|----|----|---|---|---|

**5**

| 71 | 28 | 99 | = | |
|----|----|----|---|---|

**6**

| 5 | 6 | 30 | = | |
|---|---|----|---|---|

**7**

| 12 | 72 | × | = | |
|----|----|---|---|---|

## Activity 5: Extension activity

**8**

| 11 | 50 | 550 | = | |
|----|----|-----|---|---|

**9**

| 8 | – | | = | 0 |
|---|---|---|---|---|

**10**

| 3 | 7 | 21 | = | |
|---|---|----|---|---|

**11**

| 11 | 44 | ÷ | = | |
|----|----|---|---|---|

**12**

| 26 | | + | = | 41 |
|----|---|---|---|----|

**13**

| 19 | 38 | = | | |
|----|----|---|---|---|

**14**

| 480 | 40 | = | | |
|-----|----|---|---|---|

**15**

| 1 460 | 230 | = | | |
|-------|-----|---|---|---|

## Activity 6: Rounding to the nearest . . .

**In a small group think about and discuss:**

- How would you explain how to round to the nearest 10 to someone else?
- How can you explain 'rounding up' and 'rounding down'?

*(Use the examples below to help you if this would be useful.)*

**Round these numbers to the nearest 10:**

|   | Number | Nearest 10 |   | Number | Nearest 10 |
|---|--------|------------|---|--------|------------|
| a | 16 |  | b | 12 |  |
| c | 21 |  | d | 38 |  |
| e | 47 |  | f | 51 |  |
| g | 33 |  | h | 6 |  |
| i | 49 |  | j | 29 |  |
| k | 41 |  | l | 20 |  |
| m | 86 |  | n | 74 |  |
| o | 91 |  | p | 67 |  |
| q | 55 |  | r | 75 |  |

**Round these numbers to the nearest 100:**

|   | Number | Nearest 100 |   | Number | Nearest 100 |
|---|--------|-------------|---|--------|-------------|
| a | 160 |  | b | 120 |  |
| c | 210 |  | d | 380 |  |
| e | 470 |  | f | 510 |  |
| g | 330 |  | h | 250 |  |
| i | 490 |  | j | 290 |  |
| k | 410 |  | l | 200 |  |
| m | 254 |  | n | 347 |  |
| o | 163 |  | p | 478 |  |

## Activity 6a: Rounding to the nearest . . .

**You could use the number lines below to help you. Think where each number would come on the line and use this to decide which is the nearest 10.**
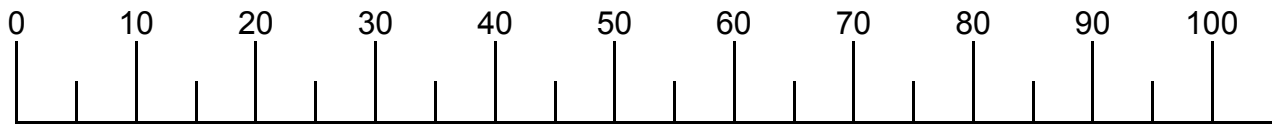
```
0      10     20     30     40     50     60     70     80     90    100
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
```

**Think where each number would come on the line and use this to decide which is the nearest 100.**

```
0          100        200        300        400        500
|     |     |     |     |     |     |     |     |     |     |
```
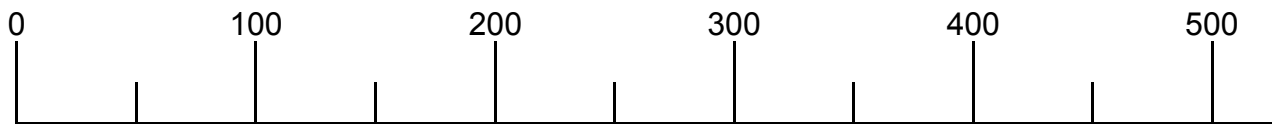
## Activity 7a: Mileage records

**For each card, work out the total mileage travelled:**

| Travel miles to different service users: | | | |
|---|---|---|---|
| Burns | 3 | Winkley | 3 |
| Home | 3 | Nelson | 2 |
| King | 1 | Todd | 4 |
| Home | 3 | Hayburn | 2 |
| Booth | 2 | Home | 5 |

| Travel miles to different service users: | | | |
|---|---|---|---|
| Stone | 3 | Kirby | 3 |
| Walker | 3 | Chorley | 2 |
| Tolton | 1 | Hopworth | 4 |
| Home | 3 | Hayburn | 2 |
| Simpson | 2 | Home | 3 |

| Travel miles to different service users: | | | |
|---|---|---|---|
| Burns | 3 | Nelson | 2 |
| King | 4 | Chorley | 3 |
| Smith | 1 | Way | 4 |
| Naylor | 3 | Home | 2 |
| Simpson | 5 | Wesley | 4 |

| Travel miles: | |
|---|---|
| Training | 12 |
| Visit (Hayston) | 3 |
| Visit (Beesley) | 4 |
| Visit (Norman) | 2 |
| Supervision | 6 |

| Travel miles between sites: | | |
|---|---|---|
| 12 | 15 | 5 |
| 6 | 13 | 8 |

| Travel miles to different service users: | | | |
|---|---|---|---|
| Coward | 3.4 | Smith | 3.2 |
| Williams | 3.0 | Home | 2.0 |
| Walker | 1.7 | Cox | 4.2 |
| Home | 3.0 | Ryba | 2.9 |
| Simpson | 2.1 | Home | 5.0 |

**Milometer readings before and after work journeys**

**For each journey, work out the miles travelled:**

| 3 | 0 | 4 | 2 | 1 |
|---|---|---|---|---|
| 3 | 0 | 4 | 7 | 5 |

| 4 | 5 | 9 | 6 | 2 |
|---|---|---|---|---|
| 4 | 5 | 9 | 6 | 9 |

| 8 | 3 | 1 | 4 | 7 |
|---|---|---|---|---|
| 8 | 3 | 1 | 7 | 0 |

| 6 | 9 | 2 | 1 | 7 |
|---|---|---|---|---|
| 6 | 9 | 2 | 4 | 3 |

| 5 | 1 | 6 | 9 | 4 |
|---|---|---|---|---|
| 5 | 1 | 7 | 1 | 3 |

| 7 | 2 | 0 | 8 | 9 |
|---|---|---|---|---|
| 7 | 2 | 1 | 0 | 4 |

## Activity 7b: Leave records

**For each card work out the number of days holiday taken:**

| | | |
|---|---|---|
| Holiday from<br>Monday 12 September to<br>Sunday 18 September | Holiday from<br>Thursday 6 October to<br>Monday 9 October | Holiday from<br>Tuesday 9 November<br>for two weeks |
| Lieu day:<br>Wednesday 13 October | Annual leave from<br>30 January to 9 February | Annual leave from 16 May<br>for two weeks |

## Activity 7c: Ordering stock

**Work out how much stock there is of each of these things:**

1  Beakers come in boxes of 12. In the stores there are three full boxes and two singles. How many beakers are there in stock altogether?

2  Cleaning fluid comes in boxes of 10. In the stores there are two full boxes and eight singles. How many bottles of cleaning fluid are there in stock altogether?

3  Toilet rolls come in packs of 20. In the stores there are four full packs and six singles. How many toilet rolls are there in stock altogether?

4  Tins of polish come in boxes of 6. In the stores there are four full boxes and one single tin. How many tins are there in stock altogether?

**Activity 8: Everyday subtraction problems**

**Work out each of these:**

**1** If out of 23 service users, 18 had toast for breakfast, how many chose not to?

**2** Your milometer has 56 miles on it, of which 32 are personal miles. How many are work miles?

**3** You are doing rounds to check residents' fire alarm batteries. You have 35 batteries at the start of the rounds. Each alarm needs two batteries. You visit 24 residents' rooms and need to replace the batteries in 12 alarms. How many batteries will you have left after the rounds?

**4** If you get 28 days' holiday and take nine days off work to do some decorating, how many holiday days do you have left?

**5** A day centre has space for 48 clients to eat. 36 clients are at the centre today. How many spare lunch spaces are there?

**6** In a day a canteen served 743 meals. If 296 were diabetic, how many were not diabetic?

**7** In a sheltered housing scheme, the total number of visitors to their weekly coffee morning over a year was 428. If 381 were residents, how many non-residents came?

**8** 577 tickets were sold in a raffle. Some were blue and some pink. If 228 tickets were blue, how many pink tickets were sold?

**9** You are travelling between work sites and note the mileage on your car before you start. It reads 40 291. At the end of the journey it reads 40 327. How many miles do you need to claim for this journey?

**10** Your annual salary is £8 452, but £1 418 of this is tax and national insurance. How much actual pay do you get?

**Activity 9: Multiplication practice**

**You visit your local supplier to buy toiletry products for the residents. Work out each of these:**

**1** There are five soaps in a pack. What would the total number of soaps be in the following?

9 packs =                        6 packs =

4 packs =                        8 packs =

3 packs =                        2 packs =

**2** You will need two toilet rolls for each room. Calculate how many toilet rolls you will need for the following:

48 rooms =                       39 rooms =

46 rooms =                       20 rooms =

21 rooms =                       91 rooms =

67 rooms =                       70 rooms =

86 rooms =                       40 rooms =

**3** You use tissues which have 150 tissues in each box. What would your totals be if you buy the following number of boxes?

5 boxes =                        4 boxes =

2 boxes =                        8 boxes =

3 boxes =                        12 boxes =

6 boxes =                        9 boxes =

10 boxes =

**Activity 10: Practice with division**

**Work out each of these:**

**1**   A bonus of £825 is divided equally between five staff. How much does each receive?

**2**   250 latex gloves have to be packaged in pairs. How many pairs are there?

**3**   Ten staff put equal amounts of money into a Christmas meal fund. If there was £120 in the fund, how much did each person put in?

**4**   Cans of cleaning fluid are packed in tens. How many packs would there be from a total of 786 cans and how many cans are left over?

**5**   A win of £135 is divided between five trainees. How much does each receive?

**Activity 11: Rounding numbers to estimate answers to calculations**

You can use rounding numbers to the nearest 10 or the nearest 100 to help work out calculations.

**1    Round these numbers to the nearest 10:**
Example:   19  would be rounded to   20 (to the nearest 10)
If it helps, think about the number on a number line:

```
0         5        10        15        20
|         |         |         |         |
                              ↑
```
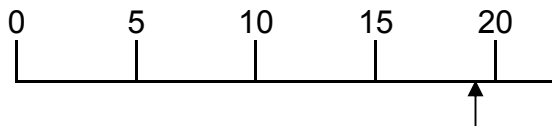
A   32
B   48
C   61
D   97

**2    Round these numbers to the nearest 100:**
Example:   180         would be rounded to   200 (to the nearest 100)
Again, you might find thinking of a number line helpful:

```
0        100       200       300
|         |         |         |
                   ↑
```
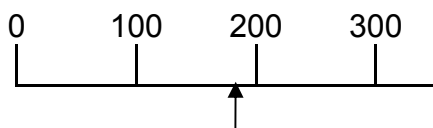
A   230
B   480
C   169
D   878

**3    Round these numbers to the nearest 10 to help you estimate the answer to the calculation:**
Example:   47 + 69        rounding would give        50 + 70 = 120  so the answer will be approximately 120.

A    23 + 76
B    47 + 99
C    71 − 18
D    97 − 39

**Use the same idea to help you work out approximate totals in money:**

E   22p + 44p + 69p
F   £3.09 − £1.89
G   £10 − £2.58
H   £20 − £3.50 − 61p − 47p

**4   Use rounding numbers to the nearest 10 to help you when you are multiplying numbers**

Example:   6 × 81         rounding 81 to the nearest 10 we get
           6 × 80         6 × 8 = 48, so 6 × 80 = **480**.

A   8 × 28
B   49 × 6
C   8 × 71
D   7 × 32

**Note**: you can use the same basic approach to multiply bigger numbers together.

Example:   21 × 49         rounding to the nearest 10 we get roughly
           20 × 50         2 × 50 = 100, so 20 × 50 will be ten times bigger, i.e. **1 000**.

E   81 × 28
F   49 × 61
G   32 × 71
H   97 × 21

**5   Use rounding numbers to the nearest 10 to help you when you are dividing numbers**

Example:
121 ÷ 4         rounding 121 to the nearest 10 we get
120 ÷ 4         3 × 4 = 12, so 30 × 4 = 120, so the answer is approximately **30**.

A   89 ÷ 3
B   160 ÷ 4
C   282 ÷ 4
D   479 ÷ 6

**Activity 12: Using 'checking back' approaches to check your answers**

**Look at the answers to these calculations. Using 'checking back', work out if the answers given are right or not:**

**1**  956
   638 −
   318

**2**  403
   199 −
   304

**3**  £5.00
   £2.95 −
   £2.05

**4**  764 − 425 = 331

**5**  804 − 375 = 429

**6**  £10.00 − 4.25 = £6.75

**7**  120 ÷ 6 = 20

**8**  72 ÷ 8 = 7

**9**  £5.00 ÷ 4 = £1.25

**10**  42 ÷ 3 = 14

**11**  95 ÷ 5 = 17

**12**  96 ÷ 6 = 16

**Practice test questions: Whole numbers**

**1** The attendance at a regional hospital is thirty-two thousand, five hundred and eight. Written in figures this is:

A  32 508
B  32 580
C  325 008
D  3 200 508

**2** A cleaner saves £35 each week towards a holiday. How can he work out how many weeks it will take to save £650?

A  35 ÷ 650
B  650 ÷ 35
C  650 − 35
D  35 × 650

**3** A group of catering assistants won £200 403 in a lottery. How many pounds is this written in words?

A  Two hundred and forty-three
B  Twenty thousand forty-hundred and three
C  Two hundred thousand four hundred and three
D  Two million four hundred and three

**4** A care worker buys a pack of 14 plant pots for £17 at a garden centre. How can he calculate the cost of one plant pot?

A  14 ÷ 17
B  14 × 17
C  17 − 14
D  17 ÷ 14

**5** Forty-one thousand and twenty-seven tickets are sold for a charity football match to raise funds for a new day centre. The number of tickets sold is

A  4 127
B  41 027
C  410 027
D  4 100 027

# Move On Carefully: numeracy

## Module 1: Making calculations – answers to activities

### Activity 4a: Adding and Subtracting – self-assessment

**1**
  34
  17 +
  51

**2**
  54
  69 +
  123

**3** 574 + 396 = 970

**4** 407 + 89 = 496

**5**
  34
  17 −
  17

**6**
  504
  69 −
  435

**7** 57 − 28 = 29

**8** 403 − 49 = 354

### Activity 4b: Multiplying and dividing – self-assessment

**1**
  34
  17 ×
  578

**2**
  54
  21 ×
  1 134

**3**
  107
  14 ×
  1 498

**4**
  520
  32 ×
  16 640

**5** 468 ÷ 4 = 117

**6** 368 ÷ 8 = 46

**7** 804 ÷ 6 = 134

**8** 6 081 ÷ 3 = 2 027

## Activity 6: Rounding to the nearest . . .

**Round these numbers to the nearest 10:**

|  | Number | Nearest 10 |  | Number | Nearest 10 |
|---|---|---|---|---|---|
| **a** | 16 | 20 | **b** | 12 | 10 |
| **c** | 21 | 20 | **d** | 38 | 40 |
| **e** | 47 | 50 | **f** | 51 | 50 |
| **g** | 33 | 30 | **h** | 6 | 10 |
| **i** | 49 | 50 | **j** | 29 | 30 |
| **k** | 41 | 40 | **l** | 20 | 20 |
| **m** | 86 | 90 | **n** | 74 | 70 |
| **o** | 91 | 90 | **p** | 67 | 70 |
| **q** | 55 | 60 | **r** | 75 | 80 |

**Round these numbers to the nearest 100:**

|  | Number | Nearest 100 |  | Number | Nearest 100 |
|---|---|---|---|---|---|
| **a** | 160 | 200 | **b** | 120 | 100 |
| **c** | 210 | 200 | **d** | 380 | 400 |
| **e** | 470 | 500 | **f** | 510 | 500 |
| **g** | 330 | 300 | **h** | 250 | 300 |
| **i** | 490 | 500 | **j** | 290 | 300 |
| **k** | 410 | 400 | **l** | 200 | 200 |
| **m** | 254 | 300 | **n** | 347 | 300 |
| **o** | 163 | 200 | **p** | 478 | 500 |

## Activity 7a: Mileage records

| Travel miles to different service users: 28 miles | | | | Travel miles to different service users: 26 miles | | | | Travel miles to different service users: 31 miles | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Burns | 3 | Winkley | 3 | Stone | 3 | Kirby | 3 | Burns | 3 | Nelson | 2 |
| Home | 3 | Nelson | 2 | Walker | 3 | Chorley | 2 | King | 4 | Chorley | 3 |
| King | 1 | Todd | 4 | Tolton | 1 | Hopworth | 4 | Smith | 1 | Way | 4 |
| Home | 3 | Hayburn | 2 | Home | 3 | Hayburn | 2 | Naylor | 3 | Home | 2 |
| Booth | 2 | Home | 5 | Simpson | 2 | Home | 3 | Simpson | 5 | Wesley | 4 |

| Travel miles: 27 miles | | | | Travel miles between sites: 59 miles | | | | Travel miles to different service users: 30.5 miles | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Training | | 12 | | 12 | 15 | | 5 | Coward | 3.4 | Smith | 3.2 |
| Visit (Hayston) | | 3 | | 6 | 13 | | 8 | Williams | 3.0 | Home | 2.0 |
| Visit (Beesley) | | 4 | | | | | | Walker | 1.7 | Cox | 4.2 |
| Visit (Norman) | | 2 | | | | | | Home | 3.0 | Ryba | 2.9 |
| Supervision | | 6 | | | | | | Simpson | 2.1 | Home | 5.0 |

## Milometer readings before and after work journeys

| | | | | |
|---|---|---|---|---|
| 3 | 0 | 4 | 2 | 1 |

| | | | | |
|---|---|---|---|---|
| 3 | 0 | 4 | 7 | 5 |

**54 miles**

| | | | | |
|---|---|---|---|---|
| 4 | 5 | 9 | 6 | 2 |

| | | | | |
|---|---|---|---|---|
| 4 | 5 | 9 | 6 | 9 |

**7 miles**

| | | | | |
|---|---|---|---|---|
| 8 | 3 | 1 | 4 | 7 |

| | | | | |
|---|---|---|---|---|
| 8 | 3 | 1 | 7 | 0 |

**23 miles**

| | | | | |
|---|---|---|---|---|
| 6 | 9 | 2 | 1 | 7 |

| | | | | |
|---|---|---|---|---|
| 6 | 9 | 2 | 4 | 3 |

**26 miles**

| | | | | |
|---|---|---|---|---|
| 5 | 1 | 6 | 9 | 4 |

| | | | | |
|---|---|---|---|---|
| 5 | 1 | 7 | 1 | 3 |

**19 miles**

| | | | | |
|---|---|---|---|---|
| 7 | 2 | 0 | 8 | 9 |

| | | | | |
|---|---|---|---|---|
| 7 | 2 | 1 | 0 | 4 |

**15 miles**

## Activity 7b: Leave records

The amount of leave will depend on usual working days and number of days typically worked per week. If someone works five days a week, the leave amounts might typically be:

| | | |
|---|---|---|
| Holiday from Monday 12 September to Sunday 18 September<br><br>**5 days' leave** | Holiday from Thursday 6 October to Monday 9 October<br><br>**4 days' leave** | Holiday from Tuesday 9 November for two weeks<br><br>**9 November – 23 November 10 days' leave** |
| Lieu day: Wednesday 13 October<br><br>**1 day lieu** | Annual leave from 30 January to 9 February<br><br>**9 days' leave** | Annual leave from 16 May for two weeks<br><br>**16 May – 30 May 10 days' leave** |

## Activity 7c: Ordering stock

**1** Beakers come in boxes of 12. In the stores, there are three full boxes and two singles.
How many beakers are there in stock altogether?

**38 beakers**

**2** Cleaning fluid comes in boxes of 10. In the stores, there are two full boxes and eight singles.
How many bottles of cleaning fluid are there in stock altogether?

**28 bottles**

**3** Toilet rolls come in packs of 20. In the stores, there are four full packs and six singles.
How many toilet rolls are there in stock altogether?

**85 toilet rolls**

**4** Tins of polish come in boxes of 6. In the stores, there are four full boxes and one single tin.
How many tins are there in stock altogether?

**25 tins**

## Activity 8: Everyday subtraction problems

1   5 service users

2   24 miles

3   11 batteries

4   19 days

5   12 spaces

6   447 not diabetic

7   47 not residents

8   329 pink tickets

9   36 miles

10  £7 034

## Activity 9: Multiplication practice

**1**   Five soaps in a pack:

| | |
|---|---|
| 9 packs = 45 | 6 packs = 25 |
| 4 packs = 20 | 8 packs = 40 |
| 3 packs = 15 | 2 packs = 10 |

**2**   Two toilet rolls for each room:

| | |
|---|---|
| 48 rooms = 96 | 39 rooms = 78 |
| 46 rooms = 92 | 20 rooms = 40 |
| 21 rooms = 42 | 91 rooms = 182 |
| 67 rooms = 134 | 70 rooms = 140 |
| 86 rooms = 172 | 40 rooms = 80 |

**3**   150 tissues in each box:

| | |
|---|---|
| 5 boxes = 750 | 4 boxes = 600 |
| 2 boxes = 300 | 8 boxes = 1 200 |
| 3 boxes = 450 | 12 boxes = 1 800 |
| 6 boxes = 900 | 9 boxes = 1 350 |
| 10 boxes = 1 500 | |

## Activity 10: Practice with division

1   £165

2   125 pairs

3   £12

4   78 packs + 6 tins left over

5   £27

## Activity 11: Rounding numbers to estimate answers to calculations

1   **Round these numbers to the nearest 10:**

   A   32          30

   B   48          50

   C   61          60

   D   97          100

2   **Round these numbers to the nearest 100:**

   A   230         200

   B   480         500

   C   169         200

   D   878         900

3   **Round these numbers to the nearest 10 to help you estimate the answer to the calculation:**

   A   23 + 76          20 + 80 = 100

   B   47 + 99          50 + 100 = 150

   C   71 − 18          70 − 20 = 50

   D   97 − 39          100 − 40 = 60

   **Use the same idea to help you work out approximate totals in money:**
   *The answers you've estimated may be slightly different.*

   E   22p + 44p + 69p          20 + 40 + 70 = 120p = £1.20

   F   £3.09 − £1.89            £3 − £2 = £1

   G   £10 − £2.58              £10 − £2.60 = £7.40

   H   £20 − £3.50 − 61p − 47p          £20 − £3.50 − 50p − 50p = £15 50

**4    Use rounding numbers to the nearest 10 to help you when you are multiplying numbers**

A    8 × 28            10 × 30 = 300

B    49 × 6            50 × 10 = 500

C    8 × 71            10 × 70 = 700

D    7 × 32            10 × 30 = 300

E    81 × 28           80 × 30 = 2400

F    49 × 61           50 × 60 = 3000

G    32 × 71           30 × 70 = 2100

H    97 × 21           100 × 20 = 2000

**5    Use rounding numbers to the nearest 10 to help you when you are dividing numbers**
*The answers you've estimated may be slightly different.*

A    89 ÷ 3        30

B    160 ÷ 4       40

C    282 ÷ 4       70

D    479 ÷ 6       80

## Practice test questions: Whole numbers

**1**    A

**2**    B

**3**    C

**4**    D

**5**    B

# Move On Carefully: numeracy

**Work-related forms: Weekly mileage return**

| Daily mileage claim | | Total mileage claim | Total mileage claim First/last visit |
|---|---|---|---|
| **Monday** | | | |
| **Tuesday** | | | |
| **Wednesday** | | | |
| **Thursday** | | | |
| **Friday** | | | |
| **Saturday** | | | |
| **Sunday** | | | |
| Routine safety check completed on lights, tyres, wheel fixing and washer fluid. **Signature:** | | **Total claim** | |

| Care time | TCO travel time | Weekday travel time | Weekend travel time | Train mileage | Other mileage | Home to work mileage | Exp. | Sick | Holidays | TOIL | Urg Dom |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

skillsforcare NORTH WEST

TRIBAL

**Weekly home carer work schedule/timesheet for week commencing: 9 August 2008**

| Service user | Time | Tasks | Notes | Travel time | Other authorised travel time | Training mileage | Other mileage (whole numbers) | Home to work/work to home mileage (taxable) |
|---|---|---|---|---|---|---|---|---|
| **Monday** | | | | | | | | |
| **Tuesday** | | | | | | | | |
| **Wednesday** | | | | | | | | |
| **Thursday** | | | | | | | | |
| **Friday** | | | | | | | | |
| **Saturday** | | | | | | | | |
| **Sunday** | | | | | | | | |
| | **Total scheduled hours excluding paid absence** | | | **Total travel time** | **Total** | **Total** | **Total** | **Total** |
| | | | | | | | | |

Note: The time of the visit(s) should be within ten minutes of the time stated. If you are running late please inform the office.

Please amend any of the above visit times to reflect the actual times and duration of visits where these are not as scheduled. Insert your actual mileage in the mileage columns as appropriate.

# Move On Carefully: numeracy

## Work-related form: Request for annual leave and lieu days

**Name**:                                          **Post title**:

**Base**:                                           **Personnel no**:

**Annual leave days/hours**:                        **Manager**:

Lieu days (LD) – enter 'x' if entitled to the lieu day     [    ]
Enter 'x' if entitled to one extra concessionary day in lieu of extra day allocated for Christmas shut down.  [    ]

| GF Good Friday | EM Easter Monday | ET Easter Tuesday | MD May Day | SM Spring Bank Monday | ST Spring Bank Tuesday | AM August Monday | XD Xmas Day | BD Boxing Day | ND New Year's Day |
|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |  |

|  | Period required | | No. of days required | AL or LD | No. of days remaining | | Approved/ refused | Date authorised |
|---|---|---|---|---|---|---|---|---|
|  | **From** | **To** |  |  | **AL** | **LD** |  |  |
| 1 |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |

| **Date** |  |  |  |  |  |  |  | **Issue date** |
|---|---|---|---|---|---|---|---|---|
| **Amendment** |  |  |  |  |  |  |  |  |

skillsforcare
NORTH WEST

TRIBAL

**Retirement and Nursing Homes**

**Holiday request form**

| |
|---|
| **Name**:                                               **Date**: <br><br> **Holidays requested**: <br><br> **From**:                                               **To**: <br><br> **Total number of days**: |

**Please complete and hand to your manager before booking your holiday. When approval has been given the acceptance slip will be returned to you.**

Approved by manager:      YES / NO         Date:

**This portion to be retained by manager.**

✂…………………………………………………………………......................

**Retirement and Nursing Homes**

**Holiday request form**

| |
|---|
| **To**:                                               **Date**: <br><br> **Your request for**                **days holiday** <br><br> **From**:                                               **To**: <br><br> **Has been approved.** |

Signed:                                           Date:

Home Manager

**This portion to be returned to staff member.**

# Move On Carefully: numeracy

## Work-related form: Ordering and checking stock

**Name of site:**

| Equipment stores record | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date stock in | Item | Batches | Quantity | Total in store | Items issued | Staff member | Balance | Signature |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Date | | | | | | | Issue date |
|---|---|---|---|---|---|---|---|
| Amendment | | | | | | | |

skillsforcare
NORTH WEST

TRIBAL