



PMA Term One 2016, Volume 1 – Updated for 2023

A historical and cultural snapshot with a focus on the Financial Mathematics sub-strand – celebrating Valentine’s Day in your mathematics program

Mike Chartres for the Primary Mathematics Association of South Australia, January 2016

Some people approach the 14th February with thoughts of love and romance or possibly a fleeting thought about the North American folklore around Chicago’s 1929 St Valentine Day massacre. For some, St Valentine’s Day is a commercial opportunity to fleece the hopelessly love sick amongst us but from an Australian mathematics educator’s perspective the 14th of February is a date that marks a significant change in the way mathematics is used in our daily lives.

The 14th February 2016 was the 50th anniversary (in 2023 it will be the 57th anniversary) of the introduction of decimal currency in Australia and this began the two year change over period from the British monetary system of pounds, shillings and pence to the decimal system of dollars and cents. What a perfect opportunity for R to 6 teachers to include a cultural and historical focus in their mathematics program.

The Australian Curriculum: Mathematics and the *Numeracy* general capability are the first ever elements in any Australian curriculum to give “money” or “financial mathematics” its own place through the *Money and Financial Mathematics* sub-strand and the *Use Money* thread to the *Estimating and Calculating with Whole Numbers* element. Curricula prior to this saw money shunted from number to measurement and back again with money presented predominantly as an everyday context to do and practice arithmetic. As with most of the current mathematics curriculum there is little to alert teachers to the rich opportunities a historical and cultural lens offers their learners to make sense of mathematics. The notion of *Mathematics as a Human Endeavour* is sadly absent. One of the well structured and key *Financial Mathematics* resources, ASIC’s general MoneySmart web-site (<https://www.moneysmart.gov.au>) and MoneySmart Teaching web-site (<https://www.moneysmart.gov.au/teaching>), only offer a fleeting glance through this lens. What else is possible and what are some useful resources for teacher planning and student learning to celebrate this anniversary? Hence my excitement about writing this short piece for colleagues.

History of Money

Let’s start at the beginning, how did money come about and why did it come about? Simply people needed to exchange goods and services for goods and services of equivalent value. Mathematically, this notion of exchange for something of equal value is no different than exchanging 37 ones for 3 tens and 7 ones or exchanging one half for two quarters. The notion of what something is worth or its value is a social and cultural construction. This idea of worth and value has never been more obvious and fluid than in our world of global consumerism and free markets. Some key questions learners may wish to explore include:

- 🍌 *What are things worth? What are their values?*
- 🍌 *How do you ascribe value for exchanging goods in a community that doesn’t have a monetary system? ... enter bartering.*
- 🍌 *Who decides the value of goods?*
- 🍌 *Who chooses the tokens that are exchanged to represent these values? What do we call these tokens today?*

From an Australian perspective Aboriginal groups traditionally exchanged or traded goods for other goods of equal value. The Ngaut Ngaut Conservation Park, near Nildotte, is said to be one location in South Australia where aboriginal groups gathered and traded. The first European settlements also began with a bartering system and only adopted the British monetary system after the colony was a few years old.

Some useful resources to explore regarding the “history of money” include:

- Aboriginal trade; The first Australians web-site (<http://dl.nfsa.gov.au/module/1567/>) (<http://www.indigenoustrade.com.au/culture/trade-routes.html>) (<http://austhrutime.com/trade.htm>) Queensland Museum Network (<http://blog.qm.qld.gov.au/2012/05/16/indigenous-science-australia-had-ancient-trade-routes-too-2/>) Atlas of South Australia (<http://www.atlas.sa.gov.au/resources/atlas-of-south-australia-1986/the-course-of-settlement/aboriginal-occupation>)
- BBC 1998 *Ancient Inventions according to Terry Jones – episode 2 City Life* where Terry Jones presents a four minute snapshot of bartering and the early emergence of tokens of value or money. The segment begins at the 40 minute mark of the program with these two urls: (<https://www.youtube.com/watch?v=x3F99h-gR4Q&list=ELAVu-XphYw1U&index=2> or <https://myspace.com/166779572/video/ancient-inventions-city-life/100044202>)
- Money time lines, maps and fact sheets; Australian Mint - Melbourne (http://www.ramint.gov.au/education/downloads/2011_History_Timeline_Poster_A3.pdf) (http://www.ramint.gov.au/education/downloads/2011_History_Fact_Sheet1.pdf); MoneySmart (<https://www.moneysmart.gov.au/teaching/teaching-resources/digital-activity-money-maps>)
- Niall Ferguson’s BBC series *The Ascent of Money episode 1, The Dreams of Avarice* provides a background for today’s monetary system, particularly the first twenty five minutes which introduces the role that Fibonacci had in financial transactions, the role of the Jews in this and the origins of language that we often use when making transactions and banking (<https://www.youtube.com/watch?v=9YAWngJ9xvw>).
- The Reserve Bank of Australia Museum – the hidden history of banking (<http://museum.rba.gov.au/exhibitions/hidden-history-banking/>)

Engaging students with the notion of money from a historical and cultural perspective

As well as exploring the history of money both globally and within Australia, students have an immediate fascination with the tokens of value themselves, that is the coins and notes. Have you considered students simply sorting a collection of coins that come from many different parts of the world or indeed from different times in history. Asking students to bring in coins their parents / carers may have other than the typical Australian decimal coins to pool for such sorting and / or visiting dealers such as Adelaide Exchange Jewellers or Moneterium. They often have bags of assorted “junk” coins for \$20 that can be the basis of a class collection. Some key directions to consider may include:

- What are some different ways the collection of coins can be sorted, ie what are the key attributes?
- What are possible student questions that may come from sorting a collection of coins with respect to geographic location, point in time (time line), value and the monetary unit that is what is the unit of comparison for value or worth, who or what are represented on the coins and why.
- What are the coins, or indeed notes, made from and why?
- Which coins represent the least value and which the most?
- How to compare coins that use different units of value or worth?

Limiting the collection of coins to Australian coins will help students focus on the history of Australian currency. Possible focus points may include:

- The size of a coin compared to its value;
- The material a coin is made from compared to its value;
- If placed as a time line, the changes in denomination from the English system of pounds (£), shillings (s) and pence (d) to Australian decimal system of dollars (\$) and cents (c) in 1966, the possible loss of the 1c and 2c coins, the advent of the \$1 and \$2 coins.
- The value of each coin remains the same over time but what each will buy changes with time.

A specific focus on 14th February 1966

So what did actually happen on this significant day? I appreciate that a considerable portion of colleagues who may read this piece were not around at this time. Again the Reserve Bank of Australia's museum web-pages are useful, in particular <http://museum.rba.gov.au/exhibitions/decimal-currency/>

The Australian Government used television campaign to inform citizens about the change of currency with character called Dollar Bill as the centrepiece. The original television / cinema clip can be found at <https://www.youtube.com/watch?v=oR5y--dfQf0>. How could you use this clip to engage students with change over of currency?

A recoloured version of the clip can be found at <https://www.youtube.com/watch?v=5ZTeWLA1LAs>. Remember Australian didn't broadcast colour television programs until 1st March 1975 when an episode of The Auntie Jack Show launched colour television for the ABC. For those interested, the Auntie Jack clip can be found at <https://www.youtube.com/watch?v=vlqqiK4ncfs>. Other television clips designed to help people come to grips with the new currency and the two year change over period can be found at <https://www.youtube.com/watch?v=Y6JawKH2yaQ>

Possible directions students could explore include:

- The denominations of the Australian pounds (£), shillings (s) and pence (d), what they looked like and the relationships between them (see images below from the Wigg Table Book circa 1964).
- How were the values of the Australian pounds (£), shillings (s) and pence (d) systems equated to the Australian dollars (\$) and cents (c) over the two year transition period.

PENCE TABLE



1d. = ½d. + ½d. = ¼d. + ¼d. + ¼d. + ¼d.
1 Penny = 2 Halfpennies = 4 Farthings

FARTHINGS TABLE.		HALFPENNIES TABLE.	
1 farthing	= ¼d.	1 halfpenny	= ½d.
2 farthings	= ½d.	2 halfpennies	= 1d.
3 "	= ¾d.	3 "	= 1½d.
4 "	= 1d.	4 "	= 2d.
5 "	= 1¼d.	6 "	= 3d.
6 "	= 1½d.	12 "	= 6d.
7 "	= 1¾d.	24 "	= 1/-
8 "	= 2d.	48 "	= 2/-
12 "	= 3d.	480 "	= £1
24 "	= 6d.		
48 "	= 1/-		
960 "	= £1		



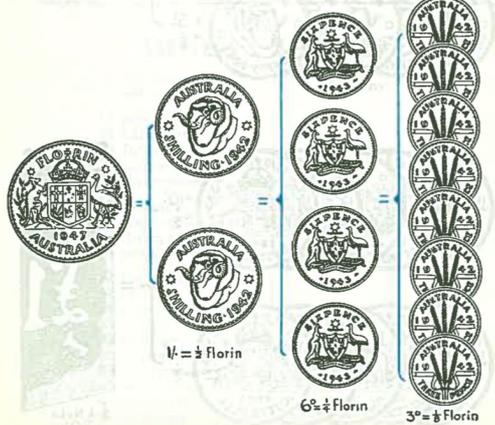
1 Shilling = 12 Pence. 1/- = 12d.

PENCE TABLE.					
12d.	= 1/-	48d.	= 4/-	120d.	= 10/-
13d.	= 1/1	50d.	= 4/2	130d.	= 10/10
14d.	= 1/2	60d.	= 5/-	132d.	= 11/-
15d.	= 1/3	70d.	= 5/10	140d.	= 11/8
16d.	= 1/4	72d.	= 6/-	144d.	= 12/-
17d.	= 1/5	80d.	= 6/8	200d.	= 16/8
18d.	= 1/6	84d.	= 7/-	300d.	= £1 5 0
20d.	= 1/8	90d.	= 7/6	400d.	= £1 13 4
24d.	= 2/-	96d.	= 8/-	500d.	= £2 1 8
30d.	= 2/6	100d.	= 8/4	1000d.	= £4 3 4
36d.	= 3/-	108d.	= 9/-		
40d.	= 3/4	110d.	= 9/2		

A SHILLING

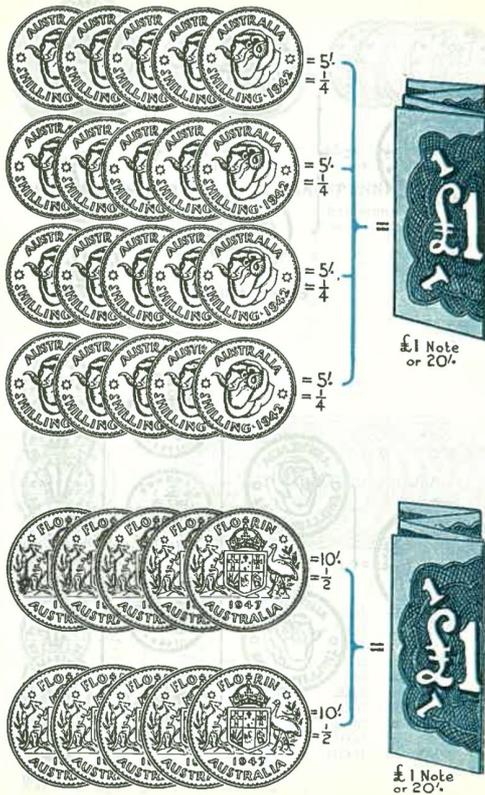


6° = ½ Shilling 3° = ¼ Shilling



12° = ½ Florin 6° = ¼ Florin 3° = ⅛ Florin

THE POUND NOTE



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SHILLINGS TABLE

Shillings	Value	Shillings	Value
20	£1 0 0	50	£2 10 0
21	£1 1 0	60	£3 0 0
22	£1 2 0	70	£3 10 0
23	£1 3 0	80	£4 0 0
24	£1 4 0	90	£4 10 0
25	£1 5 0	100	£5 0 0
26	£1 6 0	110	£5 10 0
27	£1 7 0	120	£6 0 0
28	£1 8 0	130	£6 10 0
29	£1 9 0	140	£7 0 0
30	£1 10 0	150	£7 10 0
31	£1 11 0	160	£8 0 0
32	£1 12 0	170	£8 10 0
33	£1 13 0	180	£9 0 0
34	£1 14 0	190	£9 10 0
35	£1 15 0	200	£10 0 0
36	£1 16 0	300	£15 0 0
37	£1 17 0	400	£20 0 0
38	£1 18 0	500	£25 0 0
39	£1 19 0	1000	£50 0 0
40	£2 0 0		

MONEY TABLE

4 farthings } = 1 penny.
2 halfpence

12 pence }
24 halfpence } = 1 shilling.
48 farthings }
2 sixpences }
4 threepences }

2 shillings }
4 sixpences } = 1 florin.
8 threepences }
24 pence }

2 ten shilling notes }
4 crowns } = £1 note.
8 halfcrowns }
10 florins }
20 shillings }
40 sixpences }
80 threepences }
240 pence }
480 halfpence }
960 farthings }

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The changes in arithmetic students had to learn from 1964 to 1968 (see images below from The Pathfinder Arithmetic Books, the South Australian text at the time)
Year 7 1964

14 UNIT 1 — NOTES on NUMBER WORK

Handling numbers accurately and quickly is a skill. If you have followed the Number Work Exercises in previous books faithfully, you should know all number combinations well.

But you can only keep up a skill (any skill) by practising. Make sure you still practise for 4 or 5 minutes daily.

Test Lines are included for you to find your own weaknesses. If you even pause over an answer, practise all forms of that combination both orally and in writing.

Use the Speed and Accuracy Test on the fourth day. Aim to get 8, 9 or 10 correct in 3 minutes by the middle of the year. Keep your interest high by making graphs of your progress.

Keep to the fraction form of division, e.g.: $\frac{56}{7} = 8$.

Read and study the notes on MEASURES often.

MENTAL

- 2s. 9d. + 4s. 8d.
- 7 books @ 9d. each.
- 36 @ 10s. each.
- 1 dozen @ 3½d. each.
- 8s. 4d. ÷ 5d.
- 11s. 9d. H.M. pence?
- L.C.M. of 3 and 4.
- ½ = /27.
- What fraction of 12 is 6?
- In words 750,301.

- Write ¼ as a decimal.
- 10 + .01.
- A whole quantity is often called 100%. How much is 100% of 15 inches?
- One-hundredth of the whole as a fraction.
- How far around a 1" square?
- 7 + 8 + 5 + 9 + 6 + 8.
- H.M. sec. in 2½ minutes?
- H.M. sq. in. on a piece of paper 2" × 1"?
- 1½ gallons. H.M. pints?
- Yards in 1 chain.

The groups of 10 can be used in several ways.

- ORALLY—Use some orally to find weaknesses and strengths, especially until new types are understood.
- As DIAGNOSTIC tests—When a weak type is found go back on that line through units already studied to find where the weakness started. This "practising back" is most important.

- As TIME tests—Use some as written tests to a time limit—say 4 min.—and keep scores. See how you can make your score go up in the time allowed.

Re-read notes on p. 6 and 7.

Lines 13, 14 deal with percentages, 15 with mensuration, 17 to 20 with weights and measures. "Practise back" often on these lines because they are specially important.

Do REAL work — outside if necessary — to establish new MEASURES.

UNIT 1 — NOTES on MAIN WORK

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Whereas Book IV started you off on Vulgar and Decimal Fractions, this book introduces you to another kind of fraction known as PERCENTAGE.

Be sure to study and learn the TABLE OF PERCENTAGES on p. 12.

Also study the paragraphs on Commission and Interest on pp. 11 and 13 to see how percentage — written % — is used in Commerce and Banking. Some work on percentage will be found in each unit.

AREAS and VOLUMES are important. Study carefully the MEASURES section on the even pages, so that you will be ready for them later. Also read pp. 8, 9 and 10.

PROFIT AND LOSS sums are mainly commonsense, rather than a new type, and start from an easy example in Unit 2. Set them out in lines that make sense — one line each for Selling Price, Buying Price, Profit (or Loss). Discuss them well.

Finding AVERAGES comes in later.

Do NEW WORK in these types ORALLY at first — several times — so that you know well what you are to do before you do written work in them. Always learn to TALK the PROCESS first.

If you need extra examples for practice or tests in any type turn to the RESERVOIRS.

UNIT 1 — PRACTICE WORK

- 5,694 + 8,273 + 8,796 + 9,258 + 4,875.
- £98/18/7 + £234/16/8½ + £735/15/8 + £324/2/11 + £475/18/7½ + £834/17/6.
- Make a bill for 7 books @ 3d. each; 8 @ 7d. each; 9 @ 1/11 each; 5 @ 1/3 each; 9 @ 5d. each.
- £83/16/9 X 7.
- Find ¼ of £169/5/8.
- How much altogether is 3 yd. 2 ft. 10 in.; 16 yd. 1 ft. 9 in.; 23 yd. 0 ft. 7 in.; 8 yd. 2 ft. 9 in.; and 17 yd. 2 ft. 8 in.?
- How many pence in £87/2/11?
- .79 + 3.86 + 73.1 + .037.
- 19/18 — 17/24.
- ¼ of 14,413.
- What would 4¼ dozen rulers cost @ 2½d. each?
- £7,300/10/- — £5,907/14/8½.
- 3.759 — 3.6587.
- 7.639 X 78.
- 35,975 ÷ 47.
- Divide £93/7/2 in 17 equal portions.
- Take 7.897 from 9.01 and multiply this answer by 11.
- How many 5d. in £73/5/10?
- 987 X 857.
- Find the value of 27 yd. 2 ft. @ 2/6 a foot.

UNIT 1 — NOTES on NUMBER WORK 7

Handling numbers accurately and quickly is a skill.

If you have followed the Number Work Exercises in previous books faithfully, you should know all number combinations well.

But you can only keep up a skill (any skill) by practising. Make sure you still practise for 4 or 5 minutes daily.

Test Lines are included for you to find your own weaknesses. If you even pause over an answer, practise all forms of that combination both orally and in writing.

Use the Speed and Accuracy Test on the fourth day. Aim to get 8, 9 or 10 correct in $\frac{3}{4}$ minute by the middle of the year. Keep your interest high by making graphs of your progress.

Keep to the fraction form of division, e.g.: $\frac{56}{7} = 8$.

Read and study the notes on MEASURES often.

MENTAL

<ol style="list-style-type: none"> 1. 29c + 48c. 2. 7 books @ 9c each. 3. 36 @ 50c each. 4. 1 dozen @ 4c each. 5. 85c ÷ 5c. 6. \$2.09. H.M. cents? 7. L.C.M. of 3 and 4. 8. $\frac{3}{8} = \frac{\quad}{24}$. 9. What fraction of 12 is 6? 10. In words 750,301. <hr/> <ol style="list-style-type: none"> 11. Write $\frac{3}{10}$ as a decimal. 12. 10 + .01. 13. A whole quantity is often called 100%. How much is 100% of 15 inches? 14. One-hundredth of the whole as a fraction. 15. How far around a 1" square? 16. 7 + 8 + 5 + 9 + 6 + 8. 17. H.M. sec. in 2½ minutes? 18. H.M. sq. in. on a piece of paper 2" × 1"? 19. 1½ gallons. H.M. pints? 20. Yards in 1 chain. 	<p>The groups of 10 can be used in several ways.</p> <ol style="list-style-type: none"> 1. ORALLY—Use some orally to find weaknesses and strengths, especially until new types are understood. 2. As DIAGNOSTIC tests—When a weak type is found go back on that line through units already studied to find where the weakness started. This "practising back" is most important. 3. As TIME tests—Use some as written tests to a time limit—say 4 min.—and keep scores. See how you can make your score go up in the time allowed. <p>Lines 13, 14 deal with percentages, 15 with mensuration, 17 to 20 with weights and measures. "Practise back" often on these lines because they are specially important.</p> <p>Do REAL work — outside if necessary — to establish new MEASURES.</p>
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UNIT 1 — NOTES on MAIN WORK 51

Whereas Book IV started you off on Vulgar and Decimal Fractions, this book introduces you to another kind of fraction known as PERCENTAGE.

Be sure to study and learn the TABLE OF PERCENTAGES on p. 6.

AREAS and VOLUMES are important. Study carefully the MEASURES section on the "Mental" pages so that you will be ready for them later. Also read pp. 3, 4 and 5.

PROFIT AND LOSS sums are mainly commonsense, rather than a new type, and start in the Decimal Currency Section. Set them out in lines that make sense — one line each for Selling Price, Buying Price, Profit (or Loss). Discuss them well.

Finding AVERAGES comes in later.

Do NEW WORK in these types ORALLY at first — several times — so that you know well what you are to do before you do written work in them. Always learn to TALK the PROCESS first.

If you need extra examples for practice or tests in any type turn to the RESERVOIRS.

UNIT 1 — PRACTICE WORK

1. 5,694 + 8,273 + 8,796 + 9,258 + 4,875.
2. \$87.65 + \$509.78 + \$1,007.25 + \$3,509.98 + \$3.77.
3. 7 books @ 6c each; 8 @ 11c each; 9 @ \$1.05; 5 @ \$2.25 and 9 @ 9c each. How much altogether?
4. \$295.79 × 69.
5. $\frac{3}{4}$ of \$736.89.
6. How much altogether is 3 yd. 2 ft. 10 in.; 16 yd. 1 ft. 9 in.; 23 yd. 0 ft. 7 in.; 8 yd. 2 ft. 9 in.; and 17 yd. 2 ft. 8 in?
7. How many books @ 5c each would cost \$98?
8. .79 + 3.86 + 73.1 + .037.
9. $1\frac{3}{8} - 1\frac{1}{4}$.
10. $\frac{3}{4}$ of 14,413.
11. What would 4½ doz. rulers cost @ 7c each?
12. \$501,302 - \$37,896.45.
13. 3.759 - 3.6587.
14. 7.639 × 78.
15. 35,975 ÷ 47.
16. Divide \$169.83 into 17 equal portions.
17. Take 7.897 from 9.01 and multiply this answer by 11.
18. How many cents in $\frac{1}{4}$ of \$15.72?
19. 987 × 857.
20. Find the value of 27 yd. 2 ft. @ 35c per foot.

Unit 7—Number Work on the 8 22

1. Make stories for
5+8=13, 17-8=9, 9×8=72, 56÷8=7.
2. Write the forms of (4 minutes)
9+8=17 9×8=72 3+8=11 4×8=32 11×8=88
5+8=13 7×8=56 6+8=14 8×8=64 5×8=40
7+8=15 6×8=48 4+8=12 12×8=96 3×8=24

Score..... Score..... Score.....

3. Last table of eights before 22, 39, 28, 45, 51, 59, 69, 75.
4. Add 8 to 3, 13, 23; 4, 14, 34; 5, 15, 45; 6, 16, 56; 7, 17, 67; 8, 18, 78; 9, 19, 89.
5. Take 8 from 11, 21, 31; 12, 22, 42; 13, 23, 53; 14, 24, 54; 15, 25, 55; 16, 26, 66; 17, 27, 77.

MENTAL

<ol style="list-style-type: none"> 1. 7 + 8. 2. 57 + 8. 3. 14 - 8. 4. 84 - 8. 5. 7 × 8. 6. 6 × 8 + 5. 7. 48 ÷ 8. 8. 59 ÷ 8. 9. Nine thousand and eight. 10. 5d + 4½d. Change 1/-. 11. 48d. = 12. 49d. = <p>Score.....</p> <ol style="list-style-type: none"> 13. 4/- = 14. 4/1 = 15. 80/- = 16. 88/- = 17. £4 = 18. £4-6-0 = 19. 1b. in 1 st. 20. Pt. in qt. 21. Weeks in 56 days. 22. Yd. in 3 chn. 23. 0 × 8. 24. 9 + 8 + 6 - 4 + 6. <p>Score.....</p>	<ol style="list-style-type: none"> 9 + 8. 79 + 8. 13 - 8. 63 - 8. 9 × 8. 4 × 8 + 7. 24 ÷ 8. 69 ÷ 8. Eight thousand and ninety. 8½d. + 2½d. Change 2/-. 50d. = 58d. = <p>Score.....</p> <ol style="list-style-type: none"> 4/2 = 4/7 = 90/- = 96/- = £4/10/- = £4-13-0 = Lb. in ½ st. Pt. in 8 qt. Yr. in 96 months. Yd. in 1½ chn. 8 - 0. 7 + 8 + 9 - 6 - 5. <p>Score.....</p>
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Unit 7—Main Oral and Written Work 23

Addition of £ s. d.
(Single digit only in shillings)

$\begin{array}{r} 1. \text{ £ s. d.} \\ 1 \ 6 \ 3 \\ 1 \ 5 \ 10 \\ 1 \ 7 \ 8 \\ \hline \end{array}$	$\begin{array}{r} 2. \text{ £ s. d.} \\ 2 \ 9 \ 10 \\ 1 \ 8 \ 6 \\ 1 \ 7 \ 9 \\ \hline \end{array}$	$\begin{array}{r} 3. \text{ £ s. d.} \\ 1 \ 6 \ 7 \\ 3 \ 9 \ 8 \\ 2 \ 9 \ 6 \\ \hline \end{array}$
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4. £2-7-11 + 8/11 + £1-9-10
5. 25/7 + 6/9 + 42/7. Watch how you put these amounts down.

Multiplication—multiplicand to 99, multiplier to 8

$\begin{array}{r} 6. \ 99 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 7. \ 87 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 8. \ 76 \\ \times 8 \\ \hline \end{array}$
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9. 35 × 6
10. 59 × 8
11. 84 × 8

PRACTICE WORK

12. Add these: 308, 480, 18 and 155.
13.
$$\begin{array}{r} 850 \\ -428 \\ \hline \end{array}$$
14.
$$\begin{array}{r} 14. \ 890 \\ -346 \\ \hline \end{array}$$
15.
$$\begin{array}{r} 8)64 \\ \hline \end{array}$$
16. From 629 take away 386.
17. To 3367 add 852.
18.
$$\begin{array}{r} 8)32 \\ \hline \end{array}$$
19.
$$\begin{array}{r} 8)48 \\ \hline \end{array}$$
20.
$$\begin{array}{r} 8)56 \\ \hline \end{array}$$

EVERYDAY SUMS

1. 8 pencils are put in a box. How many boxes could be filled from 72 pencils?
2. How many lollies are needed at a party to give 39 children 8 each?
3. How many sheep has a farmer who has 347 sheep in one paddock, 159, 236 and 84 in his other paddocks?
4. A baker bakes 440 loaves of bread. He sold 218 in the morning. How many has he left?

<p>UNIT 7 — PRACTICE with the 8 — 5 minutes daily</p> <p>EXERCISE 1. Find your slow ones in line 1. Practise them. 1. Rapid work: 8 times 7, 9, 6, 8, 4, 0, 3, 5, 2, 12, 11, 10. 2. Write or say the forms of 7×8, 4×8, 9×8, 6×8. 3. Make arithmetic stories about $56 \div 8 = 7$ and $56 \div 7 = 8$.</p> <p>EXERCISE 2. Note your slow ones in line 1 for practice. 1. Add 8 to 7, 9, 5, 6, 4, 8, 3, 0, 2, 1, 11, 12. 2. Say or write the forms of $8 + 7$, $8 + 9$, $8 + 6$, $8 + 5$, $8 + 3$. 3. Start from 3. Add eights for 30 secs. Score.....</p> <p>EXERCISE 3. 1. Divide by 8:— 56, 72, 64, 48, 24, 32, 40. 2. Give the last multiple of 8 before 59, 75, 51, 67, 35, 29. 3. Start from 93. Take off eights for 30 secs. Score.....</p> <p>EXERCISE 4. Work Speed and Accuracy Tests — Subtraction (3), Division (3). Keep your Graph.</p> <p>MEASURES: 2 pints (pt.) = 1 quart (qt.) 4 qt. = 1 gall. Which tins from the grocer hold about one quart? 8 gall. = pt. 8 gall. = qt.</p> <p style="text-align: center;">MENTAL</p> <table border="0"> <tr> <td>1. $9 + 7 + 9 + 8 + 5$.</td> <td>$7 + 9 + 8 + 7 + 6$.</td> </tr> <tr> <td>2. $49 + 27$.</td> <td>$38 + 28$.</td> </tr> <tr> <td>3. $76 - 7$.</td> <td>$56 - 9$.</td> </tr> <tr> <td>4. $86 - 38$.</td> <td>$76 - 47$.</td> </tr> <tr> <td>5. $7 \times 8 + 7$</td> <td>$4 \times 8 + 9$.</td> </tr> <tr> <td>6. 70×8.</td> <td>60×8.</td> </tr> <tr> <td>7. $59 \div 8$.</td> <td>$52 \div 8$.</td> </tr> <tr> <td>8. \$1.20 =c.</td> <td>$96c + 8c$.</td> </tr> <tr> <td>9. 240c = \$.....</td> <td>$9c + 95c$.</td> </tr> <tr> <td>10. Spent 42c. Change from 50c.</td> <td>Spent 41c. Change from 50c.</td> </tr> <tr> <td>11. Spent 55c. Change from \$1.</td> <td>Spent 75c. 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Divide it by 10 (notice that taking off a 0 is the same as moving the 6 one place to the right). Keep Dividing by 10 until the 6 become units. Say the name after each division.</p> <p>B. MULTIPLICATION, using multipliers of two digits.</p> <p>Units under units: tens under tens.</p> <p style="text-align: right;">Example:</p> <table border="0" style="margin-left: auto;"> <tr> <td style="text-align: right;">263</td> <td style="text-align: left;">× 32</td> <td></td> </tr> <tr> <td style="text-align: right;">526</td> <td style="text-align: left;">= 263 × 2</td> <td></td> </tr> <tr> <td style="text-align: right;">7890</td> <td style="text-align: left;">= 263 × 30</td> <td></td> </tr> <tr> <td style="text-align: right;">8416</td> <td style="text-align: left;">= 263 × 32</td> <td></td> </tr> </table> <p>This can be written $(263 \times 30) + (263 \times 2) = 263 \times 32$.</p> <p>The answer to a multiplication sum is the PRODUCT.</p> <ol style="list-style-type: none"> 74×45 186×57 Find the product of 36 and 63. What number is 27 times as large as 234? Increase 247 fifty-five times. What would 87 additions of 35 result in?? Find the product of 93 and 39. Multiply 179 by 63. Show the products as in the example. <p style="text-align: center;">PRACTICE WORK</p> <ol style="list-style-type: none"> Write in figures. Twenty seven thousand and sixty. Treble it. $\frac{1}{2}$ lb. at 80c lb., $2\frac{1}{2}$ lb. at 12c lb., 3 lb. at 14c lb. Find one-ninth of eight thousand, five hundred and seventy-seven sheep. Subtract 9,748 from 16,376. 106×27. $17,298 - 12,399$. $15. 7,426 \times 9$. $7,263 + 5,476 + 4,273 + 21,007$. <p style="text-align: center;">EVERYDAY SUMS</p> <ol style="list-style-type: none"> A carriage and its passengers weighed 10,162 lb. The carriage weighed 7,493 lb. Find the weight of its passengers. 126 cases each held 46 oranges. H.M. oranges altogether? 8 dairy cows at \$35.50 a head. How many one cent stamps for \$2.56? 	263	× 32		526	= 263 × 2		7890	= 263 × 30		8416	= 263 × 32	
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The value of money over time

While the value of the coins and notes may not have changed over time, what they can purchase has. One way for students to explore this is to look at the purchasing power of a \$1 or \$10 over time. For example, a package of goods that cost \$1 in 1966 would cost \$12.48 in 2015. The Reserve Bank of Australia has web-based inflation calculator for decimal currency (1966 to 2015) <http://www.rba.gov.au/calculator/annualDecimal.html> It also offers a pre-decimal currency inflation calculator <http://www.rba.gov.au/calculator/annualPreDecimal.html> For example, goods costing 10 shillings (10 s) or \$1 in 1918 would cost \$42.80 in 2015. Such explorations could be used to cost typical household items in different decades and possibly explore the average weekly take home pay. For example, The State Library of Victoria offers resources about the change in wages and the cost of living through <http://guides.slv.vic.gov.au/c.php?g=245232&p=1633038> Interestingly this same resource provides a scan of Fredrick Sinnett's 1862 *An Account of the Colony of South Australia* which offers a summary of wages and prices of food (see below)

BUTCHER'S MEAT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Beef, per lb.	0	2½	to	0	6	Pork, per lb.	0	8	to	0	9
Lamb, per quarter	3	0	"	4	0	Veal, per lb.	0	6	"	0	10
Mutton, per lb.	0	3	"	0	5						

DAIRY PRODUCE.

Bacon, Colonial, per lb. ...	0	10	"	1	0	Hams, English, per lb. ...	—	1	4		
Butter, Fresh, per lb.	—	—	1	4		Milk, per quart	0	4	"	0	6
Butter, Potted, per lb.	nominal.					Ducks, per pair	7	0	"	8	0
Cheese, Colonial, per lb. ..	—	—	0	8		Fowls, per couple	5	0	"	6	0
Ditto, English, per lb. ...	—	—	1	8		Geese, each	8	0	"	10	0
Lard, per lb.	0	10	"	1	0	Pigeons, per pair	—	—	2	6	
Eggs, per dozen	—	—	1	0		Rabbits, per pair	6	0	"	8	0
Hams, Colonial, per lb. ...	—	—	1	0		Turkeys, each	7	0	"	12	0

VEGETABLES.

Artichokes	none					Marrows, Vegetable, each	0	2	"	0	4
Asparagus	none					Onions, per lb	0	1	"	0	2
Beans, Broad, per peck ..	0	6	"	0	9	Parsley, per bunch	—	—	0	1	
Ditto, French, per lb.	0	2	"	0	4	Parsnips, per bunch	—	—	0	3	
Brocoli	none					Peas, per peck	1	0	"	1	6
Cabbages, each	0	4	"	1	0	Potatoes, per lb.	—	—	0	1	
Capsicums, each	0	2	"	0	4	New Potatoes, per lb.	0	1	"	0	1½
Chilies, per doz.	0	3	"	0	4	Pumpkins	0	6	"	1	0
Carrots, per bunch	0	2½	"	0	4	Radishes, per bunch	—	—	0	1½	
Cauliflowers	none					Seakale	none				
Celery, per stick	0	6	"	0	8	Rhubarb, per bunch	0	6	"	0	8
Cucumbers, each	0	1	"	0	2	Shalots, per lb.	0	4	"	0	6
Garlic, per lb	—	—	0	9		Tomatos, per lb.	0	3	"	0	4
Horseradish, per stick.	0	3	"	0	6	Trombones, each	0	4	"	0	8
Leeks	0	2	"	0	3	Turnips, per bunch	0	4	"	0	6
Lettuces, each	0	2	"	0	4	Watercress, per bunch ..	0	1	"	0	1½

FRUITS.

Almonds, dried, per lb. ..	—	1	0			Melons, Sugar, each	0	4	"	1	0
Ditto, green, per lb.	none					Melons, Water, per lb.	—	—	0	1	
Apples, per lb.	0	1	"	0	3	Mulberries, per lb.	—	—	1	0	
Ditto, dried, per lb.	—	—	0	10		Nectarines	none				
Apricots, per doz.	none					Nuts, Spanish, per lb. ...	0	9	"	0	10
Bananas	none					Ditto, Brazil, per lb.	0	10	"	1	0
Blackberries	none					Oranges	none				
Cherries	none					Marmalade do.	none				
Citrons	—	—	0	3		Paccan nuts, per lb.	—	—	1	0	
Cocoanuts	none					Pears, per lb.	0	2	"	0	4
Currants, black, red, and } white	none					Peaches, per dozen	0	4	"	0	8
Damsons, per quart	0	4	"	0	6	Pineapples	none				
Figs, per dozen	0	2	"	0	4	Ditto, Moreton Bay	none				
Filberts, per lb.	none					Plums, American, per quart	—	—	0	4	
Gooseberries	none					Pomegranates	none				
Ditto, Cape	none					Quinces	none				
Grapes, per lb.	0	1	"	0	2	Raspberries	none				
Lemons, each	0	2	"	0	6	Shaddocks	none				
Limes	none					Strawberries	none				
Loquats	none					Walnuts, per lb.	—	—	0	9	
Medlars	none					Ditto, Colonial	none				

Remember one shilling (s) is equivalent to 10 cents and one penny (d) is equivalent to 1 cent.

In closing, the 14th February marks the 57th anniversary of one of the ways mathematics is used in our daily lives. I hope this brief discussion encourages you to make use of this anniversary in your mathematics program as an opportunity to engage your learners a cultural and historical perspective of everyday mathematics.

Go well,

Mike Chartres