

## Numeracy VPC Unit 3&4 - Coursebook

(Note: Teachers - This is version 2 as at June 2024. If you find any errors, or typos please let me know.)

### Section 1: Numeracy Skills

1A Numerical language 3 //applied

1B Numeracy for Oz and me 4-5 //applied

1C Use it or lose it 7 //applied

1D Personal numeracy 8 //applied

1E Vocational numeracy 9 //applied

1F Everyday numeracy skills 11 //applied

1G My maths toolkit 13 //applied

1H Basic calculations 15

2 a. 6 b. 22 c. 71 d. 140

e. \$62.50 f. 156 g. 84 minutes h. 1,400 crunches (or 1,450)

3-4. a. 45 /no b. \$1.50 /a bit low

c. 0 /no d. \$2.20 /too low

e. 280 /yes f. \$2.20/litre /could be

g. 32 /no h. \$13,000 per year /no

1I Calculating - Addition 18-19

a. 14 b. 32 c. 100 d. 100

e. 55 f. 60 g. 105 h. 150

i. 26 j. 45 k. 135 l. 335

m. 50 n. 62 o. 256 p. 57

q. \$69.95 r. \$11 s. 6 hours t. 7.25 hours

u. 101 cm v. 3.75 km w. 925 gm x. \$1m

1J Calculating - Subtraction 22-23

a. 4 b. 21 c. 37 d. 100

e. 20 f. 18 g. 99 h. 600

i. 2 j. 5 k. 40 l. -10

m. 45 n. 62 o. 100 p. 600

q. \$46 r. \$2.75 s. 3 hours t. 2 hours

u. 53 cm v. 3 km w. 0.85kg x. \$9,500

1K Multiplication 25

a. 63 b. 42 c. 80 d. 165

e. 36 f. 180 g. 98 h. 216

i. 200 j. 12 k. 500 l. \$150

m. 90 n. 10,000 o. 416 p. 540 mins

1L Division 27

a. 2 b. 6 c. 10 d. 8

e. 6 f. 5 g. 20 h. 25

i. 25 j. 40 k. 2 l. 3.5

m. 16 n. 11 o. 25 p. 17

q. 10 r. \$40 s. 4 hours t. 10

1M Testing time 29

a. 101 b. 52 c. 144 d. 40 e. 27 f. 74 g. 45 h. 135 i. 143 j. 55 k. \$73 l. \$215.75 m. \$40 n. \$300 o. 2 hours 45 minutes

1N Working Together 31

1. a. 17 b. 58 c. 30

d. 20 e. 48 f. 1,040

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- g. 30 h. -4 i. \$349.90  
2. a. 24 b. 16 c. 6 d. 0  
3. He has \$12. \$11.94 singles vs \$11.

### Section 2: More Numeracy Skills

#### 2A How... 37

- tall, long, little, close, much, many, far, small
- Could be: ...just around the corner, ...at least 100 kms!, ...just a kid's size please, ...enough to fry an egg, ...3 and a half hours, ...\$249.95, ...less than 30cm, ...higher than a goal post.
- //applied

#### 2B Fractions and decimals 39

- //applied design task
- 0.5, 0.25, 0.33, 0.125, 0.2 1, 0.75, 0.33, 0.8, 0.9, 0.375

1/4, 2/5, 1/2, 1/3, 9/10, 1/8, 1/3, 1, 3/5, 3/4, 5/2

#### 2C Fractions and decimals II 41

- a. \$0.25 b. \$75 c. \$125 d. \$49.75  
e. \$750 f. \$300 g. \$62.50 h. \$19.99
- 2-4. a. 1 b. 4 c. 1/2 d. 24 e. \$2.50 f. 1.5 g. \$42.25 h. 0.7 i. 3/8 j. 1 k. 5/6 l. 0.875

#### 2D Fractions & percentages 42

1.

1/10	1/8	1/6	1/4	1/3	1/2	6/10	2/3	3/4	4/5	9/10	1/1
0.10	0.125	0.17	0.25	0.33	0.5	0.6	0.67	0.75	0.8	0.9	1
10%	12.5%	16.7%	25%	33.3%	50%	60%	66.7%	75%	90%	90%	100%

2. //applied visual task

#### 2E Percentages 43

- a. \$10 b. \$20 c. \$125 d. \$80  
e. \$750 f. 125 g. \$2.50 h. \$201

#### 2F Percentage change 45

- a. 10% b. 200% c. 20%  
d. 2024 = 10% 2025 = 10% total = approx 21% e. -20% f. -50%
- //applied

#### 2G Make an estimate 47 //applied

#### 2H Estimating in action 49

- i. Total pay: \$990 ii. Total payments: \$472.50 iii. Total received: \$1,023
- 2a i. 18km ii. Pretty close allowing for some slight variation i.e 20km vs 21km
- 2b i. 20 min + 40 min = 1hr, valid ii. another 20, more if they become more efficient i.e. chopping more ingredients at the start, but fewer if they become tired

#### 2I Bar graphs 52-53

- //graphing activity
- Student travel method to school; Feb 4-8, 2024; approx amounts - walk: 14, car: 25, cycle: 17, pt: 21 (or 22), other: 8; car was used most, other was used least; walk vs car; car, cycle and pt; other might include skating, horse, jog, etc..

#### 2J Pie charts 54-55

- //graphing activity
- Student mobile phone types; March 2024; Apple; //applied; 35, 10 & 5; 3.5 times more; 70, 20, 10; applied

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### 2K Line graphs 56-57

Part A: bottom time scale ten trend

Part B: //applied graphing skills

## Section 3: Time and Place

### 3A Me and location & time 63 //applied task

### 3B Digital location systematics 65 //applied task

### 3C It's time 67

week; seconds; minutes;

hours; days; digital;

am; pm; analogue;

24-hour time, wage; ETA;

calendar; duration; appointment;

time zones

### 3D Telling the time 69

1. 6 o'clock; 12:15; 6.15;

9.40; 9 o'clock; 4 o'clock

### 3E 24-hour time 70

1. 16:00 = 4:00PM; 17:30 = 5:30PM; 20:45 = 8:45PM; 23:36 = 11:36PM;

06:00 = 6:00AM; 02:15 = 2:15AM; 10:45 = 10:45AM; 19:30 = 7:30PM;

18:00 = 6:00PM; 00:00 = 12:00AM (midnight) ; 12:00 = 12:00PM (noon) ; 24:00 = 12:00AM (midnight)

2-3. //applied

### 3F My daily time 71 //applied

### 3G Converting time 72

a. 180 minutes b. 165 minutes c. 330 minutes d. 360 minutes

e. 1,080 minutes f. 225 minutes g. 5 minutes h. 1,440 minutes

i. 1.5 hours j. 4 hours k. 7 hours l. 48 hours

m. 15 hours n. 22 hours o. 7 1/2 hours p. 3/4 hour

### 3H Estimating and converting 73 //applied task

### 3I What about place 75 //applied task

### 3J Preferred directions 77 //applied task

### 3K Map pathways 79 //applied visual skill

### 3L Maps: Landmarks & scale 81 //applied task

### 3M Whereabouts? 82-83 //applied visual skills task

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### Section 4: Location and Planning

**4A How I use...** 91 //applied

**4B Compass directions** 92-93 //applied visual skill

5. g. south h. east north-east i. north north-west j.  $165^{\circ}$  k.  $255^{\circ}$  l.  $105^{\circ}$

**4C Angels** 96-97

1. acute =  $< 90^{\circ}$ , full =  $360^{\circ}$ , obtuse =  $90-180^{\circ}$ ,  
reflex =  $>180^{\circ}$ , right =  $90^{\circ}$ , straight =  $180^{\circ}$

2-3. //applied visual skill

**4D Where can I find....** 99 //applied navigation task

**4E Location** 100-101 //applied visual skill

**4F Language of location** 102-103 //applied visual skill

**4G Tour guiding** 104-105 //applied

**4H Getting around** 107 //applied investigative task

4. e.g. From Melbourne CBD to... MCG: approx 3 km: Walking 20-30 minutes; SCG approx 870 km: Driving 8-9 hours; Gumbuya World: approx 90 km: Driving 1.5-2 hours; Dreamworld (Gold Coast): approx 1,675 km: Driving - 17-18 hours + stops; The Big Koala, Dadswell Bridge approx 270km, Driving 3+ hours; The Big Prawn (Ballina): approx 1,600 km, Driving 16 hours + stops; Poowong: approx 120 km, Driving 1.5-2 hours; Dunedoo: approx 950 km, Driving 10.5 hours + stops; Mount Disappointment: approx 60 km, Driving 1 to 1.5 hours; Uluru approx 2,300kms, at least 24+ hours plus stops.

**4I Apps v maps** 108 //applied

**4J Travel speeds** 109 //applied reflective problem-solving

**4K Distance and time** 110 // applied reflective problem-solving

1. 60 km at 60 km/h: 1 hour; 30 km at 30 km/h: 1 hour; 10 km at 100 km/h: 6 minutes;  
3 km at 6 km/h: 30 minutes; 6 km at 18 km/h: 20 minutes; 2 km at 2 km/h: 1 hour

**4L Calendars & diaries** 115 //applied

**4M To-do list** 116 //applied

**4N Timetables** 117 //applied

**4O Rosters** 119

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
7.00							
8.00							
9.00							
10.00							
11.00							
12.00							
13.00							
14.00							
15.00							
16.00							
17.00							
18.00							
19.00							
20.00							
21.00							
22.00							

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### Section 5: Money

#### 5A A world of money 125

100, currency, billion,  
wage, profit, loss,  
income, expenses, debt,  
\$100, 5c, budget,  
\$23.23, 87%, EFTPOS,  
\$39.50, \$40.50, \$38.20

#### 5B Money 126-127 //applied

2. i. \$85 in notes: \$50 note x 1 \$20 note x 1 \$10 note x 1 \$5 note x 1
- ii. \$19.50 in notes and coins: \$10 note x 1 \$5 note x 1 \$2 coin x 2 50 cent coin x 1
- iii. \$47.85 in notes and coins: \$20 note x 2 \$5 note x 1 \$2 coin x 1 50 cent coin x 1 20 cent coin x 1 10 cent coin x 1 5 cent coin x 1
- iv. \$33.60 in coins: \$2 coin x 16 \$1 coin x 1 50 cent coin x 1 10 cent coin x 1
- v. \$345: \$100 note x 3 \$20 note x 2 \$5 note x 1
- vi. \$850.95: \$100 note x 8 \$50 note x 1 50 cent coin x 1 20 cent coin x 2 5 cent coin x 1
- vii. \$9,950: \$100 note x 99 \$50 note x 1

#### 5C Quick money calculations 129

- 1a. \$2.65 b. \$35 c. \$138.99
- d. \$4.95 e. \$27 f. \$12.45
- g. \$9.75 h. \$1,000 i. \$7.05
- j. \$2,415 k. \$73 l. \$48.44
2. //applied investigation

#### 5D Making change I 131

- i. \$37 ii. \$10.50 iii. \$10 iv. \$1.50 v. \$29 vi. \$2 vii. -\$5 (Shortfall of \$5)

#### 5E Making change II 133

Purchase Amount	Amount Tendered	Change	Counting Out Change
\$5.00	\$10.00	\$5.00	\$5
\$7.00	\$10.00	\$3.00	\$2, \$1
\$6.50	\$10.00	\$3.50	\$2, \$1, 50c
\$2.35	\$10.00	\$7.65	\$5, \$2, 50c, 10c, 5c
\$9.80	\$10.00	\$0.20	20c
\$7.25	\$10.00	\$2.75	\$2, 50c, 20c, 5c
\$1.15	\$10.00	\$8.85	\$5, \$2, \$1, 50c, 20c, 10c, 5c
\$7.60	\$10.00	\$2.40	\$2, 20c, 20c
\$0.85	\$10.00	\$9.15	\$5, \$2, \$2, 10c, 5c
\$4.99	\$10.00	\$5.01	\$5 (rounded)

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Purchase Amount	Amount Tendered	Change	Counting Out Change
\$8.00	\$20.00	\$12.00	\$10, \$2
\$13.50	\$20.00	\$6.50	\$5, \$1, 50c
\$12.00	\$20.00	\$8.00	\$5, \$2, \$1
\$6.75	\$20.00	\$13.25	\$10, \$2, \$1, 20c, 5c
\$18.40	\$20.00	\$1.60	\$1, 50c, 10c
\$12.55	\$20.00	\$7.45	\$5, \$2, 20c, 20c, 5c
\$9.95	\$20.00	\$10.05	\$10, 5c
\$11.50	\$20.00	\$8.50	\$5, \$2, \$1, 50c
\$9.30	\$20.00	\$10.70	\$10, 50c, 20c
\$0.95	\$20.00	\$19.05	\$10, \$5, \$2, \$2, 5c

Purchase Amount	Amount Tendered	Change	Counting Out Change
a. \$14.00	\$50.00	\$36.00	\$20, \$10, \$5, \$1
b. \$4.50	\$50.00	\$45.50	\$20, \$20, \$5, 50c
c. \$39.95	\$50.00	\$10.05	\$10, 5c
d. \$42.50	\$50.00	\$7.50	\$5, \$2, 50c
e. \$39.75	\$50.00	\$10.25	\$10, 20c, 5c
f. \$15.50	\$50.00	\$34.50	\$20, \$10, \$2, \$2, 50c
g. \$26.00	\$50.00	\$24.00	\$20, \$2, \$2
h. \$0.95	\$50.00	\$49.05	\$20, \$20, \$5, \$2, \$2, 5c
i. \$32.75	\$50.00	\$17.25	\$10, \$5, \$2, 20c, 5c
j. \$18.25	\$50.00	\$31.75	\$20, \$10, \$1, 50c, 20c, 5c

Purchase Amount	Amount Tendered	Change	Counting Out Change
a. \$75.00	\$100.00	\$25.00	\$20, \$5
b. \$38.75	\$100.00	\$61.25	\$50, \$10, \$1, 20c, 5c
c. \$65.50	\$100.00	\$34.50	\$20, \$10, \$2, \$2, 50c
d. \$94.00	\$100.00	\$6.00	\$5, \$1
e. \$81.25	\$100.00	\$18.75	\$10, \$5, \$2, \$1, 50c, 20c, 5c
f. \$15.75	\$100.00	\$84.25	\$50, \$20, \$10, \$2, \$2, 20c, 5c
g. \$8.30	\$100.00	\$91.70	\$50, \$20, \$10, \$10, \$1, 50c, 20c
h. \$32.60	\$100.00	\$67.40	\$50, \$10, \$5, \$2, 20c, 20c
i. \$58.15	\$100.00	\$41.85	\$20, \$20, \$1, 50c, 20c, 10c, 5c
j. \$43.75	\$100.00	\$56.25	\$50, \$5, \$1, 20c, 5c

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### 5F Rounding purchases 135

Amount	Rounded amount	Money tendered	Estimated change	Estimated currency	Exact change	Exact currency
\$3.85	\$4	\$5	\$1	\$1	\$1.15	\$1 + 10c
\$1.15	\$1	\$5	\$4	\$2 + \$2	\$3.85	\$2+\$1+50c +20c+10c+5c
\$9.35	\$9	\$10	\$1	\$1	\$0.65	50c + 10c + 5c
\$7.70	\$8	\$10	\$2	\$2	\$2.30	\$2 + 20c + 10c
\$2.95	\$3	\$10	\$7	\$5 + \$2	\$7.05	\$5 + \$2 + 5c
\$14.95	\$15	\$20	\$5	\$5	\$5.05	\$5 + 5c
\$15.50	\$16	\$20	\$4	\$2 + \$2	\$4.50	\$2 + \$2 + 50c
\$12.75	\$13	\$20	\$7	\$5 + \$2	\$7.25	\$5 + \$2 + 20c + 5c
\$6.95	\$7	\$20	\$13	\$10 + \$2 + \$1	\$13.05	\$10 + \$2 + \$1 + 5c
\$43.75	\$44	\$50	\$6	\$5 + \$1	\$6.25	\$5 + \$1 + 20c + 5c

Total	Rounded amount	Money tendered	Estimated change	Estimated currency	Exact change	Exact currency
\$4.89	\$5	\$5	0	0	10c (rounded)	10c
\$6.00	\$6	\$10	\$4	\$2 + \$2	\$4	\$2 + \$2
\$9.94	\$10	\$10	0	0	5c (rounded)	5c
\$18.50	\$19	\$20	\$1	\$1	\$1.50	\$1 + 50c
\$15.60	\$16	\$50	\$34	\$20 + \$10 + \$2 + \$2	\$34.40	\$20 + \$10 + \$2 + \$2 + 20c + 20c
\$48.05	\$48	\$50	\$2	\$2	\$1.95	\$1 + 50c + 20c + 20c + 5c

**5G Making comparisons 137** //applied investigative task

**5H Unit pricing 138** //applied investigative task

**5I Basket of goods 139** //applied investigative task &  
Totals: \$42.84; \$41.67; \$95.56; \$33.87

**5J Setting up house 140- 141** //applied investigative task

**5K Finding patterns 142- 143**

1.

Pattern: The numbers are increasing by 2 each time. Next number: \$14 (increasing by 2).

Pattern: The numbers are decreasing by 1 each time. Next number: \$1 (decreasing by 1).

Pattern: Each number is doubling the previous one. Next number: 128 (doubling 64).

Pattern: Each number is halving the previous one. Next number: 2 (halving 4).

Pattern: Each number is increasing by one more than the previous increase (incrementing by 1, then 2, then 3, and so on). Next number: \$28 (incrementing by 6).

Pattern: Each number is decreasing by a number that is one less than the position in the sequence (decreasing by 1, then 2, then 3, and so on). Next number: \$9 (decreasing by 6).

2.

Sugar: Pattern: The price increases by \$2 for each additional 500g. Next: \$10 for 2.5kg.

Free-range eggs: Pattern: The price goes up by \$7 for each additional dozen eggs. Next: \$28 for 48 eggs (4 dozen).

Coffee: Pattern: The price decreases by \$5 for each fewer cup. Next: \$5 for 1 cups.

Milk: Pattern: The price increases by \$1.50 for each additional litre. Next: \$8 for 6 litres.

3.

Sugar: Pattern: Each additional 500g is only \$1 after 1kg (some bulk savings to be had compared to 500g).

Eggs: Pattern: Each half dozen = 50c cheaper: But this can't go on forever as there will be free eggs after a certain amount!

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Coffee: Pattern: The price increases by \$4 for each additional cup after the 2nd cup (so bulk savings to be had if everyone buys together).

Milk: No clear pattern: The price increases vary (some bulk savings to be had compared to 1 litre).

Soft drink: No clear pattern: The price increases vary (but cheaper in bulk).

4.

Price	10% Discount	5% Discount	20% Discount	30% Discount	40% Discount	50% Discount
\$100	\$90	\$95	\$80	\$70	\$60	\$50
\$250	\$225	\$237.50	\$200	\$175	\$150	\$125
\$50	\$45	\$47.50	\$40	\$35	\$30	\$25
\$80	\$72	\$76	\$64	\$56	\$48	\$40
\$30	\$27	\$28.50	\$24	\$21	\$18	\$15
\$1,000	\$900	\$950	\$800	\$700	\$600	\$500

Applied

$$\text{Change} = \$4 + \$2 = \$4 = \$10$$

### 5L Percentages 145

1a. percentages: a. 50% b. 25% c. 66.67% d. 80% e. 37.5% f. 75% g. 90% h. 20% i. 75%

Money: a. \$40 b. \$37.50 c. \$200 d. \$1,600 e. \$375 f. \$18.75 g. \$4,500 h. \$19.99 i. \$7,500

2a. \$40 b. \$90 c. \$975

d. \$450 e. \$3,300 f. \$1.29 or \$1.30

g. \$60 h. \$120 i. \$13.50

3a. Total GST for the customer's order = \$1.00 + \$10.00 + \$50.00 = \$61.00

3b. Total GST for the supplier's invoice = \$5.00 + \$20.00 + \$90.00 = \$115.00

### 5M Discounts 147

a. Original Price: \$150 Discount Amount: = \$30 New Price: \$150 - \$30 = \$120

Original Price: \$200 Discount Amount: = \$40 New Price: \$200 - \$40 = \$160

Original Price: \$80 Discount Amount: = \$16 New Price: \$80 - \$16 = \$64

Original Price: \$50 Discount Amount: = \$10 New Price: \$50 - \$10 = \$40

Original Price: \$6 Discount Amount: = \$1.20 New Price: \$6 - \$1.20 = \$4.80

Total Discount Amount: \$30 + \$40 + \$16 + \$10 + \$1.20 = \$97.20

Total Original Price: \$150 + \$200 + \$80 + \$50 + \$6 = \$486

Total Discounted Price = \$388.80

So, the total discount amount is \$97.20, and the total discount percentage is 20%.

b.  $23+25+24= \$72$  (eliminate \$18)

The original total cost (before discount) is the sum of all four meals:

$$23+18+25+24= \$90$$

The discount is \$18, the new total price is \$72, and the total discount percentage is 20%.



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### 6. Dollars and Sense

#### 6A Dealing with money 153 //applied

#### 6B Types of income 155

payment in kind: \$1,000/week, wage = \$500/week (50%), payment in kind = \$500/week (50%)

salary: \$1,500/week

commission: \$1,500/week (for 50 weeks or \$1,461.53 for 52 weeks)

wage: \$1,045/week, \$54,340/year

piece rate \$12 or \$16/hour, or ave = \$14 per hour; \$60 or \$80 or ave = \$70 per 5 hours

retainer: pay is approx = \$1,923/week; base = \$20,800 = 20.8% (for a 52 week year), commission = 79.2%

2. //applied current investigation

#### 6C Pay up 156-7

1. //applied current investigation 2. //applied current investigation 3. Which job = //applied knowledge

3a. \$348/week, is certainly a junior;

b.  $\$240 + 8 \times \$25 = \$440$ ; also must be a junior.

c.  $\$22.50 \times 12 = \$270$

d. \$882.74

e.  $38 \times \$12.50 = \$475$

f. \$570/week this year; next year  $38 \times \$18 = \$684$

g.  $8 \times \$40 = \$320$

h. \$1,400

i.  $38 \times \$23.23 (2023/24) = \$882.74$

j. \$2,000/week; hourly @ (48 weeks x 50 hours) = \$43.33

#### 6D Apprenticeship and traineeship pay rates 160-161

Part A

	55%	60%	80%	95%
<b>\$24</b>	\$13.20	\$14.40	\$19.20	\$22.80
	\$501.60	\$547.20	\$729.60	\$866.40
	\$26,083.20	\$28,454.40	\$37,939.20	\$45,052.80
<b>\$27</b>	\$14.85	\$16.20	\$21.60	\$25.65
	\$564.30	\$615.60	\$820.80	\$974.70
	\$29,343.60	\$32,011.20	\$42,681.60	\$50,684.40
<b>\$30</b>	\$16.50	\$18.00	\$24.00	\$28.50
	\$627.00	\$684.00	\$912.00	\$1,083.00
	\$32,604.00	\$35,568.00	\$47,424.00	\$56,316.00

Part B 1.

School leaver Wage level A	...and has completed Year 10	...and has completed Year 11	...and has completed Year 12
Just left school	\$384.30	\$423.10	\$503.30
	\$12.64	\$13.92	\$16.56
	\$19,983.60	\$22,001.20	\$26,171.60
Plus 1 year out of school	\$423.10	\$503.30	\$585.75
	\$13.92	\$16.56	\$19.27
	\$22,001.20	\$26,171.60	\$30,459.00
Plus 2 years out of school	\$503.30	\$585.70	\$681.60
	\$16.56	\$19.27	\$22.42
	\$26,171.60	\$30,456.40	\$35,443.20

2. //applied current investigation

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### 6E Timesheets 162

1. //applied analytical task
2. Employee, employer, date and other details plus...

	Date	Start	Finish	Break	Hours Worked	Rate	Total	Break	O/time Hours	Rate	Total
Monday	19-Aug	8:45	17:30	13:00 to 13:45	8	\$23.23	\$185.84				
Tuesday	20-Aug	8:45	17:30	13:00 to 13:45	8	\$23.23	\$185.84				
Wednesday	21-Aug	8:45	17:30	13:00 to 13:45	8	\$23.23	\$185.84				
Thursday	22-Aug	8:45	19:50	13:00 to 13:45	8	\$23.23	\$185.84	17:30 to 17:50	2	\$34.85	\$69.69
Friday	23-Aug	8:45	17:30	13:00 to 13:45	8	\$23.23	\$185.84				
Saturday											
Sunday											
Totals					40		\$929.20		2		\$69.69
Grand total											\$998.89

### F Pay slips 164

#### Week 1

Hairex Tensions	ABN: 23 456 987 01	Date: <i>applied</i>		
Employee:	<i>applied</i>	Period: <i>applied</i>		
<u>Entitlements</u>			<u>Deductions</u>	
Ordinary hourly rate:	Total	Total		
	<b>\$17.50</b>	<b>14</b>	<b>\$245.00</b>	
Overtime hourly rate:				
	<b>\$21.88</b>	<b>0</b>	<b>\$0.00</b>	
Gross entitlement			<b>\$245.00</b>	Tax deducted: <b>\$30.63</b>
Net entitlement			<b>\$214.38</b>	
Paid into bank account: <i>applied</i>		BSB: <i>applied</i>		
Gross entitlement	Year to date	\$245.00	Year to date	\$30.63
Net entitlement	Year to date	\$214.38		

#### Week 2

Hairex Tensions	ABN: 23 456 987 01	Date: <i>applied</i>		
Employee:	<i>applied</i>	Period: <i>applied</i>		
<u>Entitlements</u>			<u>Deductions</u>	
Ordinary hourly rate:	Total	Total		
	<b>\$17.50</b>	<b>14</b>	<b>\$245.00</b>	
Overtime hourly rate:				
	<b>\$21.88</b>	<b>6</b>	<b>\$131.25</b>	
Gross entitlement			<b>\$376.25</b>	Tax deducted: <b>\$47.03</b>
Net entitlement			<b>\$329.22</b>	
Paid into bank account: <i>applied</i>		BSB: <i>applied</i>		
Gross entitlement	Year to date	\$621.25	Year to date	<b>\$77.66</b>
Net entitlement	Year to date	\$543.60		

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## Numeracy VPC Unit 3&4 - Coursebook

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Week 3				
Hairex Tensions	ABN: 23 456 987 01	Date: <i>applied</i>		
Employee:	<i>applied</i>	Period: <i>applied</i>		
<u>Entitlements</u>			<u>Deductions</u>	
Ordinary hourly rate:	Total	Total		
	<b>\$17.50</b>	<b>14</b>	<b>\$245.00</b>	
Overtime hourly rate:				
	<b>\$21.88</b>	<b>6</b>	<b>\$131.25</b>	
Gross entitlement		<b>\$376.25</b>	Tax deducted:	<b>\$47.03</b>
Net entitlement		<b>\$329.22</b>		
Paid into bank account: <i>applied</i>		BSB: <i>applied</i>		
Gross entitlement	Year to date	\$997.50	Year to date	\$124.69
Net entitlement	Year to date	\$872.82		

**6G Next year?** 165 //applied personal investigation

**6H My expenses** 167 //applied personal investigation

**6I Surplus or deficit?** 171

Case a: Deficit of \$50 Case b: Surplus of \$300 Case c: Balanced (\$0) Case d: Surplus of \$916 (\$5,700 > \$4,784)

Case e: Surplus of \$300 (\$12,000 > \$11,700)

**6J Feed the kitty** 172

1. Forecast surplus of \$885: Forecast revenue = \$2,200, Forecast expenditure = \$1,315.

2. //applied discussion

3. Deficit of \$315 : Actual revenue = \$1,830, Actual expenditure = \$1,525.

4. //applied discussion

5. Spend less, estimate expenses more accurately, try to get more shifts and/or don't overestimate shifts.

**6K Personal budget - Basic** 173 // applied personal investigation

**6L My budget - Advanced** 174-5 // applied personal investigation

**6M Mortgages and loans** 177

1. Because it is for an asset and it creates ongoing utility (to live in and to save on rent) and in the long term the capital value is likely (but not guaranteed) to rise.

2-6. // applied discussion and investigation// Loan at 10% = \$98 fortnight over 5 years; total = \$12,726 plus fees

**6N 'Easy' money, hard debt** 179

1a. Applied - It will take much longer pay off the debt as the minimum amount is too low. Check with the calculator. (approx \$2,894 over 7 years 10 months)

1b. Applied - It will take less time off the debt as the minimum amount being paid back is now higher. Check with the calculator. (approx \$2,028 over 3 yrs 5 mths)

1c. Applied - It will take even less time off the debt as the amount being paid back is now even higher. Check with the calculator. (approx \$1,803 over 2 yrs 1 mths)

1d. Applied - It will much less time off the debt as the monthly amount being paid back is now much higher. Check with the calculator. (approx \$1,707 over 1 yrs 6 mths)

1e. //applied advice

2a. \$1,000 + \$200 establishment cost = \$1,200

2b. \$64.62/fortnight over 26 periods = \$1,680.12

2c. \$480

2d.  $\$680.12/\$1,000 \times 100\% = 68\%$  'effective interest rate'

2e-f. //applied investigation

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### 7. Shapes and Objects

7A **Shape up** 189 //applied

7B **Basic shapes** 190-191

1. circle; square; rectangle; oval (or ellipse); triangle; pentagon; hexagon; octagon
- 2-4. //applied

7C **Basic objects** 192-193 //applied design task

sphere; cube; rectangular prism; ellipsoid; pyramid or tetrahedron if all sides are equal; pentagonal prism; hexagonal prism; octahedron

7D **Properties of shapes** 195

1. //applied

2. All same length (20mm)

3.

Square 30mm x 30mm: Quadrilateral; Number of sides: 4; Number of Inside Angles: 4; Equal lengths; Regular

Rectangle 30 mm x 20mm: Quadrilateral; Number of sides: 4; Number of Inside Angles: 4; Opposite sides are equal lengths; Irregular

Equilateral triangle 26mm each side; Number of sides: 3; Number of Inside Angles: 3; Equal lengths; Regular

Octagon 31mm x 31mm: Number of sides: 8; Equal lengths; Regular

7E **Cube net** 196 //applied design and measuring task

7F **Solid objects** 197 //applied design and measuring task

1. trigon or triangle / pyramid or tetrahedron if all sides are equal

7G **Objects at work** 198-199

1. //applied investigative task

2&3. To maximise space and to limit trips and save \$ on time and fuel.

4.//applied

5. To fit more easily and the shelf and maximise space and offer as much stock as possible.

7H **Size** 201 //applied

7I **Colour in context** 203 //applied visual investigative and discussion task

7J **Scale and ratio** 205 //applied visual investigative and discussion task

7K **Comparing size** 207 //applied visual investigative and discussion task

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### 8. Quantity and Measuring

8A **Me and measures** 215 //applied

8B **Units of measurement** 217

- a. 2,500 g b. 0.375 litres c. 500 metres  
d. 275 mm e. 250 ml f. 0.5 km  
g. 5 minutes h. 120 minutes i. 37.8°C

8C **Measuring devices** 219 // applied investigation

8D **Measuring up** 220-221 //applied investigation

8E **Measuring length** 223 //applied measuring and investigation

ix. 20cm // 40cm

8F **Perimeter** 224

- 86cm
- //applied

8G **Circumference** 225

31.42 cm; 9.42 cm; 25.1cm; 37.70 cm; 157.08 mm; 314.16 cm

8H **Area** 226

Square =  $100\text{cm}^2$ ; Rectangle =  $20\text{cm}^2$ ; Rectangle =  $240\text{cm}^2$ ;  
Rectangle =  $6\text{cm}^2$ ; Triangle =  $7.5\text{cm}^2$ ; Triangle =  $16\text{cm}^2$

8I **Pizzas** 229

1 & 2. Small:  $452.4\text{ cm}^2$

Medium:  $706.9\text{cm}^2$  56.2% increase

Large:  $1,017.9\text{cm}^2$  44% increase

Family:  $1,385.4\text{cm}^2$  36% increase

8J **Measuring weight (mass)** 231 //applied measuring and investigation

8K **Measuring fluid capacity** 233

i. 1 teaspoon = 5 (ml); 1 tablespoon = 15 ml or 20ml

ii - v. //applied and discussion

8L **Measuring solid volume** 235

1. //applied estimation and investigation

2.  $750\text{cm}^3$ ;  $512\text{cm}^3$

3. //applied

8M **Estimating vs measuring** 237 //applied estimation and investigation

8N **The heat is on** 238-239

1. //applied estimation and investigation

2. //applied estimation and investigation

- Typical room temperature: 20-25°C
- Hottest weather temperature ever on Earth: Recorded in Furnace Creek Ranch, Death Valley, California, USA on July 10, 1913: 56.7°C
- London: Well, it's not likely to be warm by Oz standards!
- Coldest weather temperature ever on Earth: Recorded at Vostok Station, Antarctica on July 21, 1983: -89.2°C
- Inside of a car with windows up: On a hot sunny day, can reach up to 60°C or more
- Car radiator fluid after a long drive: Can reach up to 90-100°C
- An ice bath: Typically around 1°C

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- A supermarket (fridge) chiller: Typically around 2-4°C
- Healthy human body temperature: Typically around 37°C
- A supermarket (freezer) chiller: Typically around -18°C

80 **Safe temperature investigation** //applied investigation

## Numeracy VPC Unit 3&4 - Coursebook

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### 9. Data and Information

9A Me and data 249 //applied

9B Use of data 250-251

1.//applied

2a. Pre-game Analysis:

- Studying past match analyses and opponent statistics.
- Analysing data to understand rivals' strategies and tendencies.

Real-time Game play:

- Tracking in-game metrics like ammo, health, and cooldowns.
- Adjusting strategies on the fly based on opponent behavior and map dynamics.

Tech Tools Utilization:

- Leveraging virtual reality for lifelike scenario practice.
- Reviewing matches frame by frame to learn from every move and decision.

Data-driven Decision Making:

- Orchestrating strategies based on real-time data and insights.
- Making informed decisions backed by strategic wisdom and numerical reflexes.

Performance Optimization:

- Perfecting techniques through continuous practice and refinement.
- Focusing not just on winning, but also on perfecting techniques and making smarter decisions.

9C Primary vs secondary 253 //applied

9D Digital and analogue data 255 //applied

9E Collating & organising data 257

A.//applied practical simulation or investigation

B.

Pairs	\$	Name	\$	Name	\$	Ave
Ugo & Hugo	\$ 777	Ugo	\$ 333	Hugo	\$ 444	\$ 388.50
Wil & Jyl	\$ 670	Wil	\$ 435	Jyl	\$ 235	\$ 335.00
Nel & Al	\$ 459	Nel	\$ 459	Al	\$ -	\$ 229.50
Red & Ed	\$ 444	Red	\$ 123	Ed	\$ 321	\$ 222.00
Qua & Dah	\$ 400	Qua	\$ 150	Dah	\$ 250	\$ 200.00
Oz & Boz	\$ 385	Oz	\$ 126	Boz	\$ 259	\$ 192.50
Zo & Moe	\$ 347	Zo	\$ 117	Moe	\$ 230	\$ 173.50
Vena & Ina	\$ 300	Vena	\$ 150	Ina	\$ 150	\$ 150.00
Pam & Cam	\$ 231	Pam	\$ 77	Cam	\$ 154	\$ 115.50
Xai & Kay	\$ 228	Xai	\$ 27	Kay	\$ 201	\$ 114.00
Sia & Fiah	\$ 203	Sia	\$ 98	Fiah	\$ 105	\$ 101.50
Yi & Lee	\$ 188	Yi	\$ 114	Lee	\$ 74	\$ 94.00
Tyl & Gil	\$ 153	Tyl	\$ 72	Gil	\$ 81	\$ 76.50
	<b>\$ 4,785</b>		<b>\$ 2,281</b>		<b>\$ 2,504</b>	<b>\$ 368.08</b>

9F Tables 258-259

1.

**Top goalscorer:** Sam has scored the highest number of goals, with a total of 33 goals in 11 games, averaging 3 goals per game.

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- **High performance:** Despite playing fewer games compared to other players, Nic has the highest average goals per game ratio. Nic has scored 18 goals in just 3 games, averaging 6 goals per game.
- **Team contribution:** The total number of goals scored by all 5 top goalscorers combined is 81 goals in 44 games.
- **Variability:** There is a notable difference in the number of games played by each player. While some players, like Chris, have played 15 games, others, like Nic, have played only 3 games.
- **Average Goals** The average goals per game for the 5 top goalscorers combined is 1.84.

2. Total sales = \$615,500 Ave = \$51,291.67/month; Total profit = \$222,500 Ave = \$18,541.67/month

- The total sales for the year amount to \$615,500, while the total profit is \$222,500. This provides an overview of the overall financial performance of the business throughout the year.
- Sales and profit figures vary from month to month, indicating fluctuations in business activity, possibly influenced by factors such as seasonal demand, marketing campaigns, **or economic conditions**.
- December stands out as the highest performing month in terms of both sales (\$102,000) and profit (\$41,000), suggesting increased consumer spending during the holiday season.
- February appears to be the lowest performing month with sales of \$27,000 and profit of \$9,000. This could be due to factors such as post-holiday lull or specific market conditions.
- Despite fluctuations in sales figures, the profit margin remains relatively consistent (most 30% to 40%) throughout the year, indicating efficient cost management and pricing strategies.
- The average monthly sales and profit are \$51,291.67 and \$18,541.67, respectively. These averages provide a benchmark for evaluating the business's performance.

9G Tables at work 261 //applied investigation

9H Bar graphs 264-265

A 1. Resource recycling rates by material category, Australia 2020–21

2. ash 23%; building & demolition materials 80%; glass 59%; hazardous wastes 40%; metals 87%; organics 47%; paper and cardboard 55%; plastics 13%; Textiles, leather & rubber (excl. tyres) 5%; unclassified 6%
3. Metals 87%, they have high scrap value and can be re-processed!
4. Building and demolition materials they have value and can be re-used!
5. Textiles, leather & rubber tyres, and plastics. Clothing and fabrics have low recycle rates (when not in use anymore) and tyres are an ongoing problem with limited re-purpose options ATM compared to usage rates.
6. building and demolition materials; glass; metals; paper and cardboard
7. A lot goes in household bins, and the soft plastics scheme collapsed.

Part B. //applied investigation

9I Pie charts 266-267

A 1. Sources of Australian Energy Generation: 2021/22

2. Coal 47%; Gas 19%; Solar 14%; Wind 11%; Hydro 6%; other 3%
3. coal with 47%
4. hydro with 6% (exc. other)
5. 34%
6. Renewables much higher now // coal & gas much lower now.
7. Renewables should have grown even more (esp. wind), with coal & gas falling.

Part B //applied

9J Line graphs 268-269

A 1. Average (mean) Price of Residential Dwellings: Australia 2014 to 2023 (as at June 30)

2.

2013/14	\$547.5 k
2014/15	\$600.1 k
2015/16	\$619.5 k
2016/17	\$678.8 k
2017/18	\$681.1 k
2018/19	\$649.3 k
2019/20	\$706.7 k
2020/21	\$813.9 k
2021/22	\$921.2 k
2022/23	\$906.2 k

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3. 2021/22 \$921.2K
4. 2013/14 \$547.5K
5. The general trend is up.
6. Higher demand for housing vs less supply of housing // population growth // increases in personal wealth over time.
7. The trend turned in 21/22. There was a price boom during COVID but then interest rates started to rise. reducing demand.
8. Most likely higher on average; but not necessarily in all areas.

9K **Infographics** 271 //applied visual analysis

### 10. Making Sense of the World

10A **What's next?** 279

- a. 18 (+3 pattern) b. 20 (-10 pattern) c. cannot predict coin toss, it's random d. most likely red (a traffic light sequence)
  - e. cannot predict next card, it's random (but people might say four) f. cannot predict roulette, it's random.
2. //applied

10B **Uncertainty** 281 //applied discussion

10C **Luck** 285 //applied discussion

10D **Coincidence** 286 //applied reflection and discussion

10E **Feeling lucky?** 287 //applied reflection and discussion

10F **Chance and randomness** 289 //applied reflection and discussion

10G **A toss of the coin** 291

1. 50% (50/50 chance) 2. 50% 3. 50% (the coin always 'resets'!) 4. 50% 5. 25% then 12.5%

10H **Probability** 293

1. 1 in 2 or 50%; 1 in 2 or 50%; 1 in 4 or 25%; 1 in 6 or 16.7%; 1 in 6 or 16.7%; 1 in 36 or 2.8%
2. You winning Olympic gold (sorry but happy to be wrong, let me know how things turn out!); a million to 1; 1 out of 100%; 1 in 24; 1 in 10; 1/3; 2 chances in 5; 50/50; 12 in 20; 3 in 4; 99 out of 100

10I **Probabilities in everyday life** 294-295 //applied investigation, reflection and discussion

10J **Having a bad day!** 296 //applied analysis, reflection and discussion