



YUMI DEADLY CENTRE
School of Curriculum

Enquiries: +61 7 3138 0035

Email: ydc@qut.edu.au

<http://ydc.qut.edu.au>

Finance Booklet B

Planning a party: Teaching three-digit numbers, decimal fractions to hundredths, and addition, subtraction, multiplication and division with money



Shalom Christian College-QUT Deadly Maths Group
Accelerated Numeracy Project
FINANCIAL MATHEMATICS MATERIALS

FINANCE BOOKLET

B

PLANNING A PARTY:
Teaching 3-digit numbers, decimal fractions
to hundredths, and addition, subtraction,
multiplication and division with money

Written by:

Tom J Cooper,
Annette R Baturu
& Fiona Hobbs, QUT

Supported by:

Gillian Farrington, Petrina Underwood,
Martlyn Klokman, and Jan Light, QUT

June 2008

Funded by a Financial Literacy Grant
from the Commonwealth Bank Foundation

YuMi Deadly Maths
Past Project Resource

Acknowledgement

We acknowledge the traditional owners and custodians of the lands in which the mathematics ideas for this resource were developed, refined and presented in professional development sessions.

YuMi Deadly Centre

The YuMi Deadly Centre is a Research Centre within the Faculty of Education at Queensland University of Technology which aims to improve the mathematics learning, employment and life chances of Aboriginal and Torres Strait Islander and low socio-economic status students at early childhood, primary and secondary levels, in vocational education and training courses, and through a focus on community within schools and neighbourhoods. It grew out of a group that, at the time of this booklet, was called “Deadly Maths”.

“YuMi” is a Torres Strait Islander word meaning “you and me” but is used here with permission from the Torres Strait Islanders’ Regional Education Council to mean working together as a community for the betterment of education for all. “Deadly” is an Aboriginal word used widely across Australia to mean smart in terms of being the best one can be in learning and life.

YuMi Deadly Centre’s motif was developed by Blacklines to depict learning, empowerment, and growth within country/community. The three key elements are the individual (represented by the inner seed), the community (represented by the leaf), and the journey/pathway of learning (represented by the curved line which winds around and up through the leaf). As such, the motif illustrates the YuMi Deadly Centre’s vision: *Growing community through education*.

More information about the YuMi Deadly Centre can be found at <http://ydc.qut.edu.au> and staff can be contacted at ydc@qut.edu.au.

Restricted waiver of copyright

This work is subject to a restricted waiver of copyright to allow copies to be made for educational purposes only, subject to the following conditions:

1. All copies shall be made without alteration or abridgement and must retain acknowledgement of the copyright.
2. The work must not be copied for the purposes of sale or hire or otherwise be used to derive revenue.
3. The restricted waiver of copyright is not transferable and may be withdrawn if any of these conditions are breached.

© QUT YuMi Deadly Centre 2008
Electronic edition 2013

School of Curriculum
QUT Faculty of Education
S Block, Room S404, Victoria Park Road
Kelvin Grove Qld 4059
Phone: +61 7 3138 0035
Fax: + 61 7 3138 3985
Email: ydc@qut.edu.au
Website: <http://ydc.qut.edu.au>

CRICOS No. 00213J

This booklet was developed using funding from a Financial Literacy Grant from the Commonwealth Bank Foundation, for a 2008 project at Shalom Christian College in Townsville called *Shalom Accelerated Numeracy*. The booklet and accompanying virtual activities are based on financial mathematics material trialled by the researchers as part of a 2007 Australian Studies in Science, Technology and Mathematics (ASISTM) project, *Using finance and measurement applications to improve number understanding of Indigenous students*, conducted at schools in Aboriginal communities in central and southern Queensland.

CONTENTS

	Page
1. Background	3
1.1 Operations	3
1.2 Fractions	3
2. Three-digit numbers, addition and subtraction	5
2.1 Three-digit numbers	5
2.2 Three-digit addition and subtraction.....	24
3. Three-digit multiplication and division	31
3.1 Three-digit multiplication.....	31
3.2 Three-digit division	40
4. Decimal fractions and operations.....	46
4.1 Tenths and hundredths as part of a whole	46
4.2 Decimals to hundredths.....	51
4.3 Decimal addition and subtraction	69
4.4 Decimal multiplication and division.....	72
5. Rich assessment task: Plan a party.....	75
5.1 Pre-assessment tasks: Operating dollars and cents	75
5.2 Rich assessment task: Party	76
5.3 Teacher hints and assessment rubric	77

DEADLY MATHS

Deadly Maths is the name of a group of researchers at QUT, Griffith and ACU in Brisbane who undertake projects in Indigenous schools and Communities to improve mathematics learning outcomes for Indigenous students. Projects focus on enhancing Indigenous students' learning of mathematics, improving teachers classroom practices in mathematics, training Indigenous teacher aides to effectively tutor mathematics and developing materials to improve mathematics learning of Indigenous VET students. For further information, contact Gillian Farrington at 07 3138 0061 or gh.farrington@qut.edu.au, or access website <http://ydc.qut.edu.au>.

COMMONWEALTH BANK FOUNDATION

This is the second of three booklets, Finance Booklets A, B and C, which, together with six virtual mathematics activities, have been developed by Deadly Maths using funding from a Financial Literacy Grant from the Commonwealth Bank Foundation. The booklets and virtual activities are based on Financial Mathematics material trialled by the authors as part of a 2007 Australian Studies in Science, Technology and Mathematics (ASISTM) project. The aim of the booklets is to use money activities to reteach and reinforce number and operation understandings of Indigenous students at the Indigenous boarding and day school, Shalom Christian College. The three booklets focus on two-digit numbers, addition and subtraction, and mathematics of shopping (booklet A); three-digit and decimal numbers, the four operations and mathematics of planning a party (booklet B); and variables, multi-step problem solving and the mathematics of family budgets (booklet C).

1. BACKGROUND

1.1 OPERATIONS

To introduce multiplication and division, it is difficult to stay below 100, so this booklet does two things:

1. it introduces dollars for three digits and re-does addition and subtraction for these numbers; and
2. it introduces multiplication and division for whole numbers up to 1000.

Addition and Subtraction

Three-digit addition and subtraction simply extends two-digit addition and subtraction. The three meanings for numbers:

1. counting
2. place value (position/separating)
3. rank (number line)

remain. However, the counting patterns now work for \$100s as well as \$10s and \$1s, there is an extra position (hundreds or \$100s) in place value chart (PVC), and the number line goes from 0 to 1000 so it is impossible to show all numbers. In fact, it is common now to use a number line with no numbers.

The three strategies for addition and subtraction still hold:

1. Separation (the traditional way if we do \$1s first) – separating both numbers into place value.
2. Sequencing (using the number line) – separating only the second numbers.
3. Compensation (finding an easy way to do the computation) – not separating any number and compensating.

Again the sequencing method will also show the additive version of sequencing subtraction i.e. $52 - 37$ is how far from 37 to 52).

Multiplication and Division

Although all three strategies hold for multiplication and division, there are complexities that make the non-traditional algorithms difficult. So we will divide multiplication and division into 2 parts – separation and other, similar to the structure of the addition and subtraction books.

The crucial thing here is to ensure whatever students do is based on good meanings. This means that:

1. Multiplication such as 24×3 is three lots of \$24 or 3 by 24 (and so is three \$4s and three \$20s); and
2. Division such as $81 \div 3$ is either \$81 to be shared amongst 3 people or how many lots of \$3 in \$81.

Note: As with other booklets in this series, this booklet contains only a few examples of each step. In reality, you may need longer at each step and this requires preparation of more material.

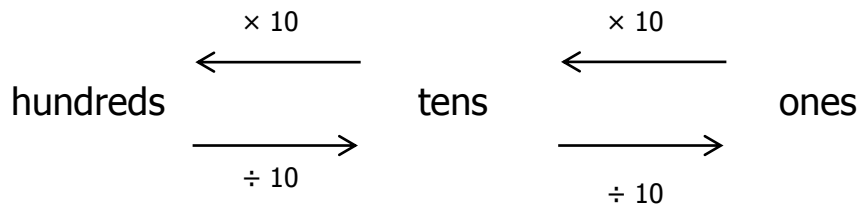
1.2 FRACTIONS

We have been focusing on whole number dollars. However, to undertake practical real-world problems, requires dollars and cents where the cents represent tenths and hundredths, that is, decimals.

The crucial thing about decimals is to recognise that they come from whole numbers and fractions.

Whole numbers

It is important to realise that whole numbers form a system where you $\times 10$ when you move a place value left and $\div 10$ when you move a place value right. Then that 1's place determines all other places. Finally, the 1's place is determined by the right hand digit.

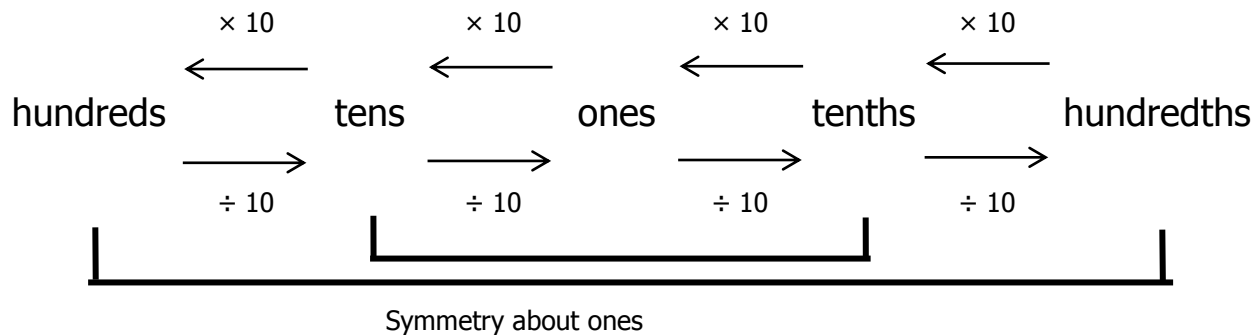


Fractions and decimals

Fractions are part of a whole and are found by partitioning a whole into equal parts. Then the name of the fraction comes from the number of equal parts. (2 parts – halves, 3 parts – thirds, 4 parts – fourths, and so on) How many parts we are considering gives the remainder of the name e.g. 3 parts out of 5 equal parts of a whole is three fifths or $\frac{3}{5}$.



The fractions (e.g. tenths, hundredths, etc.) give understanding of the names of new place values in decimal numeration which continue whole number place values to the right, e.g.,



The only change is in the convention for determining the ones place – it is now just before the dot. The ones place still determines all other places and $\times 10$ is moved to the left and $\div 10$ is moved to the right.

Thus, introducing decimals is about:

1. ensuring whole-number numeration/place value is well understood;
2. ensuring fractions (particularly tenths, hundredths) are well understood;
3. combining (1) and (2) around the ones (not decimal point), with names sharing symmetry; and
4. changing convention to the ones being just before the decimal point.

2. THREE-DIGIT NUMBERS, ADDITION AND SUBTRACTION

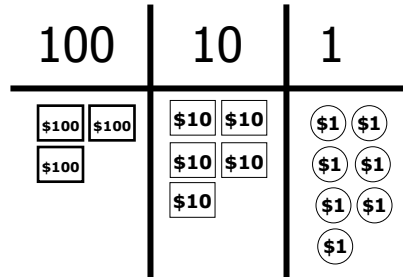
2.1 THREE-DIGIT NUMBERS

Objective Comprehending three-digit dollars (e.g. \$367).

Materials Play money (\$100 and \$10 notes and \$1 coins), 100s/10s/1s PVC, 0-1000 number line, calculator, pen and paper, rope, pegs.

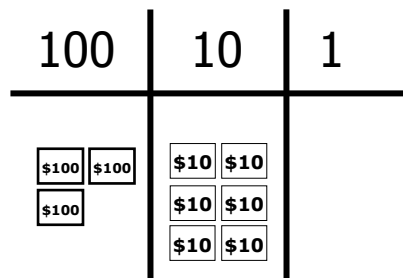
Activities

- Put three \$100 notes, five \$10 notes and seven \$1 coins on 100s/10s/1s PVC. State the number in 100s, tens and ones as move left hand across places.



"Three \$100s, five \$10s and seven \$1s"

Add a \$1 coin and repeat moving left hand and stating number. Repeat this. At \$359, ask "what happens if I add another \$1?". Do this, regroup and re say the number moving left hand (stress the "zero")

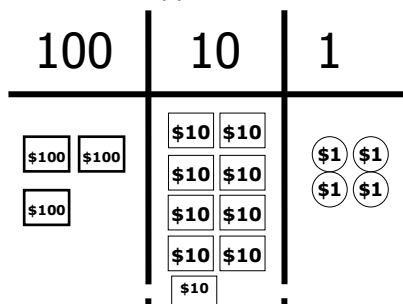


"Three \$100s, six \$10s and zero \$1s"

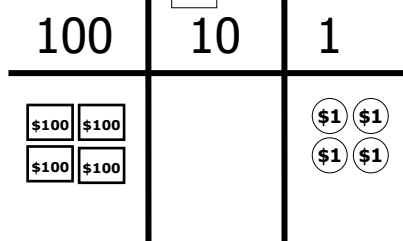
Do four more repeats adding \$1 coin.

- Start at \$364 on PVC, add \$10 note each time as you state number and move left hand until you get to 394. Then ask, "what would happen if I added another \$10 note?". Do so, then 3 more stating the number each time.

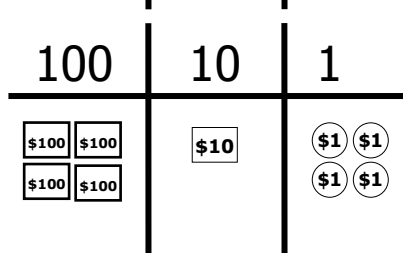
Example:



"Three \$100s, nine \$10s and four \$1s"




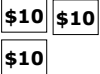

"Four \$100s, zero \$10s and four \$1s"



"Four \$100s, one \$10s and four \$1s"

Draw students' attention that the nine \$10s has become zero \$10s and the three \$100s has become four \$100s. Relate what happens in this example to what happened to the ones in step 1. Ask if anyone can see a rule here!

3. Complete worksheet 2.1A
4. Put out five \$100 notes then \$10 notes and four \$1 coins on a 100s/10s/1s PVC. State the number in hundreds, tens, and ones, and in formal language as move left hand, then type into calculator and write on page.

100	10	1
		

"Five \$100s, three \$10s and four \$1s"

"Five hundred and thirty-four dollars"

\$534

5. Repeat direction 4 for these numbers.

\$678, \$312, \$450, \$607

Discuss how we do and say the teens. Discuss how we do and say the zeros.

6. Complete worksheet 2.1B
7. Make up numbers 700, 720, 87, 968, 712 plus other numbers and put on sheets of paper. Get two students to hold a rope at each end with a zero hung around the left student's neck and 1000 round the right student's neck. Ask students to place numbers on line with peg. Discuss where 495 should go, and then 87 and 965. Discuss relationship between 700, 720 and 712.
8. Complete worksheet 2.1C

Games

Mix and match cards

Cut out cards (same colour paper) and cut into pieces. Mix up pieces, then students sort them into cards.

Cover the board

3 players. Use one set of "cover the board" materials as a base board. (usually symbols) Cut the others into cards and give one set to each player. Players in turn cover a number on base that represents the same number (or cover an opponent's card) If incorrect, miss a turn. Player with most cards on top at end wins.

Snap, 2 players

Cut with the cover the board materials into 4 cards – to make one deck of cards. Use this for snap (and also gin rummy)

Bingo

A student shows flash cards and students cover the same number on their card. First with 3 in a row, column and diagonal win.

Questioning

Focus your questioning on:

How many hundreds, tens and ones there are

How many move to the next ten or next hundred?

Also discuss what other numbers are close to, below and above?

Also focus on:

What is 1 more/less?

What is 10 more/less?

What is 100 more/less?

WORKSHEET 2.1A: COUNTING SEQUENCES

Name: _____ Year: _____ School: _____

Complete the following counting sequences:

1. 82

83

84

2. 521

522

523

3. 721

731

741

4. 365

366

367

5. 468

478

488

6. 495

496

497

7. 698

699

700

8. 307

308

309

9. 996

997

998

WORKSHEET 2.1B: THE 4 REPRESENTATIONS OF DOLLAR NUMBERS

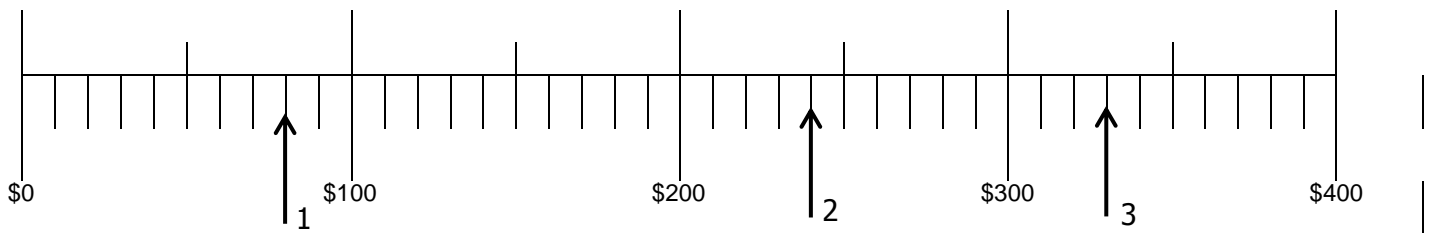
Name: _____ Year: _____ School: _____

Complete the missing parts. The first is done for you.

materials	hundreds, tens and ones	language	symbols						
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td><div>\$100</div></td><td><div>\$10</div><div>\$10</div><div>\$10</div></td><td><div>\$1</div><div>\$1</div></td></tr></table>	100	10	1	<div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div>	one \$100, three \$10s and two \$1s	One hundred and thirty-two dollars	\$132
100	10	1							
<div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div>							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></td><td><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div></td><td><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></td></tr></table>	100	10	1	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>			
100	10	1							
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	100	10	1				Five \$100s, seven \$10s and six \$1s		
100	10	1							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	100	10	1					Two hundred and forty-nine dollars	
100	10	1							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	100	10	1						\$743
100	10	1							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td><div>\$100</div><div>\$100</div></td><td><div>\$10</div></td><td><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></td></tr></table>	100	10	1	<div>\$100</div> <div>\$100</div>	<div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>			
100	10	1							
<div>\$100</div> <div>\$100</div>	<div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	100	10	1					Six hundred and five dollars	
100	10	1							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td><div>\$100</div></td><td></td><td><div>\$1</div><div>\$1</div><div>\$1</div></td></tr></table>	100	10	1	<div>\$100</div>		<div>\$1</div> <div>\$1</div> <div>\$1</div>			
100	10	1							
<div>\$100</div>		<div>\$1</div> <div>\$1</div> <div>\$1</div>							
<table><tr><td>100</td><td>10</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	100	10	1						\$417
100	10	1							

WORKSHEET 2.1C: NUMBER LINES

Name: _____ Year: _____ School: _____

1. Find the value of the numbers shown to the nearest 10.

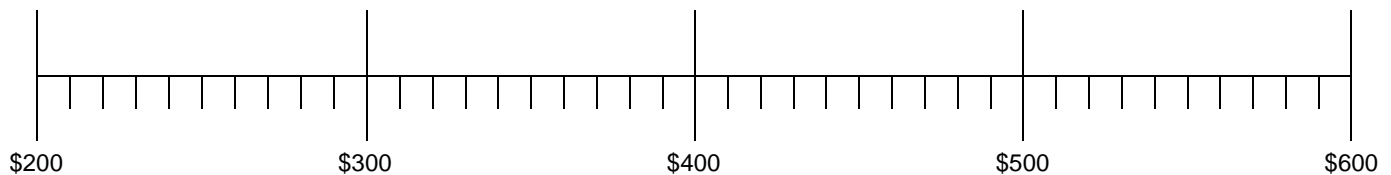
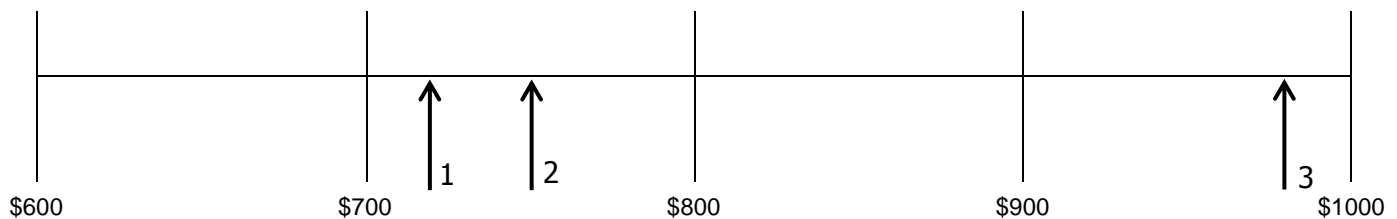
1 _____

2 _____

3 _____

2. Place the following numbers on the number line.

(a) 512 (b) 556 (c) 391

**3. Find the value of the numbers shown to the nearest 10.**

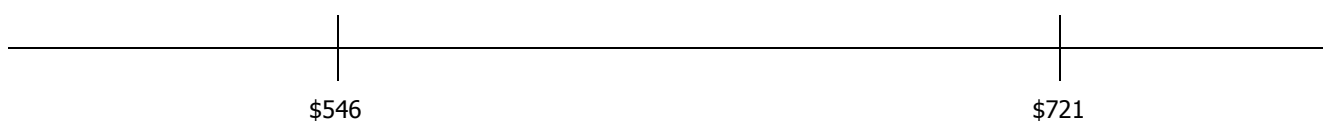
1 _____

2 _____

3 _____

4. Place the following on the number line.

(a) 504 (b) 630 (c) 712



MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 1 of 5

Two hundred and sixteen dollars

Two \$100s, one \$10 and six \$1s

100	10	1
\$100 \$100	\$10	\$1 \$1 \$1 \$1 \$1 \$1

\$216

Seven hundred and twelve dollars

Seven \$100s, one \$10 and two \$1s

100	10	1
\$100 \$100 \$100 \$100 \$100 \$100 \$100	\$10	\$1 \$1

\$712

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 2 of 5

<p>Two hundred and sixty one dollars</p>	<p>Two \$100s, six \$10s and one \$1</p>	<p>\$261</p>						
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">100</td> <td style="padding: 5px;">10</td> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> </td> <td style="padding: 5px;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> </td> </tr> </table>			100	10	1	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div>
100	10	1						
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div>						

<p>Four hundred and forty-four dollars</p>	<p>Four \$100s, four \$10s and four \$1s</p>	<p>\$444</p>						
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">100</td> <td style="padding: 5px;">10</td> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> </td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> </div> </td> </tr> </table>			100	10	1	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> </div>
100	10	1						
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px;">\$1</div> </div>						

MIX & MATCH CARDSInstructions: Photocopy all pages onto same colour card

Page 3 of 5

One hundred and eighty-three dollars

One \$100, eight \$10s and three \$1s

100	10	1
\$100	\$10 \$10	\$1 \$1
	\$10 \$10	\$1
	\$10 \$10	
	\$10 \$10	

\$183

Five hundred and twenty-five dollars

Five \$100s, two \$10s and five \$1s

100	10	1
\$100 \$100	\$10	\$1 \$1
\$100 \$100	\$10	\$1 \$1
\$100		\$1

\$525

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 4 of 5

<p>Four hundred and seven dollars</p>	<p>Four \$100s and seven \$1s</p>	<p>\$407</p>						
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">100</td> <td style="width: 33%; text-align: center;">10</td> <td style="width: 33%; text-align: center;">1</td> </tr> <tr> <td style="text-align: center;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> </td> <td style="text-align: center;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> </div> </td> <td style="text-align: center;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> </td> </tr> </table>			100	10	1	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div>
100	10	1						
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </div>						

<p>The hundred and thirty dollars</p>	<p>Three \$100s and three \$10s</p>	<p>\$330</p>						
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">100</td> <td style="width: 33%; text-align: center;">10</td> <td style="width: 33%; text-align: center;">1</td> </tr> <tr> <td style="text-align: center;"> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin: 5px auto;">\$100</div> </td> <td style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin: 0 auto;">\$10</div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> </div> </td> <td style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div> </td> </tr> </table>			100	10	1	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin: 5px auto;">\$100</div>	<div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin: 0 auto;">\$10</div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> </div>	<div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div>
100	10	1						
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$100</div> </div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin: 5px auto;">\$100</div>	<div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin: 0 auto;">\$10</div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$10</div> </div>	<div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">\$1</div>						

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 5 of 5

One hundred and thirty-four dollars

One \$100s, three \$10s and four \$1s

100	10	1
\$100	\$10 \$10	\$1 \$1 \$1 \$1

\$134

Three hundred and sixty-two dollars

Three \$100s, six \$10s and two \$1s

100	10	1
\$100 \$100 \$100	\$10 \$10 \$10 \$10	\$1 \$1

\$362

COVER THE BOARD CARDS

Instructions: Photocopy all 4 pages on different coloured cardboard – do not cut up symbol sheet
Page 1 of 4

\$934	\$629	\$450
\$502	\$317	\$487
\$161	\$684	\$721
\$211	\$473	\$371

COVER THE BOARD CARDS

Instructions: Photocopy all 4 pages on different coloured cardboard – do not cut up symbol sheet
Page 2 of 4

Nine hundred and thirty- four dollars	Six hundred and twenty- nine dollars	Four hundred and fifty dollars
Five hundred and two dollars	Three hundred and seventeen dollars	Four hundred and eighty- seven dollars
One hundred and sixty-one dollars	Six hundred and eighty- four dollars	Seven hundred and twenty-one dollars
Two hundred and eleven dollars	Four hundred and seventy- four dollars	Three hundred and seventy-one dollars

COVER THE BOARD CARDS

Instructions: Photocopy all 4 pages on different coloured cardboard – do not cut up symbol sheet
Page 3 of 4

Nine \$100s, three \$10s and four \$1s	Six \$100s, two \$10s and nine \$1s	Four \$100s and five \$10s
Five \$100s and two \$1s	Three \$100s, one \$10 and seven \$1s	Four \$100s, eight \$10s and seven \$1s
One \$100, six \$10s and one \$1	Six \$100s, eight \$10s and four \$1s	Seven \$100s, two \$10s and one \$1
Two \$100s, one \$10 and one \$1	Four \$100s, seven \$10s and three \$1s	Three \$100s, seven \$10s and one \$1

COVER THE BOARD CARDS

Instructions: Photocopy all 4 pages on different coloured cardboard – do not cut up symbol sheet
Page 4 of 4

<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> </div>
<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>
<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>
<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>	<div style="display: flex; justify-content: space-around; font-size: 24px; margin-bottom: 10px;"> 100101 </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$100</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; font-size: 10px;">\$1</div> </div>

BINGO CARDS AND BOARDS

Instructions: Photocopy on same colour cardboard – cut up symbol board only
Page 1 of 4

\$934	\$629	\$450
\$502	\$317	\$487
\$161	\$684	\$721
\$211	\$473	\$371

BINGO CARDS AND BOARDS

Instructions: Photocopy on same colour cardboard – cut up symbol board only
Page 2 of 4

<p>Nine \$100s, three \$10s and four \$1s</p>	<table> <tr> <th>100</th><th>10</th><th>1</th></tr> <tr> <td> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> </td><td> <div>\$10</div> <div>\$10</div> <div>\$10</div> </td><td> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> </td></tr> </table>	100	10	1	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<p>Six hundred and twenty- nine dollars</p>						
100	10	1												
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>												
<table> <tr> <th>100</th><th>10</th><th>1</th></tr> <tr> <td> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> </td><td> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> </td><td> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> </td></tr> </table>	100	10	1	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<p>Three \$100s, one \$10 and seven \$1s</p>	<p>Four hundred and eighty- seven</p>						
100	10	1												
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>												
<p>One hundred and sixty-one dollars</p>	<p>Six hundred and eight-four dollars</p>	<table> <tr> <th>100</th><th>10</th><th>1</th></tr> <tr> <td> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> </td><td> <div>\$10</div> <div>\$10</div> </td><td> <div>\$1</div> </td></tr> </table>	100	10	1	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div>	<div>\$1</div>						
100	10	1												
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div>	<div>\$1</div>												
<table> <tr> <th>100</th><th>10</th><th>1</th></tr> <tr> <td> <div>\$100</div> <div>\$100</div> <div>\$100</div> </td><td> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> </td><td> <div>\$1</div> <div>\$1</div> <div>\$1</div> </td></tr> </table>	100	10	1	<div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div>	<table> <tr> <th>100</th><th>10</th><th>1</th></tr> <tr> <td> <div>\$100</div> <div>\$100</div> <div>\$100</div> </td><td> <div>\$10</div> <div>\$10</div> </td><td> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> </td></tr> </table>	100	10	1	<div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<p>Three \$100s, seven \$10s and one \$1</p>
100	10	1												
<div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div>												
100	10	1												
<div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>												

Instructions: Photocopy on same colour cardboard – cut up symbol board only
Page 3 of 4

BINGO CARDS AND BOARDS

Instructions: Photocopy on same colour cardboard – cut up symbol board only
Page 4 of 4

<table border="1"> <thead> <tr> <th>100</th> <th>10</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>\$100 \$100</td> <td>\$10</td> <td>\$1 \$1</td> </tr> <tr> <td>\$100</td> <td></td> <td>\$1 \$1</td> </tr> <tr> <td></td> <td></td> <td>\$1 \$1</td> </tr> <tr> <td></td> <td></td> <td>\$1</td> </tr> </tbody> </table>	100	10	1	\$100 \$100	\$10	\$1 \$1	\$100		\$1 \$1			\$1 \$1			\$1	<p>Six \$100s, two \$10s and nine \$1s</p>	<p>Four hundred and fifty dollars</p>
100	10	1															
\$100 \$100	\$10	\$1 \$1															
\$100		\$1 \$1															
		\$1 \$1															
		\$1															
<p>Five \$100s and two \$1s</p>	<p>Three hundred and seventeen dollars</p>	<table border="1"> <thead> <tr> <th>100</th> <th>10</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>\$100 \$100</td> <td>\$10 \$10</td> <td>\$1 \$1</td> </tr> <tr> <td>\$100 \$100</td> <td>\$10 \$10</td> <td>\$1 \$1</td> </tr> <tr> <td></td> <td>\$10 \$10</td> <td>\$1 \$1</td> </tr> <tr> <td></td> <td>\$10 \$10</td> <td>\$1</td> </tr> </tbody> </table>	100	10	1	\$100 \$100	\$10 \$10	\$1 \$1	\$100 \$100	\$10 \$10	\$1 \$1		\$10 \$10	\$1 \$1		\$10 \$10	\$1
100	10	1															
\$100 \$100	\$10 \$10	\$1 \$1															
\$100 \$100	\$10 \$10	\$1 \$1															
	\$10 \$10	\$1 \$1															
	\$10 \$10	\$1															
<table border="1"> <thead> <tr> <th>100</th> <th>10</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>\$100</td> <td>\$10 \$10</td> <td>\$1</td> </tr> <tr> <td></td> <td>\$10 \$10</td> <td></td> </tr> <tr> <td></td> <td>\$10 \$10</td> <td></td> </tr> </tbody> </table>	100	10	1	\$100	\$10 \$10	\$1		\$10 \$10			\$10 \$10		<p>Six \$100s, eight \$10s and four \$1s</p>	<p>Seven hundred and twenty-one dollars</p>			
100	10	1															
\$100	\$10 \$10	\$1															
	\$10 \$10																
	\$10 \$10																
<p>Two \$100s, one \$10 and one \$1</p>	<table border="1"> <thead> <tr> <th>100</th> <th>10</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>\$100 \$100</td> <td>\$10 \$10</td> <td>\$1</td> </tr> <tr> <td>\$100</td> <td>\$10 \$10</td> <td></td> </tr> <tr> <td></td> <td>\$10 \$10</td> <td></td> </tr> <tr> <td></td> <td>\$10</td> <td></td> </tr> </tbody> </table>	100	10	1	\$100 \$100	\$10 \$10	\$1	\$100	\$10 \$10			\$10 \$10			\$10		<p>Three hundred and seventy-one dollars</p>
100	10	1															
\$100 \$100	\$10 \$10	\$1															
\$100	\$10 \$10																
	\$10 \$10																
	\$10																

100 BOARD PUZZLES

(a)

	\$614	

(b)

	\$837		

(c)

(d)

(e)

(f)

2.2 THREE-DIGIT ADDITION AND SUBTRACTION

Objective To comprehend addition and subtraction of large numbers of dollars using separation, sequencing and compensation.

Materials Play money (\$100, \$10 and \$1), 100s/10s/1s PVC, \$1000 number lines, pen, paper, calculator.

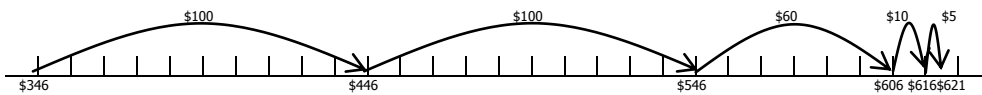
Activities

1. Look at $\$346 + \275 in three ways

(a) Separation: Put out $\$346$ and $\$275$ with play money on PVC, add place values separately, trading and recording as you go and trading at end. Check with a calculator.

	<table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <th style="padding: 5px;">100</th> <th style="padding: 5px;">10</th> <th style="padding: 5px;">1</th> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div> </td> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div> </td> <td style="padding: 5px;"> <div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div> </td> </tr> </table>	100	10	1	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>	$\begin{array}{r} \$346 \\ + \$275 \\ \hline \end{array}$	
100	10	1										
<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>										
<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>										
<u>Join \$1s</u>	<table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <th style="padding: 5px;">100</th> <th style="padding: 5px;">10</th> <th style="padding: 5px;">1</th> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div> </td> </tr> </table>	100	10	1	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>	$\begin{array}{r} \$346 \\ + \$275 \\ \hline 11 \end{array}$	$\begin{array}{r} 3^1 46 \\ + 275 \\ \hline 1 \end{array}$			
100	10	1										
<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>										
<u>Join \$10s</u>	<table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <th style="padding: 5px;">100</th> <th style="padding: 5px;">10</th> <th style="padding: 5px;">1</th> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div> </td> </tr> </table>	100	10	1	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>	$\begin{array}{r} \$346 \\ + \$275 \\ \hline 11 \\ 110 \end{array}$	$\begin{array}{r} 1^1 3^1 46 \\ + 275 \\ \hline 21 \end{array}$			
100	10	1										
<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>										
<u>Join \$100s</u>	<table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <th style="padding: 5px;">100</th> <th style="padding: 5px;">10</th> <th style="padding: 5px;">1</th> </tr> <tr> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div></td> <td style="padding: 5px;"> <div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div> </td> </tr> </table>	100	10	1	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>	$\begin{array}{r} \$346 \\ + \$275 \\ \hline 11 \\ 110 \\ 500 \\ \hline \$621 \end{array}$	$\begin{array}{r} 1^1 3^1 46 \\ + 275 \\ \hline 621 \end{array}$			
100	10	1										
<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$100</div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> <div><div style="border: 1px solid black; padding: 2px;">\$100</div></div> </div>	<div style="display: flex; justify-content: space-around;"> <div><div style="border: 1px solid black; padding: 2px;">\$10</div><div style="border: 1px solid black; padding: 2px;">\$10</div></div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div><div style="border: 1px solid black; padding: 2px;">\$1</div></div> </div>										

- (b) **Sequencing:** Find \$346 on un-numbered number line and then add on parts of \$275.



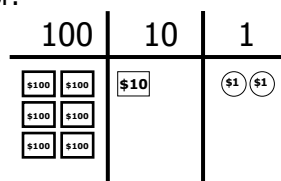
- (c) **Compensation:** Adding \$25 takes \$275 to \$300

Sum is

$$\begin{array}{r}
 \$346 \\
 + \$275 \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 \$346 \\
 + \$300 \\
 \hline
 646 \\
 - 25 \\
 \hline
 \$621
 \end{array}
 \leftarrow \begin{array}{l} \text{added \$25 too much} \\ \text{compensated} \end{array}$$

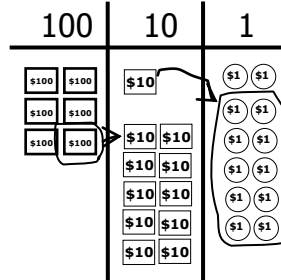
2. Complete worksheet 2.2A
3. Look at \$612 - \$267 in three ways.

- (a) **Separation:** Put out \$612 and regroup it so can take away six \$10 notes and seven \$1 coins. Record as you go. Check with a calculator.



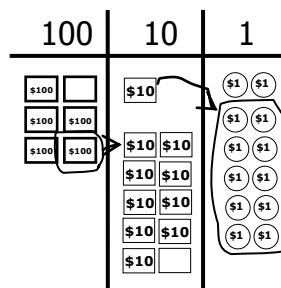
$$\begin{array}{r}
 \$612 \\
 - \$267 \\
 \hline
 \end{array}$$

Regroup one of the \$10 notes as ten \$1 coins and one \$100 note as ten \$10 notes



$$\begin{array}{r}
 5 \text{ } 10 \\
 \$612 \\
 - \$267 \\
 \hline
 \end{array}$$

Subtract \$100s, \$10s, \$1s:

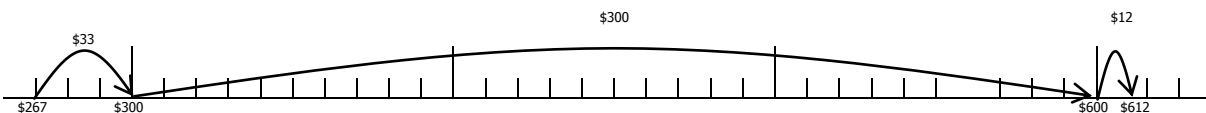


$$\begin{array}{r}
 5 \text{ } 10 \\
 \$612 \\
 - \$267 \\
 \hline
 \$345
 \end{array}$$

- (b) **Sequencing:** Find \$612 on number line and then subtract parts of \$267.



Or put both \$267 and \$612 on number line and work out how many steps from smaller to larger.



- (c) **Compensation:** Increase \$267 to \$300 by adding \$33.

Then

$$\begin{array}{r}
 \$612 \\
 - \$267 \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 \$612 \\
 - \$300 \\
 \hline
 \$312 \\
 + \$33 \\
 \hline
 \$345
 \end{array}
 \leftarrow \begin{array}{l} \text{subtracting \$33 too much} \\ \text{compensated} \end{array}$$

4. Complete worksheet 2.2B

GamesBuild to \$300

Requirements: 2-4 people, play money, 2 dice, PVC.

Players in turn throw 2 dice – 1st one \$10s, 2nd one \$1s. Then add play money to that number to their PVC. Say and record number on calculator and paper. Start with \$0. First one to \$300 wins.

Build to \$500

Same as game (a) but select 2 cards from deck of \$0 to \$9 cards.

Back from \$300

Same as game (a) but use 2 dice to remove dollars from PVC. Say and record number of dollars on calculator and paper. Start with \$300. First to \$0 wins.

Back from \$500

Same as (c) but select 2 cards and start from \$500.

Most Dollars

Requirements: 2-4 players, digit cards

Deal three cards (\$0 to \$9) to each player. The player who can make the highest number by rearranging their cards wins.

Lucky Most Dollars

Requirements: 2-4 players or many players, game board

Deal 3 cards (\$0 to \$9) to each player one at a time. When get

Card players put in one of the positions (before get next card).

Player who knows the highest number wins.

Dollar Ordering

Requirements: 2 to many players, game board

H	T	O

Less than

H	T	O

Score _____

Players dealt 6 cards (\$0 to \$9) one at a time. When get each card, write the number into one of 6 positions (before get next card). When 6 cards placed, score 0 if LH number is not less than RH number, otherwise score the value of the hundreds position in LH number. Play 5 times, highest combined score wins. Variation: score 1 if LHS is less than RHS.

Questioning

Form of questioning should be:

Where are you?

How many \$100s, \$10s and \$1s?

How many to next \$10, \$100?

When you select your cards/throw your dice, do you have enough for next \$10, next \$100?

Exactly or some left over?

WORKSHEET 2.2A: WHAT DID THE SEA SAY TO THE SAND?

Name: _____ Year: _____ School: _____

1. Jack gave Bill \$213 and Joe \$362. How much did he give away? (Use separation) _____ = H
2. Jill bought a sound system for \$322 and a fridge for \$547. How much did she pay? (Use sequencing) _____ = G
3. Frank paid \$476 rent and \$213 electricity. How much did he pay? (Use compensation) _____ = N
4. Sue bought dresses for \$156 and shoes for \$218. How much did these cost? (Use separation) _____ = V
5. Jake received \$473 from CDEP and \$228 from a friend. How much money did he get? (Use sequencing) _____ = T
6. Mel got her payment of \$362 and her allowance of \$285. How much did she receive? (Use compensation) _____ = J
7. John bought an MP3 player for \$168 and paid the power bill for \$374. How much did he pay? (Use separation) _____ = W
8. Sue paid both her credit card amounts, \$467 and \$339. How much did she pay? (Use compensation) _____ = D
9. Arthur went to town and paid \$385 for his trailer to be repaired and \$397 for his car repairs. How much did he pay? (Use compensation) _____ = I
10. Joe paid me \$652 and Frank paid me \$269. How much did I get? (Use sequencing) _____ = S

What did the sea say to the sand?

_____	O	_____	_____	_____	_____	_____	,
\$689		\$701	\$575	\$782	\$689	\$869	.
_____				U	_____	_____	
\$782	\$701	\$647			\$921	\$701	
							.
	A		E				
\$542		\$374		\$806			



WORKSHEET 2.2B: WHAT DID THE CHEWING GUM SAY TO THE SHOE?

Name: _____ Year: _____ School: _____

1. Frank had \$500 to pay the \$329 power bill. How much would he have left to spend on other things? _____ = U
2. Eloise had to pay her car repair bill of \$378. She had \$450. How much would Eloise have left? _____ = O
3. Larissa earned \$640 and had to pay \$250 in groceries. How much does Larissa have left? _____ = S
4. Katy saw a laptop advertised for \$999 with \$35 off if she paid cash. How much would she pay for the laptop if she paid with cash? _____ = N
5. Arnold received \$236 for his birthday. He decided to spend \$128 on clothes and a CD and put the rest in the bank. How much money would Arnold put in the bank? _____ = K
6. The tickets cost \$812. Mark said he would pay \$406 towards the total cost. How much does Jeremy have to pay to buy the tickets? _____ = T
7. Emily paid \$328 for food for the party. She started with \$517. How much would she have left to spend on decorations? _____ = C
8. Max had a loan of \$430. He paid \$159 towards the total. How much more money does max owe? _____ = Y
9. The rent was \$365. Ruby paid \$167 of it. How much does her flatmate Nicole have to pay? _____ = I
10. Piper found a fridge advertised as on sale from \$786 down to \$592. How much money would she save if she bought the fridge? _____ = M

What did the chewing gum say to the shoe?

\$198	_____	\$194	\$390	\$406	\$171	\$189	\$108
\$72	\$964	\$271	\$72	\$171			



LUCKY MOST DOLLARS GAME BOARD

--	--	--

--	--	--

--	--	--

--	--	--

--	--	--

--	--	--

--	--	--

--	--	--

TOTAL =

DOLLAR ORDERING GAME BOARD

<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____
<div><div></div><div></div><div></div></div>	less than	<div><div></div><div></div><div></div></div>	_____

TOTAL = _____

3. THREE-DIGIT MULTIPLICATION AND DIVISION

3.1 THREE-DIGIT MULTIPLICATION

Objectives Comprehending multiplication of dollars with a variety of strategies.

Materials Play money (\$100, \$10 and \$1), 100s/10s/1s PVC, pen, paper, calculator.

Activities

- Consider how to find the cost if you bought 4 shirts at \$37 each (i.e. $\$37 \times 4$)

Addition: $\$37 \times 4$ is 4 lots of \$37.

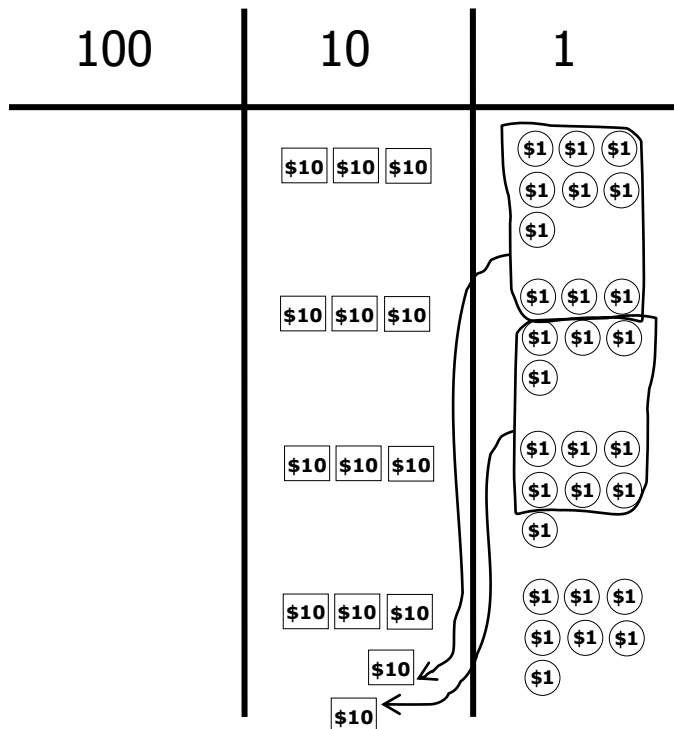
Therefore it is $\$37 + \$37 + \$37 + \37 :

$$\begin{array}{r}
 \$ 37 \\
 \$ 37 \\
 \$ 37 \\
 + \$ 37 \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 \$ 40 \\
 \$ 40 \\
 \$ 40 \\
 + \$ 40 \\
 \hline
 \$ 160 \\
 - \$ 12 \\
 \hline
 \$ 148
 \end{array}
 \text{ or }
 \begin{array}{r}
 \\
 \$ 37 \\
 \$ 37 \\
 \$ 37 \\
 + \$ 37 \\
 \hline
 \$ 148
 \end{array}$$

- Separation: Use play money on PVC to represent $\$37 \times 4$ (4 lots of \$37). Put out 4 lots of \$37 on PVC and record as you go.

100	10	1	
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div>	$ \begin{array}{r} \$ 37 \\ \times 4 \\ \hline \end{array} $
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div>	
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div>	
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">\$10</div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">\$1</div>	

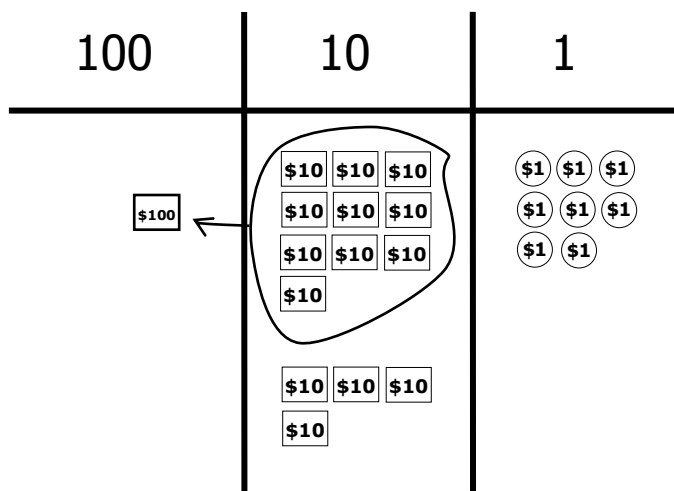
Find 4 lots of \$7 and regroup



$$\begin{array}{r} \$ 37 \\ \times 24 \\ \hline 8 \end{array}$$

$$\begin{array}{r} \$ 37 \\ \times 4 \\ \hline 28 \end{array}$$

Find 4 lots of \$30 and regroup, plus add in other tens:



$$\begin{array}{r} \$ 37 \\ \times 24 \\ \hline \$ 148 \end{array}$$

$$\begin{array}{r} \$ 37 \\ \times 4 \\ \hline 28 \\ 120 \\ \hline \$ 148 \end{array}$$

- (b) Sequencing: $\$37 \times 4$ is $\$37 \times 2 \times 2$ or $\$74 \times 2 = \148
(double $\$37 = \74)
double $\$74 = \148)

- (c) Compensation: $\$37 \rightarrow \40
 $\times 4$
 $\times 4$ \leftarrow 3 lots of 4 too much
 $\$160$
 -12 \leftarrow compensate
 $\$148$

Or $\begin{array}{r} \$37 \\ \times 4 \\ \hline \end{array} \rightarrow \begin{array}{r} \$37 \\ \times 5 \\ \hline \end{array} \rightarrow \begin{array}{r} \$37 \\ \times 10 \\ \hline 370 \\ \div 2 \\ 185 \\ -37 \\ \hline \$148 \end{array}$

Changing to 5 is \$37 too much; changing to 10 is doubling the result. So, compensate by $\frac{1}{2}$ ($\div 2$) and -37

2. Use the four methods to find:

(a) five pairs of shoes \$46



(b) eight MP3 players \$63



3. Complete worksheets (area model) 3.1A and 3.1B

Games

Multiplication noughts and crosses

Requirements: 2 players, unifix cubes of one colour for each player

Players in turn choose a number from the top row and a number from the bottom row. Multiply the numbers and cover the answer. The first player to cover 3 in a row, column or diagonal wins.

\$64	\$37	\$48
<hr/>		
	×	
<hr/>		
6	8	7

\$343	\$336	\$296
<hr/>		
\$288	\$384	\$512
<hr/>		
\$448	\$259	\$384

Multiplication Mix & Match

Cut out cards and then cut up cards (all the same colour). Mix up. Players sort cards into matching sets.

Questioning

Focus on the meaning of multiplication:

What is cost?

How many do you have to buy?

What is that many "lots of dollars"?

Then:

How do we show multiplication like $\$37 \times 4$?

WORKSHEET 3.1A: USING THE AREA MODEL FOR MULTIPLICATION

Name: _____ Year: _____ School: _____

$$2 \times 3 \text{ is } 2 \begin{array}{|c|c|c|} \hline & & \\ \hline & & \\ \hline \end{array} = 6$$

$$7 \times 8 \text{ is } \begin{array}{|c|c|c|c|c|c|c|c|} \hline & & & & & & & \\ \hline & & & & & & & \\ \hline & & & & & & & \\ \hline & & & & & & & \\ \hline & & & & & & & \\ \hline & & & & & & & \\ \hline & & & & & & & \\ \hline \end{array} = 56$$

Use the area model to multiply these numbers. The first one is done for you.

$$1. \quad 23 \times 4 = 4 \begin{array}{|c|c|c|c|c|c|} \hline & & & & & \\ \hline \end{array} = 4 \begin{array}{|c|c|c|c|c|c|} \hline & & & & & \\ \hline \end{array} = 92$$

$\begin{array}{cc} 20 & 3 \\ 4 \times 20 & 4 \times 3 \\ 80 & + & 12 \end{array}$

$$2. \quad 37 \times 3 = 3 \begin{array}{|c|c|c|c|c|c|} \hline & & & & & \\ \hline \end{array} = 3 \begin{array}{|c|c|c|c|c|c|} \hline & & & & & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

$$3. \quad 17 \times 8 = 8 \begin{array}{|c|c|c|c|c|c|} \hline & & & & & \\ \hline \end{array} = \begin{array}{|c|c|} \hline & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

$$4. \quad 63 \times 6 = \begin{array}{|c|c|c|c|c|c|} \hline & & & & & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

$$5. \quad 77 \times 4 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$6. \quad 24 \times 2 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$7. \quad 16 \times 5 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$8. \quad 31 \times 7 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

MULTIPLICATION NOUGHTS AND CROSSES

1.

\$64	\$37	\$48
X		
6	8	7

\$343	\$336	\$296
\$288	\$384	\$512
\$448	\$259	\$384

2.

\$78	\$55	\$63
X		
7	9	5

\$441	\$275	\$702
\$546	\$385	\$495
\$315	\$390	\$567

3.

\$49	\$81	\$68
X		
8	7	9

\$648	\$544	\$343
\$441	\$392	\$729
\$476	\$567	\$612

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 1 of 4

6 lots
of \$92

John bought 6 cameras
at \$92 each.
How much did he spend?

6 x \$90 and 6 x \$2

$$\begin{array}{r} \$ 92 \\ \times 6 \\ \hline \end{array}$$

11 lots
of \$28

Freda bought 11 meals
for \$28 each.
How much for the food?

11 x \$20 and 6 x \$8

$$\begin{array}{r} \$ 28 \\ \times 11 \\ \hline \end{array}$$

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 2 of 4

6 groups of \$46

The pants were \$46,
I bought 6 pairs.
How much did I spend?

6 x \$40 and 6 x \$6

\$ 46
x 6

9 lots of \$62

Fred gave his 9 friends \$62 each.
How much did he give away?

9 x \$60 and 9 x \$2

\$ 62
x 9

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 3 of 4

Alan paid 6 weeks of rent
at \$134 a week.
How much did he pay?

6 lots
of \$134

6 x \$100, 6 x \$30
and 6 x \$4

\$134
x 6

Sue bought 14 DVDs at \$28 each.
How much did she pay?

14 lots
of \$28

14 x \$20 and 14 x \$8

\$ 28
x 14

MIX & MATCH CARDS

Instructions: Photocopy all pages onto same colour card
Page 4 of 4

8 lots of \$115

Joe paid the power bills. For 8 months it cost \$115 per month.
How much did he pay?

$8 \times \$100, 8 \times \10
and $8 \times \$5$

$$\begin{array}{r} \$115 \\ \times 8 \\ \hline \end{array}$$

13 lots of \$57

Jacquie bought 13 uniforms at \$57 each.
How much did she pay?

$13 \times \$50$ and $13 \times \$7$

$$\begin{array}{r} \$ 57 \\ \times 13 \\ \hline \end{array}$$

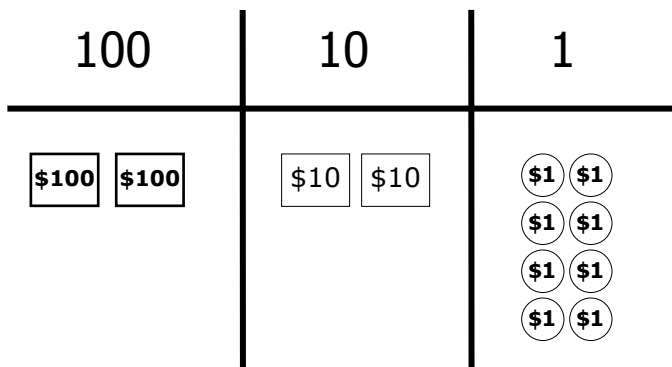
3.2 THREE-DIGIT DIVISION

Objective Comprehending division of large numbers of dollars by a variety of methods.

Materials Play money (\$100, \$10 and \$1), 100s/10s/1s PVC, \$1000 number lines, pen, paper, calculator.

Activities

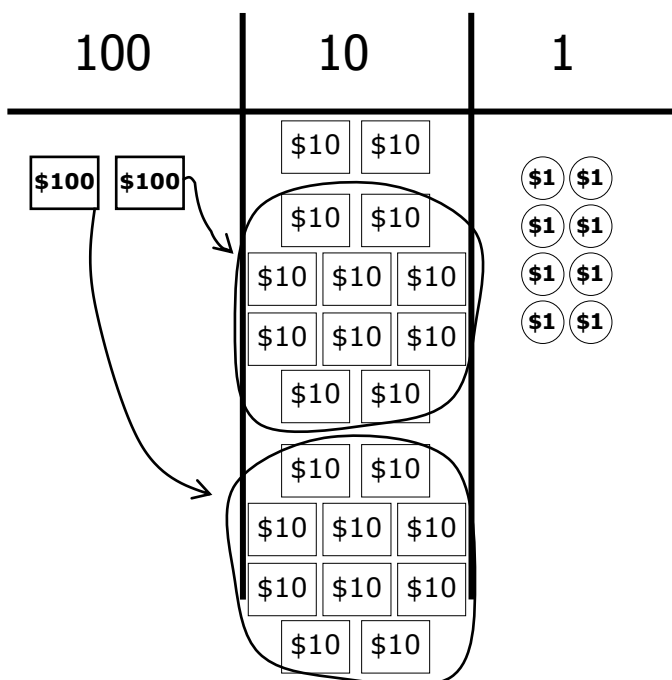
1. We pay \$228 for six pairs of pants. We want to find how much did each pair cost. Consider the alternatives.
 - (a) Separation/Sharing: In this method we share equally the \$228 amongst the 6 pairs of pants. To do it we put \$228 of play money on the PVC and begin sharing the money amongst 5 people, recording as we go.



$$6 \overline{) \$228}$$



We first check \$100 notes. Have we enough \$100 notes for one to be spent on each pair of pants? If not, what do we do? Break 2 \$100 notes into \$10's. (Since not enough \$100 notes, this means 0 in hundreds position in the division)



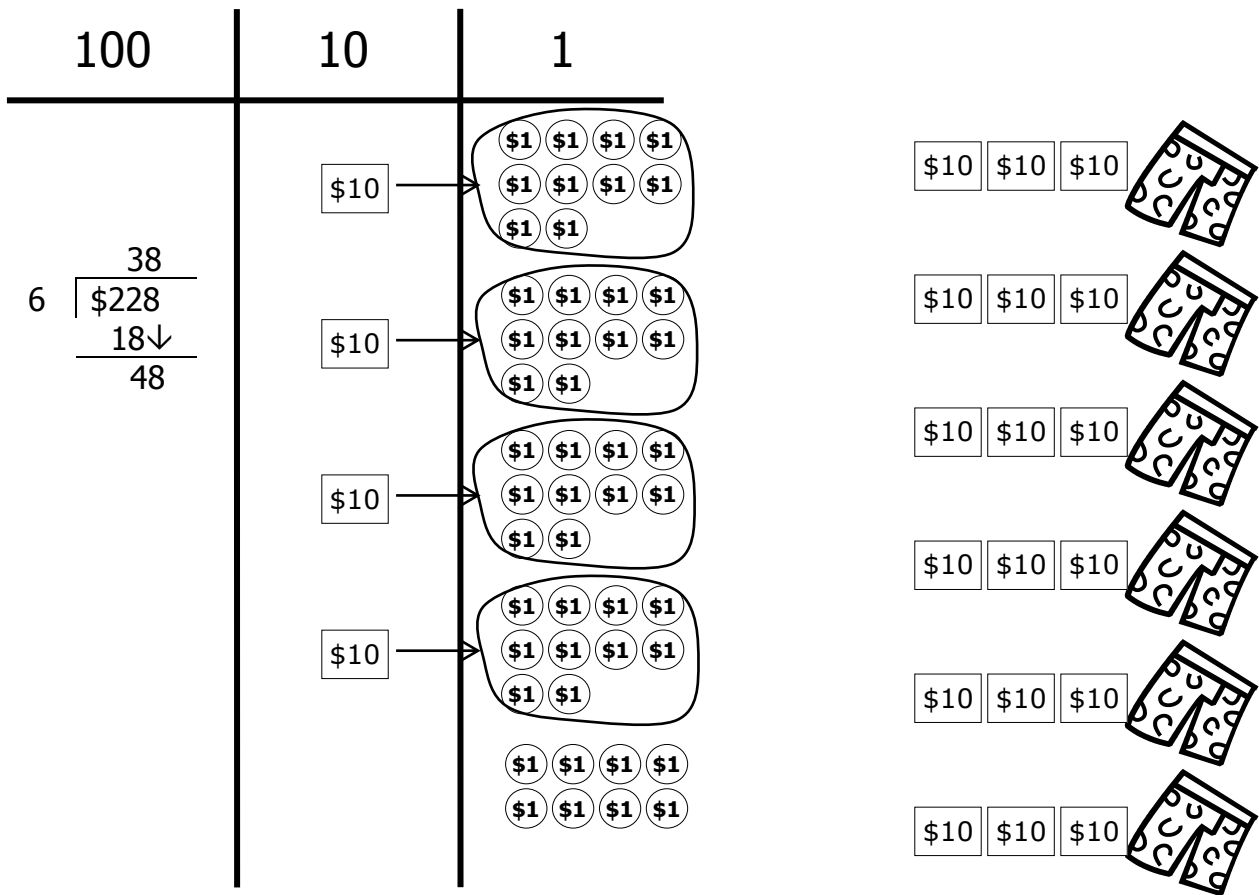
$$6 \overline{) \$228}$$



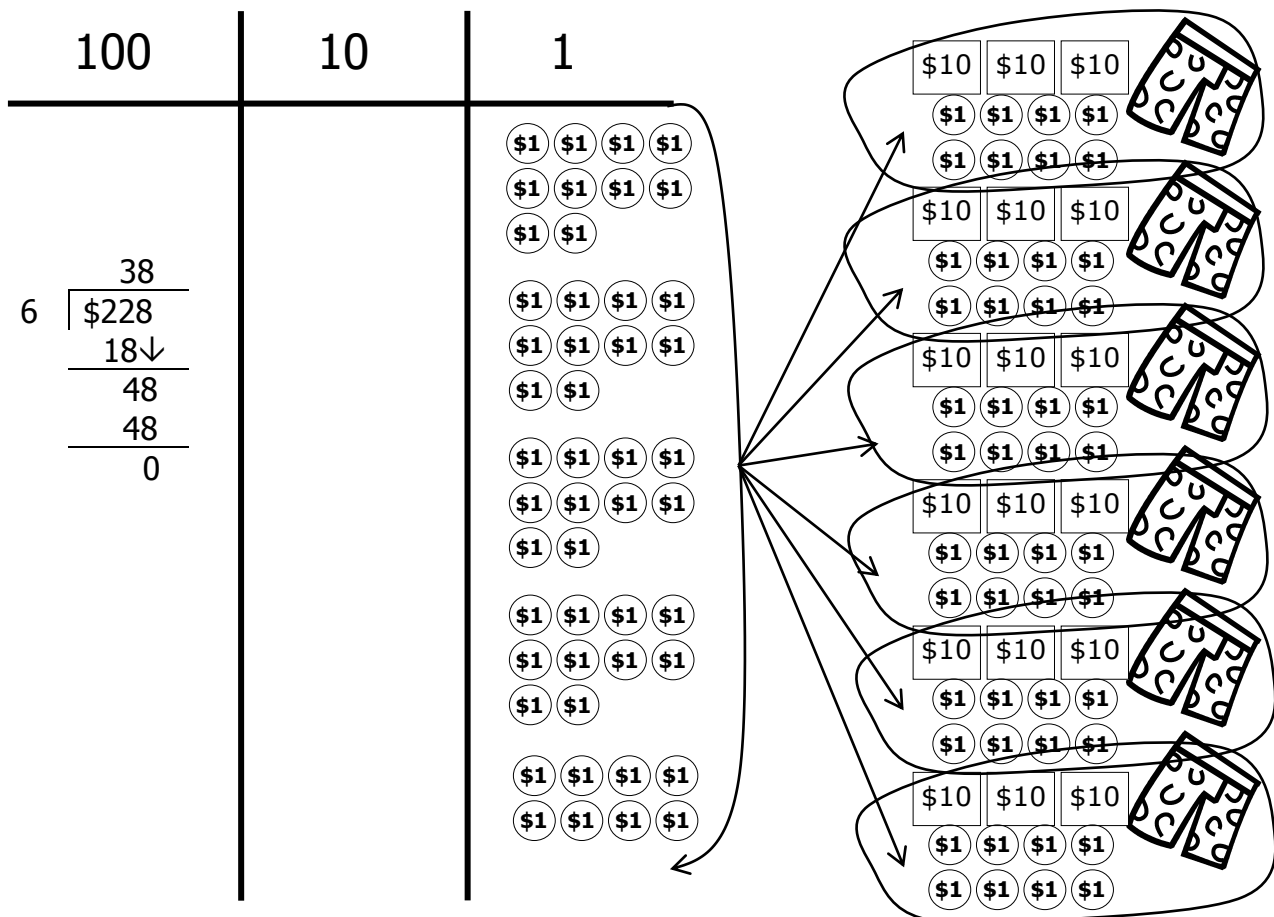
How many \$10 notes do we have [22]

Do we have enough tens to pay \$10 (on each pair of pants? [Yes] Do we have enough to pay \$20, \$30, \$40 for each pair of pants? [We have enough for \$30 but not \$40]

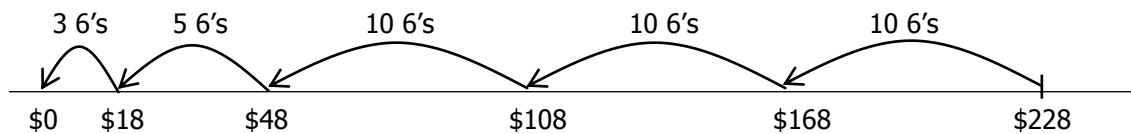
Give \$30 to each pair of pants. What do we have left? [\$40] What do we do with these to continue sharing? [Change to \$1's] How many \$1's? [48]



Share the \$1 coins between the trousers. How many to each trouser? [\$8] How many left over? [\$0] What is the cost? [\$38]



- (b) Sequencing/grouping: Rethink division as how many 6's in \$228. Are there 10 6's, 20 6's, 30 6's 40 6's? Let's start removing them.



Let's remove 10 6's, then another 10 until we can't do any more.

6	\$228	
	60	10 sixes
	168	
	60	10 sixes
	108	
	60	10 sixes
	48	

Then let's remove smaller groups of 6's

6	\$228	
	60	10 sixes
	168	
	60	10 sixes
	108	
	60	10 sixes
	48	
	30	5 sixes
	18	
	18	3 sixes
	0	

- (c) Compensation: For $228 \div 6$ pick something easy, what would it be? [Yes, $240 \div 6$] $240 \div 6 = 40$
As \$240 is \$12 more than \$228, compensation is to subtract $12 \div 6$

$$\begin{array}{r}
 \$40 \\
 - \$12 \div 6 = \underline{2} \\
 \hline
 \$38
 \end{array}$$

2. Do the following by these methods.

a. $266 \div 7$

(7 t shirts cost \$266

What is the cost of one?)

b. $780 \div 5$

(5 MP3 players cost \$28

What is the cost of one?)

c. $423 \div 7$ for \$47

(Paid \$423 for \$47 coats.

How many coats did I buy?)

d. $592 \div 8$

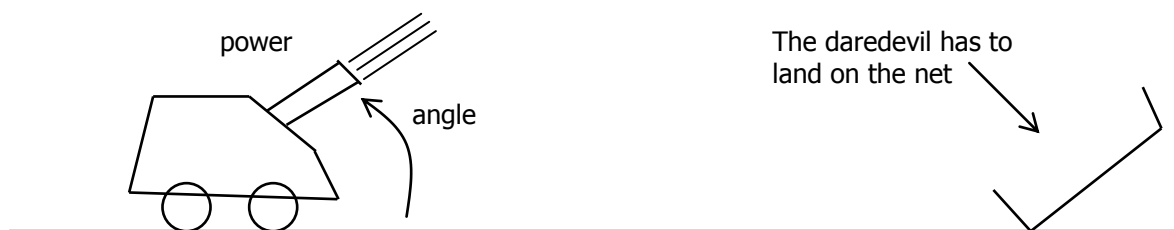
(Paid \$592 for 74 heaters.

How many heaters did I buy?)

3. Complete worksheet 3.2A

Games

Get the distance



Questioning

The focus of questioning for the separation algorithm:

- What is the largest place value (PV) that can be shared?
- What do we do with leftovers?
- How many of the next PV do we have?
- Have we enough of this PV to share?
- How many does each person get?
- What is left?
- What can we do with these?

The focus of questions for the sequencing algorithm:

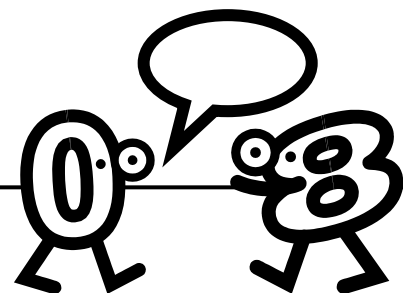
- Can we subtract 1 of [divisor], 10 of [divisor], 100 of [divisor], etc?
- How many of these can we subtract?
- How many are left?
- Can we subtract more?

WORKSHEET 3.2A: WHAT DID ZERO SAY TO EIGHT?

Name: _____ Year: _____ School: _____

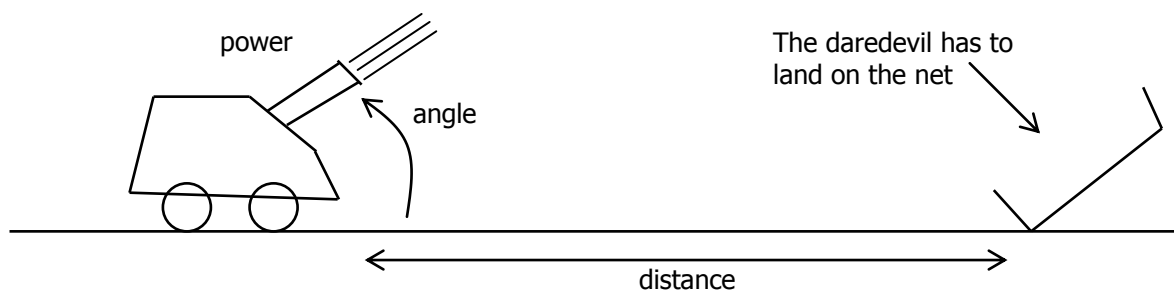
Complete the following to solve the puzzle

1. 8 t-shirts cost \$128. What was the cost of 1 t-shirt? Use separation. _____ = U
2. Andrew paid \$96 for 16 hamburgers for the team. How much did each hamburger cost? Use sequencing. _____ = I
3. Michael 18 exercise books for school. He paid \$54. How much was each exercise book? Use compensation. _____ = R
4. It cost Jordan \$980 to rent his house for 4 weeks. How much rent did he pay each week? Use separation. _____ = K
5. The team bought footballs to sell at their games to raise money. How much did each football cost if they paid \$855 for 45 footballs? Use sequencing. _____ = L
6. Amy bought 16 people a big box of chocolates each. She paid \$288. How much did each box of chocolates cost? Use compensation. _____ = O
7. If 15 PlayStation games cost \$630, how much does one PlayStation game cost? Use separation. _____ = E
8. The teacher bought dictionaries for her class. How much did each dictionary cost if she bought 25 for \$800? Use sequencing. _____ = Y
9. Tamara worked out that she spent \$572 on lunches over 52 weeks. How much did she spend per week on lunches? Use compensation. _____ = B

What did Zero say to Eight?

_____	_____	_____	_____	_____				
\$6	\$19	\$6	\$245	\$42				
_____	_____	_____	_____	_____	_____	_____	_____	T
\$32	\$18	\$16	\$3	\$11	\$42	\$19		

GET THE DISTANCE GAME



$$\text{Angle} = \text{distance} \div \text{power}$$

Complete the chart. Check your answer with a calculator.

Distance	Power	Angle	Power × Angle
784m	14		
1118m	43		
1575m	25		
1125m	15		
736m	23		
672m	12		
966m	46		
288m	32		
992m	62		
4116m	98		

4. DECIMAL FRACTIONS AND OPERATIONS

4.1 TENTHS AND HUNDREDTHS AS PART OF A WHOLE

Objective Comprehend fractions as part of a whole.

Materials 4 types of decimal paper (1, 2, 3 and 4), pen, paper.

Activities

1. Handout decimal paper 1. Look at wholes. Run fingers around whole saying "This is a whole". Take one of these wholes and break it into ten equal parts using "jut ins". Count the number of parts [ten] say the name of each part [tenth] shade 3 parts. Say the name of this [3 tenths] Write the number 3/10.
2. Repeat direction 1, shading (a) 5 tenths (b) 7 tenths (c) 2/10 and (d) 9/10
3. Hand out decimal paper 2. Ask students to shade 2 wholes and then 3 parts of the next whole. Ask the students to say the fraction [two and three-tenths] then ask the students to shade 2 and 8 tenths, and 3 and 6/10.
4. Hand out decimal paper 3. Look at whole. Run finger around whole and say "This is one whole". Take one whole and break it into ten equal parts, then break these parts into ten sub-parts (use "jut ins") how many parts? [100] what is the name? [hundredth] Shade 7 hundredths. Say the name. [seven hundredths] Write the fraction number 7/100.
5. Repeat direction 4 shading (a) 27 hundredths (b) 68 hundredths (c) 60/100 (d) 18/100 (e) 6/100
6. Hand out decimal paper 4. Ask students to shade 1 whole, 3 rows and 6 little squares. Ask student to say the fraction (one and 36 hundredths) then ask students to shade 3 and 47 hundredths.
7. Take a \$1 coin. What is 1/10 of this? What is 1/100 of this?

Games

Race to 5

2-4 players, 1 die. Each player takes decimal paper 2 and puts a line around 5 wholes. Each player in turn, throws die and shades in numbers shown of tenths. After each shading, each player says how many wholes and tenths and how many tenths to next whole. First player to 5 wholes wins.

Longer race to 5

2 – 4 players. Deck of cards, 0 to 9. Each player takes decimal, refer 4 and puts a line around 5 wholes; then, in turn, selects 2 cards (1st tens, 2nd ones) and shades number selected of hundredths. After each shading, each player says how many wholes and hundredths and how many hundredths to next whole. First player to 5 wholes wins.

Questioning

Focus on:

Are parts equal?

How many parts?

What is the name of the parts? What is the fraction name?

What is the fraction symbol?

How many parts to next whole?

Also look at 10×10 grids:

How many rows?

What is the fraction of each row?

How many squares?

What is the square as a fraction?

What is the relation between 4 tenths and 40 hundredths?

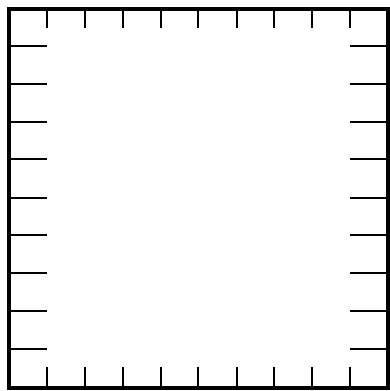
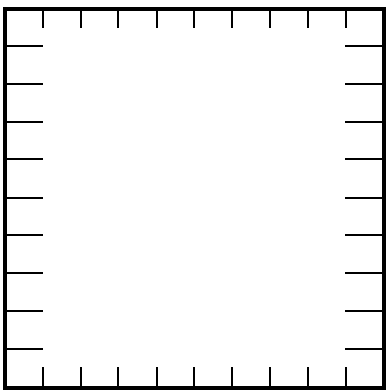
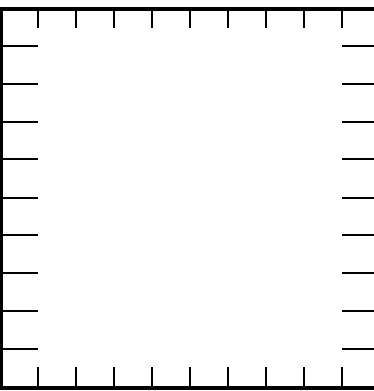
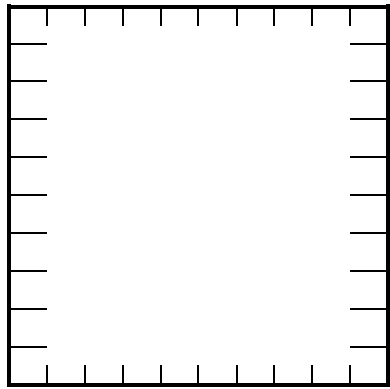
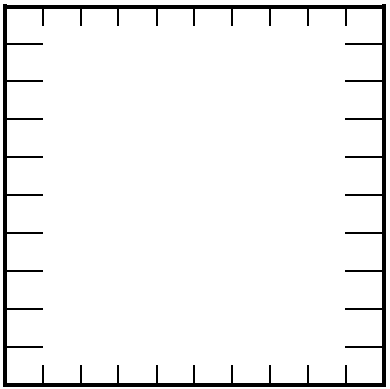
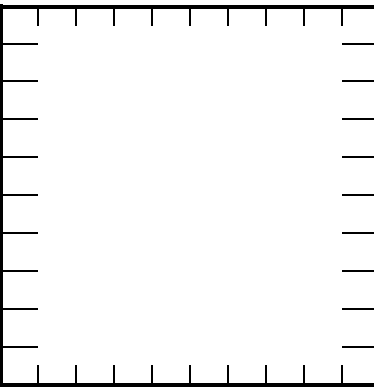
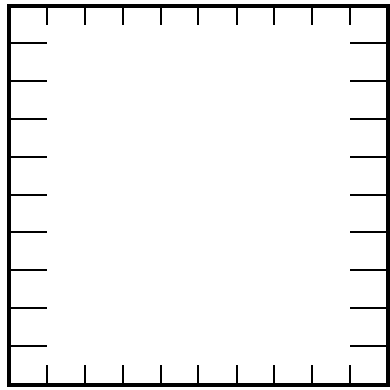
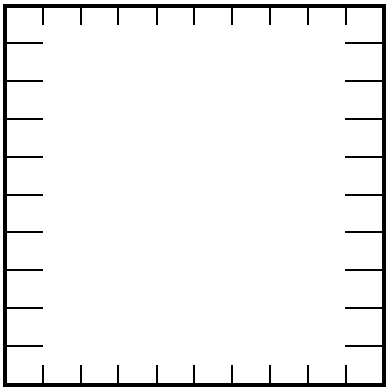
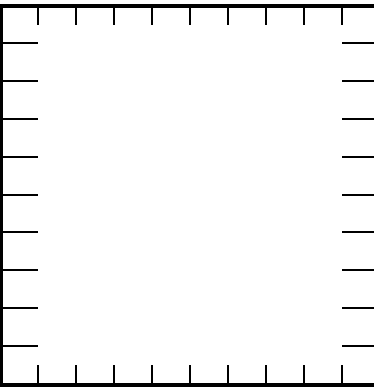
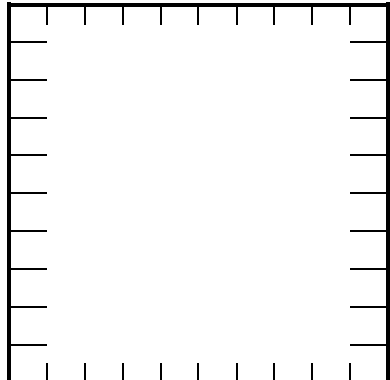
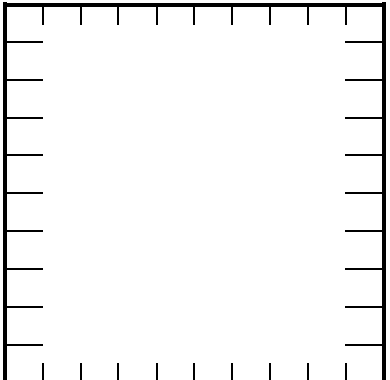
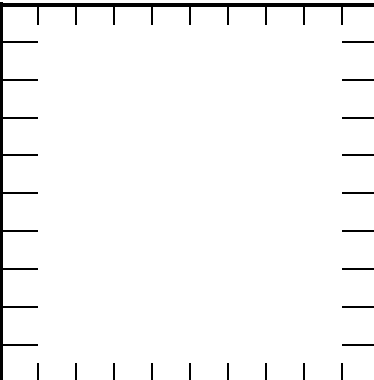
DECIMAL PAPER (TENTHS 1)

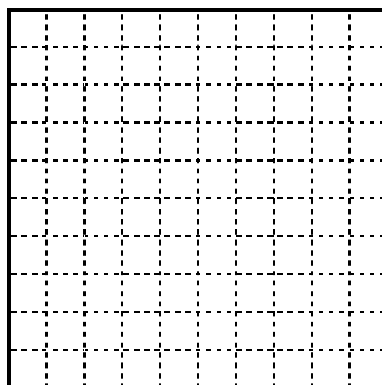
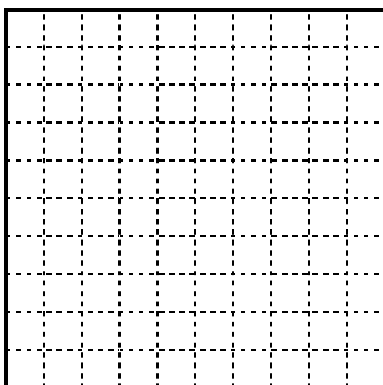
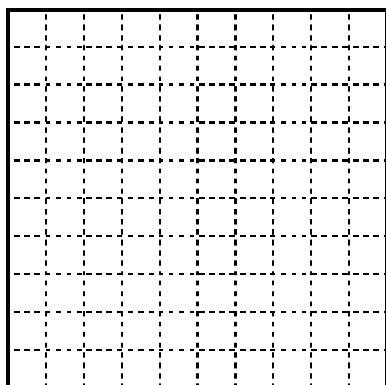
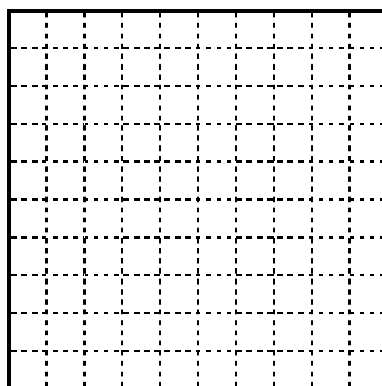
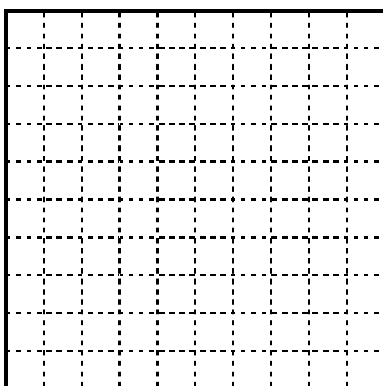
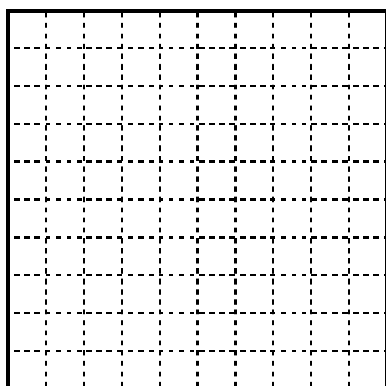
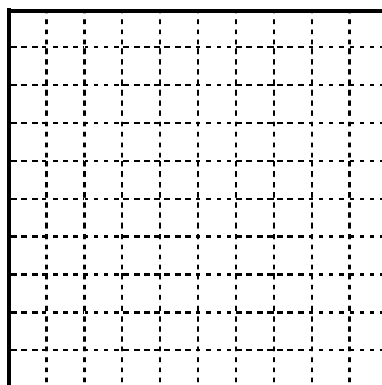
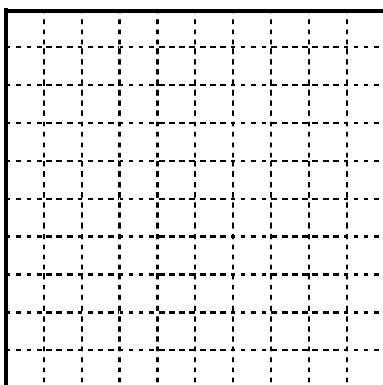
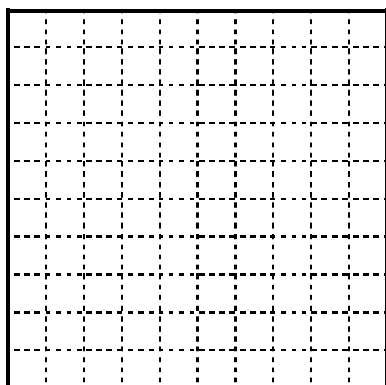
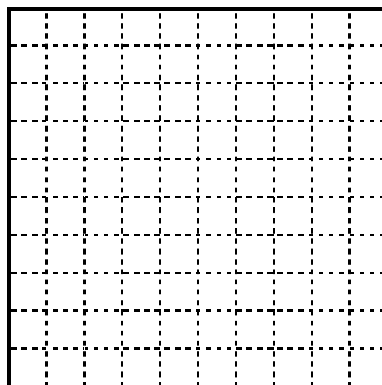
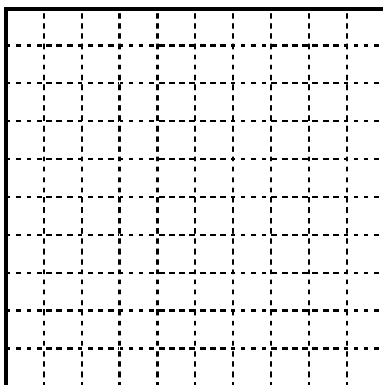
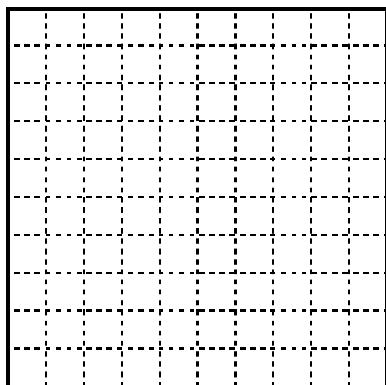
<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>

DECIMAL PAPER (TENTHS 2)

<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>
<div></div>	<div></div>	<div></div>

DECIMAL PAPER (HUNDREDTHS 1)

DECIMAL PAPER (HUNDREDTHS 2)

4.2 DECIMALS TO HUNDREDTHS

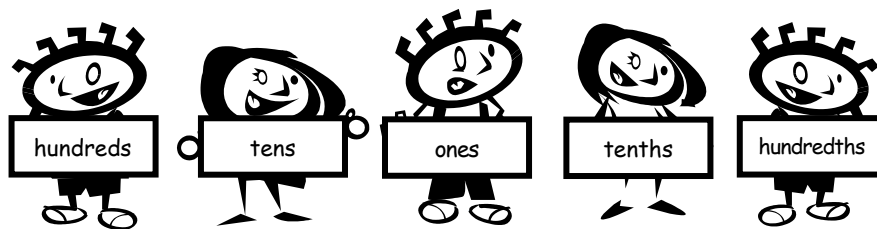
Objective Comprehend decimals from hundreds to hundredths.

Materials Students, pen, paper, number cards, game materials.

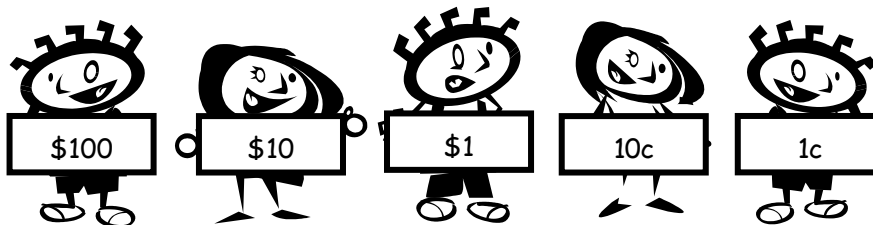
Activities

1. Select 3 students to hold ONES, TENS, HUNDREDS cards in place value order. Select another student to hold a number card, say, 3. Get her to stand, in turn, in front of the students holding the ONES, TENS, HUNDREDS, asking what is the value of 3 now?
2. Give students calculators. Get them to determine (1) What \times , \div by as the student with 3 moves left and right along the place value positions; and what a $\times 10$ and $\div 10$ does in terms of movement.
3. Start student at hundreds, enter 300 in calculator, $\div 10$ and move student to tens, then $\div 10$ again and move student to ones. Ask what happens when $\div 10$ again? Select another student for this new position. Discuss names – give student a TENTHS card to hold.
4. Repeat direction 3 for another $\div 10$. End up with another student on right of TENTH with card saying HUNDREDTH.
5. Repeat direction 2 using a student with a 5 from hundreds to hundredths. Do both directions: \times , $\div \rightarrow$ change; and change $\rightarrow \times$, \div .
6. Discuss what the positions would be if they were dollars. Discuss relationship of 1c and 10c coins to \$1 coins (and to \$10 and \$100 notes).

Replace



With



7. Select 3 new students and give them a 2 and a 5 and a 4 and place them as follows.

\$100	\$10	\$1	10c	1c
		2	5	4

Ask how is this written? [2.54 as 2^{54}] Repeat for other numbers (e.g. 326.47, 15.24, 14.6 etc). For example:

\$100	\$10	\$1	10c	1c
		1	4	6

Show it is written 14.60 or 14^{60}

Discuss limitations in coins with regard to 1c – What is the only possibility? [5c]

Work both ways:

- (a) Show representation \rightarrow say and write number
- (b) Say or write number \rightarrow show on representation

8. Complete worksheet 4.2A.

Games

Mix and match cards

Cards showing symbol, language, PVC. Cut out, mix and then match.

Cover the board

3 sets of cards, symbols, language and PVC. Symbols intact as base board while the other two cut into cash for putting on top of board. Player who has most on top when finished, wins.

Bingo

3 sets of cards where symbols are on one card and PVC and language are mixed up on other cards. Symbols cut up as flash cards while others are used as play boards. Cover representation when flash card shown. First player with 3 in a row, column, as diagonal wins.

Snap

Photocopy the cover the board cards onto 2 colours of cardboard. Make a deck of 72 cards (2 "suits"). Use this deck to play snap (or rummy).

Questions

Questions focus on:

What is the place?

What is the value?

What happens as you move left and right?

What happens when $\times 10$, $\div 10$?

Further questions focus on:

What is a tenth of a dollar (10 of what gives \$1)?

What is a hundredth of a dollar (100 of what gives \$1)?

WORKSHEET 4.2A: THREE REPRESENTATIONS OF DOLLARS AND CENTS

Complete the missing columns. The first is done for you.

	PVC	LANGUAGE	SYMBOL
1.		One hundred and thirty-five dollars and seventy-five cents	\$135.75
2.		Two hundred and forty-six dollars and twenty-eight cents	
3.			\$456.78
4.			
5.		Six hundred and thirteen dollars and fifteen cents	
6.			\$390.95

PLACE VALUE CARDS

Page 1 of 5

HUNDREDS

TENS

PLACE VALUE CARDS

Page 2 of 5

ONES

TENTHS

PLACE VALUE CARDS

Page 3 of 5

HUNDREDTHS

\$100

PLACE VALUE CARDS

Page 4 of 5

\$10

\$1

PLACE VALUE CARDS






Page 5 of 5

10c

1c






MIX & MATCH CARDS

Instructions: Photocopy all pages onto the same coloured card.
Page 1 of 4

100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
				

Two hundred
and thirty-one
dollars and fifteen
cents

\$231.15


















100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
				

Eight hundred
and fifty five
dollars and eighty-
five cents

\$855.85














MIX & MATCH CARDS

Instructions: Photocopy all pages onto the same coloured card.
Page 2 of 4

100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
	 	 	 	
	 	 		
		 		
		 		

One hundred and thirty-six dollars and twenty-five cents

\$136.25


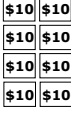



100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
 	 	 		
	 	 		
				

Two hundred and fifty-four dollars and five cents

\$254.05





MIX & MATCH CARDS

Instructions: Photocopy all pages onto the same coloured card.
Page 3 of 4

100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
				

Five hundred
and eighty-five
dollars and fifty-
five cents

\$585.55

100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
				

Four hundred
and six dollars and
fifteen cents

\$406.15

MIX & MATCH CARDS

Instructions: Photocopy all pages onto the same coloured card.
Page 4 of 4

100		10		1	$\frac{1}{10}$	$\frac{1}{100}$
\$100	\$100	\$10	\$10		10c	5c
\$100	\$100	\$10	\$10			
		\$10	\$10			

Four hundred and sixty dollars and fifteen cents

\$460.15

100		10		1	$\frac{1}{10}$	$\frac{1}{100}$
\$100	\$100	\$10	\$10	\$1	10c	10c
\$100	\$100	\$10	\$10		10c	10c
\$100	\$100				10c	

Six hundred and forty-one dollars and fifty cents

\$641.50

COVER THE BOARD CARDS

Instructions: Photocopy all 3 pages on different coloured cardboard – do not cut up symbol sheet.

Page 1 of 3

\$934.25	\$146.50	\$604.15
\$640.30	\$561.50	\$943.25
\$516.05	\$704.40	\$146.15
\$229.05	\$560.05	\$392.15

COVER THE BOARD CARDS

Instructions: Photocopy all 3 pages on different coloured cardboard – do not cut up symbol sheet.

Nine hundred and thirty-four dollars and twenty-five cents	One hundred and forty-six dollars and fifty cents	Six hundred and four dollars and fifteen cents
Six hundred and forty dollars and thirty cents	Five hundred and sixty-one dollars and fifty cents	Nine hundred and forty-three dollars and twenty-five cents
Five hundred and sixteen dollars and five cents	Seven hundred and four dollars and forty cents	One hundred and forty-six dollars and fifteen cents
Two hundred and twenty-nine dollars and five cents	Five hundred and sixty dollars and five cents	Three hundred and ninety-two dollars and fifteen cents

COVER THE BOARD CARDS

Instructions: Photocopy all 3 pages on different coloured cardboard – do not cut up symbol sheet.
Page 3 of 3

100	10	1	$\frac{1}{10}$	$\frac{1}{100}$
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$1</div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$1</div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">10c</div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">5c</div> </div>
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">10c</div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">5c</div> </div>
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$1</div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">10c</div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">5c</div> </div>
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$1</div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">10c</div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">5c</div> </div>
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">\$100</div> <div style="border: 1px solid black; padding: 2px;">\$100</div> </div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$10</div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div> <div style="border: 1px solid black; padding: 2px;">\$10</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">\$1</div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div> <div style="border: 1px solid black; padding: 2px;">\$1</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px;">10c</div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div> <div style="border: 1px solid black; padding: 2px;">10c</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">5c</div> </div>

BINGO BOARDS

Instructions: Photocopy on different colour cardboard – Use first Cover the Board cards as flash cards
Page 1 of 3

<p>Nine hundred and thirty-four dollars and twenty-five cents</p>	<p>One hundred and forty-six dollars and fifty cents</p>	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></td><td></td><td><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></td><td><div>10c</div></td><td><div>5c</div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>		<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<div>10c</div>	<div>5c</div>										
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>		<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<div>10c</div>	<div>5c</div>																		
<p>Six hundred and forty dollars and thirty cents</p>	<p>Five hundred and sixty-one dollars and fifty cents</p>	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></td><td><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div></td><td><div>\$1</div><div>\$1</div><div>\$1</div></td><td><div>10c</div><div>10c</div></td><td><div>5c</div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div>	<div>10c</div> <div>10c</div>	<div>5c</div>										
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div>	<div>10c</div> <div>10c</div>	<div>5c</div>																		
<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></td><td><div>\$10</div></td><td><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></td><td></td><td><div>5c</div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>		<div>5c</div>	<p>Seven hundred and four dollars and forty cents</p>	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div>\$100</div></td><td><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div></td><td><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></td><td><div>10c</div></td><td><div>5c</div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<div>10c</div>	<div>5c</div>
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div>\$100</div> <div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>		<div>5c</div>																		
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>	<div>10c</div>	<div>5c</div>																		
<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div>\$100</div><div>\$100</div></td><td><div>\$10</div><div>\$10</div></td><td><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></td><td></td><td><div>5c</div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>		<div>5c</div>	<p>Five hundred and sixty dollars and five cents</p>	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div>\$100</div><div>\$100</div><div>\$100</div></td><td><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div><div>\$10</div></td><td><div>\$1</div><div>\$1</div></td><td><div>10c</div></td><td><div>5c</div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div>	<div>10c</div>	<div>5c</div>
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div> <div>\$1</div>		<div>5c</div>																		
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div>\$100</div> <div>\$100</div> <div>\$100</div>	<div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div> <div>\$10</div>	<div>\$1</div> <div>\$1</div>	<div>10c</div>	<div>5c</div>																		

BINGO BOARDS

Instructions: Photocopy on different colour cardboard – Use first Cover the Board cards as flash cards
Page 2 of 3

<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div></td><td><div><div>\$10</div><div>\$10</div></div></td><td><div><div>\$1</div><div>\$1</div></div></td><td><div><div>10c</div><div>10c</div></div></td><td><div><div>5c</div></div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div></div>	<div><div>\$1</div><div>\$1</div></div>	<div><div>10c</div><div>10c</div></div>	<div><div>5c</div></div>	Nine hundred and thirty-four dollars and twenty-five cents	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div></td><td></td><td><div><div>\$1</div><div>\$1</div></div></td><td><div><div>10c</div></div></td><td><div><div>5c</div></div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>		<div><div>\$1</div><div>\$1</div></div>	<div><div>10c</div></div>	<div><div>5c</div></div>
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div></div>	<div><div>\$1</div><div>\$1</div></div>	<div><div>10c</div><div>10c</div></div>	<div><div>5c</div></div>																		
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>		<div><div>\$1</div><div>\$1</div></div>	<div><div>10c</div></div>	<div><div>5c</div></div>																		
<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div></td><td><div><div>\$10</div><div>\$10</div></div></td><td></td><td><div><div>10c</div><div>10c</div><div>10c</div></div></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div></div>		<div><div>10c</div><div>10c</div><div>10c</div></div>		Seven hundred and four dollars and forty cents	One hundred and forty-six dollars and fifty cents										
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div></div>		<div><div>10c</div><div>10c</div><div>10c</div></div>																			
Three hundred and ninety-two dollars and fifteen cents	Two hundred and twenty-nine dollars and five cents	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div><div>\$100</div></div></td><td><div><div>\$10</div><div>\$10</div></div></td><td><div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></div></td><td><div><div>10c</div></div></td><td><div><div>5c</div></div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div></div>	<div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></div>	<div><div>10c</div></div>	<div><div>5c</div></div>										
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div></div>	<div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></div>	<div><div>10c</div></div>	<div><div>5c</div></div>																		
<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div></td><td><div><div>\$10</div></div></td><td><div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></div></td><td></td><td><div><div>5c</div></div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div></div>	<div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></div>		<div><div>5c</div></div>	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td><div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div></td><td><div><div>\$10</div><div>\$10</div><div>\$10</div></div></td><td></td><td></td><td><div><div>5c</div></div></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div><div>\$10</div></div>			<div><div>5c</div></div>	Five hundred and sixty-one dollars and fifty cents
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div></div>	<div><div>\$1</div><div>\$1</div><div>\$1</div><div>\$1</div></div>		<div><div>5c</div></div>																		
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
<div><div>\$100</div><div>\$100</div><div>\$100</div><div>\$100</div></div>	<div><div>\$10</div><div>\$10</div><div>\$10</div></div>			<div><div>5c</div></div>																		

BINGO BOARDS

Instructions: Photocopy on different colour cardboard – Use first Cover the Board cards as flash cards
Page 3 of 3

Nine hundred and forty-three dollars and twenty-five cents	Five hundred and sixty dollars and five cents	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$															
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
One hundred and forty-six dollars and fifteen cents	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$						<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$					
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
Five hundred and sixteen dollars and five cents	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$						Three hundred and ninety-two dollars and fifteen cents										
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
Two hundred and twenty-nine dollars and five cents	<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$						<table><tr><th>100</th><th>10</th><th>1</th><th>$\frac{1}{10}$</th><th>$\frac{1}{100}$</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$					
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		
100	10	1	$\frac{1}{10}$	$\frac{1}{100}$																		

4.3 DECIMAL ADDITION AND SUBTRACTION

Objective Comprehend addition and subtraction of dollars and cents.

Materials Pen, paper, calculator.

Activities

For addition and subtraction, we are going to focus on two types of strategies, separation and sequencing, in particular, we will focus on:

for addition – separation, build to 10, R → L, and sequencing; and

for subtraction – sequencing, additive (shopkeepers' method).

- Consider two prices \$17.54 and \$8.68. To add by separating dollars and cents R → L, follow this procedure and recording:

- Separate into dollars and cents

$$\begin{array}{r} \text{D} \quad \text{C} \\ 17 \quad 54 \\ + 8 \quad 68 \\ \hline \end{array}$$

- Add the dollars

$$\begin{array}{r} \text{D} \quad \text{C} \\ 17 \quad 54 \\ + 8 \quad 68 \\ \hline 25 \quad 00 \end{array}$$

- Add the cents by building to next dollars and then add all parts to get answer \$26.22

$$\begin{array}{r} \text{D} \quad \text{C} \\ 17 \quad 54 \\ + 8 \quad 68 \\ \hline 25 \quad 00 \\ + 1 \quad 22 \\ \hline 26 \quad 22 \end{array}$$

54c to the next \$1 is 46c

68c – 46c = 22c

so 22c over next \$1

- Repeat direction 1 for: (a) \$65.56 + \$17.91 (b) \$362.48 + \$124.45
- To add \$17.54 and \$8.68 by additive sequencing, follow this procedure and recording:

- Take larger amount (\$17.54)

\$17.54

- Separate second smaller amount into \$8 and 68c

- Add \$8 to \$17.54 = \$25.54

\$25.54

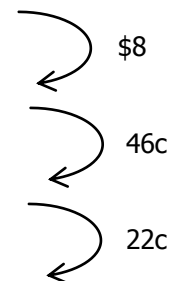
- Add 68c to \$25.54 by building to next \$1 = 46 and 22c left over

\$26.00

- Answer is \$26.22

\$26.00

\$26.22



- Try the same procedure as direction 3 for \$45.26 + \$19.91.

$$(a) \quad \$45.26 + \$19 = \$45.26 + \$10 + 9$$

$$= \$55.26 + \$9$$

$$= \$64.26$$

$$(b) \quad \$64.26 + 91c = \$65 + (91 - 74)c$$

$$= \$65.17$$


Note: May have to practise building to next \$1 or 100c, e.g.

67c is 3c to 70c, 30c to \$1 – total 33c


73c is 7c to 80c, 20c to \$1 – total 27c

5. Buy a coat for \$68.35 and pay with \$100. What is the change? Follow this procedure and recording.


- \$68.35 – build to next dollar: 65c

\$68.35


- \$69 – build to next \$10: \$1

\$69.00


- \$70 – build to \$100: \$30

\$70.00


- Add all money 65c + \$1 + \$30 = \$31.65

\$100.00 ← \$31.65

6. Repeat for example:

- (a) \$27.35, \$50 used
- (b) \$72.55, \$100 used
- (c) \$50.05, \$60 used

7. Complete worksheet 4.3A.

Questioning

Questioning focuses on:

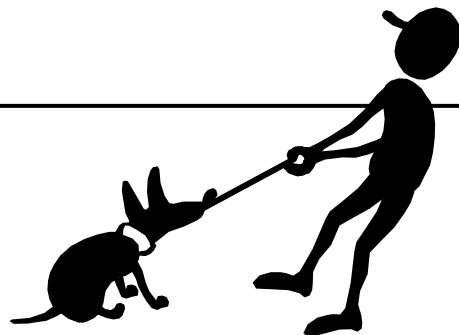
How many to the next 10c?

How many to the next \$1?

WORKSHEET 4.3A: WHAT DO LAZY DOGS DO FOR FUN?

Name: _____ Year: _____ School: _____

1. Maria went shopping. She bought a pair of jeans for \$57.45 and a belt for \$16.93. How much did she spend? _____ = D
2. Angus paid \$186.32 for the phone bill and \$82.84 for the gas bill. How much did he spend on bills? _____ = A
3. Julia paid \$56.23 at the fruit shop and Richard paid \$82.80 at the butcher's shop. How much did they spend on food altogether? _____ = S
4. For theme park tickets, Ellie paid \$45.50 for herself and \$28.95 for her son. How much did it cost for theme park tickets altogether? _____ = P
5. It cost Marcus \$35.82 for boat hire and \$24.61 for a fishing rod and bait. How much did it cost Marcus to go fishing? _____ = C
6. At the supermarket, Matthew paid \$100 for groceries worth \$76.84. What was his change? _____ = K
7. Nicholas bought some art supplies for \$34.71. What was his change when he paid the shopkeeper \$50? _____ = H
8. Raelene bought some goldfish and a fish bowl. The cost was \$72.79. How much money did she have left for fish food if she paid \$90? _____ = E
9. Tessa bought pizzas for dinner for her family. The cost was \$39.82. What was her change from \$50? _____ = R
10. Phil bought a new pair of football boots with \$150 cash. What was his change if they cost \$138.47? _____ = !

What do lazy dogs do for fun?

\$60.43 \$15.29 \$269.16 \$139.03 \$17.21

\$74.45 \$269.16 \$10.18 \$23.16 \$17.21 \$74.38 \$60.43 \$269.16 \$10.18 \$139.03 \$11.53

4.4 DECIMAL MULTIPLICATION AND DIVISION

Objective Comprehend multiplication and division of dollars and cents.

Materials Calculators, pen and paper.

Activities

For examples in multiplication and division such as "We buy 5 meals at \$17.65; what is the total cost?" we can work out the answer as follows:

Add \$17.65 five times

Multiply \$17 by 5 and 65c by 5 and combine

However, we will use estimation and calculators for these multiplication problems; similarly for division.

1. Give students the following problem: "5 meals at \$17.65; how much does this cost?". State that we will work out the answer to the nearest \$5. Direct students to the following method:

- Drop cents and multiply dollars only, using separation or compensation

\$ 17	\$ 17	\$ 20
$\times 5$	$\times 10$	$\times 5$
<hr/>	<hr/>	<hr/>
35	170	100
$+ 50$	$\div 2$	$- 15$
<hr/>	<hr/>	<hr/>
\$ 85	\$ 85	\$ 85

- Then ask students to think about 65c. Note that there are 5 of these. Ask "how many more dollars would this give?" Discuss ways to do this [should get an answer around \$3].
- Put these together to arrive at an estimate of \$88.
- Use a calculator to multiply and get \$88.25. Ask how close the estimate was?

Note: The estimation strategies used here are called "front end" and "getting closer".

2. Repeat direction 1 for (a) $7 \times \$38.95$ and (b) $4 \times \$156.85$. Discuss different ways to estimate.
3. Give problems: "I bought 6 radios for \$232.50; how much does this cost?"
 - Ask students, How much did each cost? Can we work it out?
 - Turn the problem around to $6 \times \text{what} = \$232.50$. Can anyone think of anything that is close?
 - What about $6 \times \$30 = \180 , $6 \times \$40 = \240 . Somewhere in between? – Nearer 40? So estimate \$38.
 - Ask students to use a calculator (gives \$38.75). How close are we? [Less than a \$1]

Note: (a) Estimation strategy here is called "straddling".

- (b) We could also look for $\$240 \div 6 = 40$ and realise we are a little high. This is the "Nice numbers" strategy.

4. Repeat direction 3 for (a) 8 MP3 players for \$597.20. How much is one? (b) 7 caps for \$114.80. How much each?
5. Complete worksheets 4.4A and 4.4B.

Questioning

Focus on getting students to think creatively. Look at the calculation in different ways.

Draw out strategies:

"Front End"

"Rounding"

"Straddling"

"Nice numbers"

"Getting closer"

WORKSHEET 4.4A: ESTIMATION

Complete the following. Correct if within \$5 of answer for multiplication, \$1 for division.

PROBLEM	ESTIMATE	CALCULATOR	DIFFERENCE
1. $7 \times \$39.50$			
2. $5 \times \$45.50$			
3. $9 \times \$23.45$			
4. $2 \times \$87.30$			
5. $3 \times \$66.45$			
6. $8 \times \$18.30$			
7. $4 \times \$93.10$			
8. $5 \times \$28.80$			
9. $7 \times \$52.90$			
10. $6 \times \$36.40$			
11. $2 \times \$175.63$			
12. $6 \times \$47.61$			
13. $9 \times \$18.90$			
14. $8 \times \$47.27$			
15. $5 \times \$163.30$			

Method

- Note – try to finish in 5 selections.

- Check where this number is in the framework.
- First to 15 points wins.

Note – try to finish in 5 selections.

Numbers

	\$68.70	\$56.85	
\$88.40	\$78.55	\$47.81	
\$49.75	\$62.15	\$63.45	
\$68.84	\$74.85	\$73.35	
\$88.85	\$73.05	\$65.15	
\$26.30	\$67.20	\$81.65	
\$79.55	\$59.75	\$90.70	

Framework

Framework

1 POINT	2 POINTS	3 POINTS	2 POINTS	1 POINT
300	400	500	600	700
800				

Tally

[illegible]

5. RICH ASSESSMENT TASK: PLAN A PARTY

5.1 PRE-ASSESSMENT TASKS: OPERATIONS, DOLLARS AND CENTS

This second assignment requires you, the student, to be effective with operations with money (dollars and cents). The assignment will require you to add, subtract, multiply and divide dollars and cents.

The basis of the assignment is to be able to use calculators to do operations with numbers using place value from hundreds to hundredths.

To get started we have the following tasks:

Virtual Tasks

1. Do virtual activities 3, 4 and 5 on the computer.
2. Become used to adding amounts, working out costs of multiple items plus change for payment. The virtual activities allow you to manipulate \$100, \$50, \$20, \$10 and \$5 notes plus \$2 and \$1 coins and 50c, 20c, 10c and 5c coins.
3. Learn how to use an Excel spreadsheet to lay out costs. Learn how to set up tables, formulae, and sum of costs.
4. Make up a list which can have the following sections so that you can use it for the costing of the party.

Item	Cost	Number	Amount

5.2 RICH ASSESSMENT TASK: PARTY

This second assignment on finance requires you to plan and organise a party particularly in terms of cost.

Tasks

1. Type of party

Decide on a focus of the party, e.g. the number of people, time of day, what is being provided in terms of food and drink and activities.

2. Plan for party

Write a plan for your party including a list of everything that will be needed for the people who are coming including type of food, drink, equipment and the numbers of each needed. Ensure your party provides food as well as drinks.

3. Costs of the party

Use an Excel spreadsheet, or a list and a calculator, to calculate the cost of your party. Obtain realistic prices for the items needed and calculate the costs of the items and then the total cost of the party.

4. Restricted party costs

Modify your party so that it will cost less than \$10 per person.

5. Report

Present your plans and costs as a written report.

5.3 TEACHER HINTS AND ASSESSMENT RUBRIC

Teacher hints

It is important that students look at the party plans realistically and cost it appropriately for the people attending. However the crucial part is to get the arithmetic correct. Encourage the students to be diverse and creative for this party.

Assessment rubric

Activity	Excellent (A)	Good (B)	Satisfactory (C)	Effort shown (D)	No effort shown – unsatisfactory (E)
Plan	Complete and creative plan presented very clearly in all areas	Complete and creative plan with good presentation in most areas	Adequate structure, creativity and presentation in most areas	Inadequately presented plan but effort shown	Inadequate and no effort shown
Costs	Correct and well structured list and numbers of costs	Nearly always correct and well structured list and numbers of costs	Mostly correct and adequate list	Only some costs considered but effort shown	Not complete and no effort shown
Restrict-ed costs	Excellent understanding of cost reductions to <\$10/person	Adequate cost reduction to <\$10/person	Poor modification but does keep the costs <\$10/person	Not able to restrict cost but effort shown to have an adequate party	Ineffective in restriction and no effort shown
Report	Explains clearly with much detail	Explains clearly with some detail	Readable report	Does not meet requirements but effort shown	Does not meet requirements and no effort shown

Extra materials

Provide students with lists of costs of products from local stores.