Online Numeracy Resources

Workshop for
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Presented by Libby Rowswell
lrowswell@swin.edu.au
Centre Cultural and Linguistic Diversity
Swinburne University of Technology (TAFE)

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1. Online courses – Learning Modules, Scorm, Toolboxes

Australian Flexible Learning Framework http://toolboxes.flexiblelearning.net.au/repository/index.htm	
Australian Flexible Learning Framework	You can search for a toolbox, or by Training package, or you can search for Learning objects. Often learning objects are a small section of a toobox, or they might be learning sequences from Learning Federation (Federal/ p1-12 school resources) For learning objects: http://tle.tafevc.com.au/toolbox/access/searching.do
Toolbox 519 **Youth Resource 'Where's the Party At?'**	http://toolboxes.flexiblelearning.net.au/series5/519.htm Site map shows Maths activities. Teaching and practice activities in relevant Youth topics eg smoking, alcohol, sex The resource also covers reading and writing and was written to match the CGEA curriculum
Flexible Learning Toolboxes 'Cybercentre'	**http://toolboxes.flexiblelearning.net.au/series4/424.htm** Resource covers R&W and Num. In the Learning Centre - Door 1 = Time, Door 2 = Reading Maps & Timetables, Door 3 = Numbers & Calculating, The Numeracy part of this resource can be "separated out" using this link http://tle.tafevc.com.au/toolbox/items/4fcd7303-20e9-1ae6-6338-9261a0f688c3/1/?nav.tabSection=summary&nav.tabData=summary&tempwn.b=access%2Fsearch.do%3Fpg.e%3Dtrue%26pg_pp%3D10%26pg_pg%3D1%26qs.q%3D%26pow.e%3Dtrue%26pow.x%3D%253Cxml%253E%253Citem%253E%253Ctoolbox%253E%253Ctoolbox.code%253E424%253C%252Ftoolbox.code%253E%253C%252Ftoolbox%253E%253C%252Fitem%253E%253C%252Fxml%253E%26pow_p%3D578ee3b4-88d7-a3e5-e3d1-36935aced499%26sort_s%3DRANK%26she_canDisplay%3Dchecked
Retail Maths Cert II	A learning module based on Cert II Retail The section on Customer Service covers retail documentation and calculations that are essential to working in the retail. http://tle.tafevc.com.au/toolbox/items/f56878a7-a992-d3d7-fc16-72ffff02bf96/1/
Toolbox Cert III Metal Fabrication	Cert III Metal Fabrication If you need measurement skills in a VET context **Perform four basic rules mathematical calculations** http://tle.tafevc.com.au/toolbox/items/0c7db17f-9408-7367-061f-9e1cf14af365/1/ **Cert III Metal Fabrication – Length, Area, Perimeter, Volume** http://tle.tafevc.com.au/toolbox/items/ee2534dd-e04d-6fac-cdc0-17ea863308f2/1/
Learning Federation	
Learning Federation	**Huge repository of interactive P-12 resources. First, your Institute must register, then teachers can get a log in and choose resources, group resources to a learning path. Each learning path has a unique student PIN.** **http://econtent.thelearningfederation.edu.au/ec/p/home** **sample from catalogue** **http://www.thelearningfederation.edu.au/for_teachers/sample_curriculum_content/tm_-_maths.html** **demo PIN** KMIFAQ for the school canteen activities **http://econtent.thelearningfederation.edu.au/ec/pin**
Not free	**Here are a couple of Numeracy resources well worth the dollars**
CGEA Level II	**A resource that is available on CD to load into a LMS, supports**

Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au

Westone **Not free**	**delivery of 8 CGEA2 units including ZBQU152 _153** **Highly recommended- explanation, diagrams, and practice and worksheets to print.** **I found the resource difficult to laocate online, so I emailed Westone.** **Their website is http://www.westone.wa.gov.au/Pages/default.aspx**
Maths Words **NSW AMES** **Vocabulary builder** **Not free**	**http://ames.edu.au/content/publicationitem.aspx?pid=121&pcid=14** **Practice speaking and listening maths vocab for new migrants.**
Measuring up	**Protea Textware** **http://www.proteatextware.com.au/shopdisplayproducts.asp?id=14&cat=Numeracy** **Relatively expensive but a good resource CGEA Numeracy**
LORN **LORN is now obsolete as a searchable database, however, the resources must still exist so perhaps email the LORN help desk to ask how to source these if you are interested.**	
LORN **'Design modules'**	Unit on 2D and 3D Shapes originally written for CGEA Certificate I / Numeracy for Practical Purposes- Design - Level 1& 2 http://lorn.flexiblelearning.net.au/resultDetail?identifier=2903 An excellent resource with some audio and many interactive activities on 2D & 3D shapes and spatial problems
LORN **'Measurement'**	Covers metric units, geometry, perimeter, area volume http://lorn.flexiblelearning.net.au/resultDetail?identifier=41710
LORN Measure area	One of a series developed by Tas TAFE http://lorn.flexiblelearning.net.au/resultDetail?identifier=3941

Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au

2. Maths websites - skills teaching and practice sites

BBC Skillswise	**Printable and interactive** www.bbc.co.uk/skillswise (wonderful resource- avoid exercises involving money because of currency £!!!!)
DEST Numeracy - *Vocational*	**Printable** resources: Cover **Skills** development (multipage notes that explain concepts) then A**pplication** - usually single page questions posed in work context with the Answers on 2nd page. http://www.dest.gov.au/archive/ty/litnet/numeracy/home/nh_0005.htm Contains a generic Numeracy, and then 8 contextualised sections tailored to specific industries.
Skillsworkshop	**Printable PDF** exercises and handouts contributed by teachers- categorised according to the skills and UK education level. http://www.skillsworkshop.org/numeracy Lots of possibilities to make your own cards with this exercise generator: http://www.skillsworkshop.org/resources/loop-card-generator UK site –it also has Literacy etc. – watch £ symbol and pound/pence
Mathplayground.com	Good range of activities. It is aimed at School Kinds, but if you choose carefully, and give the link to avoid all the kiddie pics, there are some real gems here. It does have maths videos to explain some of the processes. Estimate angles http://www.mathplayground.com/alienangles.html Problem solving algebra http://www.mathplayground.com/algebraic_reasoning.html
IXL	All activities are labelled with a school level pre-school to yr8 so discouraging to adults– an extensive school maths site, interactive site generates questions- there are worded problems associated with most topics– http://au.ixl.com/ Aus site
VALA-VCAL	**Resource page for VCAL** **http://www.vala.asn.au/resources/index.php** **OHS Safety resource- has some co-op logics on Youth and workplace injuries. http://www.safe-t1.net.au/**
Kids Zone - Create a graph	- good site where learners can type in data and the graph can be generated then printed. For those who cannot use Excel. http://nces.ed.gov/nceskids/createagraph/default.aspx
Interactives	CGEA 2 & 3 - 2D and 3D shapes with nets of prisms and pyramids that fold interactively http://www.learner.org/interactives/geometry/index.html Maths in Daily Life- gives some good ideas and explanations and scenarios around buying a car, cooking, decorating etc http://www.learner.org/interactives/dailymath/index.html US site
Financial Literacy Website	http://practicalmoneyskills.com/foreducators/index.php You do need to register but it is free.
Excellence Gateway	http://www.excellencegateway.org.uk UK Large site with range of diagnostic tests that can be used as models
Sense and Dollars	Covers credit cards saving, spending- content and games plus a wide range of

	activities- aimed at Youth http://senseanddollars.thinkport.org/home.html US site
That Quiz	Interactive Has simple quiz ***generator*** that can be used for drill practice and feedback . User can choose a difficulty level and parameters – useful are the Arithmetic, Algebra, time, (can chose days, hours), graphs, measure, place value. Once the parameters are set, it is a flat screen so easy to use and not distracting http://www.thatquiz.org/
Mathsnet ***Numeracy section very good*** ***Terrific for level 1 up***	Interactive http://www.mathsnet.net/ Fantastic for **Geometry, Algebra, Fractions, Graphs and Numeracy**. Click on **Numeracy** Great demonstrations scale using thermometer, measuring cylinder, measuring scales. *Useful for Data Show Projector or Whiteboard* **For Geometry, Algebra and Fractions --**the site is very thorough and sequential so suited to a mixed ability class.… In many areas the learner can step through the worked solution. Navigation via the grid of coloured boxes. There are sequenced lessons in **Geometry, Algebra and Fractions**
aaamath	http://www.aaamath.com/B/nam.htm For Intro ESL - Words to numbers & ordinals. Design worksheets for Rounding and estimating - level 1, Drills for + - X / from Intro to level1
Just in Time Maths	Printable and Interactive in some activities www.fi.edu/time/Journey/JustInTime/contents.html Activities to do with Time- clocks, calendars. Includes flash cards for Concentration and similar. Interactive Word Searches. Very good simple site.
Change maker	**Interactive** - practice giving change- 3 levels – Australian coin and notes – http://www.funbrain.com/cashreg/
SEN **Special Ed**	**Printable PDF sheets**- designed for Special Ed but very useful for initial and intro level – coins, shapes/nets/number sequences http://www.senteacher.org choose a currency and generate worksheets and coin dominoes http://www.senteacher.org/Worksheet/65/MoneySkillsCoins.xhtml generate analogue clocks – specifying whole hour five min/or shorter http://www.senteacher.org/Worksheet/18/TellingTheTime.xhtml
Teachers Corner	Can generate Printable worksheets for Time maps- including Australia maps http://www.theteacherscorner.net/printable-worksheets/maps/australia-oceania/
Math.com	Interactive - but be wary as there are many pop-up ads in the site. Ranges from basic to Algebra- seems to work better in Firefox. Lots of explanation for Level 2+ Everyday maths http://www.math.com/practice/EverydayMath.html Simple generator of one step + - x / 60-second-practice- do as many questions as you can. http://www.math.com/students/practice/arithmeticpractice.htm

	Pre-Algebra – theory, then set of ten problems- often self generating-fractions, percentages, etc http://www.math.com/homeworkhelp/PreAlgebra.html
Shodor interactivate ***Brilliant but not always intuitive***	http://www.shodor.org/interactivate/activities/index.html Scroll down to: **Arithmetic Four –** Basic skills game for 2 players (like Connect 4) – user adjusts level of difficulty and operations practiced. Site also has Fraction Four **Tessellate –** create an instant pattern from any 4 sided shape **Reading a clock** – elapsed time **Bar Graph Sorter** - It lets you sort, shows the tally sheet etc **Image MAP**
Virtual Manipulatives	http://nlvm.usu.edu/en/nav/vlibrary.html **Grade 6-8 Number** Sieve of Eratosthenes– Relate number patterns with visual patterns. – Number line addition and subtraction game. **Number Puzzles** – Solve puzzles involving arranging numbers on a diagram so that they add up to a given value. **Percentages** – Discover relationships between fractions, percents, and decimals. **Grade 3-5 Measurement Pattern Blocks** – Use six common geometric shapes to build patterns and solve problems.
aplusmath	http://www.aplusmath.com/ **Online Flashcards, online & printable worksheets** for practice of basic operations + x + /, rounding to nearest 10, 100, 1000 etc. **Games** : MATHO (BINGO game.) & Concentration (based on 4X4 grid) more of a challenge and develops spatial and memory skills. **Worksheets** allow the learner or teacher to generate & print basic worksheets Covers order of operations and simple algebra. ANSWERS printed as well **Fractions, Algebra and Order of operations** are suitable for level 2 learners.
Websites for symmetry	http://www.adrianbruce.com/Symmetry/ Click on **Stained Glass.** Contains wonderful activities on symmetry, including a fantastic exercise on Face Symmetry Also has examples of questions on symmetry created with Hot Potato.
Working out % change from original to new price	http://www.onemathematicalcat.org/algebra_book/online_problems/calc_percent_inc_dec.htm Limited interaction, but can check answers online. Also has printable worksheet with answers.
Math Crossword puzzles	http://users.tpg.com.au/users/puzzles/ lots of Number crossword puzzles to print- a useful resource
Superteacher Worksheets **PDF files only, not interactive**	A good range of free printable worksheets across a range of skills for Initial--CertI/II numeracy learners. It is school skills based, and American so avoid money. Measurement section does cover metric. The PDF pages I have seen are generally OK for an adult audience. There are some gems here- worksheets that are short and sweet and some that would take quite a while to create if you were doing it your self! Well worth a look. I liked the In & Out boxes, some of the metric measurement and basic algebra. There are also useful English worksheets for anyone teaching English. http://www.superteacherworksheets.com/time.html
	Additional sites contributed by members of the ACAL community
MCA	http://www.staff.vu.edu.au/mcaonline/gen/index.html Good skills website
CIMT Book 7	http://www.cimt.plymouth.ac.uk/projects/mepres/book7/book7int.htm Structured teaching of a range of topics followed by some neractive problems CGEA 2/3

Maths is fun	http://www.mathsisfun.com/ some simple explanations of topics that are beyond functional maths, for example the simple explanation of BODMAS
Maths Online	http://www.mathsonline.com.au/ highly structured, thorough website. Sponsored by MacDonalds, the instituite must register, but it is free. You can listen to lessons. And because the student needs to log in, the teacher can track results, and check activity levels.

Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au

3. Using real life sites for maths activities

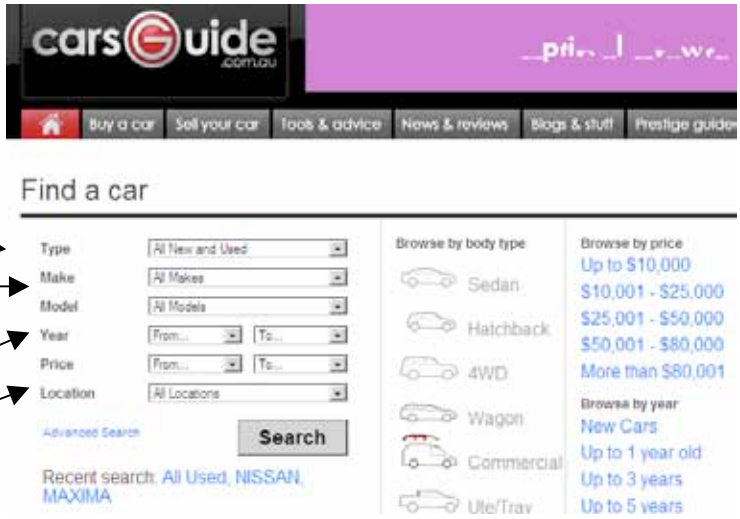
Here are a few suggestions for using real life contexts to practice Maths skills.

Number supermarket	http://www.woolworths.com.au/wps/wcm/connect/webSite/Woolworths/ For browsing supermarket for products, prices and metric quantities, recipes
Data Weather **Cars and travel** **Population stats**	Meteorological site, for information on current weather details and 7 day forecasts for Melbourne http://www.bom.gov.au/vic/forecasts/melbourne.shtml http://www.bom.gov.au/products/IDR024.loop.shtml#skip shows a Radar map of Melbourne – see rain for last 6 min up to 24 hr period. For fuel and car running costs, car insurance and finance, vehicle comparisons, travel distances http://www.racv.com.au For facts and statistics on Australia or any country in the world https://www.cia.gov/library/publications/the-world-factbook/geos/as.html Worldometer counters of statistics http://www.worldometers.info ABC – Census Interactive Graphs This is a great link for your Maths students and for your own interest. Just move your cursor over the graphs! http://www.abc.net.au/news/specials/census-2011/
Design Flags **Real estate**	Flags displayed alphabetically – student's work in pairs to describe and recognise a flag http://www.flags.net/ **Match house plans to the images-** lots of different activities involving numbers http://www.realestate.com.au/buy
Time & Money Airlines **Public transport**	For flight times and fares http://www.qantas.com.au/travel/airlines/home/au/en For bus times and fares http://www.metlinkmelbourne.com.au/timetables/metropolitan-buses/ For public transport timetables and fares http://www.metlinkmelbourne.com.au/fares-tickets/metropolitan-fares-and-tickets/
Location	For maps and street directories, directions, distances http://www.street-directory.com.au/sd_new/home.cgi directions and distances http://www.whereis.com/ Google Maps http://maps.google.com.au/ See maps then images of houses etc
Measurement	World times http://www.timeanddate.com/worldclock/ For times and distances http://accommodation.racv.com.au/club/trip-planner/ For recipes - weights & volumes http://www.recipezaar.com/recipes/new-zealand For volume, temperature etc. www.worldclimate.com http://www.betterhealth.vic.gov.au Recipes, matters related to health,

4 A sample activity

Buying a Used Car

Car Guide Website is a website where you can to find a used car.
http://www.carsguide.com.au/?from=CG_logo



- Choose Used Car
- Choose a common make and model so there will be plenty for sale.eg Nissan Pulsar
- Set Yr range eg 2002-2008
- Select a location-All VIC
- **Don't** set a price range, just **Start your Search**

You'll see a list of cars like this one.
Each one will show:

Year model Odometer reading (kms travelled) Price



- For this exercise, just use the cars that come up on one screen (usually 15 cars per screen)
- Print the screen

1. Which is the oldest car – how old is it? _____

Newest car – how old? _____

2. a) Which is the most expensive car? _____

and which is the cheapest car? _____

2 b) Put all the cars in order from cheapest to most expensive car.

Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au

Need help? Click here and here

Cheapest _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Dearest _____

Average prices and average kilometres

3. a) What is the most common year model listed? _____

b) For this year model, which one is the cheapest _____and

which one is the most expensive? _____

c) What is the price range difference? _____ Need help?

d) What is the average price for this year model? _____ Need help?

e) From all the cars of this year model, which one has the

highest kilometres on the odometer? _____

lowest kilometres on the odometer?_____

f) What is the odometer range difference? _____

g) What is the average odometer reading for all the cars of this year model?

_____

How to work out the best car to buy.

Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au

Do you want – the cheapest car of all? - a car that is not too old? - one that has not done a lot of kilometres?

4. a) Now, using the whole list of cars, work out the average **annual** kilometres travelled for each car. Use this chart to help you.

	Year model	Age of car	Kilometres	Price	Average km / yr
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

b) Which car has done the lowest average annual kilometres, and is the cheapest price? This is your 'best buy".

Write down the details of your best buy – year model, odometer reading and price.

Best Buy _____

Paying a deposit on the car.

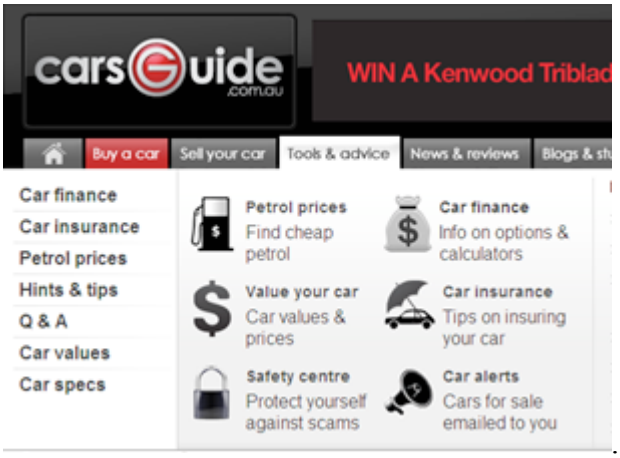
5. The smallest deposit you can pay is 10% of sale price. Click here for help
and here and here

What is the minimum deposit for your best buy? _____

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Getting a loan to buy the car.

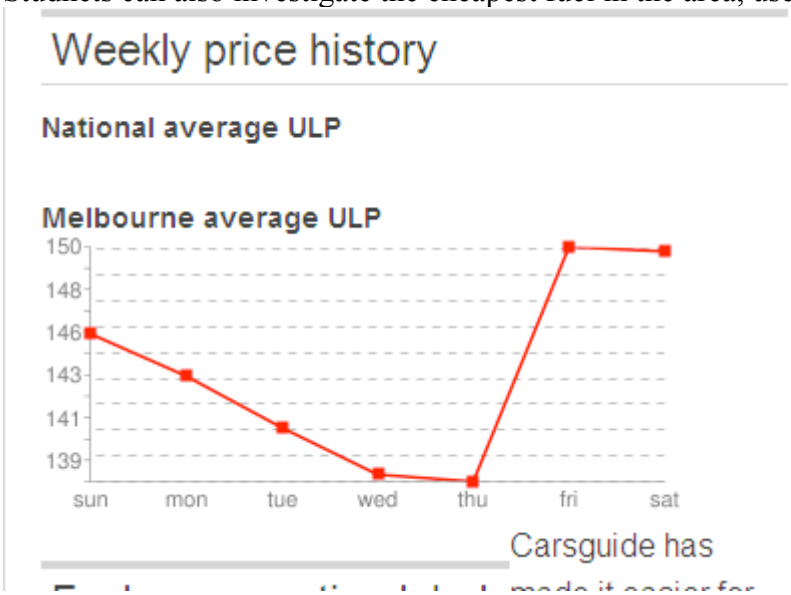
6. Find If you client on Tools at the top of the Cars Guide site, you'll find a range of links that will lead to information about Car finance



Investigate Petrol Prices using Car Guide

And why not investigate the Petrol prices. Click on the link to Melbourne and let the students discover if Petrol really is more expensive at the weekend!

Studnets can also investigate the cheapest fuel in the area, use consumption rates in the city and so on.



Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au

Buying a Used Car – Teacher version with details of 'scaffolding' sites

1. Which is the oldest car – how old is it? _____
   Newest car – how old? _____
2. a) Which is the most expensive car? _____
   and which is the cheapest car? _____

2 b) Put all the cars in order from cheapest to most expensive car.

Could limit the number of cars to 5 or 10 for some students.
Students could cut each car listing into separate strips of paper to manipulate into order, before copying out list.

***Skillswise** section on Whole Numbers*
http://www.bbc.co.uk/skillswise/numbers/wholenumbers/
Rounding and Estimating, Comparing numbers for place value and comparing Numbers, and Writing Big Numbers for reading & comparing large numbers.

Buying a Used Car – Teacher version with details of 'scaffolding' sites

3. a) What is the most common year model listed? _____
b) For this year model, which one is the cheapest _____and
which one is the most expensive? _____

c) What is the price range difference?
Skillswise – http://www.bbc.co.uk/skillswise/numbers/wholenumbers/
Addition and Subtraction / Written method for finding the difference, especially when there are zeros in top line of subtraction sum

d) What is the average price for this year model?
Skillswise - http://www.bbc.co.uk/skillswise/numbers/handlingdata/
Understanding Averages for finding the mean

e) From all the cars of this year model, which one has the
most kilometres on the odometer? _____
least kilometres on the odometer?_____

f) What is the odometer range difference?

g) What is the average odometer reading for all the cars of this year model?

How to work out the best car to buy.

Do you want – the cheapest car of all? - a car that is not too old? - one that has not done a lot of kilometres?

4. a) Now, using the whole list of cars, work out the average **annual** kilometres travelled for each car. Use this chart to help you.

	Year model	Age of car	Kilometres	Price	Average km / yr
1					
2					

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b) Which car has done the lowest average annual kilometres, and is the cheapest price? This is your 'best buy".
Write down the details of your best buy – year model, odometer reading and price.

Best Buy _____

Paying a deposit on the car.

5. The smallest deposit you can pay is 10% of sale price.

What is the minimum deposit for your best buy? _____

Skillswise - http://www.bbc.co.uk/skillswise/numbers/fractiondecimalpercentage/
Introduction to % *and* *Comparing fractions and %* *and* *Finding % parts*

Buying a Used Car – Teacher version with details of 'scaffolding' sites

Libby Rowswell Swinburne TAFE lrowswell@swin.edu.au