

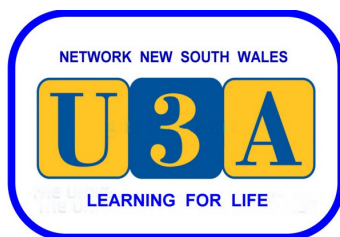
# **THE BRAIN GAMES PROJECT**

**A Guide for Co-ordinators and Class  
Leaders of 'Brain Games' Classes**



## **THE BRAIN GAMES PROJECT**

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The Project has been generously supported by the IRT Foundation, through its Community Grants Program, for the printing and distribution of the Project.

The description of the *Six Thinking Hats* by Edward de Bono, and the Alzheimers Australia Fact Sheet No.6 were accessed from their respective websites, and are reproduced pursuant to the terms of the Copyright Agency Licence held by the U3A Network NSW Inc. and copyright educational guidelines on fair use.

Puzzles and activities described in the book have been derived from a wide range of sources including

N Renton, *Brain Teaser – Puzzles for the Mind*, Funtastic, 2006

Barry R Clarke, *Puzzles 4 Pleasure*, Cambridge University Press, 2004

T H Green, *The Subway Graffiti Sketchbook*, ILEX, 2010

J W Newstrom and E E Scannell, *Games Trainers Play*, McGraw Hill, 1980

M. Powell, *Brain Boosting*, Parragon, 2014

and several internet games and puzzle sites too numerous to mention.

## **Recommended reading**

Michael J Valenzuela, *Maintain Your Brain*, HarperCollins Publishing, 2011



## THE BRAIN GAMES PROJECT

### A Guide for Co-ordinators and Class Leaders of 'Brain Games' Classes

Extensive research provides growing evidence that, in addition to maintaining physical fitness and eating sensibly, brain health in older people can be maintained, and diseases which cause dementia can be avoided or deferred, if the cognitive functions of the brain are also regularly exercised. In doing so, older people become less likely to become a burden on the public health system. Participating in social activities and interacting with others exercises brain cells and strengthens the connections between them.

In 2014, the U3A Network NSW produced an exercise DVD, especially prepared by a qualified instructor for older people, to increase flexibility, balance, co-ordination and bone strength, and thereby to reduce the risk of falls, or injury from falls.

The "Brain Games Project" is designed to complement the physical exercise program. It is a resource to support regular U3A group classes designed to encourage mental agility through exercises to stimulate different parts of the brain, in a socially friendly and participatory way.

While individuals can access puzzles of all kinds from newspapers, magazines and the internet to amuse themselves, the social interaction of participating in group activities is one of the strengths of U3A in encouraging positive feelings and self-confidence in a friendly environment.

The Project has evolved from a program which has been conducted at the Northern Illawarra U3A for several years. This booklet is intended to provide Co-ordinators and Group Leaders of Brain Games classes with information and suggestions for conducting classes, and includes -

- An introduction to the functions of the brain, and to the types of exercises which engage different parts of the brain;
- Sample exercises and games which involve and illustrate the main functions of brain activity - verbal; numerical; spatial recognition; logical thinking; short and long term memory; creativity and lateral thinking;
- Tips on locating and developing resources such as puzzles and games to include in a "Brain Games" class to support each of these functions.

The Project also includes an introduction to the [Keeping The Marbles Rolling™ \[KTMR\]](#) program devised by Peter Beale, which he has generously made available to U3A groups. It is a comprehensive program which incorporates the broad range of mental abilities, and is immediately available as a course for U3A use.

**Ainslie Lamb, Brain Games Co-ordinator, Northern Illawarra U3A.  
Designer and Writer of the Brain Games Project.**

## **WHY HAVE A BRAIN GAMES PROGRAM?**

*Given that what's good for the heart is good for the brain, it seems the reverse analogy works equally well. Physical exercise keeps our muscles, especially our heart muscles, strong and resilient; similarly, mental exercise is important for keeping our brain strong and resilient. There is also good evidence that combining cognitive training with a social dimension and physical exercise may well be better than cognitive exercise alone.*

***Dr Michael Valenzuela, Maintain Your Brain, HarperCollins Publishers, 2011, at p.220-221***

*There is a widely held belief that doing crosswords and other word games alone may help to keep the brain functioning well. I would rather say that doing crosswords and word games in a solitary situation may help a part of the brain to function well.*

*Activities that stimulate other functions of the brain, such as memory, creative thinking, problem-solving, logic, all conducted in a social, non-threatening, co-operative environment will, more than likely, improve the functioning of the brain.*

*At our U3A, for approximately ten years, our Brain Games group has been meeting every two weeks for an hour and a half to play many of the games you will find in this guide. We have fun, make jokes, and exercise our brains. Many members of the group, including the co-ordinator, have been there for ten years, and show little sign of diminished brain function.*

*This guide to the program provides sufficient activities and ideas to sustain a group for some time. Co-ordinators will probably find that members suggest other activities or adapt those given here.*

*Now, would someone like to design a NAPLAN test to measure the success of Brain Games? Let me see...*

***Margaret Stratton, Brain Games enthusiast, Northern Illawarra U3A***

## **AN INTRODUCTION TO THE FUNCTIONS OF THE BRAIN, AND TO THE TYPES OF EXERCISES WHICH ENGAGE DIFFERENT PARTS OF THE BRAIN**

*The following is the edited text of a presentation by the compiler of this Project to a U3A NSW Network Conference, accompanied by powerpoint slides which are accessible on the DVD which is included at the back of this book. The presentation might assist Co-ordinators and Class Leaders to understand the concepts which underpin the project by providing a variety of amusing activities and creative challenges to stimulate different parts of the brain. It may be adapted and used as an introductory session to acquaint class members with the same concepts. It will help to leaven the presentation with a few 'brain jokes' to provide some humour, while illustrating the importance of laughter in maintaining the brain.*

## **MAINTAIN YOUR BRAIN**

### **[Slide 1]**

It's very popular, as demographics show that the population is "aging", to focus on the need for older people to 'maintain the brain'. Thanks to MRI technology and computer modelling we have learned a great deal in recent years about the mysteries of the brain. You may be aware of all the brain research that is going on, at various brain research institutes which demonstrate that the brain does not have to deteriorate in older age, or at least the deterioration can be minimised, if it is kept stimulated with mental activity and nourished with a balanced diet.

In making this presentation, I make it clear I'm not qualified in neurological science or psychology – I'm relying on the research of experts to tell me and to pass on to you, some information and ideas. The following information about the brain and how it works is derived from several sources including the Alzheimer's Association<sup>1</sup>

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<sup>1</sup> [www.fightdementia.org.au](http://www.fightdementia.org.au)

and the Florey Institute of Neuroscience and Mental Health<sup>2</sup> and other reliable sources.

When people think about staying fit, they generally think from the neck down. But the health of your brain plays a critical role in almost everything you do: thinking, feeling, remembering, working, and playing – even sleeping.

There's a lot you can do to help keep your brain healthier as you get older. These steps might also reduce your risk of Alzheimer's disease or other dementia. Simple lifestyle modifications also would have an enormous impact on our nation's public health and the cost of healthcare.

In this session, I'm going to look at some relevant aspects of brain research that underpin the 'Brain Games' classes that we have at Northern Illawarra U3A. There will be some illustrative exercises for you, so have your notepads and pencils ready.

Firstly, laughter is an important part of promoting good health and wellbeing. When we laugh we take in more oxygen and that feeds the blood cells and then the brain reacts by releasing endorphins and a chemical called dopamine which promotes a positive feeling. Recognising the importance of laughter, we start our classes with a hearty laugh – *1,2,3 try it* - and our classes usually involve an exchange of witticisms and puns and other jokes.

Secondly, social interaction is important for brain health. Isolation can lead to depression and inactivity, both factors which can induce dementia.

Thirdly, the research indicates that physical, mental and emotional aspects of life are controlled by different areas of the brain.

### **First of all, let's look at what the brain does –**

The human brain is hugely interconnected but three major components can be identified: the cerebrum, the cerebellum and the brain stem.

The **cerebrum** [Slide 2] is associated with higher brain function such as thought and action. It has two hemispheres ('left' and 'right' brain) and four lobes [Slide 3]

The Frontal lobe is associated with reasoning, planning, parts of speech, movement, emotions and problem solving.

The Parietal lobe is associated with movement, orientation, recognition, and perception of stimuli.

The Occipital Lobe is associated with visual processing.

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<sup>2</sup> [www.florey.edu.au](http://www.florey.edu.au)

The Temporal lobe is associated with perception and recognition of auditory stimuli, memory and speech.

**[Slide 4]** Then there's the ***cerebellum*** or "little brain", similar to the cerebrum in that it has two hemispheres and is associated with regulation and co-ordination of movement, posture and balance. It connects with the ***brain stem*** which is responsible for basic vital life functions such as breathing, heartbeat and blood pressure.

The real work of your brain goes on in individual cells. An adult brain contains about 100 billion [nerve cells](#), or neurons, with [branches](#) that connect at more than 100 trillion points. Scientists call this dense, branching network a "neuron forest." [Signals traveling through the neuron forest](#) form the basis of memories, thoughts, and feelings.

Brain cells deteriorate from about the age of 30. Getting older can adversely affect our cognitive processes, as brain cells deteriorate and die off. But do not despair - there is growing evidence that lifestyle can affect your brain health, and it is possible to renew and invigorate the brain cells to retain and maintain a healthy brain.

Because your brain is nourished by a rich network of blood vessels, its health is closely tied to the overall health of your heart and circulatory system. Therefore it is important to eat wisely and remain physically active.

In diet, leafy green veggies, legumes (peas and beans), nuts, oranges, etc are good sources of vitamin B and folic acid ; anti-oxidants ( in tea, chocolate, berry fruits, even red wine); and oily fish (rich in Omega 3) are all foods that inhibit brain decay.

Physical exercise helps to maintain good blood flow to the brain, which is essential to brain health but also alters brain chemicals that help to protect the brain.

There is also a strong connection between the brain and the mind, call it 'cognition'. It has been found that mentally stimulating activities strengthen brain cells and the connections between them, and may even create new nerve cells. Thus, regular stimulation of the mind can slow the decline in brain aging and even increase brain function.

What this means in simplistic terms is that we need to ensure that all parts of the brain get good blood flow and regular stimulation, through physical and mental activities.

And that's where U3A comes in. Obviously, our classes, discussions and regular socialisation are all important activities which can contribute to our mental stimulation. But we also need some fun and relaxation. The main purpose of "Brain Games" is to do fun things that stimulate your mental abilities.

**[Slide 5]** Diversity is important to provide exercise for different parts of the brain. The activities aim to promote memory, problem solving, research and presentation

skills, and creativity. Some activities are based on these criteria but here is also a good deal of cross-referencing. *[Incidentally, according to other research, powerpoint slide dot points apparently stifle the brain- sorry.]*

For example – Memory.

Trivia quizzes – over a lifetime we gather lots of information, but why do we remember some things and not others? How come we remember the words to *Skippy The Bush Kangaroo* rather than the periodic tables or how to do algebra? Trivia quizzes involve memory of past information, but often also involve cross-referencing of recalled information with the application of reasoning to bring disparate pieces of information together or to eliminate other information in order to find the answer to a question.

Ready for some trivia questions?

1. What town in New South Wales has the same name as a novel by Sir Walter Scott? *[Ivanhoe – links geography and literature]*
2. What creature appears on the Australian 10c coin and also in the window of the \$100 note? *[Lyrebird – everyday use]*
3. Who wrote the music of An American in Paris ? *[George Gershwin]*. And for extra points who played the role on film? *[Gene Kelly - sometimes we give 'extra points' even though no-one actually counts them]*
4. With different pronunciation, what word can mean both a point of entry and to enchant? *[Entrance]*
5. What four countries share a border with Thailand? *[Malaysia, Myanmar (Burma), Cambodia and Laos – geography]*
6. How many species did Moses take onto the Ark? *[None – it was Noah, not Moses. Were you listening carefully?]*

Memorising detail. Have you ever gone shopping and forgotten your shopping list and have to try to remember what it was you wanted to buy? A tour of a supermarket can help, but sometimes it is difficult to recall everything. So include a memory test: it might be to memorise a list of words, or a group of pictures or objects, or the detail of a poster or the finer details of a short story.

**[Slides 6]** Look at the following slide, and then – and only then - when I remove the slide write down what you can remember – any words, not necessarily as lists. Show **Slide 7** (blank) while your audience writes down what they recall from Slide 6. Allow a couple of minutes thinking time before you ask the audience to stop writing. Then show **Slide 8** for the answers..

When you look at your list and compare with the slides, you will recognise that there are several triggers for memory.

- You remember things that involve you
- You remember things that are unusual

- You remember things when they're connected
- You remember things that you can see
- You remember things that interest you.

In this test, without memory techniques, most people remember the same words, the most popular being: ball, kite, Alsatian, hill, poltergeist, poodle, Pekinese, wrench, meat, car and fence. [*How many got those words? Who got more words?*]

You're more likely to remember words from the start of the list, when your mind was fresh and particularly receptive – this is known as the 'primacy effect'.

There's also a good chance that you'll remember the words at the end – wrench, meat, car fence, because they're the words you saw most recently and there was little information to come afterward and cause confusion. This is called 'the recency effect.'

The word 'poltergeist' stands out because it is unusual, especially among everyday words. The other words that most people remember are connected – the three breeds of dog – Alsatian, poodle and Pekingese.

Now let's try a cognitive test. [*Not written, ask for volunteers – only one volunteer per question*]:

1. What do you put in a toaster? [*Bread, not toast*]
2. Say 'silk' five times. Now spell 'silk'. What do cows drink? [*No, not milk - Water*]
3. If a red house is made from red bricks and a blue house is made from blue bricks and a pink house is made from pink bricks, what is a green house made of? [*glass or plastic*]
4. During the Cold War, an aeroplane flying over Germany crashed on an area of 'no-man's-land' between East Germany and West Germany (as it then was). Where would the survivors be buried – in West Germany, East Germany or No Man's Land? [*You don't bury survivors*]
5. You are driving a bus from Stanwell Park to Wollongong. At Stanwell Park, 6 people get on the bus; at Coledale, 3 people get off and 5 get on; at Austinmer, another 4 get on; at Thirroul 11 people get off and 12 people get on; at Woonona 2 get off and 4 get on; at Corrimal 7 get off and 4 get on; at Fairy Meadow 2 get off and 5 get on. You then arrive at Wollongong. What was the name of the bus driver? [*'You' are driving the bus – ie 'your own name'*].

Before I move on, just a few more points to make about cognitive change.

There are other factors at work in the way an individual mind processes information and learns. Some of these involve:

- Hemispheric Dominance – **[Slide 9]** The brain has two distinct sides or hemispheres, the 'Left Brain' and the 'Right Brain' each responsible for different things **[Slide 10]**. It might also determine whether you are left-handed or right-handed or even ambidextrous.

In each individual, the 'left brain' OR the 'right brain' is usually dominant ( though not usually exclusively) and you can learn to use both sides of the brain more productively.

- Perception - illustrated by optical illusions. **[ Slide 11]** For example, look at this picture. What do you see? *[An old woman or a young woman? Can you see both?]* Perception clouds' our view of a situation, and we may sometimes need to change our perception in order to find a solution to a problem.

Now let's try a 'rebus' puzzle – where a picture represents a word or phrase **[Slide 12]** Ask participants to work out the phrase or word, then go through the answers on **Slide 13**.

*Creativity* – we also try to encourage creativity with cross referencing: some examples include

- Storytelling, using the objects or pictures previously used in a memory test, each participant is given one object or picture then in turn we develop a story incorporating the object or picture.
- A story in 12 words or less – example–

*A narrow winding lane over curved-arch bridge. Cycling too fast. Splash!*

- Having read and discussed a story from a U3A collection about the use of newspaper in years gone by, members of the group produced an exhibition of examples including flowers in a vase, a string of paper dolls, a paper aeroplane, a block with a nail and a string of paper for the outdoor toilet, a decorated gift box, and even potato chips wrapped in paper.

*Treasure hunt* is an exercise where each member researches and prepares a short talk to be delivered at the next Brain Games session.. This encourages skills in the use of the internet and in making presentations in a comfortable environment.

So you see, sometimes there is homework involved, and it's not all about doing puzzles.

To sum up, a Brain Games session will include a range of activities to stimulate different areas of the brain. These activities might include **[Slide 14]**

- Trivia quizzes
- Word games and picture puzzles



- Logic puzzles and lateral thinking
- Memory training exercises
- Spatial recognition
- Creativity
- Homework – eg treasure hunts (research activities)
- Active participation and of course a lot of laughter

So why not start up a Brain Games group, where the brain is exercised in a friendly social atmosphere with lots of laughter?

**Slide 15 – Conclusion**

**Slide 16 - Acknowledgements.**

**SLIDES ACCOMPANYING INTRODUCTORY OUTLINE**

## Maintain Your Brain



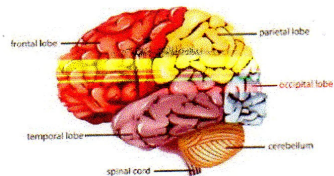
1



- The **cerebrum** fills up most of your skull. It is involved in remembering, problem solving, reasoning, planning, and feeling. It also controls movement.

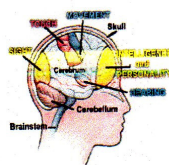
2

## Lobes of the cerebrum



3

The **cerebellum** sits at the back of your head under the cerebrum. It controls co-ordination and balance.



The **brain stem** sits beneath your cerebrum in front of your cerebellum. It connects the brain to the spinal cord and controls vital life functions such as breathing, digestion, heart rate and blood pressure.

4

## Brain Games activities

aim to promote

- Memory
- Problem solving
- Lateral thinking
- Creativity
- Research and presentation skills
- Cross-referencing

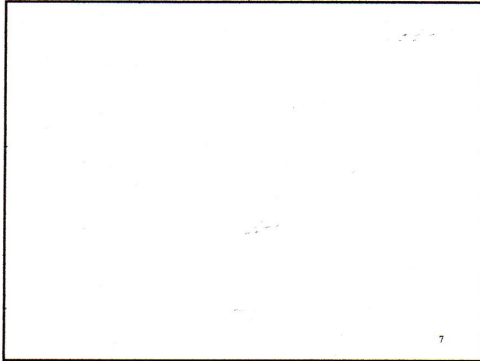
5

## Memory Test

ball	paper	coat
kite	light	knife
Alsatian	egg	label
hill	film	sun
poltergeist	needle	wrench
poodle	Pekingese	meat
head	take	car
switch	plum	fence

6








7

### Memory Test

ball	paper	coat
kite	light	knife
Alsatian	egg	label
hill	film	sun
poltergeist	needle	wrench
poodle	Pekingese	meat
head	take	car
switch	plum	fence

8

### Hemispheric Dominance

- The brain has two distinct sides or hemispheres, the 'Left Brain' and the 'Right Brain' each responsible for different things.
- In each individual, the 'left brain' OR the right brain is usually dominant ( though not exclusive) and you can learn to use both sides of the brain more productively.



9

#### Logical

- Binder
- Disintegrant
- Flow-aid
- Self-lubricant
- Proven
- Reliable
- Quality

#### Creative

- Innovative
- Problem-solving
- Versatile
- Consistent
- Simplifying
- Cost-lowering
- Time-saving

10



11

### Word games and picture puzzles

VA DERS	R/E/A/D/I/N/G	KNEE LIGHT
ECHALG	Sympho	O Ph.D M.A LL.B

### How did you go?

- Space Invaders
- Reading between the lines
- Neon Light
- Backward glance
- Unfinished symphony
- 3 degrees below zero

13

### Summary of Brain Games activities

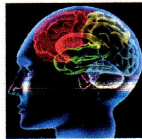
- Trivia quizzes
- Word puzzles eg Target, crosswords
- Logic and Lateral thinking puzzles
- Memory games
- Spatial recognition
- Creative ideas
- Research and presentation
- Things just for fun

14

### Brain Games

The human mind originates in the brain, resulting in emotion, perception, memory, thought, imagination and a sense of self.

Our Brain Games sessions aim to stimulate all areas of the brain.



**Imagination takes you everywhere**

15

### Acknowledgements

- Alzheimers Association
- Howard Florey Institute
- 50 Something, 'Use it or Lose it', March 2007
- Jonathan Hancock, *Memory Power* (1997)
- M.Noir and B Croissile, *Dental Floss for the Mind* (2005)
- M Powell, *Brain Boosting* (2014)
- Left Brain – Right Brain diagram - [www.pharmaceutical-technology.com](http://www.pharmaceutical-technology.com)
- Other diagrams sourced via Wikipedia

16

## **TIPS FOR COURSE CO-ORDINATORS AND CLASS LEADERS**

Brain Games classes work best in small groups of between 12 and 20 people sitting around a large table. This size of the group encourages participation and social interaction. Participants are asked to bring their own notebooks or paper and pens, but it would be prudent for you to have some spare stocks of paper and pencil, especially if newcomers are not yet familiar with the program.

It will be helpful if you have access to a whiteboard. You may need to provide other materials according to the program's needs, including whiteboard markers, and other items listed under each activity where necessary.

The duration of the session will depend on your group's access to a suitable venue, but it has been found that 1 ½ hours is most suitable. During this time, engage the group in a range of activities which vary the pace and the brain function.

Prepare the program in advance: an example program is produced on the following page. Pre-test the puzzles that you intend to use, to ensure that the average person can do them and that you are able to explain the reasoning behind the solutions if necessary. As a guide, schedule each segment of the session for about 15 minutes (more or less) each. Have some 'spare' puzzles handy in case the group completes the session more quickly than anticipated, but equally, do not be concerned if time is insufficient to complete the scheduled program.

After welcoming the participants, a good starting point is a Trivia Quiz – up to 20 questions – which calls on both memory and cross-referencing reasoning to find an answer. The quiz is non-competitive, participants are not asked to reveal their score, but each participant will usually learn something new from the game. As part of the process of involving everyone in the group, call for a volunteer prepare the trivia quiz for the next time.

The following activities might be chosen to follow the trivia quiz:

- Word games
- Maths puzzles
- Picture puzzles
- Memory training exercises
- Logic puzzles and lateral thinking
- Communication games
- Spatial recognition
- Creativity – storytelling, imagination, drawing
- Research and presentation activities.

Suggestions for these activities are set out later in this booklet, together with ideas for locating resources, such as internet sites (search for the type of puzzle you are looking for - several sites will pop up), newspaper and magazine puzzle pages, and puzzle books. Kids' puzzle books can be fun. Inexpensive sources of many items

include OpShops and \$5 bookshops. Group participants may also have suggestions for activities.

Accessing puzzles may occasionally incur a cost such as photocopying or printing downloads. Participants may be asked to contribute a term fee to cover these costs. If photocopying puzzles from books or magazines, or downloading from the internet, make only enough copies for your group, and only if your U3A holds a copyright (CAL) licence. (Your U3A secretary or treasurer will be able to confirm if it does).

Remember that 'Brain Games' is not a test of intellectual ability nor is it intended to be competitive. Each of us learns and thinks in different ways, and doesn't necessarily have the same capacity or process to solve each type of puzzle. Therefore it is important to maintain a light-hearted approach to the program that you devise, providing variety and flexibility so that each participant engages in the program because they enjoy it. Encourage good-natured banter, and participants' self-confidence.

### **BRAIN GAMES - a sample program**

For descriptions of the activities refer to the next section

**Introduction** – welcome members of the group and establish a friendly environment.

Encourage verbal participation and laughter as much as possible throughout the session.

**Trivia Quiz** (presented by a member of the group)

**Letters and numbers games** ( 2 of each version)

**Logic Puzzle**

**On this day ...** (presented by a member of the group)

**Storytelling** with picture cards

**Target Word**

**Next session** – remind the group of the date, and assign the Trivia Quiz and On This Day segment to volunteer members of the group.

## SUGGESTED ACTIVITIES AND RESOURCES

### TRIVIA QUIZZES

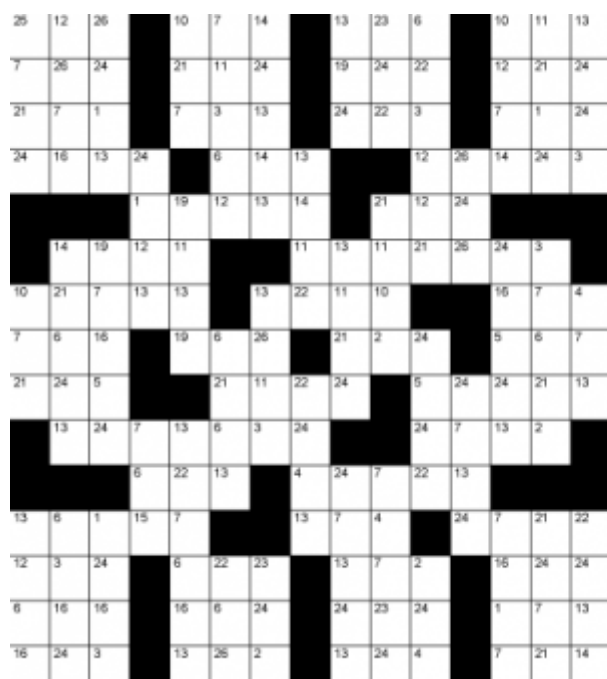
A good start for a brain games program. Invite participants to volunteer in advance to prepare the quiz, of about 20 questions. The questions are delivered in sequence, before the answers are provided. There is no 'winner', participants just know the answers or learn new things.

### WORD GAMES

**Crosswords**, both straight and cryptic, where clues are provided, are popular in their own right. Crosswords of all types rely on a good vocabulary and a degree of 'instinct' and reasoning. Participants familiar with the techniques of cryptic crosswords can be asked to pair with those who are not, to assist them to learn how to do them.

Prepare sufficient copies of the crossword for the group and allow up to 30 minutes to complete the activity.

**Clueless puzzles** code (known as 'Code Words' or 'Code Crackers') are based on a letter or number with two or three letters filled in to get started. An example:



Solution Grid:

1	2	3	4	5	6	7
8	9	10	11	12	13	14
N/A	N/A					
15	16	17	18	19	20	21
		N/A	N/A		N/A	
22	23	24	25	26		

Giveaways:

#24 = E

#14 = T

#3 = D

A B C D E F G  
H I J K L M N  
O P Q R S T U  
V W X Y Z



An alternative is a grid with a list of words separately provided, and one word filled in to get started.

**Target Word** is a set (usually as a cube or a circle ) of nine letters. The aim of the game is to form as many words of four letters or more (excluding plurals ending with 's' and proper nouns).The middle letter must appear in each word. Each letter may only be used once, and there is always a nine-letter word to be found. The letters can be written on a whiteboard (as a cube) or read out to the group, citing the middle letter.

These puzzles often set goals of 'good', 'very good' or 'excellent'.

Example: E R T R **V** O A N O - 12 words 'good', 18 words 'very good', 24+ words 'excellent'. [*Answer – the nine letter word is Renovator*]

When time is up, check to see who has the most words and ask them to tell the group what they are. Then ask for other words which have been found. When the group shares its results the total achieved often exceeds the 'excellent' goal.

### **Alphabet soup or 'Categories'.**

The aim of the game is for participants to think of an object or person or fact beginning with a specific letter, that none of the other members of the group have thought of.

The categories may have the same letter, or different letters as in the following examples:

- An animal starting with A
- The capital of a country or a state in a federation starting with B
- A flower starting with C
- Surname of a novelist starting with G
- A country or a state within a federation starting with K
- A NSW place name outside of Sydney starting with L
- An island starting with M
- A bird starting with P
- Surname of an actor starting with R
- A vegetable or fruit starting with S

The group leader announces the category and after a minute's thinking time asks each group member in turn to announce their answer. A point is scored by whoever thinks of an answer no-one else does.

### **MATHS PUZZLES**

Make sufficient copies of the puzzles for the group.

**Calculations** of weight, numbers, height, percentages etc which require application of simple addition, subtraction, multiplication and division , simple algebraic equations and a knowledge of geometric shapes are usually sufficient for these puzzles, such as might be found in a junior student maths book.

Some examples

1. Bella spent the day picking strawberries. At the end of the day she had a basket full. She ate 5, then gave Jason half of the remainder. She then ate another three, and gave Steven one-third of those remaining. She then ate another 6 and gave David  $\frac{2}{3}$  of those remaining. She then had 34 strawberries left in the basket. How many had she started with? *[Answer 335]*

2. Replace the asterisks in the following sequence by the correct mathematical signs to make the answer = 99:  $16 * 12 * 2 * 3 = 99$  *[ Answer –  $16 \times 12 \div 2 + 3 = 99$  ]*

3. A dying sheikh summoned his sons in turn. To his eldest son he bequeathed half of his camels, his middle son received  $\frac{1}{3}$  of his camels, and his youngest son  $\frac{1}{9}$  of his camels. A servant was sent to count the camels. There were 17. Everyone scratched their heads since there was no way the camels could be decided in accordance with the sheikh's wishes without chopping one of them up. So the sheikh sent for a mathematician for help. He turned up on his own clapped out camel and immediately proposed a solution. What did he do?

*[Answer - He brought his own camel into the calculations, then calculated  $\frac{1}{2} + \frac{1}{3} + \frac{1}{9} = \frac{9}{18} + \frac{6}{18} + \frac{2}{18} = \frac{17}{18}$ ]*

4. A castle is surrounded by a moat that is 4 metres wide with a 90 degree turn. The drawbridge is up. You have two planks, each of which is 3.9 metres long. How can you cross the moat immediately using just the planks laid flat?

*[Answer: draw both banks of the right-angled corner of the moat. Place one plank across the outer corner of the moat (thus forming a triangle), then place the other plank from that plank (being the hypotenuse of the triangle) across to the inner corner of the moat.]*

**Arithmetical crosswords and geometrical puzzles** can also be downloaded from the internet.

**Sudoku** is a maths puzzle played on a grid of 9 x 9 boxes, each with nine internal squares, as illustrated. Some numbers are already filled in. Each box as well as each row and each column must contain the numbers 1 to 9.

4	3	5	2	6	9	7	8	1
6	8	2	5	7	1	4	9	3
1	9	7	8	3	4	5	6	2
8	2	6	1	9	5	3	4	7
3	7	4	6	8	2	9	1	5
9	5	1	7	4	3	6	2	8
5	1	9	3	2	6	8	7	4
2	4	8	9	5	7	1	3	6
7	6	3	4	1	8	2	5	9

11x	2+	3x	4x	5x	6x
5	6	3	4	1	2
6	1	4	5	2	3
4	5	2	3	6	1
3	4	1	2	5	6
2	3	6	1	4	5
1	2	5	6	3	4

**Kenken** is another mathematical game based on placing numbers in 'cages' within a larger grid, as illustrated.

Participants familiar with the techniques of these puzzles can be asked to pair with those who are not, to assist them to learn how to do them. At least 30 minutes should be allocated to these puzzles.

**Adaption of the 'Letters and Numbers' game** presented on SBS TV provides a combination of word and mathematical puzzles.

Materials required - Scrabble tiles, a pack of playing cards.

For the **Letters** segment, divide the scrabble tiles into consonants and vowels. Participants request nine letters, with a minimum of three consonants and three vowels, then endeavour to make the largest word they can from the nine available tiles. Each tile may be used only once.

For the **Numbers** segment, use a pack of playing cards, removing the aces and jokers. Place the picture cards and the 10 of each suit in one pack. Allocate a 'high' number as follows: Kings – 100, Queens – 75, Jacks - 50, 10s – 25.

Place the remaining cards in a second pack. Cards in this pack have their single face value.

Participants request 9 cards, with a minimum of three 'high' cards and three 'single' cards. These are displayed and their values noted by the participants. The dealer then takes three cards from the 'singles' pack and displays them as a composite number, eg '735'.

Participants then apply their mathematical skills (Multiplication, division, addition, subtraction) to the 9 numbers so as to produce the target number, or as near to it as they can. Each number may only be used once.

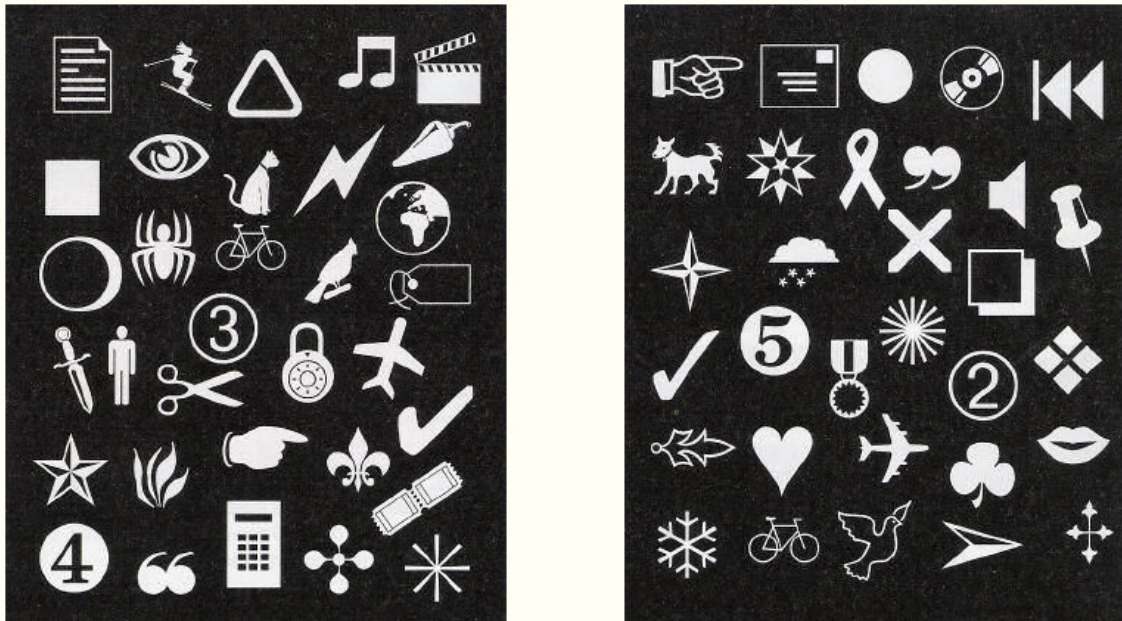
## PICTURE PUZZLES

Examples and problem sheets can be downloaded free of charge from websites if you search for 'rebus puzzles' or 'picture puzzles'. Prepare sufficient copies for the group.

A '**Rebus**' is a picture representation of a name, work, or phrase. Each "rebus" puzzle box below portrays a common word or phrase, for example as in Slide 12 at p. 12 of this book.

## Find the hidden object

Make sufficient copies of the puzzle for the group. Example: what is the only item which appears in both of the following collages?



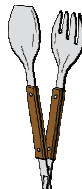
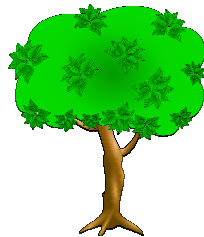
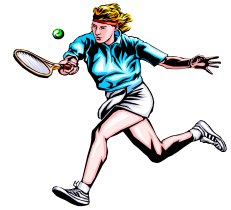
*[Answer – the bicycle]*

## MEMORY TRAINING EXERCISES

**Words** – see Slides Nos 6 to 8 at pp. 11-12.

**Pictures** - Prepare a set of cards, each with a blank face and a picture of an object (or you can use actual small objects as a variation). Prepare up to 40 cards for this exercise, to allow for future variations of the exercise, as well as for other activities described under 'Creativity'.

Allow participants 3 minutes to memorise the pictures, but without them writing anything down. 15 minutes later (after a different intervening exercise) ask them a series of questions about the pictures or objects, such as – how many pictures/objects / how many start with a particular letter/ how many relate to a group eg animals or vehicles/ how many were of a particular colour.



**Draw an object from memory.** Find a picture of a common but detailed object, such as a bicycle. Do not show it to the group but ask them to make a drawing of such an object. Compare participants' results with a picture of that object. Is it accurate (e.g, as a bicycle, will it work? )

**Listening** - Read out a short story or book chapter, without allowing participants to write anything down, then ask a series of questions about the characters or events in the story.

**Observation** – ask a person not known to the group to come to the doorway and ask a question. The person might have some distinguishing features. After the person leaves, and after a short period of time (perhaps doing some other game in the interim), ask the members of the group to describe the person who visited.

## LOGIC PUZZLES AND LATERAL THINKING

**Logic puzzles** present a format which outlines a scenario and the object of the puzzle. Clues are given to help solve the puzzle, by applying known information and partly by a process of elimination. A grid and a table format are often provided for assistance in working on the solution.

Logic puzzles of this type are regularly included in the *Women's Weekly* Annual Puzzle Books, in dedicated puzzle books, and are also available on the internet. Some puzzles are more difficult than others. As previously recommended, it is advisable to attempt the puzzle yourself before giving to the group, so that you are able to explain the reasoning if called upon to do so. Prepare sufficient copies for the group.

An example. In Duff Row there are seven prison cells in line. These are numbered 1 - 7 from left to right, exactly six being occupied. The vacant cell awaits the arrival of Cornflake Colin, the serial killer whose victims are force-fed cornflakes until they flake out. In the occupied cells, Poisonous Pat was next to Harry the Hatchet, Gruesome Gertie was next to Slasher Sam who was two to the right of Desperate Deborah. Harry the Hatchet was three away from Vicious Vic. Desperate Deborah was two away from Poisonous Pat. Who will be Cornflake Colin's two neighbours?

Cell No	1	2	3	4	5	6	7
Occupant							

*[Answer; the occupants of each cell in order from 1-7 are Vicious Vic, Cornflake Colin, Poisonous Pat, Harry the Hatchet, Desperate Deborah, Gruesome Gertie and Slasher Sam.]*

**Other Lateral thinking puzzles** require a more focussed problem solving technique. For example, the 'cognitive test' questions on p. 8-9 of this book and the following:

How much dirt is in a round hole that is 7 feet deep with a diameter of 4.5 feet?

*[Answer None - the hole is made by digging dirt out, so... the hole is empty.]*

A cat jumped out the window of a 30 storey apartment building and lived. How?

*[Answer – it jumped out the ground floor window.]*

Sometimes they are expressed as a dilemma or ethical problem, usually theoretical, for example, the Good Samaritan:

You are driving down the road in your car on a wild stormy night. When you pass by a bus stop, you see three people waiting for the bus. One is an old lady who looks as if she is about to die. The second is an old friend who once saved your life. The third is the perfect partner of your dreams. You can only fit one passenger in your car. Who should you choose?

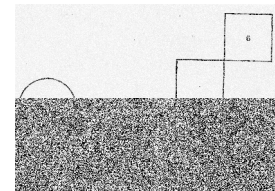
*Suggested answer – Choose the old lady. Then ask your friend to drive her to the hospital. You then get to wait at the bus stop with your perfect partner.*

## COMMUNICATION GAMES

**Draw what you hear** – Use the picture cards prepared for the memory game at p.20.

Distribute the picture cards face down, one to each participant. In turn, participants describe the object to the group without mentioning its name (eg as if it is the first time they have seen it as if a green man from Mars), other participants then have to guess what the object depicted is.

Prepare a diagram such as the one on the right. Ask one of the participants to describe it to the group, who endeavour to follow the description to reproduce the drawing. Then compare the results to the original for accuracy of both sender and receiver.



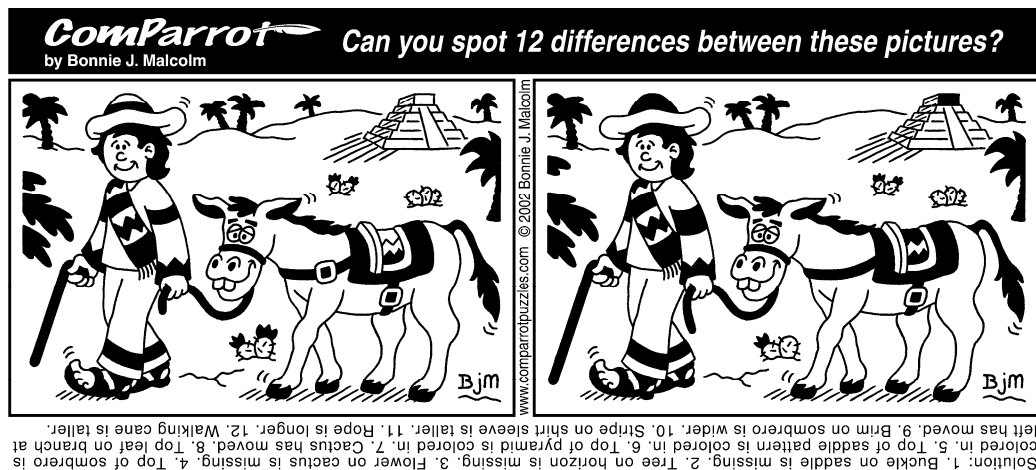
**Chinese Whispers.** Whisper a message to the participant on your left. Each in turn passes the message around the table by whispering to the next person until the last player announces the message to the entire group. Errors typically accumulate in the retellings, so the statement announced by the last person differs, often amusingly, from the one originally uttered. An apocryphal example from a war was the message *Send reinforcements, we're going to advance*, ultimately rendered as *Send three and fourpence, we're going to a dance*.

The message needs to be reasonably long and convey a list of requirements such as

*I'd like a birthday cake with pink icing and the words Happy Birthday Jacqueline in darker pink and seven pink roses and scalloped edging in white.*

## SPATIAL RECOGNITION

**Spot the difference puzzles** place two apparently identical pictures or drawings adjacent to each other, but contain several difference by omission, addition or change of location. **Shape matching and differential recognition** also require close observation. These visual puzzles can be found in puzzle books and on the internet.



**Jigsaw puzzles** also require close observation. For class purposes these should be fairly small, say 75 – 100 pieces, with participants working in pairs to complete the puzzle in the time available. Some members of the class might be able to borrow these from grandchildren, others may be found in OpShops. Jigsaw puzzle templates can be downloaded from the internet so participants can make their own jigsaws. This activity could take between 30-45 minutes.

**CREATIVITY** – *Imagination is more important than knowledge* – Albert Einstein

### Storytelling

Using the picture cards prepared earlier for the memory game at p.20. each participant initially takes a card blank side up, but is then allowed to look at the object depicted on it. The class leader introduces a story with a character and an opening sentence. The story proceeds around the table with each participant providing the next part of the story, which must include the object which appears on their card, until the last participant has finished.

**Write a story** in 12 words or less – examples

*A narrow winding lane over curved-arch bridge. Cycling too fast. Splash!*

*"Where are the BBQ sausages?" asked Paul. The dog belched.*

A variation on this theme is to make up a poem or a sentence of at least 8 words, where each word starts with a consecutive letter of the alphabet.

Example - *Cold days ever fresh, golden haze in July – Katoomba*

A real challenge would be to go through the whole alphabet.

### One minute responses.

Prepare a set of cards or slips of paper upon which is written a topic, one for each participant. Some topics can be repeated as participants will have different ideas about how to respond. Group members take turns to speak, for one minute.



Some examples:

- If you could travel on a time-machine where would you go and why?
- If you could talk to any person now (or not) living, who would it be and why?
- If you could choose a period of history in which to be born, when and in which country would it be?
- If you were to go forward 50 years what changes would you expect to see?
- What is your favourite animal, and why?
- My favourite film/ book/ cake/ place etc
- Tell a joke

**Alternative Uses:** Participants have two minutes to think of as many uses as possible for an everyday object like a chair, a paper clip, a coffee mug, a brick. Ideally, this exercise will encourage originality and flexibility in thinking.

**Making things** –Recent Northern Illawarra Brain Games group activities have included drawing native animals (based on a concept of connecting circles), decorating styrofoam eggs, making objects from newspaper (later presented as a display to a wider U3A audience), and making (and flying) paper planes from templates.

The Subway Graffiti Sketchbook provided participants with 50 railway carriages to learn the finer points of street art. It may sound like kid stuff, but it is playful and stirs the creative juices.



If you are unable to obtain the Subway Graffiti Sketch Book, participants could draw their own railway carriages to graffiti. They will need cartridge paper and coloured pens. The result can be linked to form a train for display.

**RESEARCH AND PRESENTATION ACTIVITIES.**

**On this day...** Participants volunteer (in advance, as with the Trivia Quiz) to research and report upon historical events, birthdays of famous people, etc which occurred on the day on which the groups is meeting. Often the research turns up whimsical and amusing facts, eg 24<sup>th</sup> May as the former Empire Day might lead to reminiscence of how that day was celebrated in the childhood days of the participants; 14<sup>th</sup> June turns out to be US 'Pop Goes the Weasel Day', leading to a discussion on what the children's song meant, and a singalong of the song.

**Treasure hunt.** Participants are given an envelope containing a topic to research as 'homework' and to make a short (5-10 minute presentation to the class at a later date.

Select topics which will engage both the researcher and the listeners.

Examples of topics researched at Northern Illawarra U3A include The Mississippi River; The International Space Station; the Tiwi Islands; the Overland Telegraph; the Mahogany Ship; the origin of the Australian Coat of Arms, flag and National Anthem; Young Australians of the Year; a list of well-known people to identify common interests (sportspeople who became Members of Parliament, as it happened); Albert Namatjira; Australian Nobel Prize winners; Billy Hughes and the Versailles Peace Conference 1918; Vegemite.

These presentations have given some members more self-confidence in 'public speaking' as it is nurtured in a safe environment, where the audience is appreciative, and the presentation is not 'assessed' as it might be, say, in Toastmasters. Several members have subsequently participated in 10 minute talks (with powerpoint illustrations) in a 'showcase' presentation of their research to a wider audience at U3A.

A variation of the 'showcase' activity has been to expand the research into the lives of famous (past) people to create a presentation based upon 'interviews', in which the researcher becomes the interviewee in the persona of that person. Presented to a larger audience in a 'chat show' format, with the co-ordinator as the 'anchor', there have been impressive 'interviews' with such luminaries as Beethoven (complete with ear trumpet), Captain James Cook, Isadora Duncan, Mark Twain, Charles Dickens, Carl Jung and Little Red Riding Hood (an avowed feminist it seems).

***Celebrate a national day or other anniversary or festival – encourage activities to reflect this, including dressing up.***

### **Six Thinking Hats**

*Six Thinking Hats* (described further on p, 30) is a system designed by [Edward de Bono](#) which describes a tool for group discussion and individual thinking involving six coloured hats. Originally developed for industry, it provides for joint and individual thinking to solve problems or to design new programs, so can be utilised in a Brain Games class. For example, to design a model U3A facility, an environmental

protection board game, a futuristic theme park, or a new species of animal. This activity will probably take a whole session, and participants will need large sheets of paper and coloured pens'

## **JUST FOR FUN**

The following games have been adapted from popular television programs.

### **Celebrity heads**

Prepare a list of well-known 'couples' both fictional and real, eg Fred Astaire and Ginger Rogers; Jack and Jill; Snugglepote and Cuddlepote; William and Kate; etc

Taking turns, two members of the group who will work as a pair to ascertain the names of the 'couple' sit facing the rest of the group. The audience is shown the names of the couple, the pair may then ask questions to try to ascertain the names of the couple, eg their gender/whether fictional or real/Australian or otherwise/their context/etc. Audience can respond with 'yes' or 'no', or maybe 'close', until the pair identify the couple. Then another pair takes the chair and the game continues.

### **Rockquiz**

These activities are based on aspects of the SBS television program, Rockquiz. The co-ordinator will need search the internet for information to devise the questions and their answers. Examples are:

Name the US State referred to in a song:

eg *Deep in the heart of .. (Texas); Hotel... (California); The Black Hills of... (Dakota);*

A song about farmers and cowmen (*Oklahoma*) and so on.

Or a Trivia Quiz where well-known singers have changed their names (eg Robert Zimmerman – Bob Dylan).

Singalong - The leader recites the opening words of a song and the group responds by singing the opening verse of the song. Examples include –

*There was a one-eyed one-horned ..... (flying purple people eater)*

*Somewhere over ..... (the rainbow)*

*When I was just a little girl ....(I asked my mother etc)*

*We all live in a .....(yellow submarine)*

*Some people say a man's made out of mud ...*

Singing with others is also a well-documented way of releasing feel-good endorphins and a sense of belonging, in a friendly social environment.

**Poetry** –the leader recites the first line of a nursery rhyme or a well known poem, and invites the group to recite as much as they recall. Examples include:

*I wandered lonely as a cloud ('Daffodils' by William Wordsworth)*

*Mary, Mary, Quite Contrary*

*There was movement at the station, for  
the word had passed around ('The Man  
From Snowy River' By A.B. "Banjo"  
Paterson)*

*I love a sunburnt country, (From 'My Country' by Dorothea McKellar)*

*I must go down to the sea again, to the lonely sea and the sky ('Sea Fever' by John  
Masefield )*

# MENTAL EXERCISE AND DEMENTIA

**This sheet outlines the part that mentally stimulating activity can play in a healthy lifestyle and its potential to reduce the risk of dementia, and to benefit people with dementia.**

## **Can mentally stimulating activity reduce the risk of developing dementia? Can mental activity help people with dementia?**

Exercising the brain is an important, enjoyable part of everyday life for everyone. It has a part to play in a positive, healthy lifestyle in the same way as physical exercise. Stimulating leisure and social activities are also thought to be important in maintaining a healthy brain.

In recent years there has been considerable interest in researching the role that mental exercise may play in reducing the risk of developing dementia and the benefits it offers to people with dementia.

## **What role does mental exercise play in reducing the risk of dementia?**

Keeping the brain active is thought to build reserves of healthy brain cells and connections between them. The role that exercising the brain may play in reducing the risk of developing Alzheimer's disease and other forms of dementia has therefore been the subject of considerable research.

Numerous studies have shown that engaging in more mentally stimulating activities throughout life is associated with better cognitive function, reduced cognitive decline and a reduced risk of developing dementia. Studies of large groups of people have shown that those who achieve higher levels of education, have more mentally demanding occupations, or participate in higher numbers of mentally stimulating leisure activities have around a 50% lower risk of developing dementia.

Activity that exercises the brain may build brain reserve that helps to compensate for the damage caused by Alzheimer's or other diseases. Because the brain is able to compensate and keep functioning well, the onset of dementia may be delayed.

## **What brain exercises?**

Mental exercise can and should be a very enjoyable part of life. Almost any type of mental activity may be beneficial, but they should involve new learning and be reasonably complex, varied and interesting, and engaged in frequently.

Some activities that involve exercise for the brain, and have also been associated with reduced dementia risk as part of a mentally active lifestyle, are:

- Reading
- Listening to the radio
- Visiting museums
- Taking a course
- Learning a new language
- Playing musical instruments
- Artistic and other hobbies
- Participation in leisure activities such as sports, hobbies, dancing, gardening, groups, cultural activities and conversation
- Board games
- Crosswords
- Sudoku and other puzzles

Many of these activities involve social interaction and physical activity as well. Recent research suggests that combining mental, social and physical components in leisure activities offers the greatest benefit in terms of reducing dementia risk.

Commercial brain training games and computer programs have as yet not been shown to reduce the risk of dementia.

While exercising the brain has not been proven to prevent dementia, it may reduce the risk or delay the onset of dementia, and the general health benefits of these activities are well established.

This help sheet is funded by the Australian Government under the National Dementia Support Program



## Keeping The Marbles Rolling™

By Peter Beale

*Keeping the Marbles Rolling (KTMR) is a brain fitness program devised by Peter Beale of Eastlakes U3A. Peter has generously made the program available for use by U3As. The only condition is that U3As must sign an agreement that it will be used solely for the U3A to which it is provided and not for any other purpose.*

Keeping your brain active is one of the ways by which you can maintain your quality of life. There are many other factors, but a fit mind is an important one. Keeping The Marbles Rolling (KTMR) program is designed to keep some of the functions of your mind in trim in the same way as you take physical exercise to keep your body in trim.

Our brain controls many aspects of what we do and feel including our emotions and our physical actions. Here we are concerned with those mental functions that allow us to receive information, analyse it, store it, and act upon it. The main functions helping us to do this are: verbal, numerical and spatial abilities; logic, or reasoning; and short and long term memory. We use these functions to a greater or lesser degree in the normal course of our lives. Keeping The Marbles Rolling aims to help you exercise these six functions systematically and regularly. Creativity is another very important mental function. The exercise of this function requires special attention, and the method of so doing is described in the next section.

KTMR provides sets of exercises for you to stretch all your mental muscles – that is, your verbal, numerical, spatial and logical abilities, and your short and long term memory.

Each program consists of eight 1½ hour sessions, and in a session you are given exercises for the six mental muscles. You will be in a group of ten to twenty people, and there is plenty of social interaction. Although the class members invariably take the exercises seriously, there is a lot of laughter and good humour.

The most important thing about these programs is that there is no competition to see who is better than anyone else. We are all good at some things and not so good at others. It does not matter whether you get the answers right or wrong as long as you try. You can join a program at any time, and your class members and the leader are there to help.



## KTMR classes

Students carry out the exercises individually, and the answers are then presented by the Leader, allowing time for group discussion and clarification. These exercises are intended to be fun, and encourage social interaction.

As mentioned above, creativity exercises require a different approach. To exercise this function the stages are - presentation of a problem for which a creative solution is needed; development of possible solutions by students, a process which may take some time: presentation of the solutions to the group; discussion of the solutions, and a summing up by the leader. All of this takes much more time than is available in a normal session.

The method of overcoming this difficulty is to give the students problems to address, and ask them to work out solutions in their own time. The solutions are presented to the leader, who can discuss them with the group at a convenient time.

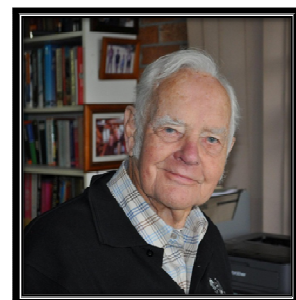
## Course Materials

At the start of the program students will be issued with the exercises for all the eight sessions of the program. Also included is some supplementary material to help with the exercises, and additional exercises for students to do in your own time should you so wish. There are about 80 pages in this initial issue of material, which is provided at a cost of \$15 for each term.

## KTMR Companion

The 100-page Companion contains some general information on the purpose and development of the programs, as well as material to help you with some of the exercises. It is designed to be a reference section, and is available to class members on the first occasion they enrol for a KTMR program. It can be downloaded free of charge on request to Peter Beale. Its main topics are:

- Purpose and operation of KTMR
- Historical development
- Creativity exercises
- Exercising the memory
- Sneaky symbols structures
- Introduction to binary arithmetic
- Introduction to tangrams
- Coding and decoding



U3As wishing to use the program need to contact Peter Beale



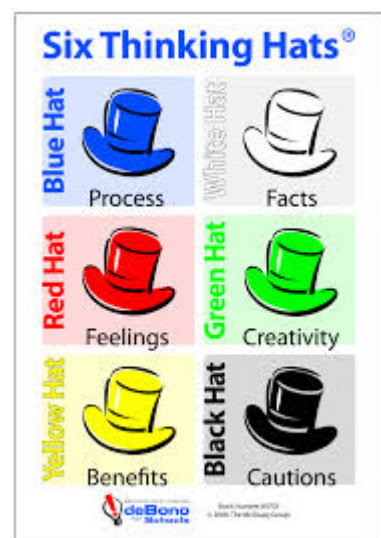
**Peter Beale**, the originator of KTMR, was educated in England, and in the Second World War joined the Royal Tank Regiment and served as a tank troop commander. After the war he studied engineering at London University. In 1956, Peter emigrated to Australia and worked as an engineer. He studied a Masters degree in Psychology, then started his own business, as well as a Masters in Finance. Peter is now 92 years and a fine example of 'Keeping the Marbles Rolling'.

### **SIX THINKING HATS™**

© Edward de Bono

*Six Thinking Hats*<sup>3</sup> is a tool for group discussion and individual thinking involving six colored hats. Initially developed for industry, it is based on a concept that '[parallel thinking](#)' provides a means for groups to plan thinking processes in a detailed and cohesive way, and in doing so to think together more effectively.

The premise of the method is that the [human brain](#) thinks in a number of distinct ways which can be deliberately challenged, and hence planned for use in a structured way allowing one to develop tactics for thinking about particular issues. de Bono identifies six distinct directions in which the brain can be challenged. In each of these directions the brain will identify and bring into conscious thought certain aspects of issues being considered (e.g. gut instinct, pessimistic judgment, neutral facts). None of these directions are completely natural ways of thinking, but rather how some of us already represent the results of our thinking.



The six hats represent six different ways of thinking, and are directions to think rather than labels for thinking – that is the hats are used proactively rather than reactively.

The 'hats' are put on and taken off to indicate the type of thinking being used – only one hat is worn at a time. The system can be used by individuals or in a team situation.

#### **White Hat thinking**

This covers facts, figures, information needs and gaps. "I think we need some white hat thinking at this point" means "let's drop the arguments and proposals and look at the facts".

**Red Hat thinking** - This covers intuition, feelings and emotions. The red hat allows the thinker to put forward an intuition without any need to justify it. Just say what you think.

**Black Hat thinking.** This is the hat of judgement and caution. It is not in any sense an inferior or negative hat. It is used to point out why a suggestion does not fit the

<sup>3</sup> Edward de Bono, *Six Thinking Hats*, Little Brown and Company, 1985



facts, the available experience, the system in use, or the policy that is being followed. The black hat must always be logical.

**Yellow Hat thinking.** This is the logical perspective. Why something will work and why it will offer benefits. It can be used in looking forward to the results of some proposed action, but can also be used to find something of value in what has already happened.

**Green Hat thinking** This is the hat of creativity, alternatives, proposals, what is interesting, provocations and changes.

**Blue Hat thinking.** This is the 'overview' hat – looking at the whole picture. It looks not at the subject itself but at the 'thinking' about the subject.

Sequences always begin and end with a blue hat; the group agrees together how they will think, then they do the thinking, then they evaluate the outcomes of that thinking and what they should do next. Sequences (and indeed hats) may be used by individuals working alone or in groups.

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### **Some Brain Jokes**

An alien walked into a shop and told the owner that he came from Mars and wanted to buy a brain for research.

"How much is this one?" he asked. "Well that one is a monkey brain and it's \$20," he explained.

"How much is that one?" he asked "Well that one is a female brain and it's \$100." he explained.

"And how much is that one?" he asked. "That one is a male's brain and it is \$1000" he explained.

"Why so expensive?" the alien asked. "Well it has hardly been used!"

*My brain is like the Bermuda Triangle –some information goes in and then it's never found again.*

A defending attorney was cross examining a coronial pathologist . The attorney asked, "Before you signed the death certificate had you taken the man's pulse?"

"No," the pathologist replied.

The attorney then asked, "Did you listen for a heart beat?" The pathologist said, "No." "Did you check for breathing?", asked the attorney. The pathologist replied, "No." The attorney asked, "So when you signed the death certificate you had not taken any steps to make sure the man was dead, had you?"

The pathologist, now tired of the brow beating said, "Well, let me put it this way. The man's brain was sitting in a jar on my desk, but for all I know he could be out there practicing law somewhere."

*What do you call a blonde with brains? A labrador.*

I have finally discovered what's wrong with my brain. On the left side, there's nothing right, and on the right side there's nothing left.

"I had a headache on the left side of my brain, so I took half an aspirin. I cut the pill in half and took the left half, just to be sure it went to the right side of my brain."