

# THINKER'S KEYS

## FOR KIDS



by:

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## THE ORIGINS

When I initially designed the Thinker's Keys in the following pages, the impetus for my ideas came directly from two marvellous books on the teaching of thinking. The first of these was 'The Thinker's Toolbox' (Thornburg and Thornburg, 1989) in which 16 different teaching strategies, known as Thinker's Tools, were outlined for classroom use. It is these Thinker's Tools that led directly to the concept of the Thinker's Keys.

The second stimulus for my thinking came from the brilliant 'Adventures in Thinking' (Joan Dalton, 1986). Among the many excellent features of this book was a section known as 'The Festival of Practical Ideas', in which the author presented a huge range of innovative activities arranged in a thematic format.

To me, it appeared quite obvious that the new Thinker's Keys should be linked with the thematic approach to teaching, as outlined in 'Adventures in Thinking'. As a result, this booklet has been presented in two integrative sections. In Part A, a brief description has been provided for each of the twenty Thinker's Keys, while in Part B, a total of twelve themes have been chosen to demonstrate the type of ideas that can be generated with the Keys.

Naturally, there is nothing new about the teaching of thinking or about the thematic approach. Thousands of teachers throughout the world have been applying these philosophies for many years. The distinguishing feature of this booklet, however, is that it forms a link between the **thinking strategies** and the **themes** in a simplistic and effective manner.

## THE NEED FOR CREATIVE THINKING

The majority of the Keys place emphasis upon the development of innovative and creative thinking. I have done this for three important reasons:

1. Creative thinking can be exciting and enjoyable. This active participation can then create a positive attitude towards the learning process.
2. The stimulation of creativity in learning heightens the emotional link with that learning. This emotional involvement boosts the effectiveness of our memory systems.
3. Developing our creative potential will strengthen our ability to cope with change. If there is one thing that we can guarantee into the 21st century, it will be the exponential rate of change that will affect the world. When our thinking is open-ended and accepting of new ideas, we become much more capable of adapting to these changing circumstances.

# THE AGE OF ARTIFICIAL INTELLIGENCE

Creative thinking assumes even greater importance when we consider the potential of artificial intelligence. The world is now well into the Information Age, and computers continue to rapidly overtake many of the analytical thinking functions that we formerly entrusted to our brains.

It is obvious that computers will eventually be able to fulfil most of these functions. Thus, the occupations waiting for today's students in the 21st century will be those that computers are **not** capable of doing. These future occupations are likely to involve a strong creative and personal component.

Where does this leave today's students? There is no point in radically altering the present curriculum, because rapid change has never worked anywhere, particularly in the education system. Keeping this point in mind, however, it is important that we integrate creative activities into our present structures, and provide children with strong coping mechanisms for their uncertain future.

## ACKNOWLEDGEMENTS

I would like to acknowledge the following people for their marvellous contribution to the development of my own thinking in the past six years:

-  The many teachers in the South Coast Education region for welcoming me into their classrooms, and encouraging me to develop the concepts and ideas in this booklet before they were printed;
-  The South Coast Education region consultancy team, who constantly strive for the highest professional standards in such a positive manner;
-  The state-wide team of consultants for Gifted and Talented Education for their wonderful support and encouragement; and
-  Joan Dalton and Julie Boyd (Teamlinks Australia), who are simply brilliant.

*Tony Ryan (October, 1991)*

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*With special thanks to Cheryl Beaumont, whose superb secretarial abilities were admirably demonstrated in the compilation of this booklet.*

# THE EXPLANATION OF THE THINKER'S KEYS

## 1. The REVERSE

Place words such as **cannot**, **never** and **not** in sentences which are commonly displayed in a listing format.

### THE JUSTIFICATION:

Students are too often required to regurgitate endless lists of facts. Moving in the opposite direction still requires a sound knowledge base, but it forces students to **think**.

### THE EXAMPLE:

Name 10 things that you could **not** clean.  
List 5 sounds that you have **never** heard.  
Name 10 things that you could **not** photograph.

## 2. The WHAT IF

You can ask virtually any What If question. They can be either serious or frivolous. One excellent means of displaying ideas from this key is to draw up an Ideas Wheel.

### THE JUSTIFICATION:

Great for introducing an area of study, and for tapping into the students' knowledge base. It also generates loads of innovative ideas.

### THE EXAMPLE:

1. What if the price of petrol was immediately doubled?
2. What if all cars turned into skateboards?

Now construct an Ideas Wheel. Place the base statement in the middle circle, and put 5 consequences of that event in the 5 outer circles.

Then deal with each of the 5 outer circles in turn. Put 3 consequences of each of these into the smaller circles. (see Figures **i** and **ii**)

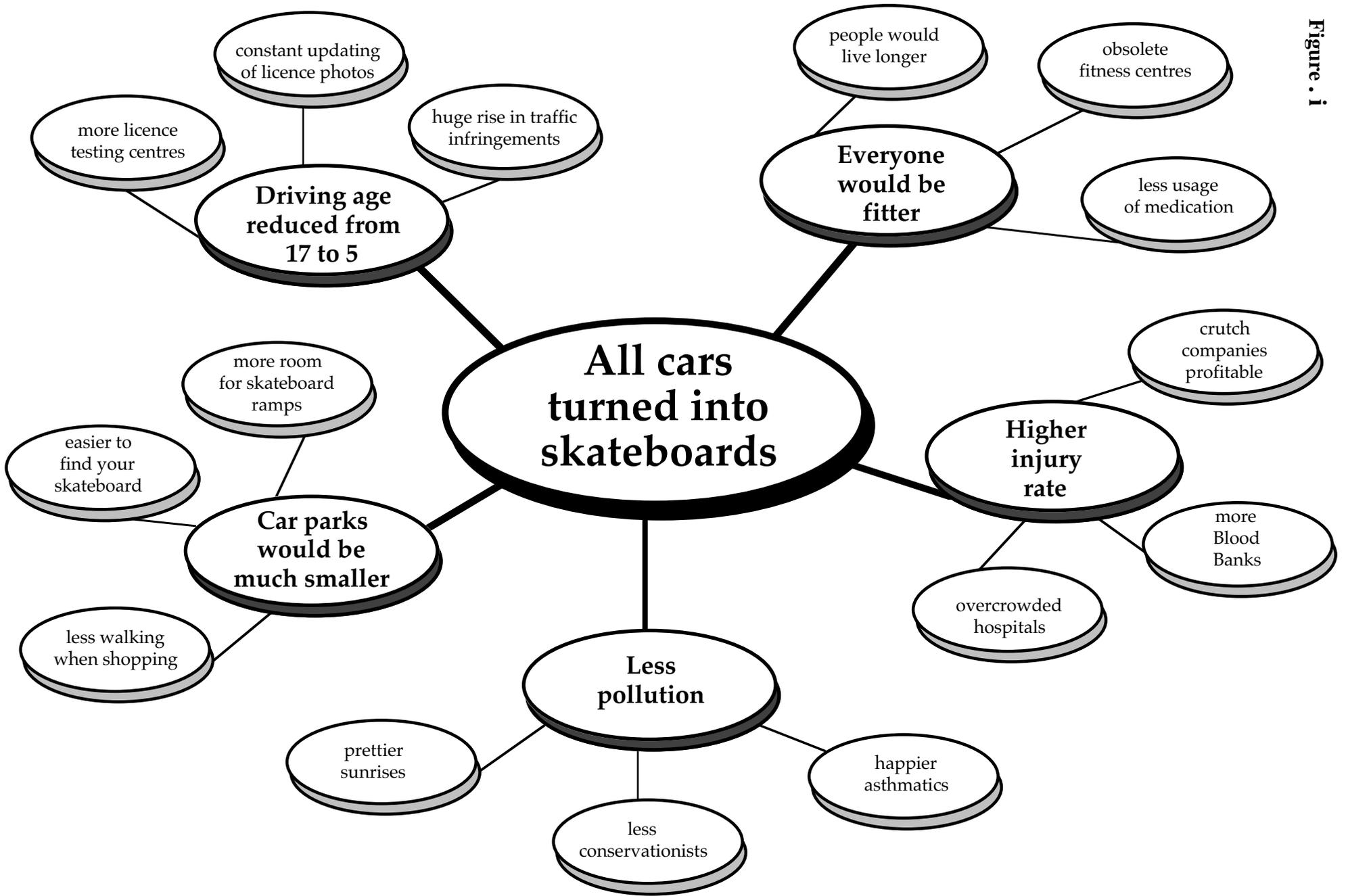
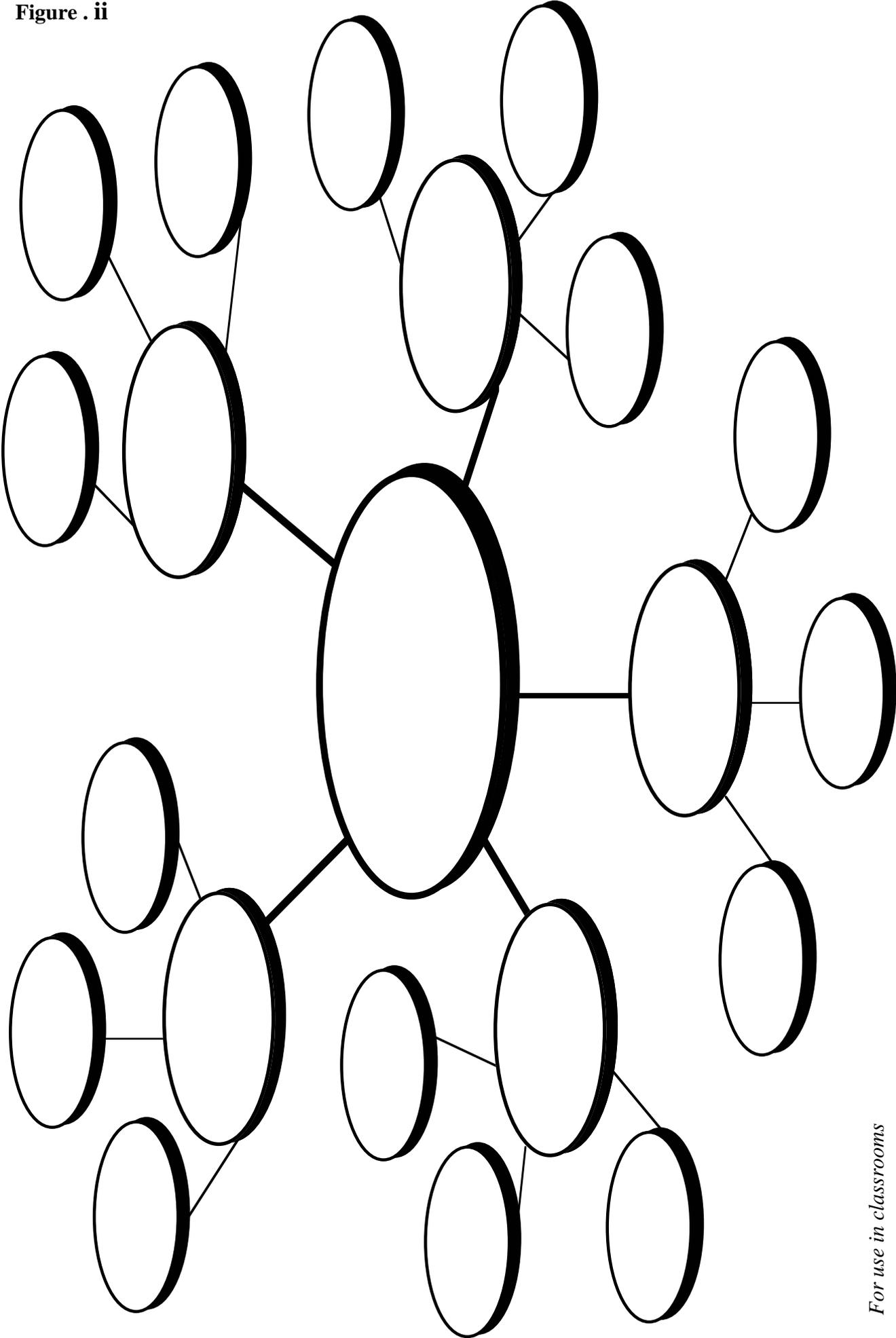


Figure . i

Figure . ii



### 3. The DISADVANTAGES

Choose an object, eg an umbrella, or a practice, eg playground duty, and list a number of its disadvantages. Then list some ways of correcting, or eliminating these disadvantages.

#### THE JUSTIFICATION:

We often accept the inadequacies of many products, without really considering how they can be improved. Practise this key and you will be amazed at the number of everyday products which can be further developed.

#### THE EXAMPLE:

An Umbrella:

The Disadvantages	The Improvements
The sharp sections can poke you in the eye.	Glue flat erasers onto the end of each one.
They take up too much room, even when folded.	Develop a series of locking hinges along the length of the umbrella.
Water drips onto your shoes.	Attach an overhanging plastic sheet to the edges of the umbrella.

### 4. The COMBINATION

List the attributes of 2 dissimilar objects (one within your area of study, one outside), then combine the attributes into a single object.

#### THE JUSTIFICATION:

Many important inventions, such as the disposable razor (the concept of loading bullets into a rifle, combined with a normal razor) and the first printing press (the wine press and the coin punch) were created in this way.

#### THE EXAMPLE:

A leaf and a mousetrap.

The Leaf	The Mousetrap
They change colours through the year.	They are made of wood and wire
Insects often eat them.	They can kill mice.
There are millions of them.	They can be left in lots of places.

### THE COMBINATIONS:

1. A miniature mousetrap for placing on leaves, that can kill insects when they try to eat the leaf.
2. Mousetraps that can change colour and blend in with the surface on which they are placed.

## 5. The B A R

The following acronym, or ladder of words, can be used by different age groups (ranging from Yr 1 to adults) to reinvent or redesign everyday objects.

### THE JUSTIFICATION:

A practical step-by-step strategy for developing innovative and highly unusual products. This type of strategy is often used in today's hightech product development laboratories to create new products for the market.

The Ladder is:

**B**igger  
**A**dd  
**R**eplace

### THE EXAMPLE:

**B A R** a skateboard. Ask the students to draw a standard skateboard, and then direct them through the steps one at a time. Here's one series of possibilities:



**B igger** Extend the rear of the skateboard, making it much bigger, and put some shelves on it for storage space. Place a counterweight on the front to balance it out.

**A dd** Add a small rocket motor, which can be controlled with a foot throttle near the back of the skateboard.

**R eplace** Replace the wheels with a small hovercraft unit, which is controlled by a hand-held rotating device.

It is very important that SILLY and INNOVATIVE ideas are encouraged. Very few new ideas emerge from predictable and tedious efforts.

## 6. The ALPHABET

Choose an object or general category of objects which features in the area of study and compile a list of words from A to Z which have some relevance to the object/s. Then try to expand on some ideas which link with each of the words.

### THE JUSTIFICATION:

Using the alphabetical format clarifies students' thinking. It is a sorting process which is made easier by considering one aspect at a time.

### THE EXAMPLE:

**Sport** (specifically tennis)

- A. Antbed courts - does this mean that ants can play tennis while in bed?; perhaps a miniature game of tennis could be devised as a board game, with each of the players being activated by remote control.
- B. Bouncing - could tennis racquets be constructed of a special rubber so that they could bounce as well?; this feature could be included in a new version of tennis. Perhaps the rules would require each player to bounce the racquet after every shot is played.

Then continue with C through to Z. If the students draw a blank with a particular letter, simply move on, and return to that letter at a later stage.

In a more simplified version, merely list single objects from A to Z, e.g. Foods:

- A - artichoke
- B - beetroot
- etc.

## 7. The VARIATIONS

This key employs a special group of words. Start each question with "How many ways can you ..."

### THE JUSTIFICATION:

Another one for expanding your thinking. Some very practical ideas often result from usage of this key.

### THE EXAMPLE:

How many ways can you: paint a house  
wash an elephant  
make new friends  
turn a TV on

## 8. The PICTURE

The teacher draws a simple diagram which has no relevance to the area of study and the students then try to work out ways in which it could be linked with that area. As an interesting imaginative writing exercise, ask the students to compile a list of 10 things that the diagram could represent.

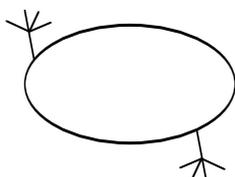
### THE JUSTIFICATION:

Research strongly indicates that the development of visualization capacities will enhance learning in virtually all fields of study.

### THE EXAMPLE:

Outer Space:

Figure 2



an overloaded UFO carrying Christmas trees  
a space monster breaking out of its shell

## 9. The PREDICTION

Ask for a series of predictions in regard to a particular situation, product or set of circumstances.

### THE JUSTIFICATION:

Attempting to predict the future is not the timewaster that some would lead us to believe. The journey is always easier if you know where you are going.

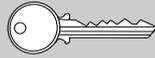
### THE EXAMPLE:

1. Predict how schools will operate in 100 years.
2. Predict 5 present day household appliances which will be obsolete in 20 years time.
3. Predict the power source of the family car by the year 2020.

#### For Example N°3:

- a. combination electric/petrol/nuclear fission, with the driver determining the choice before the start of the journey.
- b. superstrength rubber bands which are wound up with a vintage car crank mechanism.
- c. satellite electromagnetic directional devices, drawing a car along a course which has been predetermined by the vehicle's onboard computer.

## 10. The DIFFERENT USES



Put your imagination to work and list some widely different uses for a chosen object from your area of study.

### THE JUSTIFICATION:

The concept of recycling is an important one here. This key is worth applying to many of our everyday (and often disposable) products.

### THE EXAMPLE:

Find 10 uses for red plastic noses.

1. Place them in your strawberry patch to give a false impression of the number of strawberries.
2. Use them as face masks for mice when they undertake a cheese factory robbery.

## 11. The RIDICULOUS



Make a ridiculous statement that would be **virtually** impossible to implement, and then attempt to actually substantiate it.

### THE JUSTIFICATION:

The expressions 'It's not possible' and 'That's ridiculous' often prevent the development of many excellent ideas. Learn to break through them.

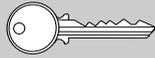
### THE EXAMPLE:

"The government should buy a brand new car for every taxpayer."

#### Some consequences:

1. This would provide an incredible boost for the local car industry.
2. With so many more people being employed, unemployment benefits would not need to be paid by the taxpayer.
3. More money earned from wages would be injected into the economy and would boost a wide variety of businesses.
4. Less accidents would be caused by unroadworthy cars, with a subsequent lowering of costs associated with accidents.
5. Cars would be more fuel-efficient because of their modern design, leading to a reduction in air pollution and less wastage of petrol.

## 12. The COMMONALITY



Decide upon 2 objects which would generally have nothing in common, and try to outline some points of commonality between them.

### THE JUSTIFICATION:

Another mindstretcher. Great for creative ideas as well as the development of unusual concepts.

### THE EXAMPLE:

Ayer's Rock and the Pacific Ocean:

They both change colour through the day.

They both have a rough surface.

They are both tourist attractions.

You can't drive cars on either of them.

When the Flat Earth theory was in vogue, you could have fallen off both of them.

## 13. The QUESTION



Start with the answer, and try to list 5 questions which could be linked with that answer only.

### THE JUSTIFICATION:

An excellent break from the pattern of the teacher asking all of the questions. Students still need to demonstrate a solid knowledge base.

### THE EXAMPLE:

The answer is MIDNIGHT.

1. When is it 12 hours after midday?

2. When did Cinderella's coach turn into a pumpkin?

3. What word is spelt M-I-D-N-I-G-H-T?

## 14. The BRAINSTORMING



State a problem which needs to be solved and brainstorm a list of solutions. Start the brainstorm statement with the words 'How to ...'.

### THE JUSTIFICATION:

Great for solutions to everyday problems. Make sure that the freedom offered within the rules is available to all participants.

### THE RULES OF BRAINSTORMING:

1. Think of as many ideas as you can; don't hesitate and consider the implications; simply write them down.
2. Unusual or silly ideas are acceptable.
3. 'Tagging' onto other people's ideas is encouraged.
4. **No** criticism of **any** ideas is allowed.

### The Example:

How to encourage people not to drive their cars to work.

#### Some possible solutions:

1. Offer monetary incentives to drivers with 3 or more passengers.
2. Introduce a wide range of work-at-home schemes.
3. Revert to pedal cars so that driving requires a much harder effort.
4. Provide a financial incentive for driving less often, by basing the annual registration fee on the number of kilometres driven rather than the present standard fee for all vehicles.
5. Triple the price of petrol to provide further discouragement and direct the extra taxes towards the design of top quality public transport systems.
6. Place wooden seats in cars.

## 15. The INVENTIONS



Encourage students to develop inventions which are constructed in an unusual manner. The first step would be to outline the product on paper, which would then lead into possible construction.

### THE JUSTIFICATION:

Kids (and grownups too) love to invent things if given the opportunity. Tragically, the opportunities in today's society seem to be growing fewer and fewer.

### THE EXAMPLE:

- Invent some or all of the following
1. An eggshell peeler.
  2. A combination knife and fork.
  3. Devices which would - catch mosquitoes  
make your bed  
do the ironing  
comb your hair  
wake you up in the morning

## 16. The BRICK WALL

Make a statement which could not generally be questioned or disputed, and then try to break down the wall by outlining other ways of dealing with the situation.

### THE JUSTIFICATION:

We often give in too quickly when we question many of the world's present situations. Practise the development of alternative strategies.

### THE EXAMPLE:

Governments need to collect taxes in order to provide necessary services.

#### Some Alternatives:

1. Every government employee, without exception, could become an individual contractor and be paid directly for a service as a customer requires it.
2. People could pay for government services by bartering their own skills for a set number of hours each week rather than paying with their taxes.
3. Every working person could be rostered to work in a government department for one day each week.
4. Break the entire nation into community groups of 500 people with each group being responsible for provision of their own services.

## 17. The CONSTRUCTION

Set up a wide variety of construction problem-solving tasks and use lots of readily available materials.

### THE JUSTIFICATION:

Here's an example of really practical creative thinking. It goes hand in hand with outright fun. Try to encourage the development of the 'See/Plan/Do/Check' problem-solving strategy.

### THE EXAMPLE:

1. Build the highest possible self-supporting structure.  
**Materials:** 10 straws and 4 rubber bands.
2. Build a platform which will suspend a house brick as high as possible in the air.  
**Materials:** One house brick, 10 straws and some sticky tape.
3. Build the 'Story Bridge' - a book placed as high as possible on a straw platform.  
**Materials:** a book, 10 straws and some sticky tape.
4. Propel a balloon as far as possible through the air.  
**Materials:** One balloon, one straw, some sticky tape, a ball of string and a pair of scissors.
5. Build the highest possible self-supporting structure.  
**Materials:** One sheet of newspaper, some sticky tape and a pair of scissors.
6. Place a rubber band as far from the edge of a desk as possible.  
**Materials:** 10 iceblock sticks and 6 rubber bands.
7. Balance a marble as high in the air as possible.  
**Materials:** One marble, 20 straws and one paper clip.

## 18. The FORCED RELATIONSHIPS



Develop a solution to a problem by employing a number of dissimilar objects.

- For Years 1/2 - one object
- For Years 3/4 - two objects
- For Years 5/6/7 - three objects
- For Years 8-12 - four objects

### THE JUSTIFICATION:

The dimensions of problem-solving are expanded dramatically with this key. Never underestimate the importance of constantly developing alternative strategies.

### THE EXAMPLE:

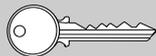
#### A Problem :

You need to retrieve your kite from a very tall tree by using: a packet of Minties  
a hairbrush  
a comic

#### A Solution:

Melt the Minties and stick them on your hands and feet to give extra grip when climbing. When you are near the kite, throw the hairbrush to dislodge it and make it fall. Then stick the comic pages together with the Minties and construct a parachute for getting down to the ground.

## 19. The ALTERNATIVE



List ways in which to complete a task without using the normal tools or implements.

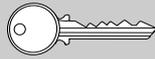
### THE JUSTIFICATION:

Necessity is the mother of invention. Take away the normal tool and spark some innovative solutions.

### THE EXAMPLE:

- Work out 3 ways to - clean your teeth without a toothbrush
- cook toast without a toaster
- paint a chair without a paintbrush
- mow the lawn without a mower

## 20. The INTERPRETATION



Describe an unusual situation and then think of some different explanations for the existence of that situation.

### THE JUSTIFICATION:

Another innovative thinking exercise. Develops the ability to consider a wide range of consequences.

### THE EXAMPLE:

Your neighbour is making large circles in his backyard by pouring sump oil from a can.

#### Some Explanations:

1. He is a disguised alien and is sending cryptic messages to his friends in outer space.
2. He considers himself to be another Pro Hart, and he will soon be rolling around in the grass, attempting to create an environmental masterpiece.
3. He has had a fixation for circles since his childhood, and later will be seen dancing around the circles in the light of the full moon.

# THE ENVIRONMENT

## 1. The REVERSE

List 10 places that **cannot**  
be destroyed by humans

## 2. The WHAT IF

What if:

*The world's population  
immediately doubled*

## 3. The DISADVANTAGES

List disadvantages of,  
and improvements to:

*A watering can*

## 4. The COMBINATION

List attributes of both, then combine:

*A rainforest vine  
and  
a torch battery*

## 5. The ALPHABET

*Beautiful places  
in the world*

## 6. The B A R

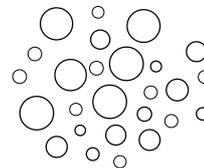
*A glass greenhouse*

## 7. The VARIATIONS

How many ways can you:

*Clean up oil spills*

## 8. The PICTURE



## 9. The PREDICTION

*Name 5 world wide industries  
which will probably **not**  
exist in 20 years*

## 10. The DIFFERENT USES

Find 10 different uses for:

*Debris from a  
cleared rainforest*

# THE ENVIRONMENT

## 11. The RIDICULOUS

Try to justify this statement:

*By law, every household must recycle every possible part of rubbish*

## 12. The COMMONALITY

Find common points between:

*A flyswatter  
and  
a car tyre*

## 13. The QUESTION

Give 5 questions for:

*" The Antarctic "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to encourage people to plant more trees*

## 15. The INVENTIONS

Design a machine for:

*removing oil from penguins*

## 16. The BRICK WALL

Consider alternatives to:

*Everyone has to live in their own house on a large block of land*

## 17. The CONSTRUCTION

Construct a : *Seedplanter*

Materials : *a straw  
a 20¢ piece  
20 iceblock sticks  
sticky tape*

## 18. The FORCED RELATIONSHIPS

*Protect the last remaining Blue Whale,*

*by using: a pack of cards  
a sewing machine  
a squash ball*

## 19. The ALTERNATIVE

Work out 3 ways to:

*remove leaves from your lawn without using a rake.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*The Great Barrier Reef Marine Park has been closed to all visitors for 5 years.*

# A U S T R A L I A N A

## 1. The REVERSE

List 10 things that you will  
*never* see in Australia.

## 2. The WHAT IF

What if:

*all kangaroos disappeared*

## 3. The DISADVANTAGES

List disadvantages of,  
and improvements to:

*the Hills rotary hoist clothes line.*

## 4. The COMBINATION

List attributes of both, then combine:

*An old Holden  
and  
an iceblock*

## 5. The ALPHABET

*Australian leisure activities*

## 6. The B A R

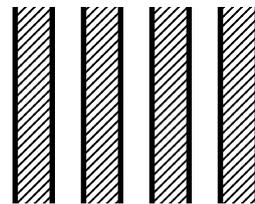
*a camping tent*

## 7. The VARIATIONS

How many ways can you:

*connect Tasmania to the mainland*

## 8. The PICTURE



## 9. The PREDICTION

*Name 5 Australian creatures which  
will be extinct within 30 years.*

## 10. The DIFFERENT USES

Find 10 different uses for:

*A Kylie Minogue record*

# A U S T R A L I A N A

## 11. The RIDICULOUS

Try to justify this statement:

*Ayers Rock should be blown up,  
with the fragments being sold as  
souvenirs throughout the world.*

## 12. The COMMONALITY

Find common points between:

*Droughts  
and  
\$2 coins*

## 13. The QUESTION

Give 5 questions for:

*" A meat pie "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to prevent erosion*

## 15. The INVENTIONS

Design a machine for:

*icing lamingtons*

## 16. The BRICK WALL

Consider alternatives to:

*weekend BBQs*

## 17. The CONSTRUCTION

Construct a :*trap for a redback spider*

Materials :*one sheet of newspaper  
10 rubber bands  
sticky tape  
scissors*

## 18. The FORCED RELATIONSHIPS

*Catch a bunyip,*

*by using: a T.A.B. betting ticket  
a lamington  
a Drizabone overcoat*

## 19. The ALTERNATIVE

Work out 3 ways to:

*paint the Opera House,  
without brushes or paint rollers.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*The Prime Minister is standing on top of  
the Sydney Harbour Bridge, holding a  
meat pie in one hand and a  
boomerang in the other.*

# OUTER SPACE

## 1. The REVERSE

List 10 outer space objects that we **cannot** see in the night sky.

## 2. The WHAT IF

What if:

*the sun disappeared*

## 3. The DISADVANTAGES

List disadvantages of, and improvements to:

*A spacesuit*

## 4. The COMBINATION

List attributes of both, then combine:

*A moonbuggy  
and  
a pair of scissors*

## 5. The ALPHABET

*Any objects in space*

## 6. The B A R

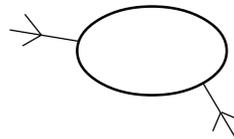
*The Space Shuttle*

## 7. The VARIATIONS

How many ways can you:

*contact a rocket in stationary orbit above the Earth*

## 8. The PICTURE



## 9. The PREDICTION

*How will rockets be powered in 50 years?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*Sunlight*

# OUTER SPACE

## 11. The RIDICULOUS

Try to justify this statement:

*Everyone should be taken for a space shuttle trip into outer space.*

## 12. The COMMONALITY

Find common points between:

*A rocket control panel  
and  
a sewing machine*

## 13. The QUESTION

Give 5 questions for:

*" A Martian "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to get rid of the space junk floating around in our upper atmosphere.*

## 15. The INVENTIONS

Design a machine for:

*watering potted plants in a space station*

## 16. The BRICK WALL

Consider alternatives to:

*Launching rockets with a huge amount of noise and fuel.*

## 17. The CONSTRUCTION

Construct a *:highest possible space monster*

Materials *:30 iceblock sticks  
(no adhesives allowed)*

## 18. The FORCED RELATIONSHIPS

*Launch a miniature U.F.O.,*

*by using: a car tyre  
a bunch of flowers  
a newspaper*

## 19. The ALTERNATIVE

Work out 3 ways to:

*prove that the U.F.O. in your backyard really exists,  
without using a camera.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*an erratically moving blinking light in the night sky.*

# UNDER THE SEA

## 1. The REVERSE

List 10 things that could  
*never* be placed  
in the water.

## 2. The WHAT IF

What if:

*all fish disappeared.*

## 3. The DISADVANTAGES

List disadvantages of,  
and improvements to:

*The fishing rod and reel*

## 4. The COMBINATION

List attributes of both, then combine:

*Swimming flippers  
and  
a telephone*

## 5. The ALPHABET

*Undersea creatures*

## 6. The B A R

*a rowboat*

## 7. The VARIATIONS

How many ways can you:

*catch a fish*

## 8. The PICTURE



## 9. The PREDICTION

*How will ships be shaped  
in 100 years time?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*a fishing net*

# UNDER THE SEA

## 11. The RIDICULOUS

Try to justify this statement:

*People should be banned  
from swimming at the beach.*

## 12. The COMMONALITY

Find common points between:

*A wave  
and  
a softdrink bottle*

## 13. The QUESTION

Give 5 questions for:

*" Coral "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to encourage people  
not to litter on beaches*

## 15. The INVENTIONS

Design a machine for:

*digging worms out of the sand*

## 16. The BRICK WALL

Consider alternatives to:

*Oil needs to be transported  
in huge oil tankers.*

## 17. The CONSTRUCTION

Construct a :*Fish catcher*

Materials :*string  
10 straws  
4 rubber bands  
one rock*

## 18. The FORCED RELATIONSHIPS

*Trap a giant octopus,*

*by using: a toy car  
a suitcase  
an old bed*

## 19. The ALTERNATIVE

Work out 3 ways to:

*move a small boat through the water  
without oars or a motor.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*All the oceans have turned orange.*

# TRANSPORT

## 1. The REVERSE

List 10 materials which are **not** used in the construction of a motor vehicle.

## 2. The WHAT IF

What if:

*the world petrol supplies were immediately halved*

## 3. The DISADVANTAGES

List disadvantages of, and improvements to:

*Windscreen wipers*

## 4. The COMBINATION

List attributes of both, then combine:

*A bus  
and  
a fountain pen*

## 5. The ALPHABET

*Modes of transport*

## 6. The B A R

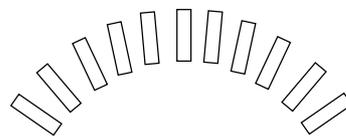
*Petrol bowsers*

## 7. The VARIATIONS

How many ways can you:

*pump up a tyre*

## 8. The PICTURE



## 9. The PREDICTION

*What will the family car look like in 100 years?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*A wrecked car*

# TRANSPORT

## 11. The RIDICULOUS

Try to justify this statement:

*Ownership of cars should be restricted to one car for every six households.*

## 12. The COMMONALITY

Find common points between:

*A steering wheel  
and  
a spark plug*

## 13. The QUESTION

Give 5 questions for:

*" Traffic lights "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to encourage people to use public transport*

## 15. The INVENTIONS

Invent a :

*perpetual motion machine*

## 16. The BRICK WALL

Consider alternatives to:

*Using petrol*

## 17. The CONSTRUCTION

Construct a :*toy vehicle which will travel at least 5 metres*

Materials :  
*a mousetrap  
6 rubber bands  
the wheelbase of a toy car  
one optional piece of equipment (own choice)*

## 18. The FORCED RELATIONSHIPS

*Stop a runaway truck,*

*by using: a set of tweezers  
an Australian flag  
a water pistol*

## 19. The ALTERNATIVE

Work out 3 ways to:

*make cars stop at intersections without using traffic lights.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*All of the roads in a city have been ripped up, and have been replaced by parks.*

# FOOD

## 1. The REVERSE

List 10 foods that you  
have *never* eaten.

## 2. The WHAT IF

What if:

*a single pill could replace  
your daily food intake.*

## 3. The DISADVANTAGES

List disadvantages of,  
and improvements to:

*Chopsticks`*

## 4. The COMBINATION

List attributes of both, then combine:

*A chocolate bar  
and  
a pair of running shoes*

## 5. The ALPHABET

*Fruit and vegetables*

## 6. The B A R

*A frying pan*

## 7. The VARIATIONS

How many ways can you:

*cook an egg*

## 8. The PICTURE



## 9. The PREDICTION

*How will food be prepared for  
eating in 50 years from now?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*A pumpkin*

# FOOD

## 11. The RIDICULOUS

Try to justify this statement:

*All takeaway outlets will be demolished,  
and all food must be cooked at home.*

## 12. The COMMONALITY

Find common points between:

*An apple  
and  
a saucepan*

## 13. The QUESTION

Give 5 questions for:

*" A recipe "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to encourage children  
to eat healthier food*

## 15. The INVENTIONS

Design a machine for:

*cooking marshmallows over a campfire  
(without cooking your fingers as well)*

## 16. The BRICK WALL

Consider alternatives to:

*Food often has to be sold in  
glossy and expensive packaging.*

## 17. The CONSTRUCTION

Make a: *Jaffa spin in the air for the  
longest possible time*

Materials :20 straws  
5 rubber bands  
2 pins  
1 ruler

## 18. The FORCED RELATIONSHIPS

*You need to heat up a TV dinner,*

*by using: a pencil sharpener  
a Fax machine  
a pair of sunglasses*

## 19. The ALTERNATIVE

Work out 3 ways to:

*peel a carrot  
without a peeler*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*Millions of carrots suddenly  
begin falling out of the sky.*

# DINOSAURS

## 1. The REVERSE

*List (and draw)  
10 dinosaurs that have  
not yet been discovered*

## 2. The WHAT IF

What if:

*Dinosaurs were still  
alive today*

## 3. The DISADVANTAGES

List disadvantages of,  
and improvements to:

*A shovel*

## 4. The COMBINATION

List attributes of both, then combine:

*A dinosaur egg,  
and  
a kite*

## 5. The ALPHABET

*Places for displaying  
dinosaur skeletons*

## 6. The B A R

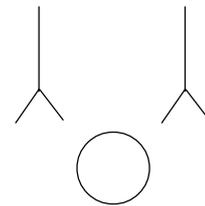
*A Brontosaurus*

## 7. The VARIATIONS

How many ways could you have:

*made dinosaurs extinct*

## 8. The PICTURE



## 9. The PREDICTION

*Will dinosaurs ever exist  
on another planet in  
the universe?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*A dinosaur bone*

# DINOSAURS

## 11. The RIDICULOUS

Try to justify this statement:

*All evidence of dinosaurs should be destroyed, and all future generations should be told that they were just a gigantic hoax.*

## 12. The COMMONALITY

Find common points between:

*A woolly mammoth  
and  
a pair of scissors*

## 13. The QUESTION

Give 5 questions for:

*" A time machine "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to carefully dig up dinosaur bones*

## 15. The INVENTIONS

Design a machine for:

*training baby Pterodactyls to fly*

## 16. The BRICK WALL

Consider alternatives to:

*Displaying dinosaur bones in museums*

## 17. The CONSTRUCTION

Construct a : *trap for capturing a 5cm high dinosaur.*

Materials : *2 rulers  
10 paper clips  
10 iceblock sticks  
1 small mirror*

## 18. The FORCED RELATIONSHIPS

*Escape from a Tyrannosaurus Rex*

*by using: a toothbrush  
a belt  
a piece of chocolate*

## 19. The ALTERNATIVE

Work out 3 ways to:

*dig for dinosaur bones  
without using any digging implements  
(e.g. spade, crowbar, pick, fork, spoon)*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*A huge dinosaur is raging  
through the city centre,  
destroying everything in its path.*

# CHRISTMAS

## 1. The REVERSE

List 10 presents that you know you will *never* receive at Christmas

## 2. The WHAT IF

What if:

*the Christmas celebration did not exist*

## 3. The DISADVANTAGES

List disadvantages of, and improvements to:

*wrapping paper*

## 4. The COMBINATION

List attributes of both, then combine:

*Santa's sleigh  
and  
a playground swing*

## 5. The ALPHABET

*Possible presents*

## 6. The B A R

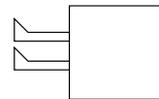
*Plastic Christmas trees*

## 7. The VARIATIONS

How many ways can you:

*light the way for Santa's sleigh*

## 8. The PICTURE



## 9. The PREDICTION

*Predict the 10 most popular children's presents in 100 years from now.*

## 10. The DIFFERENT USES

Find 10 different uses for:

*A Santa Claus suit*

# CHRISTMAS

## 11. The RIDICULOUS

Try to justify this statement:

*People must perform a service for someone, e.g. mowing their lawn, instead of giving a Christmas present.*

## 12. The COMMONALITY

Find common points between:

*Blowflies  
and  
wrapping paper*

## 13. The QUESTION

Give 5 questions for:

*" Rudolph's nose "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to effectively use all of the unwanted toys that children have received*

## 15. The INVENTIONS

Design a machine for:

*cleaning Santa's sleigh*

## 16. The BRICK WALL

Consider alternatives to:

*Christmas has to be held at the same time each year.*

## 17. The CONSTRUCTION

Construct a *fly zapper to be used at Christmas dinner*

Materials *.6 rubber bands  
1 sheet of Christmas wrapping paper  
10 straws  
sticky tape and scissors*

## 18. The FORCED RELATIONSHIPS

*Catch Santa Claus while he's delivering presents in your house,*

*by using: a pair of swimming togs  
a bon-bon  
an alarm clock*

## 19. The ALTERNATIVE

Work out 3 ways to:

*mix the fruit cake ingredients without an electric mixer.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*A huge department store is giving away wrapping paper for free, yet no one is taking up the offer.*

# COMMUNICATIONS

## 1. The REVERSE

*List 10 sounds that you will never hear on the telephone.*

## 2. The WHAT IF

What if:

*All telephones stopped working.*

## 3. The DISADVANTAGES

List disadvantages of, and improvements to:

*An envelope*

## 4. The COMBINATION

List attributes of both, then combine:

*A newspaper  
and  
a tennis racquet*

## 5. The ALPHABET

*Ways of sending messages*

## 6. The B A R

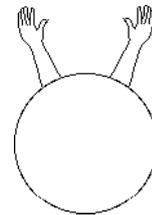
*A letterbox*

## 7. The VARIATIONS

How many ways can you:

*seal the flap on an envelope*

## 8. The PICTURE



## 9. The PREDICTION

*What will be the most commonly used communication device in 100 years from now?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*used telephone directories*

# COMMUNICATIONS

## 11. The RIDICULOUS

Try to justify this statement:

*Personal handwritten letters  
should be delivered for free.*

## 12. The COMMONALITY

Find common points between:

*A roadside billboard  
and  
a mousetrap*

## 13. The QUESTION

Give 5 questions for:

*" A stamp "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to encourage people to  
write letters to their friends*

## 15. The INVENTIONS

Design a machine for:

*sending secret messages across  
the classroom during lessons.*

## 16. The BRICK WALL

Consider alternatives to:

*Newspapers have to be printed  
on large amounts of paper.*

## 17. The CONSTRUCTION

Construct a :*special letterbox for  
disposing of junk mail*

Materials :*a shoebox  
10 iceblock sticks  
5 rubber bands  
10 thumb tacks*

## 18. The FORCED RELATIONSHIPS

*Stop a bank robber,*

*by using: a Walkman  
a Batman comic  
a postage stamp*

## 19. The ALTERNATIVE

Work out 3 ways to:

*record a visual image of a special event  
without a camera or  
drawing implements*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*A reporter is running down the street  
with a pocket calculator tied  
around her neck.*

# SPORT

## 1. The REVERSE

List 10 sports that you know  
you will *never* play.

## 2. The WHAT IF

What if:

*all sport was banned from TV.*

## 3. The DISADVANTAGES

List disadvantages of,  
and improvements to:

*A roller skate*

## 4. The COMBINATION

List attributes of both, then combine:

*a sports stadium  
and  
a shopping trolley*

## 5. The ALPHABET

*Sports*

## 6. The B A R

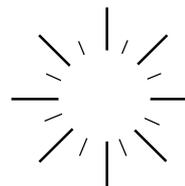
*An exercise bike*

## 7. The VARIATIONS

How many ways can you:

*calm down an irate football player*

## 8. The PICTURE



## 9. The PREDICTION

*The 5 dominant nations  
at the Olympic Games  
in 100 years from now.*

## 10. The DIFFERENT USES

Find 10 different uses for:

*A set of cricket stumps*

# SPORT

## 11. The RIDICULOUS

Try to justify this statement:

*All sports could be played on a high-tech video machine with the players operating their own set of controls.*

## 12. The COMMONALITY

Find common points between:

*A trophy  
and  
a set of cards*

## 13. The QUESTION

Give 5 questions for:

*" The finish line "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to lower the incidence of injuries in sport*

## 15. The INVENTIONS

Design a machine for:

*playing football.*

## 16. The BRICK WALL

Consider alternatives to:

*Umpires*

## 17. The CONSTRUCTION

Build a: *structure which could fire a table tennis ball at least 1 metre in the air*

Materials: *10 Straws  
1 sheet of newspaper  
10 rubber bands  
sticky tape  
scissors*

## 18. The FORCED RELATIONSHIPS

*Make a Grand Prix car go faster,*

*by using: a calculator  
a dinner suit  
a pair of headphones*

## 19. The ALTERNATIVE

Work out 3 ways to:

*announce the score to the crowd without using the speaker system.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*John McEnroe is smiling, and chatting pleasantly to the umpire in the middle of a tennis match.*

# ANIMALS

## 1. The REVERSE

*List 10 animals that you will probably never see in your life.*

## 2. The WHAT IF

What if:

*All insects became extinct*

## 3. The DISADVANTAGES

List disadvantages of, and improvements to:

*A fishtank*

## 4. The COMBINATION

List attributes of both, then combine:

*a hunting rifle  
and  
a dishcloth*

## 5. The ALPHABET

*Animals*

## 6. The B A R

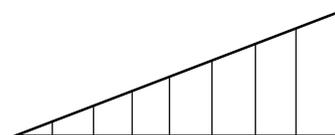
*A zoo cage or enclosure*

## 7. The VARIATIONS

How many ways can you:

*trap a rat*

## 8. The PICTURE



## 9. The PREDICTION

*Which animals will be performing in circuses in 50 years time?*

## 10. The DIFFERENT USES

Find 10 different uses for:

*a circus tent*

# ANIMALS

## 11. The RIDICULOUS

Try to justify this statement:

*Sharks should be kept  
in backyard pools.*

## 12. The COMMONALITY

Find common points between:

*A set of shark teeth  
and  
a cup of coffee*

## 13. The QUESTION

Give 5 questions for:

*" Extinction "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to encourage people not to  
abandon their pets at holiday time*

## 15. The INVENTIONS

Design a machine for:

*combing the fur on  
a polar bear*

## 16. The BRICK WALL

Consider alternatives to:

*Animals need to be kept  
in zoos for display.*

## 17. The CONSTRUCTION

Construct a :mousetrap

Materials :10 iceblock sticks  
10 rubber bands  
1 plastic bag  
2 straws

## 18. The FORCED RELATIONSHIPS

*Stop a plague of grasshoppers,*

*by using: a potplant  
a bag of cement  
a lounge chair*

## 19. The ALTERNATIVE

Work out 3 ways to:

*clean a dirty dog  
without water.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*A mouse is chasing a large cat  
around the outside  
of your house.*

# THE FUTURE

## 1. The REVERSE

List 10 occupations that robots will *never* replace.

## 2. The WHAT IF

What if:

*crystal balls could predict the future.*

## 3. The DISADVANTAGES

List disadvantages of, and improvements to:

*The family home.*

## 4. The COMBINATION

List attributes of both, then combine:

*A fast food outlet  
and  
a wristwatch*

## 5. The ALPHABET

26 words (one from each letter of the alphabet) listed in a dictionary published in 100 years from now.

## 6. The B A R

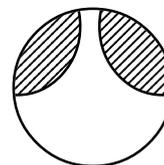
*The family car*

## 7. The VARIATIONS

How many ways will you **be able to:**

*travel to Europe in 100 years from now*

## 8. The PICTURE



## 9. The PREDICTION

*Predict 5 areas of our lifestyle which will be affected by rapidly advancing technology*

## 10. The DIFFERENT USES

Find 10 different uses for:

*Obsolete computers*

# THE FUTURE

## 11. The RIDICULOUS

Try to justify this statement:

*Spending on nuclear weapons  
should be trebled.*

## 12. The COMMONALITY

Find common points between:

*A robot assembly line  
and  
a ball of string*

## 13. The QUESTION

Give 5 questions for:

*" A vitamin pill "*

## 14. The BRAINSTORMING

Brainstorm solutions for:

*How to lower the crime rate*

## 15. The INVENTIONS

Design a machine for:

*relaxing highly stressed people.*

## 16. The BRICK WALL

Consider alternatives to:

*building more cars*

## 17. The CONSTRUCTION

Construct a :*basic moving robot*

Materials :*10 matchboxes  
a ball of string  
10 rubber bands  
scissors and sticky tape*

## 18. The FORCED RELATIONSHIPS

*Design an entirely new game,  
by using: a time machine  
a gameboard  
3 dice*

## 19. The ALTERNATIVE

Work out 3 ways to:

*drive a car,  
without using petrol.*

## 20. The INTERPRETATIONS

Give 3 possible explanations for:

*In 100 years from now, there is only  
one world government.*

**1. The REVERSE** 

**2. The WHAT IF** 

What if:

**3. The DISADVANTAGES** 

List disadvantages of, and improvements to:

**4. The COMBINATION** 

List attributes of both, then combine:

**5. The ALPHABET** 

**6. The B A R** 

**7. The VARIATIONS** 

How many ways can you:

**8. The PICTURE** 

**9. The PREDICTION** 

**10. The DIFFERENT USES** 

Find 10 different uses for:

**11. The RIDICULOUS** 

Try to justify this statement:

**12. The COMMONALITY** 

Find common points between:

**13. The QUESTION** 

Give 5 questions for:

**14. The BRAINSTORMING** 

Brainstorm solutions for:

**15. The INVENTIONS** 

Design a machine for:

**16. The BRICK WALL** 

Consider alternatives to:

**17. The CONSTRUCTION** 

Construct a :

Materials :

**18. The FORCED RELATIONSHIPS** 

**19. The ALTERNATIVE** 

Work out 3 ways to:

**20. The INTERPRETATIONS** 

Give 3 possible explanations for:

