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)
GENERAL REFERENCES

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With special thanks to Cheryll 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 Í and ii)
All cars turned into skateboards

Driving age reduced from 17 to 5

Less pollution
- prettier sunrises
- less conservationists

Less walking when shopping

Easier to find your skateboard

Car parks would be much smaller

Huge rise in traffic infringements

Constant updating of licence photos

Higher injury rate
- overcrowded hospitals
- more Blood Banks

Everyone would be fitter
- people would live longer
- obsolete fitness centres

More licence testing centres

More room for skateboard ramps

Less walking when shopping

More licence testing centres

Less usages of medication

Crutch companies profitable

Blood Banks over crowded

More room for skateboard ramps

Easy to find your skateboard

Less conservationists

Less pollution

Happier asthmatics
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:

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

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.

<table>
<thead>
<tr>
<th>The Leaf</th>
<th>The Mousetrap</th>
</tr>
</thead>
<tbody>
<tr>
<td>They change colours through the year.</td>
<td>They are made of wood and wire</td>
</tr>
<tr>
<td>Insects often eat them.</td>
<td>They can kill mice.</td>
</tr>
<tr>
<td>There are millions of them.</td>
<td>They can be left in lots of places.</td>
</tr>
</tbody>
</table>
**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.

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**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 high tech product development laboratories to create new products for the market.

The Ladder is:

- **Bigger**
- **Add**
- **Replace**

---

**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:

- **Bigger** 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.
- **Add** Add a small rocket motor, which can be controlled with a foot throttle near the back of the skateboard.
- **Replace** 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:

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 №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**
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.
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 BAR
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

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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.

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<tr>
<th><strong>1. The Reverse</strong></th>
<th><strong>2. The What If</strong></th>
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<tbody>
<tr>
<td>List 10 things that you will never see in Australia.</td>
<td>What if: all kangaroos disappeared</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>3. The Disadvantages</strong></th>
<th><strong>4. The Combination</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>List disadvantages of, and improvements to: the Hills rotary hoist clothes line.</td>
<td>List attributes of both, then combine: An old Holden and an iceblock</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>5. The Alphabet</strong></th>
<th><strong>6. The BAR</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian leisure activities</td>
<td>a camping tent</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>7. The Variations</strong></th>
<th><strong>8. The Picture</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>How many ways can you: connect Tasmania to the mainland</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>9. The Prediction</strong></th>
<th><strong>10. The Different Uses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name 5 Australian creatures which will be extinct within 30 years.</td>
<td>Find 10 different uses for: A Kylie Minogue record</td>
</tr>
</tbody>
</table>
### 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.
List 10 outer space objects that we cannot see in the night sky.

What if:

the sun disappeared

List disadvantages of, and improvements to:

A spacesuit

List attributes of both, then combine:

A moonbuggy and a pair of scissors

Any objects in space

The Space Shuttle

How many ways can you:

contact a rocket in stationary orbit above the Earth

Find 10 different uses for:

Sunlight

How will rockets be powered in 50 years?
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 potplants 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.
1. The Reverse

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

2. The What If

What if:

call 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 BAR

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

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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.
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 BAR

- 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?

- A wrecked car

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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
- 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.

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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 BAR

A frying pan

7. The Variations

How many ways can you:

cook an egg

8. The Picture

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

A pumpkin

9. The Prediction

Find 10 different uses for:

A pumpkin

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### FOOD

<table>
<thead>
<tr>
<th>11. The RIDICULOUS</th>
<th>12. The COMMONALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Try to justify this statement:</td>
<td>Find common points between:</td>
</tr>
<tr>
<td>All takeaway outlets will be demolished, and all food must be cooked at home.</td>
<td>An apple and a saucepan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. The QUESTION</th>
<th>14. The BRAINSTORMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give 5 questions for:</td>
<td>Brainstorm solutions for:</td>
</tr>
<tr>
<td>&quot; A recipe &quot;</td>
<td>How to encourage children to eat healthier food</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. The INVENTIONS</th>
<th>16. The BRICK WALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design a machine for:</td>
<td>Consider alternatives to:</td>
</tr>
<tr>
<td>cooking marshmallows over a campfire (without cooking your fingers as well)</td>
<td>Food often has to be sold in glossy and expensive packaging.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>17. The CONSTRUCTION</th>
<th>18. The FORCED RELATIONSHIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a: Jaffa spin in the air for the longest possible time</td>
<td>You need to heat up a TV dinner,</td>
</tr>
<tr>
<td>Materials: 20 straws, 5 rubber bands, 2 pins, 1 ruler</td>
<td>by using: a pencil sharpener a Fax machine a pair of sunglasses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19. The ALTERNATIVE</th>
<th>20. The INTERPRETATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work out 3 ways to:</td>
<td>Give 3 possible explanations for:</td>
</tr>
<tr>
<td>peel a carrot without a peeler</td>
<td>Millions of carrots suddenly begin falling out of the sky.</td>
</tr>
</tbody>
</table>
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 Bar
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

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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 T. 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.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. The Reverse</strong></td>
<td>List 10 presents that you know you will <em>never</em> receive at Christmas</td>
</tr>
<tr>
<td><strong>2. The What If</strong></td>
<td>What if: <em>the Christmas celebration did not exist</em></td>
</tr>
<tr>
<td><strong>3. The Disadvantages</strong></td>
<td>List disadvantages of, and improvements to: <em>wrapping paper</em></td>
</tr>
<tr>
<td><strong>4. The Combination</strong></td>
<td>List attributes of both, then combine: <em>Santa’s sleigh and a playground swing</em></td>
</tr>
<tr>
<td><strong>5. The Alphabet</strong></td>
<td>Possible presents</td>
</tr>
<tr>
<td><strong>6. The B A R</strong></td>
<td>Plastic Christmas trees</td>
</tr>
<tr>
<td><strong>7. The Variations</strong></td>
<td>How many ways can you: <em>light the way for Santa’s sleigh</em></td>
</tr>
<tr>
<td><strong>8. The Picture</strong></td>
<td>Predict the 10 most popular children’s presents in 100 years from now.</td>
</tr>
<tr>
<td><strong>9. The Prediction</strong></td>
<td>Find 10 different uses for: <em>A Santa Claus suit</em></td>
</tr>
</tbody>
</table>
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
an alarm clock
a bon-bon

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.
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 Bar

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

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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.*
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 Bar

An exercise bike

7. The Variations

How many ways can you:

calm down an irate football player

8. The Picture

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

9. The Prediction

Find 10 different uses for:

A set of cricket stumps

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## 11. The R IDICULOUS
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:

<table>
<thead>
<tr>
<th>Structure which could fire a table tennis ball at least 1 metre in the air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials:</td>
</tr>
<tr>
<td>10 Straws</td>
</tr>
<tr>
<td>1 sheet of newspaper</td>
</tr>
<tr>
<td>10 rubber bands</td>
</tr>
<tr>
<td>sticky tape</td>
</tr>
<tr>
<td>scissors</td>
</tr>
</tbody>
</table>

## 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.*
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
- a dishcloth

5. The Alphabet

Animals

6. The BAR

A zoo cage or enclosure

7. The Variations

How many ways can you:

trap a rat

8. The Picture

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

9. The Prediction

Find 10 different uses for:

a circus tent

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### ANIMALS

<table>
<thead>
<tr>
<th><strong>11. The RIDICULOUS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Try to justify this statement:</td>
</tr>
<tr>
<td><em>Sharks should be kept in backyard pools.</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>12. The COMMONALITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Find common points between:</td>
</tr>
<tr>
<td><em>A set of shark teeth</em></td>
</tr>
<tr>
<td><em>and</em></td>
</tr>
<tr>
<td><em>a cup of coffee</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>13. The QUESTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Give 5 questions for:</td>
</tr>
<tr>
<td><em>&quot; Extinction &quot;</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>14. The BRAINSTORMING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorm solutions for:</td>
</tr>
<tr>
<td><em>How to encourage people not to abandon their pets at holiday time</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>15. The INVENTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Design a machine for:</td>
</tr>
<tr>
<td><em>combing the fur on a polar bear</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>16. The BRICK WALL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider alternatives to:</td>
</tr>
<tr>
<td><em>Animals need to be kept in zoos for display.</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>17. The CONSTRUCTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct a: <em>mousetrap</em></td>
</tr>
<tr>
<td><strong>Materials</strong>:</td>
</tr>
<tr>
<td><em>10 iceblock sticks</em></td>
</tr>
<tr>
<td><em>10 rubber bands</em></td>
</tr>
<tr>
<td><em>1 plastic bag</em></td>
</tr>
<tr>
<td><em>2 straws</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>18. The FORCED RELATIONSHIPS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop a plague of grasshoppers, by using:</td>
</tr>
<tr>
<td><em>a potplant</em></td>
</tr>
<tr>
<td><em>a bag of cement</em></td>
</tr>
<tr>
<td><em>a lounge chair</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>19. The ALTERNATIVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Work out 3 ways to:</td>
</tr>
<tr>
<td><em>clean a dirty dog without water.</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>20. The INTERPRETATIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Give 3 possible explanations for:</td>
</tr>
<tr>
<td><em>A mouse is chasing a large cat around the outside of your house.</em></td>
</tr>
<tr>
<td>1. The REVERSE</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>List 10 occupations that robots will <em>never</em> replace.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. The DISADVANTAGES</th>
<th>4. The COMBINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>List disadvantages of, and improvements to: <em>The family home.</em></td>
<td>List attributes of both, then combine: <em>A fast food outlet and a wristwatch.</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. The ALPHABET</th>
<th>6. The BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 words (one from each letter of the alphabet) listed in a dictionary published in 100 years from now.</td>
<td><em>The family car</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. The VARIATIONS</th>
<th>8. The PICTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many ways will you <em>be able to:</em> <em>travel to Europe in 100 years from now</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. The PREDICTION</th>
<th>10. The DIFFERENT USES</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Predict 5 areas of our lifestyle which will be affected by rapidly advancing technology</em></td>
<td><em>Find 10 different uses for: Obsolete computers</em></td>
</tr>
</tbody>
</table>

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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
   What if:

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 Bar

7. The Variations
   How many ways can you:

8. The Picture

9. The Prediction

10. The Different Uses
    Find 10 different uses for:
<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. The RIDICULOUS</td>
<td>Try to justify this statement:</td>
</tr>
<tr>
<td>12. The COMMONALITY</td>
<td>Find common points between:</td>
</tr>
<tr>
<td>13. The QUESTION</td>
<td>Give 5 questions for:</td>
</tr>
<tr>
<td>14. The BRAINSTORMING</td>
<td>Brainstorm solutions for:</td>
</tr>
<tr>
<td>15. The INVENTIONS</td>
<td>Design a machine for:</td>
</tr>
<tr>
<td>16. The BRICK WALL</td>
<td>Consider alternatives to:</td>
</tr>
<tr>
<td>17. The CONSTRUCTION</td>
<td>Construct a:</td>
</tr>
<tr>
<td></td>
<td>Materials:</td>
</tr>
<tr>
<td>18. The FORCED RELATIONSHIPS</td>
<td></td>
</tr>
<tr>
<td>19. The ALTERNATIVE</td>
<td>Work out 3 ways to:</td>
</tr>
<tr>
<td>20. The INTERPRETATIONS</td>
<td>Give 3 possible explanations for:</td>
</tr>
</tbody>
</table>