

Creative Thinking Skills

Based on 20 Thinking Skills from Tony Ryan's "Thinking Keys"

Introduction: The Explanation of the 'Thinker's Keys'

1. The reverse listing

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 you could *not* clean.
List 5 things you have *never* heard.

2. The WHAT if

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

The Justification:

It is great for introducing an area of study, and for tapping into the student's knowledge base. It also generates loads of initiative 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 5 outer circles in turn. Put 3 consequences of each of these into the smaller circles.

3. The Disadvantages

Choose an object, e.g. an umbrella, 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. Practice 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 poke you in the eye.	Glue flat eraser onto the end of each one.
They take up too much room, even	Develop a series of locking hinges

when folded.	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 attributes of 2 dissimilar objects, 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 telephone and a lounge chair

The Telephone	The Lounge Chair
You hold it in your hand when you use it.	You can use it for relaxing your tired body.
It transmits messages a considerable distance.	It is often used when watching TV.
It interrupts you at inconvenient times.	It is made from a number of different materials.

The Combinations:

1. A telephone which vibrates and can be used to relax your aching back when you have been placed "on hold".
2. A dual lounge chair and exercise machine, incorporating a small handled device for exercising your wrists and arms, which can be used while watching TV.

5. The thinking ladders

The following acronym, or ladder of words, can be used by different age groups to reinvent or redesign everyday objects.

The Justification:

A practical step-by-step strategy for developing innovative and highly unusual products. The key is often used in today's high-tech product development laboratories to create new products for the market.

The Ladders are:

B igger	B ar
I nstead of	A dd something
N onsense	R eplace
G et rid of	
O ther uses	

The Example:

BAR a mobile phone:

Ask the students to draw a standard mobile phone, and then direct them through the steps one at a time. Here's one series of possibilities:

BIGGER:

To enlarge the screen so that it can be converted to a TV screen

ADD:

Add a set of wheels to the phone, so that instead of carrying it, you can lead it around.

REPLACE:

Replace the antenna with a walking stick, for the aid of older people who use a mobile phone.

6. The alphabet / acrostic

Choose an object or general category of objects, which features in the area of study and compile a list of words using a key word or alphabet, which have some relevance to the theme. Then try to expand on some ideas which link with each of the words.

The Justification

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

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:

- a. paint a house
- b. wash an elephant

8. The Doodle

The teacher draws a doodle 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.

The Justification:

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

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 10 years from now.

10. The different uses

Put your imagination to work and list some widely different uses for a chosen object from your own 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 plastic water bottles.

1. Cut out the bottom of a bottle, fill it with water and place it in the ground, nozzle down, to give a slow-release watering system to your plants.
2. Use them as floating devices on a dam.

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 tax payer."

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 for wages would be injected into the economy and would boost a wide variety of businesses.
4. Cars would be more fuel-efficient because of their modern design, leading to a reduction in air pollution and less wastage of fuel.

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 mind-stretcher. 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 rough surfaces.
- They are both tourist attractions.

- You can't drive cars on either of them.
- They are both non-living.

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 pattern of the teacher asking all the questions. Students still need to demonstrate a solid knowledge.

The Example:

The answer is MIDNIGHT. Give 3 questions:

1. When is it 12 hours after midday?
2. What is another name for "the middle of the night"?
3. If you go to bed at 8 o'clock, what time is it 4 hours later?

14. The brainstorming

State the problem that needs to be solved and brainstorm a list of solutions. They may be either practical or impractical solutions – the latter can often lead to an innovative solution.

The Justification:

Great for solutions to every day 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 ridiculous ideas are acceptable.
3. Build on previous ideas as much as possible.

The Example:

Too many people drive cars to work. Here are some possible solutions:

1. Offer monetary incentives to drivers with 3 or passengers.
2. Introduce a wide range of work-at-home schemes.
3. Get everyone to change to pedal cars so that driving requires a much harder effort.

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:

Children, (and grown-ups too), love to invent things if given the opportunity.

The Example:

Invent some or all of the following:

- an eggshell peeler for boiled eggs
- a combination knife and fork
- devices which would – catch mosquitoes; make your bed

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. Practice 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 constructions problem-solving tasks and use lots of readily available materials.

The Justification:

Here's an example of a really practical creative thinking. It goes hand-in-hand with outright fun.

The Example:

1. Build the highest possible self-supporting structure using: 10 straws and 4 rubber bands.
2. Build a bridge using: a book placed as high as possible on a straw platform.
3. Balance a marble as high in the air as possible using: one marble, 20 straws and one paper clip.

18. The forced relationships

Develop a solution to a problem by employing 3 totally dissimilar objects. Each of the objects cannot be used for its normally intended function, e.g. a telephone cannot be used to make a phone call.

The Justification:

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

The Example:

You need to catch a toad in your backyard by using: a stocking, an apple, a telephone.

A solution:

Dig a hole in the backyard with the telephone and place the stocking over top as camouflage. When the toad falls in, knock it out with the apple.

19. The alternative

List ways of completing 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

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. Develop the ability to consider a wide range of consequences.

The Example:

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

Some explanations:

1. He considers himself to be a famous artist and wants to create some environmental art.
2. He has discovered some ant holes, and is marking them out so that he can poison the ants.