



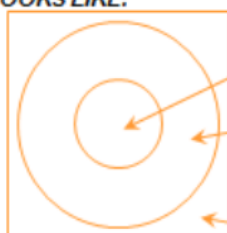
# Barton Court Grammar School

An aspiring “Thinking School”

## Thinking Maps®

### Circle Map

LOOKS LIKE:



**THINKING PROCESS:**  
Defining in Context  
or Brainstorming

**NOTES:**

Topic

Everything  
I know

How or where did  
I learn this?

My frame of  
reference

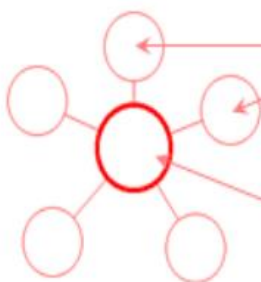
Can be used for:

- Brainstorming
- Diagnosing prior knowledge
- Closure/review

Circle to Tree for Writing

### Bubble Map

LOOKS LIKE:



**THINKING PROCESS:**  
Describing (adjectives  
or adj. phrases only)

**NOTES:**

Adjective, phrase,  
character trait

Thing you are  
describing

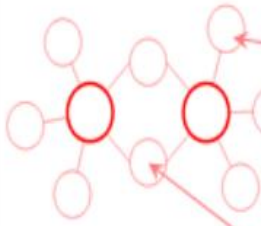
Attributes: Maths

Properties: Science

Adjectives Only!

## Double Bubble Map

LOOKS LIKE:



THINKING PROCESS:

Compare/contrast,  
similar /different

NOTES:

Differences

Similarities

Unique: Common

Alike: Different

Related to the  
Venn Diagram

Colour Code

## Tree Map

LOOKS LIKE:



THINKING PROCESS:

Classify/Group/Sort

NOTES:

Title, topic or category

Categories or  
groups

Details, examples

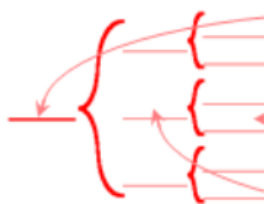
Types of...

Kinds of...

Inductive/  
Deductive

## Brace Map

LOOKS LIKE:



THINKING PROCESS:

Part/whole  
relationships, structure

NOTES:

Whole

Sub-parts

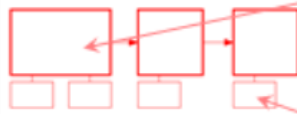
Parts

Parts of...

Physical,  
tangible  
objects

## Flow Map

LOOKS LIKE:



THINKING PROCESS:

Sequence, Order,  
Cycles, etc.

NOTES:

Major Stage

Substages

Plots,  
Processes,  
Chronology

Can go in any  
direction

## Multi-Flow Map

LOOKS LIKE:



THINKING PROCESS:

Cause & Effect  
Reasoning, Prediction

NOTES:

Causes

Event

Effects,  
Outcome

Causal Explanation

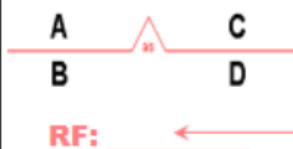
Projecting  
Consequences  
Analyzing Effects

"if-then"  
"when... then"

Can be one-sided

## Bridge Map

LOOKS LIKE:



THINKING PROCESS:

Seeing Analogies,  
Transferring Similar  
Relationships

NOTES:

Similar relationships

Relating or Common  
Factor

How are they  
related?

# Six Thinking Hats®



## White Hat Thinking- Facts

- Information and data
- Neutral and objective
- What do I know?
- What do I need to find out?
- How will I get the information I need?



## Black Hat Thinking - Cautions

- Difficulties, weaknesses, dangers
- Logical reasons are given.
- Spotting the risks



## Green Hat Thinking - Creativity

- Ideas, alternative, possibilities
- Provocation - "PO"
- Solutions to black hat problems



## Red Hat Thinking - Feelings

- Intuition, hunches, gut instinct
- My feelings right now.
- Feelings can change.
- No reasons are given.



## Yellow Hat Thinking- Benefits

















- Positives, plus points
- Logical reasons are given.
- Why an idea is useful



## Blue Hat Thinking- Process

- Thinking about thinking
- What thinking is needed?
- Organizing the thinking
- Planning for action

# Attributes for Success ®

	Thinking and communicating with clarity and precision		Thinking about thinking (metacognition)
	Taking responsible risks		Responding with wonderment and awe
	Creating, imagining and innovating		Questioning and posing problems
	Managing impulsivity		Finding humour
	Applying past knowledge to new situations		Thinking interdependently
	Listening with understanding and empathy		Thinking flexibly
	Gathering data through all senses		Persisting
	Remaining open to continuous learning		Striving for accuracy and precision

# 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**.

## 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.

## 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.

## 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.

## 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 hi-tech product development laboratories to create new products for the market.

The Ladder is:

Bigger  
Add  
Replace

## 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.

## 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.

## 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.

## 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.

## 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.

## 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.

## 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.



### 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.

### 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.

### 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.

### 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.

### 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.

### 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.



## 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.

## 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.

# Metacognitive questions

By using some of these questions at the end of learning episodes, students are encouraged to reflect not just on **WHAT** they are learning but **HOW** they are learning and **HOW WELL** they are learning.

1. How could you have learned this faster?
2. How will you remember this for your exam?
3. What skills have you been using as part of this learning?
4. What part of the assessment criteria are you covering?
5. How could you use this learning outside of this subject?
6. How confident are you at explaining your learning?
7. What kind of thinking have you been doing?
8. Did anyone say/do something that changed your thinking?
9. What personal contribution to your group's thinking are you most pleased about?
10. What did you like/dislike, find easy/difficult about this task?
11. What skills supported the completion of this task?
12. What would help your group do such a task even better next time?