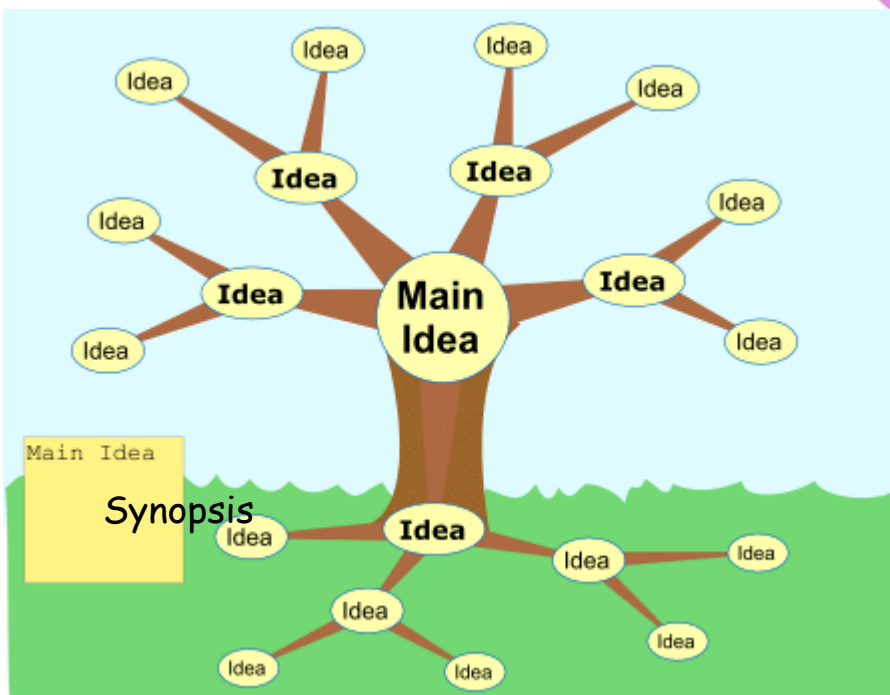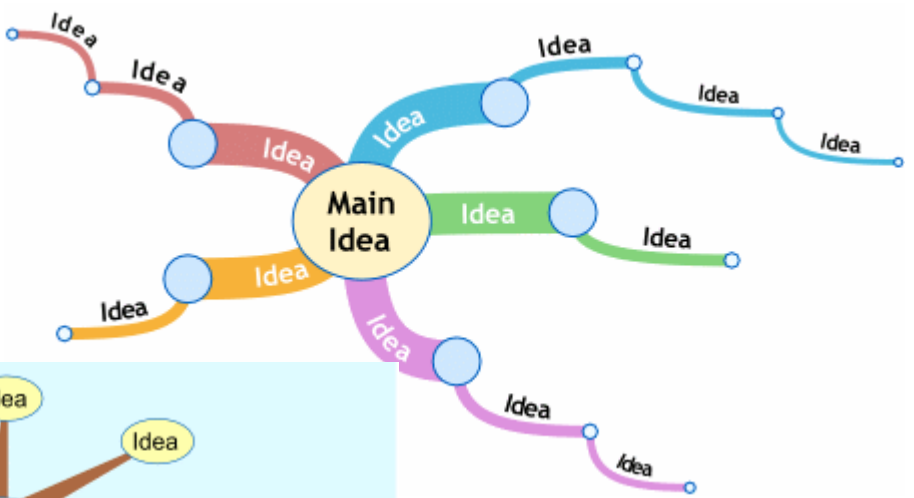# Guide to thinking tools

+-i or PMI

Synopsis

The following guide includes a wide range of thinking tools that can be used by a teacher to demonstrate to a class or by pupils working independently.

The tools are organised into five categories of thinking.

- **How I know**

- **How I organise**

- **How I judge**

- **How I transfer**

- **How I innovate**

How I know

1. SPECS

A way to help remember important information is to use SPECS.

See	close your eyes and imagine it is there
Personalise	imagine yourself using the information or being in the scene
Exaggerate	turn the facts into something silly and unusual
Connect	link the facts into something silly and unusual
Share	teach it to someone else

2. Transformers

Try remembering key facts by transforming the writing into something different.

Writing ⟶ pictures

Writing ⟶ mind / memory map

Writing ⟶ leaflet

Writing ⟶ presentation

Writing ⟶ poster

3. Where on the page

Start with chapter headings in a book. These tell you what goes where. Look to see if the chapter is broken into smaller sections (sub-headings). Key information is often found in the first sentence, and the last paragraph sums up what is important.

4. PQRST

A quick method to get the meaning of a piece of writing and remember the most important points.

P   -   **preview**   i.e. use methods of 'where on the page'

Q   -   **question**   i.e. turn each chapter and sub-heading into a question

R   -   **read** your questions and answer them from the text

S   -   **say** your answers and explain your keywords aloud

T   -   **test**   i.e. go over your notes and test yourself again

5. Skim Reading

The ability to read quickly through a section or chapter of a book without reading every line.

6. Funnel

The funnel helps you filter what is the most important information. Read through the text and highlight key words. Put them into the funnel. Now choose which are the most important and drop them into the bowl below. Use these words to write a summary.

7. Introduction Web

This method is used to help write a good introduction. Organise keywords and phrases into each section. Then, as you write, work your way around the web.
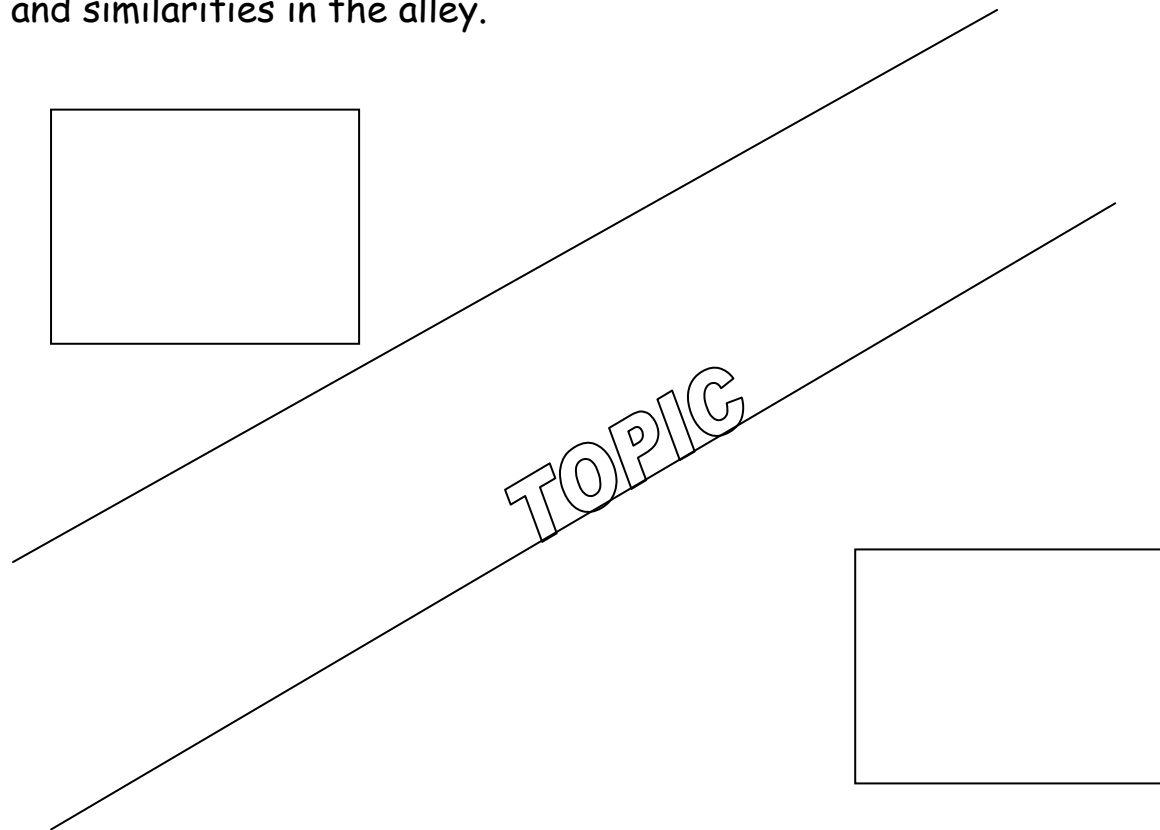
8. Keywords

Using proper nouns or verbs to sort important information by summarising a set of facts or a passage in a book.

How I organise

1. Comparison Alley

Use this tool to compare a topic. Place the differences in the boxes and similarities in the alley.

TOPIC

2. Venn Diagrams

This is a way of comparing what things have in common.

3. Single bubble

Put title or topic in the centre and everything which connects to it goes in separate bubbles around the side.
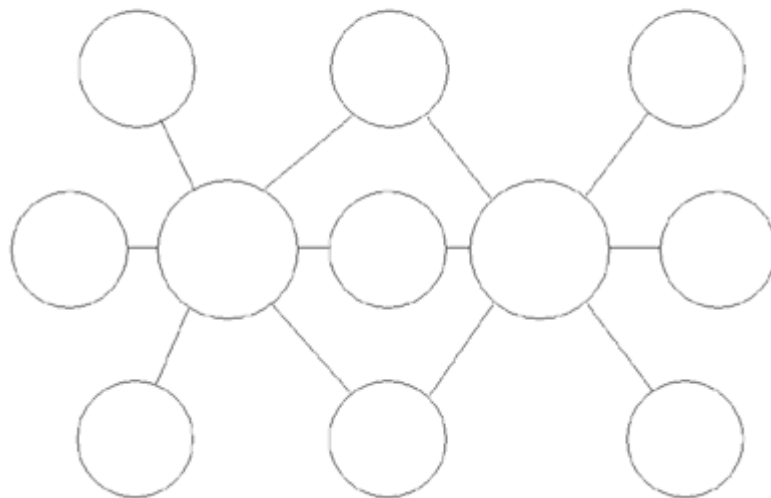
4. Double bubble

Put the title or topic in the centre of each bubble. Everything in common goes in the bubbles in the centre. Things which are definitely **not** in common stay on either side.

Double Bubble Map   Name _____

Double Bubble Map for Comparing (Similarities and Contrasting differences)

5. Summary Star

A summary star helps you collate all the related information. Put the heading into the centre of the star. Any related information is attached to each point of the star, similar to a single bubble or introduction web.
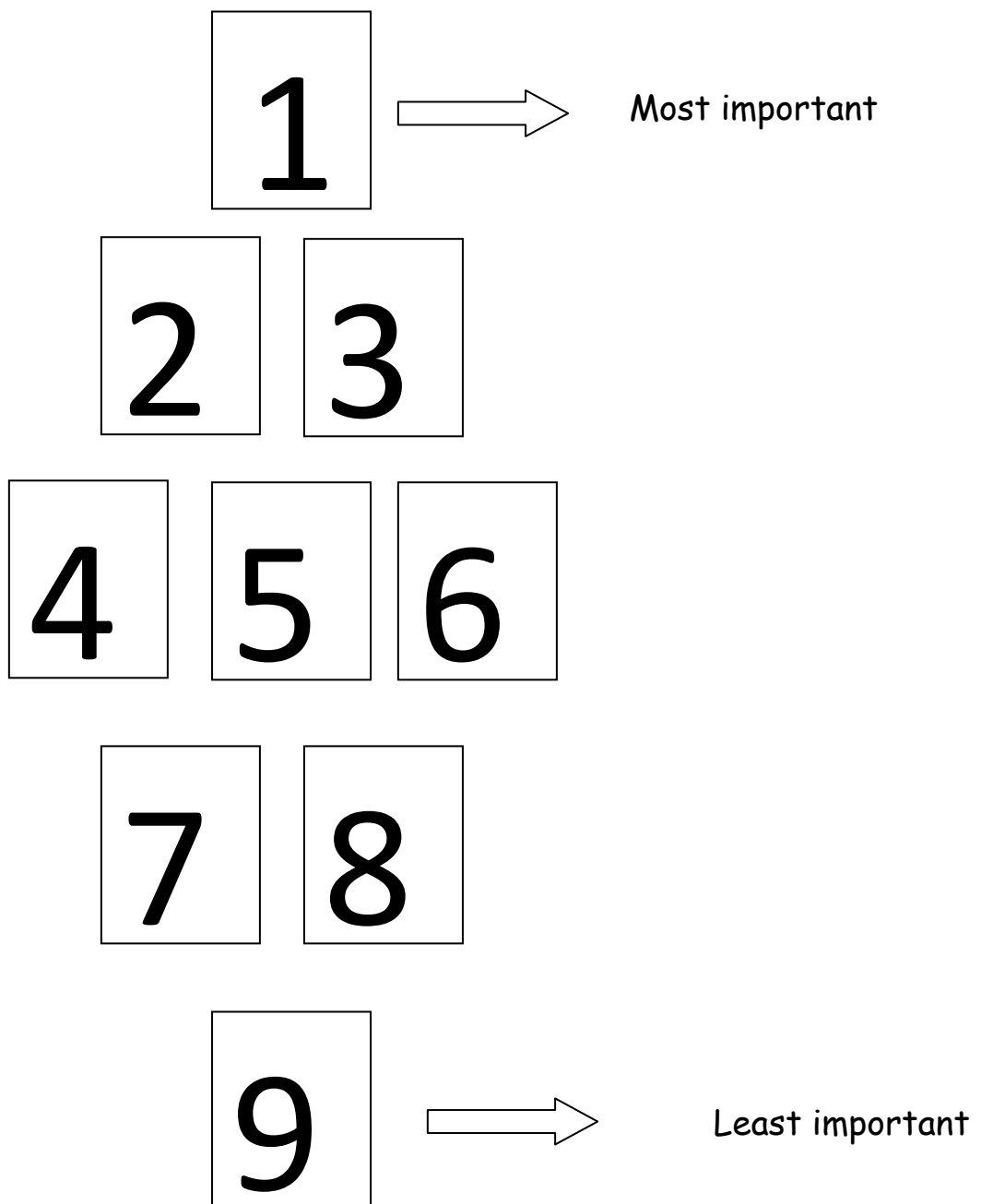

6. Importance Pyramid

The pyramid allows you to write down the information in order of importance. The most important things go at the bottom.
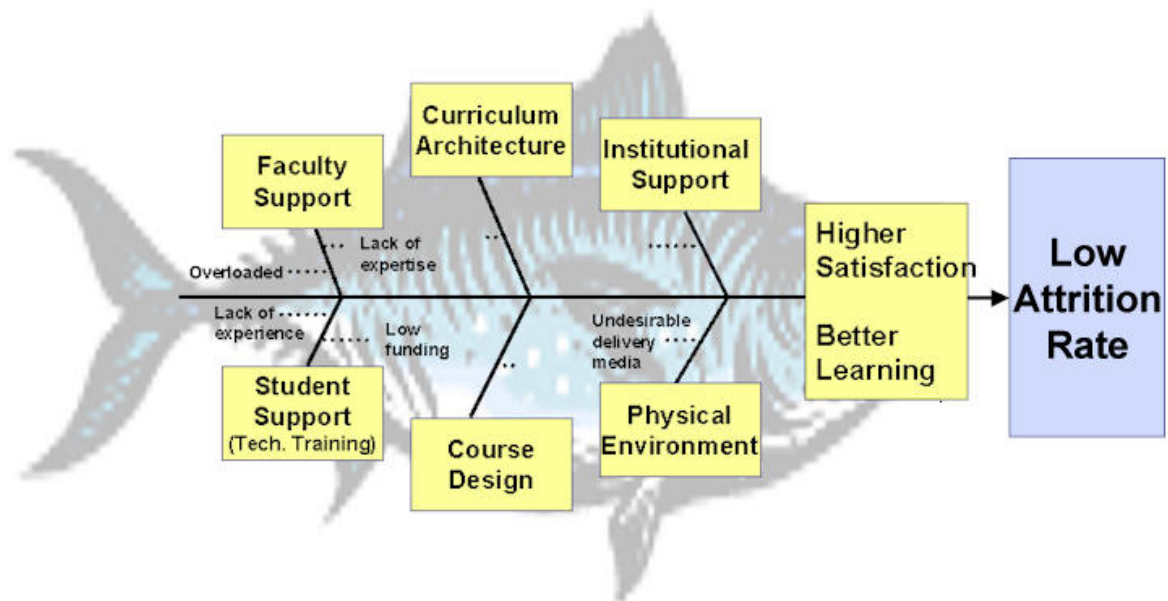
7. Diamond 9

Arrange the information on the cards in order of importance from 1 to 9 in a diamond shape.

1 → Most important

2 3

4 5 6

7 8

9 → Least important

8. Fishbone

A fishbone diagram is appropriately named because it looks like a fishbone with the head on the right hand side. The fishbone works by putting all the things which contribute to an outcome together in one place.
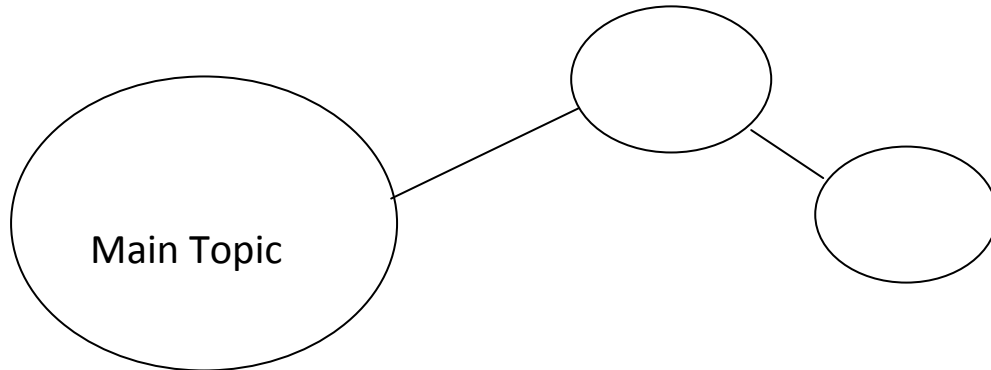

9. Spider Diagram

Not to be confused with a mind/memory map, a spider diagram is a simple way of showing how things are connected to each other. Place the title in the middle and work out the way adding keywords.
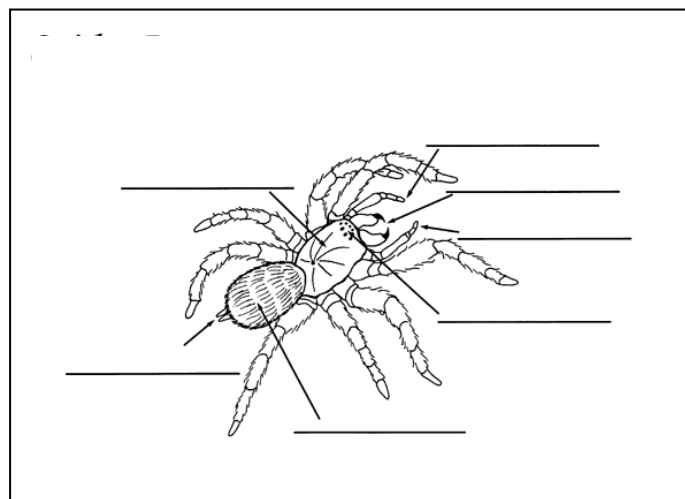
10. Association Web

This tool helps you sort things by similarity or difference.

11. Weighting chart

A weighting chart allows you to compare just how important and urgent things are. Take the items you want to compare and position them on the chart. If it's very important it goes further to the right. If it's very urgent it goes towards the top. An example is planning for exams. It may be important for you to see the latest film at the cinema but it's not as urgent as planning for your exams.
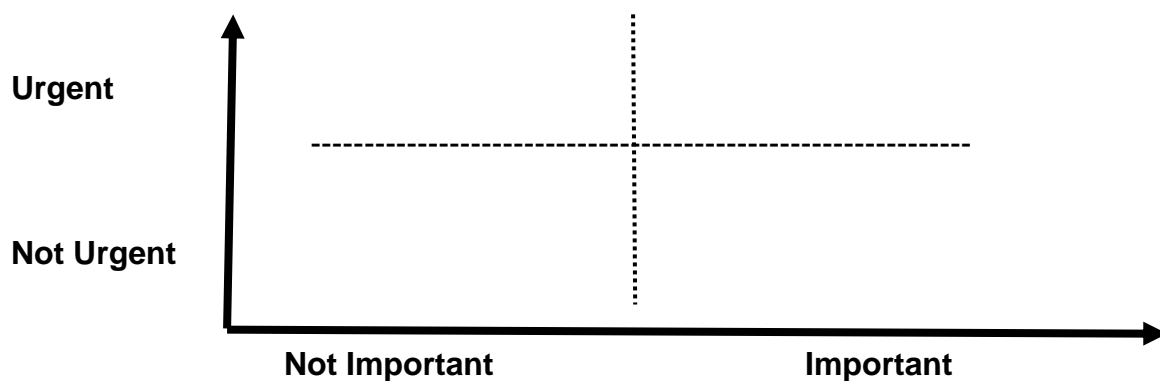
How I judge

1. Kipling Questions

Kipling questions are named after the poet Rudyard Kipling, who wrote a poem describing the types of higher order questions to ask.

I keep six honest serving-men

They taught me all I knew

Their names are What and Why and When

And How and Where and Who

Use these questions to ask for more detail in teaching and when pupils are writing a factual report or newspaper story.

2. Sources of evidence

Think how reliable are your sources of evidence.

What further evidence is required?

What questions does the evidence fail to answer?

In what way might the evidence be unreliable?

*In what way is the evidence reliable?*

3. Question time

Asking the right questions at the correct time is an important life skill. Different questions to use:

Clarifying questions, Reflecting questions, Summary questions, Consequence questions, Alternative questions

4. Reliability Grid

This is a simple way to estimate the worth of what you are reading or being told. Along the bottom there is the reliable, the further along you place your statement. Up and down the side is the true or false dimension: if you know it to be true, place it near the top.

True

False

Reliable   Unreliable
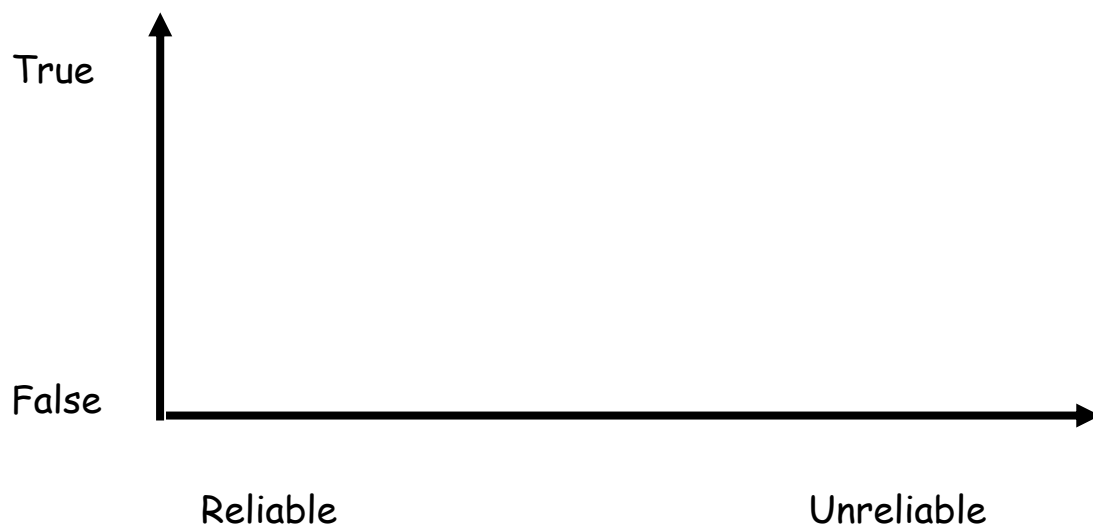
5. Check for Bias

A bias is weight favouring one side. Use this tool to try and sort out fact from opinion and uncover any hidden intent.
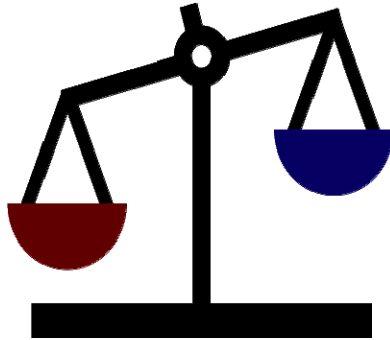
6. SWOT

Swot stands for Strengths, Weaknesses, Opportunities and Threats. Business people use this a lot to analyse their current status. A swot helps you organise information when working on an important decision.

7. Priorities Grid

Use the priorities grid to make comparisons. The grid you have been given compares degree of difficulty with benefit. If, for example, you wanted to compare the advantages and disadvantages of learning

to play a musical instrument or going on a difficult journey to see a friend, you could use this grid.

High Benefit

Difficult   Easy

Low Benefit
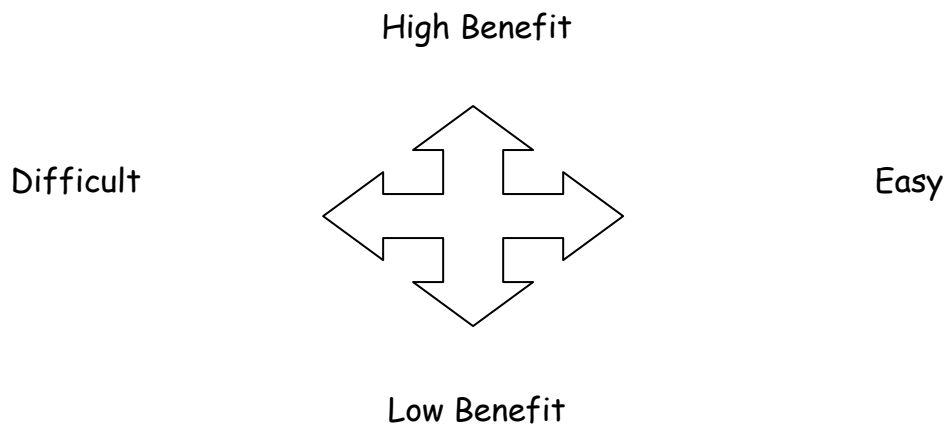
8. Flow Chart

A flow chart helps you to see a process from beginning to end. Complete the chart either from the beginning to the end, or from the end back to the beginning.

9. Classification System

A family tree is a good example of a classification system. You can use a classification system such as this one to show relationships. It can be used in most subjects where you can organise things by similarity or difference.

How I transfer

1. Bubble Quotes

Great for using a character as the main topic and adding the characteristics of that character or citing quotations by the character.

If chance will have me king, why, chance may crown me

Macbeth

Is this a dagger which I see before me

2. Decision Tree

This tool helps you gather all the information into an order to help you see everything all at once. It also helps organise things into categories and sub-categories.

3. Solution focus

The solution focus is shaped like an upside down pyramid. It helps you make good decisions. Complete the sections of the pyramid. Start from the bottom and build up.

4. Driving v Resisting

If you want to make a decision but there are obstacles in your way, use this tool. First write down what it is you want. Then list down the left hand side all the things which will help you and list opposite all the things which might stop you.

5. What's the logic?

This tool helps you make sense of a chapter of a book or any article you might read in a magazine or newspaper.

6. Arguments for and Against

This is a really good tool for seeing both sides of an argument or for explaining a difficult decision. It is simple to use. Complete each section on either side and write your conclusion.

Follow the arguments for and against on both sides in order. Write in your evidence. Then, once you have finished, go back and score your evidence on a scale from 1 to 10, where 10 is the highest score and represents really strong evidence, while 1 is the lowest score and represents weak evidence.

How I innovate

1. Question Generator

Creative thinking occurs when you come up with a new idea or one that's just a bit different. Sometimes it helps to ask unusual questions. Put your idea on the middle of the page and write out your really silly questions on the lines radiating from your idea. Fill as many as you can. Read them all again – has it helped you come up with any new ideas?

2. Making sense of a problem

This tool helps you think around a problem to see if it's a problem worth worrying about! Write the problem in the space provided and then follow it through by going up or down. Up for reasons to overcome the problem and down for reasons to stop you overcoming the problem.

3. Gantt

This is a technique for planning and prioritising. First put all the tasks you need to achieve down the row on the left. Sort them

according to what's most important. Then put them into the time slots along the columns across the page. Make sure you spread things out sensibly.

4. Mind/memory map

A mind/memory map is a really good way of developing your thinking. To be really good at it needs practise but mapping brings together lots of different thinking techniques. Add pictures, colours and words to your map.

5. Thinking Hats

A method devised by Edward de Bono as a different way of thinking. Each hat represents a different way of seeing a problem or discussing a problem. Really useful when group or teamworking.

6. SCAMPER

This is a tool used to test out an idea or plan. The way it works is to force you to think about your idea or plan in lots of different ways.

Substitute – replacing an idea with something else

Combine – adding something else to improve

Adapt – could any bits be changed?

Modify – would you idea work in a different order?

Put to other uses –try using your ideas for a different purpose

Eliminate – try removing parts of your idea

Rearrange – would your idea work in reverse?

7. Time Line

Plan in advance using a timeline. Choose whether your plan is for a day, a week or a month. Put in important dates such as holidays and exams first, then put in what has to be done in time order.

8. Algorithm

Use this tool to describe the thinking behind any decision. It works like a chart showing the flow of ideas. Use the different ideas. Use the different shapes, lines and arrowheads to map out each of the possible decisions.

Electronic Version of tools

An electronic version of these tools is available in the network via OUR SCHOOL, Learn to Learn folder then Thinking Tools folder.