Put your thinking cap on(line!)

A collection of websites and online tools to support the teaching of creative and critical thinking skills across the curriculum.

A main goal of Creative Teaching and Learning magazine is to help teachers develop their students' thinking skills. Earlier on in this issue, headteacher Marcelo Staricoff speaks of the importance of getting children thinking creatively and independently in the early years so as to set them up for a lifelong love of learning. In his article, he details many fantastic and fun ways to engage even the youngest of children in doing this. Robert Fisher too highlights the importance of play when it comes to developing the brain. His article provides a number of what he terms 'brain games', which not only help extend thinking skills and encourage collaboration, but make it fun too.

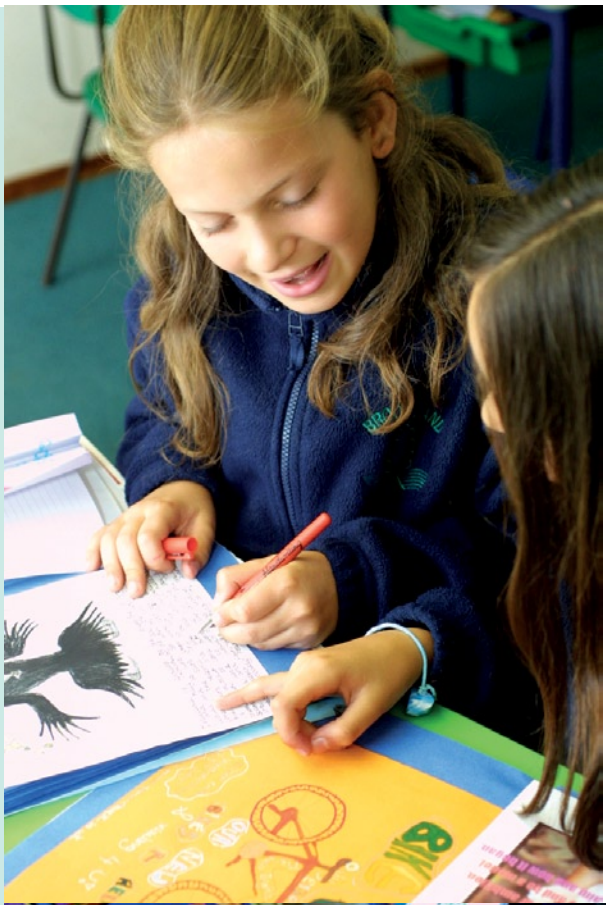
Many of the websites featured in the following pages aim to make thinking enjoyable for students of all ages and abilities. As you explore, you'll find a whole range of games and activities designed to stimulate the brain and develop a variety of thinking skills – from fast-paced, arcade-style games requiring quick mental reactions, to riddles and puzzles that necessitate deeper and more logical thinking.

Other ways to develop thinking skills

In his article, Marcelo also discusses the potential of philosophy for prompting creative thinking in his article.Two of the websites featured here are dedicated to this, and on them, you'll find a variety of resources for conducting philosophical enquiries – from practical guidance on ground rules during an enquiry, to short films and juicy questions designed to spark deep, philosophical debates.

Often, students are not aware of their thinking – it happens automatically. Marcelo further mentions the importance of making thinking visible – making thought-processes explicit and teachable by getting them down on paper… or in this case, on-screen! A number of sites reviewed in the following pages provide resources and online tools teachers can use to help students map their ideas and discussions in a visual way.

Of course, there are many ways to teach thinking skills – these websites highlight just a few. We hope you'll enjoy browsing these sites as much as we did, and we hope that in some small way, you'll be able to use them to show your students just how rewarding and exciting thinking can be.



Funbrain – www.funbrain.com

All Key Stages

As an online arcade of educational games, Funbrain provides an enjoyable way for students to consolidate mental maths, reading and thinking skills.

The section 'Teachers Home', accessible from the homepage, might be a good place to start. Here, you'll find the 'Funbrain Game Finder', which allows you to search the games by the age of your students or by subject. The majority of games are aimed at students from the ages of five to 18, though there's a lovely section for use with even younger children - 'Playground', which features a range of games designed to support visual and motor skills, for example, matching colours or searching for hidden items

All games can be accessed individually in the Kids Centre, but both the maths arcade and the fun arcade are virtual board-games, providing access to the mini-games in a certain order, increasing difficulty as the player progresses. On entering the board-game, the player selects their gender, their age (as this is an American site, players indicate their grade), and a playing piece. To progress to the next game, the player must successfully complete the first. The games are arcade-style in nature, and highlights include Maths Car Racing, in which players select the equation with the highest answer to pull ahead of the other car, Mummy Hunt, which entails solving a series of puzzles to reach the golden sarcophagus, and my personal favourite, the Hillbilly Pig Toss, which requires players to help the hillbillies catapult their pigs across a ravine by adjusting angles. It's all a bit wacky, with brightly coloured animations and silly sound effects, but the games are undeniably inventive, and as I discovered, do require some serious maths skills!

In the reading section of this site, you'll find, as well as a range of illustrated stories and comics, an assortment of games to improve language skills. Among these is Scramble-saurus, which requires the player to solve anagrams. The word sets are cross-curricular, including scientific terms, historical facts and countries. Each anagram comes with a straightforward clue – when unscrambling country names for example, the clue might be the capital city – and in some cases, a scrambled clue – for example, a sentence describing the country's main export or first president, but with the words in a random order. These games could be great end-of-topic tools, allowing students to review information in a fun, interactive way.

Brainboxx – www.brainboxx.co.uk

All Key Stages

Brainboxx is a must-visit for any teacher looking for simple but inventive ways to develop their students' thinking skills. The site has been created by independent education consultant, John Fewings, and the sheer volume of information and resources available here is staggering – it's hard to believe it's all free to use!

I'd recommend heading straight for the site map, as that's the easiest way to absorb and navigate the vast amount of information available on the site. Scroll down and you'll find guidance on developing your students' revision skills, a range of memory techniques (that really work – I've tried them!) and an interesting discussion about learning styles and gender. You'll also find a useful section on thinking skills, which includes introductions to and advice on using Bloom's Taxonomy and de Bono's Thinking Hats, a range of strategies for managing the talking and listening process in the classroom (i.e. hotseating, envoying and think, pair, share – Fewings calls these 'TALK strategies') and an interesting article on creative problem-solving, based on Howard Gardner's theory of multiple intelligences.

What's great about this site is the way everything intertwines and links together. This is especially evident

in the thinking skills sections – for example, on the Questionable Thinking page, you'll find an interesting grid pairing the various levels of Bloom's taxonomy with types of questions/ questioning words, and on the page dedicated to the thinking hats, you'll find ways of combining the hats with various TALK strategies.

Also worth a look is the extensive array of resource materials. Highlights include a poem of the week, rhymes and chants to help develop oral skills, a selection of simple but classic thinking games, and the Puzzleboxx, which features a number of puzzles, riddles and problems, suitable for both children and adults. The brainteasers in this section are helpfully divided into categories according to the skills needed to solve them – for example, some puzzles are visual in nature, whereas others require a mathematical or logical approach. Not only are they a lot of fun to discuss and experiment with, they're a great way of getting students thinking – perhaps without them even realising it!

Brainsmart – www.bbc.co.uk/scotland/brainsmart

Key Stages 2-5

A simple and very visual site, the main focus of Brainsmart is to help students understand how their brain works and what they can to do make it work better. Made up mostly of two to three-minute animated videos, there's an emphasis on preparing for exams and revision strategies, aiming the site most obviously at upper secondary school students. However, with engaging and amusing videos examining how to make study time as productive as possible, what happens in your brain when you learn something new, and how to motivate yourself, the site can also be used with much younger students.

The section on memory is full of useful ways to learn different things, including spellings of difficult words, capital cities around the world and the planets in our solar system. And if you're constantly confusing Bactrian and Dromedary camels… well, you're in luck – you'll find a video here explaining how to remember which is which. Not so useful, you may assume, but the idea behind this memory aid can be applied to almost anything if taken laterally rather than literally – it's a fun and simple way to teach kids

various techniques for improving their memory.

After exploring the site, your students can then put their memory to the test with the site's three games – Name that name, Objects in order, and Name that number. To make it even more interesting, have them take the tests before and after practicing the techniques shown on the site to see how much they've improved their skills!

Not so relevant to promoting thinking skills but a nice section of this site nonetheless, is 'Success', with videos covering topics such as preparing your mind for exams and managing stress. You'll also find a few downloadable resources on this page, designed to help students make plans and stick to them.

Childrenthinking – www.childrenthinking.co.uk

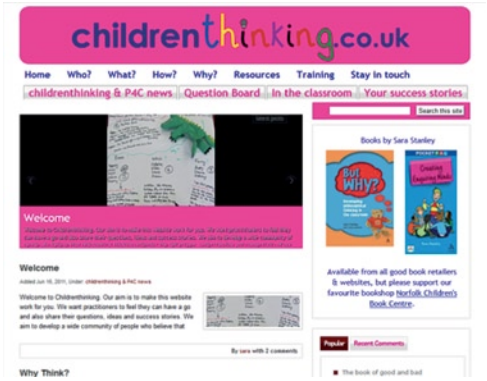
Key Stages 1-3

Despite being aimed more at practitioners in early years settings, Childrenthinking features a lot of great advice and resources for any teacher interested in using Philosophy for Children in their classroom. It's a relatively small site with a blog-like structure, but the information is practical, coming from real teachers who've tried it in their own classrooms.

The page 'What?' provides a concise introduction to P4C, as well as a brief history and some guidance on getting started. There's also a very long list of questions that would make interesting starting points for enquiries, all grouped by theme. Questions include: are dreams real? Do we feel colour? Are we born with anger or do we learn it?

The 'How?' section of the site picks it up from there, explaining how to put the principles outlined into practice in your classroom. There's information on establishing a community enquiry, and setting up a code of conduct. There's also a series of progressive 'skills' the children will develop that can act as planning and assessment tools for P4C – for example, respecting others' views or looking for connections between questions – as well as a simple step-by-step outline of a typical P4C lesson.

The blog posts can all be accessed through the categories listed horizontally beneath the site's main



pages, in bright pink font. The Question Board is definitely worth a look, as this features even more enquiry questions for you to explore! These include a range ways to prompt philosophical discussions, for example, 'Would you rather…?' and 'Would you dare…?' Other interesting blog posts include warm up activities and 'The book of good and bad', a lesson plan for use with younger children, exploring fairytale characters and what makes them good or bad. Along those lines are another couple of posts featuring interesting (and often amusing) philosophical dialogues between boys and girls about 'goodies' and 'baddies' in stories.

The Philosophy Foundation – www.philosophy-foundation.org

All Key Stages

The Philosophy Foundation is an educational charity that works with schools to promote philosophy in the classroom. They run all sorts of training courses and workshops which you might like to potentially consider, but there are also some brilliant free resources on their website that teachers in all key stages can use to stimulate philosophical debate.

For younger children, the 'What makes me me and other interesting questions' series provides a compilation of five short films using the complex questions children tend to ask and adults find difficult to answer (Why should I be good? Who owns the sky?) as a way in to exploring basic philosophical concepts such as fairness and identity. The stories are easy to grasp, with appealing animations and funny narration, but have the potential to spark some really interesting discussion. There are two versions of each episode – one with just the animation, and another which cuts periodically to a group of youngsters who discuss the questions the video asks them. There's also a free downloadable teacher's guide to using the films (how they can be used to teach different aspects of the curriculum, additional questions to ask and so on), which also gives

some general tips for facilitating philosophical discussions.

For older students, you'll find three fantastic videos under 'Big Questions'. These films are around 12 to 15 minutes long and provide some sort of sci-fi scenario – for example, 'The Future Spy' transports you to a civilisation where crime has been eradicated with technology that predicts future events. Would-be offenders are punished before they commit a crime. More information can be found about these films and their uses at www.bigquestionsprogram.wordpress.com. The video's creators are happy for teachers to use them in an educational context, but you'll need to contact them for permission and non-watermarked versions of the films.

Also on the Philosophy Foundation site, you'll find some interesting downloadable lectures and papers, and lists of recommended books (for both students and teachers), websites and podcasts. Becoming a member gives you access to even more resources, strategies and guidance for using philosophy in the classroom – registration is free.

The Literacy TA – www.literacyta.com

Key Stages 2-5

The Literacy TA is all about improving students' performance through skill-based instruction. The main focus is literacy skills and since this is an American site, is based predominantly on the Common Core standards – however, most of the skills featured in the 'Skill Library' can be adapted to any aspect of the curriculum.

There are four main skill areas covered – working with non-fiction, working with fiction, writing, and speaking and listening. Within each area is a list of skills – for example, the section on working with nonfiction focuses on comprehension, analysis and synthesis. Each listed skill has its own page, which offers a range of 'mini-lessons' or activities, all categorised as either elementary school level, or middle/high. The activity instructions are free to view, but unfortunately, to access the whole range of practical student handouts, support tools and assessment rubrics, you need to pay to subscribe. Skills include visual analysis, examining evidence, analytical reading, and much more. The section on speaking and listening is a good area to visit – there are some excellent worksheets designed to encourage collaboration and engage students in academic discussions.

The section, 'Skill instruction', provides a range of ideas for explicitly teaching certain skills – the '21st century skills' page, for example, focuses on teaching students how to make the most of technology. Inventive ideas here include setting up an online writing workshop where students use Google Docs to revise and edit each others' work and encouraging students to experiment with different online presentation software. There's also an interesting section on critical thinking, which includes a list of strategies you can use to get students participating more in lessons, and one on collaborative learning, which includes a step-by-step guide to engaging students in a Socratic discussion. There's a lot of helpful advice and imaginative suggestions here, and this section is free to view (any accompanying resources do require subscription).

Mindmup – www.mindmup.com

Key Stages 2-5

There are countless mind mapping tools available online, but one of the best, in my view, is Mindmup. First off, there's no sign up required. Secondly, you can save your mindmap to your browser, Google Drive, Github or Dropbox – all of which are private to you, unless you decide to share. Alternatively, you can save the map online for the whole world to view!

The tool itself is intuitive, using the very visual 'parent', 'sibling' and 'child' relationship to describe the different levels in the map (as a side note, this tool might be useful when putting together a family tree). It's also completely flexible – extra boxes (or 'nodes') and sub trees can be added anywhere, at any point, and the map shifts to accommodate it. Text, pictures and hyperlinks can be added as an attachment, which appears as a small paperclip hooked over the top of the selected box and opens up as a pop up screen. Images can also be added to the map itself.

A range of extensions can be activated. For example, as you add more boxes and levels to your map, the lines automatically curve. One of the extensions is the ability to convert the 'funky' curved lines to straight lines, which makes it easier to see what connects to what on larger maps.

The most interesting extension by far though is 'Realtime collaboration', which allows several people to work on one map at the same time. Mindmup goes through Google Drive to do this, so opening a Google account, if you don't already own one, is the only prerequisite. As your collaborators move around the shared map on their own screens, a thumbnail of their profile picture appears next to the node they're working on, and updates are shown on everyone's screens almost instantly. This extension has plenty of potential for use in the classroom, or even as part of a collaborative project or homework task.

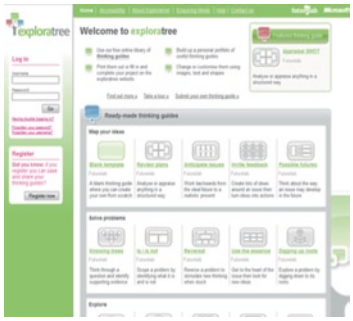
Exploratree – www.exploratree.org.uk

Key Stages 2-5

Another brilliant mind mapping tool is Exploratree, which provides an online library of ready-made, interactive map templates. You can print these templates out as they are to use in the classroom or edit them online before printing. You can also create your own map from scratch, and the very flexible range of options makes this site perfect for creating more complex diagrams, or your own versions of Hyerle's Thinking Maps. To save, send or share your creation though, you'll need to register for a free account. This is necessary should you wish to create a map and have your students complete it online, perhaps as a homework task.

The templates or 'thinking guides' as the site calls them, are categorised according to their purpose. You can choose a guide to help you explore, analyse and map ideas, solve problems or look at things from a different perspective. Templates include 'Digging up roots', exploring a problem by digging down to its roots, 'Futures wheel', thinking through consequences and knock-on effects, and 'Plus, minus, interesting', an evaluation tool mentioned by Marcelo Staricoff in his article earlier on in this issue.

Once you've selected your map, the site takes you to an editing screen. Each map comes with instructions, explaining how to use it, what to put in each box, and



in some cases, the thought processes involved in filling it in. Some of the more unusual maps give examples of how to complete it.

Make sure 'create it' mode is enabled and from there, you can add text, shapes and pictures, change colours, format texts and add images and hyperlinks. Rearrange the template to your liking or, if you'd like your students to stick to the outline given when completing it online, lock objects in place.

To complete the map, enter 'do it' mode. This makes it a little like an interactive powerpoint presentation, taking you step-by-step through each section of the map. Ready-made maps are already sequenced, but you can create your own sequence too, which will come in handy should you want your students to follow a specific thought-process. Maps can also be saved to a group, reviewed and commented on, allowing you to mark your students' maps online.

Maisie Gould