DESIGN THINKING
with kids

FACILITATOR'S GUIDE

WHY DESIGN THINKING FOR KIDS?

Design Thinking is a powerful approach to creating innovative solutions for real world problems. Championed by the likes of IDEO and Stanford University, Design Thinking focuses on empathy, creativity, and prototyping.

In 'Design Thinking with Kids' we explore how this approach can also be a powerful pedagogy for young learners, from preschool to high school. Design Thinking provides a great opportunity to focus on contemporary learning skills like critical thinking and creativity. It also encourages curiosity, resilience, and entrepreneurial ways of working.

This facilitator's guide has been developed with teachers and parents in mind. It accompanies the fold-out process map, providing notes on each activity – everything you need to know to help young people discover Design Thinking.

WHEN iS DESiGN THiNKiNG FOR?

The Design Thinking approach is about problem finding and problem solving. It is most useful when you have a particular area of interest and want to create an innovative solution in that space. It encourages people to explore a topic, and gain a deeper understanding of how people think and behave around that topic.

Design Thinking is less powerful if you already have the problem tightly defined, or if you are looking for solutions that are more conceptual than practical.

Great starting points for Design Thinking might be things like improving the sustainability of a school, inventing new toys for preschoolers, designing a new form of public transport, or finding ways for older people to connect with their families.

TAiLORiNG FOR DiFFERENT AGES

The full Design Thinking process that companies like IDEO use is great, but wasn't designed with young people in mind. Some parts of the approach come naturally to kids, while other parts need lots more support.

That's why we created two modified step-by-step processes – one for younger innovators (aged 5 to 11) and one for those who are a bit older (aged 12 to 18) which provides more options and includes more complex activities. Both move through three stages – LEARN, IMAGINE and MAKE. The rest of this guide provides detail on each of the activities that make up these stages.

Of course you're free to pick and choose how you run your Design Thinking projects based on your situation. In fact we'd encourage it!
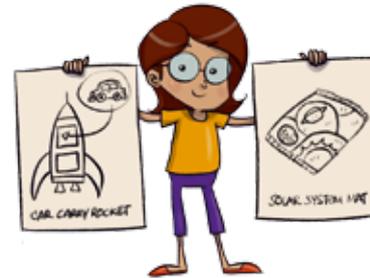
ACTIVITIES + TOOLS

LEARN

observation

Drawing

Personas

Interviews

Research

Do it yourself

Mindmap

Pros & cons

'How can we...'

IMAGINE

First idea & crazy idea

Perspective

Analogy

Quick draw

MAKE

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OBSERVATION

The most important key to successful Design Thinking is getting a real understanding of the world from the perspective of the people you are solving a problem for. The most powerful tool to do this is observation.

Sometimes you might be able to go and look at a real environment (for example visiting a grocery store or a playground can provide great insights if you want to innovate in those areas). In other situations you may need to engineer things to observe, such as inviting people to use existing luggage or writing devices to watch how they do it. The key with observation is to really take the time to look, and make note of what you see.

DRAWING

Drawing is an excellent way of documenting observations, particularly for younger children who are more comfortable drawing and perhaps annotating than simply writing.

Encourage them to explore different ways of using drawing to capture things. They might draw a scene, or an object. Perhaps a process might be better captured in a storyboard or a flowchart. Spatial observations might be represented best on a map of some sort, and so on.

There is no reason to be limited to one type of drawing. A visit to the zoo may produce sketches, maps, process flows and much more.

Importantly, this type of drawing is not about art. It's about using a visual language to record what they have observed.

PERSONAS

SALLY THE STUDENT

In understanding the context of a problem or opportunity, one aspect that is easy to overlook is the people involved. It's natural to fall into the trap of inventing with ourselves in mind – our own desires, attitudes, interests, constraints. In many situations we might want kids to design solutions for a group of people who are very different from them.

A persona can be as simple as a sketch of a typical 'user' of the solution accompanied by some notes about them as a person and about their relationship with the topic area. Creating a persona is a great way to encourage children to think explicitly about the intended audience.

INTERVIEWS

Conducting interviews is a fun way to inform a persona, or just to capture interesting insights about a topic. It can be very powerful to actually interview someone you want to design a solution for. If that's not possible, kids can interview friends or classmates who are playing the role of a typical 'user'. Even with relatively little preparation it's amazing how many useful observations can come from a role-play interview.

Encourage kids to prepare for conducting an interview. Have them make a list of questions they plan to ask. Using 'open questions' is often important in eliciting useful information. If possible, have two children present at the interview, one to ask questions and the other to take notes.

RESEARCH

Design Thinking places lots of emphasis on gaining insights from real world exploration. Having said that, there's nothing wrong with doing some 'desk research' too. Most often this will be online, meaning that digital search literacy and an understanding of source credibility will be important.

Research can be used to explore the general topic area, particularly to gain a deeper understanding of how things work than might be apparent through observation and interviews. It can also provide insight into the audience you are designing for, how others have solved similar problems in other contexts, or to suggest what problems may be interesting to tackle.

Just as important as doing the research is distilling the information gathered, identifying and capturing useful observations.

DO IT YOURSELF

Personal experience can be one of the most powerful tools in gaining an understanding of an area and uncovering useful insights. While there might not always be the opportunity to 'get hands on', if there is it's always a catalyst for a deeper level of thinking.

Sometimes this might be achieved through a visit to the environment being innovated around. Other times it will be a matter of using a particular object, or stepping through a particular process.

Even if the context can't be experienced 'for real', staging a simulation and role-playing can be great ways of unearthing interesting observations. It also gets kids in the right frame of mind to tackle a challenging problem.

MINDMAP

A mindmap is a simple, useful tool for capturing thoughts about a topic, and helping kids to explore associated ideas.

Working from the core topic that you are exploring, create a map of connected concepts. This can provide leaping off points for further research and exploration. A mindmap is a particularly useful tool if you are working with a group, as it provides a way for the group to centralise and collaboratively share their ideas.

PROS + CONS

In identifying areas to innovate around, it is important to understand people's current feelings about things. Innovation is most successful when it addresses a current pain point, or is built on something that is currently highly satisfactory.

Make a list of all the 'best' and 'worst' parts of an experience, environment, product or topic. Try and do this from the perspective of the audience you are focusing on. Encourage kids to be as specific as possible. If the lists are long, go through and rank them based on degree of emotion, or pick the top handful in each list.

FINDING A WORTHY CHALLENGE

One of the critical points in the Design Thinking process is defining a challenge to work on. Based on all of the work that is done in the LEARN part of the process, the goal is to identify a challenge that is likely to produce original, useful and practical ideas.

To create possible challenges, review the most interesting and provocative learnings that have been uncovered. Think about the biggest pain points – where is there a demand for better solutions?

'HOW CAN WE...'

HOW CAN WE CONVINCE OTHER KIDS TO SAVE THEIR POCKET MONEY?

Before moving on to the IMAGINE part of the Design Thinking process, we want to capture the challenge clearly and succinctly. To do this, we write it as a question in the form "How can we...?"

You may wish to encourage the kids to develop several possible questions in this format. Make sure they are clear and specific, related to the understanding that has been built up of both the audience and the topic.

One particular challenge might be selected, or you might try to solve several, over multiple sessions.

IDEATION

The second stage of our Design Thinking process is imagining the solution. This is all about coming up with interesting ideas. To keep it focused and simple, have kids capture their ideas in simple headlines. Coming up with ideas means applying creative thinking to a particular problem. We find this hard because we're so used to thinking in established and habitual ways. To break out and think differently takes effort and practice.

The most important thing to encourage kids to do is let themselves come up with crazy, silly ideas. While they will rarely be the right solutions, they can often be a stepping stone. Jumping out to unexpected and often ridiculous ideas helps us explore areas we wouldn't have reached otherwise, and potentially uncover original yet practical answers to our challenge.

FIRST IDEA + CRAZY IDEA

There are some simple tools and exercises that can help us come up with ideas - from the straightforward to the totally unexpected. Two of the simplest are 'first idea' and 'crazy idea'.

For 'first idea' just encourage kids to write down the first solution that comes into their head, no matter how straight-forward, expected, boring, or impractical it is. You can pretty much guarantee this won't be the final idea, but writing it down makes writing down the next one easier. And the next... and the next.

'crazy idea' is all about trying to come up with ideas that are ridiculous, extreme, foolish, inappropriate, irresponsible... you get the idea. Again, they aren't usually 'right', but can be a useful provocation. Using a crazy idea as a starting point, how might it be evolved to make it more sensible, but still unexpected.

PERSPECTIVE

We each bring our own point of view to solving a problem. We can't help it. It's the only point of view we have! This exercise encourages kids to look at coming up with ideas by pretending to be someone different, with a different perspective.

It's amazing how much imagining what someone else might do can actually result in completely different and original ideas. The perspective can be anyone well known enough for kids to quickly grasp the core aspects of their identity, from celebrities and fictional characters to professional roles and family members.

ANALOGY

Often great ideas can come when we look outside of the context that we are creating solutions for. Encourage kids to think about what other contexts are similar. What analogies can be drawn between this problem and problems that might be faced in very different situations?

Having identified these analogous contexts, inspiration can be drawn from how they have solved similar problems, or simply from observing how things work and how people behave in these other contexts.

There probably won't be a magic solution that can simply be brought over, but the ideas sparked by making these comparisons can be unexpected and useful.

QUICK DRAW

Often our brains are our own worst enemy when it comes to thinking creatively. The more rational and analytical parts of our brain shut down interesting thoughts and ideas through force of habit.

Getting kids to draw lots of solutions in a short space of time is a way of avoiding some of our natural over-thinking. Even better, the pressure of creating a number of solutions (and drawing them) in a short space of time helps silence our inner critic. The pressure can also bring energy into a flagging ideation session.

It's best to get kids to share their ideas immediately after the exercise, as the drawings may not capture all the nuances. If there are any particularly good ideas in there they probably should be captured in more detail before they are forgotten.

SELECTING AN IDEA

If the IMAGINE part of the process has gone well, by now you will have a whole mess of ideas. These probably range from the sensible to the ridiculous, from the half-baked to the well-formed.

To move forward, children will need to decide which are the strongest ideas. Before doing that they may want to spend some time reviewing, expanding and improving them.

In selecting an idea, the most important thing is to refer back to the 'how can we...' challenge and decide which ideas will be most effective in achieving that objective.

Building
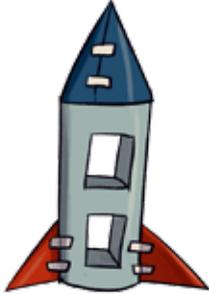
The final stage of the Design Thinking process is MAKING (and evolving) the ideas. Making is an important part of the process for two reasons. Firstly, actually building a prototype of the solution can be a powerful way of further refining the idea, bringing up new questions and possibilities. Secondly, finding ways to test the prototype can provide invaluable feedback to improve the idea.

Prototypes can be built out of anything, from simple cardboard boxes to interactive electronic components. The key is to create a prototype that allows people to experience what it might be like to use the solution.

Paper Prototypes

Not all ideas can be easily built as physical objects. Some ideas are better explored, tested and refined through 'paper prototypes'. This is particularly true of processes and digital interfaces.

If your idea is a way of doing things, then a process diagram like a flow chart can be a great way to 'build' it, and let people experience it.

If your idea is a mobile app, a digital touchscreen device, or any sort of virtual system, you can create sketches of the interface design for people to interact with.

TESTING

Getting real people (actual 'users') to test a solution is a great way to get real feedback that can help kids assess and improve their ideas. Where this is not possible, friends or classmates can roleplay and still provide surprisingly insightful learnings.

While verbal feedback from people as they use a prototype is great, kids should also be closely observing the behaviour of the user. What can they tell from the way users approach the solution? Did they use it as expected, or did they do things that surprised the designer?

IMPROVING

Many kids will get to the end of making their solution and be ready to move onto the next thing. One of the biggest possible benefits of Design Thinking is developing sustained focus and resilience. Encourage kids to learn from the process of prototyping and testing, and to work at improving their idea.

To help with this, a two-by-two grid can be used to capture the results of testing. In one quadrant is written all the best parts of the solution, in the next all the problems and shortcomings. In the third quadrant changes already identified and in the final quadrant questions that remain to be asked.

Having captured these practical learnings, kids can then set about deciding how to make their idea even better.

HOW TO RUN A SUCCESSFUL PROJECT

Many of the tricks to running a great Design Thinking project will come with practice and experience. Having said that, here are a few useful tips to keep in mind.

STUFF INSPIRES. Having interesting stimulus around can be enormously helpful in all stages. This can be anything from multimodal research material to eclectic craft materials for prototyping.

ZONE OF PROXIMAL DEVELOPMENT. While it's important to let kids do their own research and develop their own ideas, don't be afraid to lend your own experience and collaborate with them.

BE EXPLICIT. Share the process with the kids, and help them understand the way they are moving through it. This gives them greater insight into their own working practice and helps them evolve good work habits.

WORKING WITH GROUPS

The Design Thinking process described here works fine with individuals (supported by a facilitator), but it's even better in groups. Groups can work in a fully collaborative 'whole class' fashion, or you can have several individuals or groups working separately on their own ideas.

In exploration and ideation it's typically effective to let the group work individually or in small teams for a period, then bring them back together to share and discuss.

Working through a Design Thinking process in groups is also an excellent way to build skills in communication and collaboration. To get the most out of this aspect, spend some time up front discussing the benefits and challenges of group work. Then debrief afterwards to help kids make sense of their group experience.

FURTHER RESOURCES

DESIGN THINKING

IDEO (ideo.com) are an amazing design and innovation company that provides great resources and courses, including a version of Design Thinking for educators.

The Institute of Design at Stanford University (dschool.stanford.edu) also provides extensive support for Design Thinking – including K12 Lab, for educators.

CREATIVE THINKING TECHNIQUES

There are plenty of resources on creative thinking. Two of the best are Edward De Bono's 'Serious Creativity' and Michael Michalko's 'Thinkertoys'.

DRAWING AS DOCUMENTATION

Read about how the Reggio Emilia movement has advocated the importance of drawing as communication in 'The Hundred Languages of Children'.

centre for progressive education

This guide was designed to accompany the 'Design Thinking with Kids' process map. It was developed by the Schoolhouse Centre for Progressive Education.

Visit us at www.schoolhouse.edu.au or follow us on Twitter at @schoolhouse_au for more innovative courses and materials.