A SUMMARY

The LEGO Foundation

LEARNING THROUGH PLAY

A review of the evidence

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This is a summary of our white paper, covering current evidence on the role and importance of children's learning through play.

Introduction

The world of today and tomorrow is increasingly interconnected and dynamic, which means children will require new skill-sets as they grow and face a continuous need for lifelong learning. We know that learning through play promotes healthy growth, the acquisition of both knowledge and thinking skills, as well as the development of the personal characteristics necessary to successfully navigate this future reality. Our ultimate goal is to encourage the development of creative, engaged, lifelong learners who will thrive in the modern world. This summary highlights the importance of learning through play for children's development.

Play in early development

0 - 3 years

Playful experiences offer a unique context for supportive and rich learning in early childhood. These enable the responsive social interactions with caregivers that help build healthy brain connections.

Connecting play & education

3 - 12 years

Children achieve a richer understanding by connecting the concepts and skills they are learning with real world examples. Playful experiences help engage in this type of deeper learning, applying knowledge to different situations and sparking new ideas at home and in school.

Play & lifelong learning

12+ years

Today's world is constantly changing. Play helps children learn how to collaborate, innovate and problem-solve, which are skill-sets they'll need to thrive in uncertainty and to create opportunities for themselves and their communities.

A holistic view on learning

Our definition of learning should go beyond the strict academic sense, to include the interconnected areas of physical, social, cognitive, emotional and creative skills that children develop as they play and grow.

Research shows that different areas of learning are more interconnected than previously thought and that playful learning experiences can be particularly effective ways to foster deeper learning and develop a broad range of skills and an understanding of academic concepts.

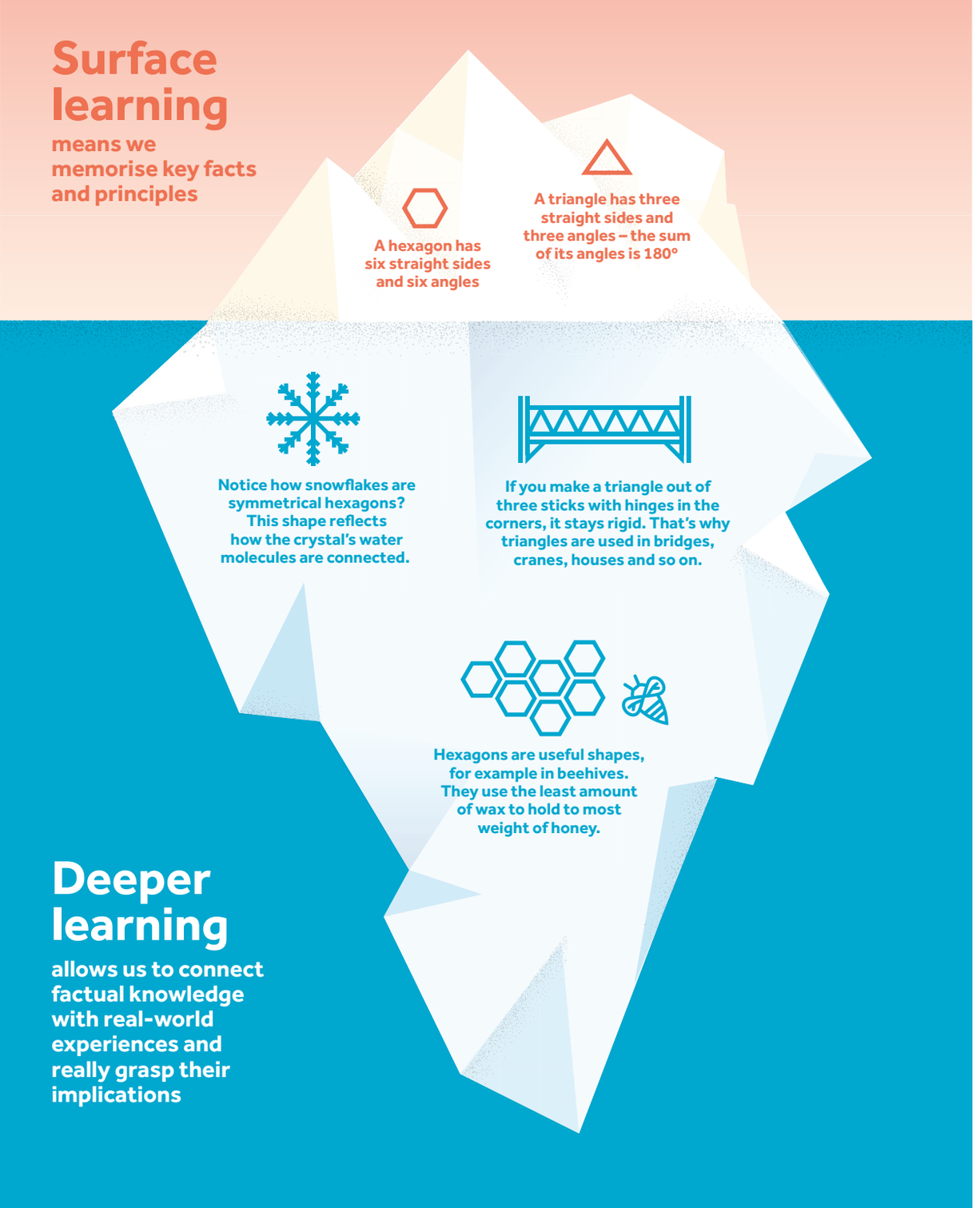
As the younger children question the 'rules' imposed by older children, they are practicing their critical thinking and negotiation skills.

As children pretend to be part of a make-believe family, they're learning to communicate, collaborate and control their emotions in a social setting.

As the children pay the 'ice cream seller' with their 'money' (sticks) their maths and language knowledge is being strengthened via practice in a real-life context.

As children venture outside of their comfort zones, they are building confidence in themselves and their ability to face new challenges.

As children look for ways to build up their pretend reality, they are exercising creativity.



Children are born to learn through play

Children possess an amazing, natural potential to learn. Babies have been referred to as 'scientists in the crib' due to their natural curiosity and drive. Young children also have an imagination and inventiveness that helps them create new ideas and opportunities, and a strong motivation to connect and engage with others. What's more, children are intrinsically motivated to play, which makes it a fertile ground for learning and developing new skills. Play harnesses children's potential and has a central role in preparing children for challenges in childhood and through adulthood.

Extreme cases, where infants were raised in deplorable conditions, have shown that play is not simply a 'bonus'. Rather, play has a key role in healthy, positive development. Therefore, although it comes naturally, play must also be supported by the environment in order to be productive.

The importance of child agency

A critical requirement for learning through play is that children must experience agency and be supported rather than directed.

At one end of the spectrum, children are given more agency – the freedom to direct their own activities – and at the other, their play is guided by adults. Learning can happen at each point on the spectrum, but some degree of agency is a critical requirement for children's engaged and effective learning.

Giving children agency doesn't mean giving them total freedom, but rather seeing children as active participants in their learning and not passive recipients. In other words, their play should be supported, not directed. The greatest opportunities for flexing their 'thinking' muscles come when children are allowed to create and develop though iterations with real-world examples.

The five characteristics of playful experiences

Introduction

Learning through play happens best when it is experienced as joyful, meaningful, actively engaging, iterative and involves social interaction. The five characteristics naturally vary as children are engaged in different play activities and all five are not necessary all the time. Children should, however, experience elements of all five over the broader course of their play in order to ensure optimal learning. This summary highlights key aspects of each characteristic of playful experiences.

Joyful

Pleasure, enjoyment, motivation, or thrill in an activity

- Joy is a key facet of play; from a child enjoying a pretend play session with a friend, to the thrill of building a tower just right.
- Negative emotions still play a role. Sometimes, frustration with a problem is necessary to feel the joy of breakthrough when it is finally solved.
- Research repeatedly shows that negative life experiences have implications for learning and development. Everyone can remember how hard it is to learn or be productive when we are sad about something.
- Emotions are integral to neural networks responsible for learning. Joy is associated with increased dopamine levels in the brain's reward system linked to memory, attention, mental shifting, creativity and motivation.

Meaningful

Connecting facts and ideas to familiar experiences

- To move past memorisation towards more meaningful understanding, children must learn to put knowledge into real-life contexts. For example, a two-year-old being able to recite 1,2,3,4 is very different from being able to count up four pieces of candy. By showing that each number in the list corresponds to a real object in a set, children can then begin to understand the meaning of counting.
- A powerful example of meaningful learning is 'dialogic' or interactive reading. Instead of simply reading the words on the page, parents may prompt children to think about what might come next or how a character might be feeling. Asking children to relate what's happening in the story to what's happening in their own lives is called meaning-making and leads to greater vocabulary gains.
- Meaningful learning is a way of connecting new insights with what we already know and how we think. This process stimulates networks in the brain associated with important thinking skills such as insight, analogy and memory.

Actively engaging

Learning is hands-on and minds-on

- Children should be 'hands-on', or actively engaged in playful activities. For active learning to take place, they should also be 'minds on', or able to persist through distraction.
- While children can and do learn from listening and observing others, when taking part in less structured activities, children can engage in the kinds of minds-on thinking that leads to exploration of new experiences and objects. This self-directed, discovery-based method supports deeper conceptual understanding.
- When there is a learning goal such as there is with guided play, children are more likely to retain information in this playful setting which requires minds-on thinking, than information shared in more passive contexts.
- Neuroscience finds that active engagement in play enhances memory functions that support learning. Full engagement allows the brain to exercise networks responsible for self-control skills, such as ignoring distractions, which benefit short-term and lifelong learning.

Iterative

Trying out and revising hypotheses

- Playing in a safe space encourages exploration and experimentation, providing children agency to direct their own activities and to learn via trial and error.
- An Investigating phenomena independently and testing out hypotheses helps children learn and understand more about the world around them and also strengthens their critical thinking and scientific reasoning.
- With practice, iteration increasingly engages brain networks related to taking alternative perspectives, flexible thinking and creativity. The perseverance required for repeatedly testing hypotheses is frequently also linked to the reward and memory networks that underpin learning.

Socially interactive

Understanding and communicating with others

- From birth, infants show a preference for human interaction. Learning how to not only understand others but also communicate one's own thoughts leads to deeper understanding and stronger relationships. Social interaction is thought to not only support learning but to be an essential key to learning.
- Social interaction acts as an important part for all types of learning, but may be especially important for some of the more complex, learning-to-learn skills such as critical thinking. There is a particular benefit for these skills when children work in groups versus when they work alone, which is also seen in their language, creative and social skills.
- Early social interactions help set the stage for children's learning and development throughout life. In terms of brain development, positive interactions can promote the kind of plasticity required to cope with challenges in later life and also activate brain networks related to communication skills, which can be critical for learning.

Closing thoughts

Evidence shows that engaging with the world through play is essential for learning early in life as well as for building the foundations for lifelong learning. Together with a sense of agency, joy, meaningfulness and active engagement are necessary for children to enter a state of learning through play. The addition of any of the other two characteristics (iteration and social interaction) supports even deeper learning.

For more information see our full white paper
Learning through Play: A review of the evidence

- Read about the research studies behind Learning through Play
- See our recommended future research areas

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