STEM
Category: Early Years

Risk Management and Legal Implications

Failure to manage risk may impact on the delivery of Service objectives and the outcomes achieved by Service users. Education and Children's Services aim to mitigate the implications by ongoing management and review of risk in all elements of work activity.

The production of this document is one way in which we aim to reduce our exposure to risk. By providing staff with information on good practice, making reference to other guidance that is available across the Council and providing clarity on how we should do things, we can ensure that the management of risk is intrinsic to what we do.

Version Control:

Document Owner	Version	Date of Publication	Date of Next Review
Clark Graham	1.0	26/06/2020	26/06/2022
Clark Graham	2.0	10/10/2022	10/10/2024
	2.1		01/10/2026

STEM
(Science, Technology, Engineering and Maths)

"Creativity is about much more than expressive arts, it is the ability to wonder about things, to see them or use them differently. Creativity is vital for all learning. Think about the creativity involved in the everyday problems we face. Consider the pace of change in our world and how we need to ensure our children are equipped with the right skills for their future. The foundations are built from the child's earliest years. Creativity is crucial within science, technology, engineering and mathematical learning (STEM). It is also essential to language and literacy development."
(Realising the Ambition – Being Me)

Researchers and educators agree: Children demonstrate a clear readiness to engage in science, technology, engineering, and maths (STEM) learning early in life. And, just as with language and literacy, STEM education should start early to maximize its benefits and effectiveness.

Every child in Fife, should experience the wonder and excitement of STEM, growing and building the skills and knowledge that they will need in life and in work. STEM ignites our curiosity about and helps us enjoy and comprehend the natural and physical world around us. STEAM is a philosophy and a way of thinking about how educators at all levels including parents—should be helping young children integrate knowledge across disciplines, encouraging them to think in a more connected and holistic way.

Our knowledge of how children learn has grown substantially over the last few decades. We now understand that success in learning requires the child to be at the center of the experience, making connections across disciplines and across contextual settings. Children need to be presented opportunities to learn about the same material in different settings and through different lenses.

- STEM needs to be woven seamlessly into early years education
- Taking STEM outdoors where we highlight practical strategies to maximise STEM learning in the natural world is crucial.
- Exploring STEM through Loose Parts where participants investigate the creation of environments to encourage problem solving and discovery.
- By tapping into their natural and innate curiosity about the living world, by simply allowing them to investigate, by encouraging them to ask questions about the real world, you are engaging children in STEM.
- By asking the right questions, we can help stimulate investigations where children are identifying objects, making comparisons, making predictions, testing ideas, and sharing discoveries, all while observing their natural environment. Children can also explore sizes, shapes, patterns, and quantities in the process.

In this way, children can learn concepts from different disciplines in different contexts, all in ways that are naturally engaging to them.

"To support cognitive development the learning environment should be rich in opportunities for children to engage with concepts and foster skills for learning, such as reasoning, creativity and problem solving. The choice of experiences on offer should reflect an environment of open-ended possibilities in which children can feel intrinsically motivated to explore and investigate through play - including taking calculated risks and learning from mistakes."
(Realising the Ambition – Being Me)

Loose Parts Play
A term strongly connected to loose parts is 'open-ended'. Open ended materials, environments, and experiences encourage problem solving and are child centered. Children involve themselves in concrete experiences using loose parts, which lead to explorations, imagination and creativity that occur naturally, as opposed to adult directed. Nature remains the richest source of loose parts. However, adults do play important, intentional roles in preparing, guiding, and documenting open ended learning experiences.

Cheap items like crates and buckets encourage children to be more active and creative than expensive play equipment. Simple, everyday objects can improve creativity and boost social and problem-solving skills.

When children interact with loose parts, they enter a world of "what if" that promotes the type of thinking that leads to problem solving and reasoning. Loose parts enhance children's ability to think imaginatively and see solutions, and they bring a sense of adventure and excitement to children's play. It helps to foster and cultivate an appreciation of the arts and develop their own creativity and imagination.

Children will naturally create and/or seek out challenging situations; while making the most of their play some children may have accidents, get dirty or wet or upset. In our nursery, we recognise that children need a degree of risk, challenge and adventure to grow and develop.

"All children and young people enjoy high quality play opportunities, particularly outdoor free play in stimulating spaces with access to nature, on a daily basis in early learning and childcare, nursery and school."
(Scottish Government, 2013)

It should be noted that loose parts, particularly when used outside, should be stored appropriately and in line with fire regulations.

Practitioners should be mindful of the size of loose parts, particularly when they are small. The risk benefits of playing with smaller loose parts should always be considered.

Developing the Young Workforce

Developing the Young Workforce in early years aims to better prepare children and young people for the world of work. Throughout all learning experiences we create opportunities to help our young children develop skills which will prepare them for their future career pathways and the world of work. Partnership working with other practitioners, parents, employers, and the wider community help provide the children with real life experiences, knowledge and opportunities to develop skills, thus preparing them for the world of work. By providing the children with real life experiences in the community we:

- Foster a positive role model and attitude about the life of work.
- Develop an awareness of the skills required to work in different settings.
- Give the children a sense of aspiration to achieve.
- Give the children a sense of community and belonging and the role they currently play and might play in the future.
- Develop an awareness of the opportunities which are available in their local community.
- Developing children's interests.
- Building self-esteem and a feeling of self-worth.

Building the Curriculum 3 – A Framework for Learning and Teaching states:
"Learning, teaching and assessment should be designed in ways that reflect the way different learners progress to motivate and encourage their learning. To support this, all learners should be involved in planning and reflecting on their own learning through formative assessment, self- and peer-evaluation and personal learning planning."
(Building the Curriculum 3)

By talking about and planning their own learning from early years onwards, children and young people will develop the skills to:

- identify, discuss and reflect on their own evidence of learning
- use appropriate language for self-evaluation
- take responsibility for managing their own learning
- help to plan their own next steps in learning and set their own learning goals
- make informed choices and decisions about their future learning.