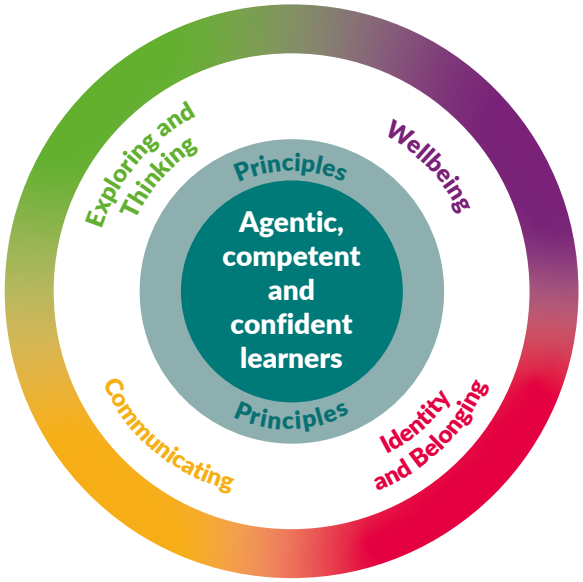
Aistear
Creatchuraclam na Luath-Óige
The Early Childhood Curriculum Framework

Exploring Aistear's Theme of Exploring and Thinking (2024)

Research Foundations and Sample Learning Experiences

NCCA
An Chomhairle Náisiúnta Curaclaim agus Measúnachta
National Council for Curriculum and Assessment



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Introduction

Aistear: the Early Childhood Curriculum Framework, originally published by the National Council for Curriculum and Assessment (NCCA) in 2009, was updated by the NCCA in 2024. As part of the updating process a team of researchers from the Institute of Education, Dublin City University, conducted a literature review entitled **Literature Review to Support the Updating of *Aistear, the Early Childhood Curriculum Framework*** (French and McKenna, 2022) to provide a research base to inform the updating of *Aistear*'s Themes (2009) of Wellbeing, Identity and Belonging, Communicating and Exploring and Thinking. Chapters on *Setting the Context* (French and McKenna, 2022) and *Addressing the invisibility of Babies and Toddlers in the Literature* (French in French and McKenna, 2022) were also included. The review provided key trends for consideration to enhance the four interconnected Themes of *Aistear* (2009) which describe important types of learning for babies, toddlers and young children, including dispositions, attitudes and values, skills, knowledge and understandings.

This booklet presents key findings from the Literature Review related to the Theme of Exploring and Thinking for young children (ages 2.5 to 6 years), (Gillic, McKenna and O'Neill in French and McKenna, 2022) and the additional emphasis on the focus on Exploring and Thinking in Chapter 3, *Addressing the invisibility of Babies and Toddlers in the Literature* (French in French and McKenna, 2022). In alignment with the structure of the literature review, the booklet is presented under the four Aims of the Exploring and Thinking Theme of *Aistear* (2009). It includes:

- a summary of the findings from the literature review in relation to the Theme of Exploring and Thinking
- an update on the changes made to the Theme of Exploring and Thinking in *Aistear* (2009) to that in *Aistear* (2024)
- sample learning experiences that illustrate what the updated Theme of Exploring and Thinking might look like in the everyday lives of babies, toddlers and young children.

References

Please note that the booklet does not include individual references of the empirical evidence that informed the Literature Review by Gillic, McKenna and O'Neill in French and McKenna (2022) and French in French in French and McKenna (2022). For detailed source information, readers are encouraged to consult the original **literature review**, where all references are comprehensively documented.

Exploring and Thinking

The review re-affirms the relevance of *Aistear*'s Theme of Exploring and Thinking (2009) and identifies areas to be updated. It states that *Aistear* (2009) affirmed babies, toddlers and young children as competent and confident, recognising their natural curiosity, creativity and inquiry and aimed to promote the creation of environments, learning experiences, and interactions that encouraged babies, toddlers, and young children to explore and make sense of objects, people, and places around them through play and investigation. The review notes that the recognition of babies, toddlers and young children as agentic, and capable of influencing aspects of their lives and the environments in which they live, and play is now well established in the literature. Their capacity for problem-solving, deep thinking and active exploration is embedded across many international early childhood curriculum frameworks where babies, toddlers and young children are identified as social, relational and sensorial learners. They are recognised and valued as scientists and engineers who are curious, creative, risk-takers, ready to explore and develop working theories about their worlds. The review highlights the importance of recognising the role of Science, Technology, Engineering and Mathematics (STEM) education in early childhood. The review states that reference to STEM is not clearly articulated in *Aistear* (2009) and notes that in the last five years STEM education has become a policy focus in Ireland

as well as being included in the updated Early Years Education Inspection Tool. The review highlights the importance of discovery through well-planned learning experiences that respond to interests, funds of knowledge, and dispositions in all areas including STEM education.

The review notes that the recognition of babies, toddlers and young children as agentic, and capable of influencing aspects of their lives and the environments in which they live, and play is now well established in the literature.

Aim 1: Children will learn about and make sense of the world around them

The review notes that *Aistear* (2009) recognised babies, toddlers and young children as active citizens that engage, explore and experiment in their environment to make sense of the world around them. It highlights the importance of playful experiences to encourage positive dispositions, deep-thinking and inquiry-based learning. The review highlights how the Theme of Exploring and Thinking in *Aistear* (2009) emphasised the rights and responsibilities of babies, toddlers and young children as members of their community, and their important role in caring for themselves and their environment. The review states that the literature aligns with *Aistear*'s (2009) focus on rights-based approaches.

Sustainability

Educators play a critical role in engaging babies, toddlers and young children in sustainable living, enabling them to think critically about how their actions impact the environment.

The review highlights that *Aistear*'s (2009) four Themes, particularly *Exploring and Thinking*, reflect a view of babies, toddlers and young children as active, community members and stewards of the environment. It notes this perspective aligns closely with the literature on sustainable development. The review emphasises babies, toddlers and young children need to be supported to develop empathic attitudes and respect through opportunities to develop conceptual understandings of economic, social, and environmental sustainability. It emphasises that educators play a critical role in engaging babies, toddlers and young children in sustainable living, enabling them to think critically about how their actions impact the environment. Yet, the review notes that educators often underestimate babies, toddlers and young children's knowledge, competencies, and interest in environmental issues. Therefore, the review suggests a further prioritisation of education for sustainable development in the update of *Aistear*.

Physical skills and risky play

The review stresses that *Aistear* (2009) paid particular attention to the many ways in which babies, toddlers and young children learn and develop through active learning, play, and hands-on experiences. It notes that play-based learning was embedded across *Aistear* (2009) particularly in the Theme of Exploring and Thinking. The review highlights the importance of risky play experiences and suggests that the inclusion of risky play far outweighs the threat of potential injuries. The paper identifies that there are different types of risky play including play with great heights, high speed, dangerous tools, dangerous elements, rough and tumble, exploring alone and play with impact, i.e. crashing into objects. The review reports both boys and girls enjoy and benefit from risky play indoors and outdoors. It flags the importance of access to rich and well-resourced learning environments for risky play noting the emergence of this as a key trend within literature. Providing adequate space, equipment, clothing, and materials encourages and empowers babies, toddlers and young children to explore and experiment. Access to outdoor environments throughout the year is important too. The review stresses the importance of being agentic, moving things around to suit their play, combining loose parts and natural surfaces to facilitate higher levels of exploration, risk-taking, and the development of the ability to deal with the unexpected. It notes that risky play is best facilitated and supported by knowledgeable and competent educators with positive attitudes toward opportunities for risk-taking and exploration. Given the influence of educators on engagement with risky play experiences, the review suggests that curriculum frameworks such as the update of *Aistear* (2009) promote awareness and understanding of the benefits of risky play. The review reports that the Theme of Exploring and Thinking (2009) does not explicitly refer to the concept of risk and suggest this is considered in the update.

The inclusion of risky play far outweighs the threat of potential injuries.

Mathematical skills and concepts

The review notes that the capacity for reasoning, problem-solving, and deep thinking begins in infancy and is supported and enhanced by everyday experiences of mathematical concepts. It states that babies, toddlers and young children's capacity to understand mathematical concepts is often underestimated. Yet mathematical proficiency emerges in early childhood when supported by pedagogical practices that engage babies, toddlers and young children in high-quality experiences in enriching environments with responsive relationships through playful learning experiences. The review notes that natural curiosity and the ability to explore and understand mathematical concepts such as matching, comparing, ordering, and sorting were highlighted in the original Theme of Exploring and Thinking (2009). The review suggests the exploration of key concepts such as sets, number sense, counting, operations, pattern, measurement, and shape is also important. It also identifies four precursor mathematical concepts that are important for babies and toddlers to engage with – attribute, comparison, pattern, and change and they come before more defined mathematical ideas, such as numbers or measurements.

The capacity for reasoning, problem-solving, and deep thinking begins in infancy and is supported and enhanced by everyday experiences of mathematical concepts.

The review stresses that a deep and broad understanding of these mathematical concepts by educators is needed. However, educators are not provided with extensive training in mathematics content and pedagogical knowledge. They receive less pre- and in-service training in mathematics in comparison to literacy. It goes on to stress that as little as two professional development sessions can increase educators' confidence in engaging with mathematical content with long-term professional development programmes being even more beneficial. The review contends that educators require additional training to foster emergent mathematical understanding.

The review also draws attention to the importance of babies, toddlers and young children exploring concepts, places, and objects through project work, such as a community vegetable garden and suggests one photograph of a vegetable market presents multiple opportunities for correspondence, sequencing, size comparison, direction, predicting. The review notes these experiences must be supported through engagement, participation, and discourse with educators acting as facilitators, asking open-ended questions, introducing mathematical talk and labelling, and supporting exploration and collaboration. The review also draws attention to the lack of early mathematical experiences for babies and toddlers and young children under the age of four. Yet mathematical awareness and competence begin in early infancy and this should be recognised and responded to with high-quality environments and learning experiences that promote and nurture mathematical learning.

The review notes there were multiple references to mathematical concepts in Exploring and Thinking (2009) and affirms the importance of a curriculum that promotes opportunities for babies, toddlers and young children to engage in learning experiences that promote mathematical competencies, and these are best supported by enriching environments and confident educators with the knowledge, skills, strategies, and positive attitudes that support mathematical learning opportunities.

Aim 2: Children will develop and use skills and strategies for observing, questioning, investigating, understanding, negotiating, and problem-solving, and come to see themselves as explorers and thinkers

> *The development process is described as scientific discovery and inquiry as babies, toddlers and young children explore, consider, revise, and build upon their experiences, knowledge, and understanding to make sense of the world.*

The review explains that early childhood is recognised as a critical period in which babies, toddlers and young children begin to establish an understanding of themselves, others, and the world around them. It goes on to say that experiences of early childhood influence, support, and enhance this process and contemporary views of babies, toddlers and young children as competent and capable inquirers and problem-solvers permeate multiple international early childhood curricula. The review notes that the development process is described as scientific discovery and inquiry as babies, toddlers and young children explore, consider, revise, and build upon their experiences, knowledge, and understanding to make sense of the world. Within the critical period of early childhood, babies, toddlers and young children need access to people and places that facilitate thinking, exploration, problem-solving and learning. The review clarifies that *Aistear* (2009) promoted the development of skills and strategies for observing, questioning, investigating, understanding, negotiating, and problem-solving so that babies, toddlers and young children saw themselves as explorers and thinkers.

Science, Technology, Engineering, and Mathematics (STEM)

The review notes that babies, toddlers and young children are recognised as natural scientists whose curiosity and motivation to explore and understand supports confidence and competence in Science, Technology, Engineering, and Math (STEM). It goes on to state that *Aistear* (2009) highlighted experiences that developed skills and strategies to explore and experience the world around them by capturing interest and curiosity. It notes that in the last decade science is being prioritised across international early childhood curricula and policy along with an extension to focus on the broader theme of STEM education. The review notes there are specific dispositions and content knowledge required by the educator to provide babies, toddlers and children with opportunities to engage in and benefit form STEM experiences. It goes on to note there are limited examples of specific references to STEM knowledge and skills across international early childhood curriculum frameworks despite wider policy commitments to STEM.

Babies, toddlers and young children are recognised as natural scientists whose curiosity and motivation to explore and understand supports confidence and competence in Science, Technology, Engineering, and Math (STEM).

When it is mentioned, the review describes how the educator is positioned as a guide to learning, a manager and a gatekeeper of STEM learning environments and equipment, rather than a guide to developing scientific skills such as problem-solving and critical thinking. The review proposes that a lack of specific learning goals and STEM practice guidance in curricular frameworks may inhibit opportunities to participate in meaningful scientific activity and learning. It explains that a key trend in the literature is recognising and naming STEM experiences, critical thinking, and logic in daily life, and using these to plan and prepare for learning experiences that extend and consolidate knowledge. This includes a recognition of science experiences that are part of everyday life like a bowl that floats, playground shadows, plants, and animals, cooking activities. It goes on to note that this approach places less emphasis on specialised equipment, facts, and skills but on drawing attention to big ideas in science, engineering, and mathematics in the local environment. For example, in engineering understanding that materials have properties through exploring, sorting, describing and comparing everyday items such as sandpaper, felt, plastic and wool. Another suggestion is the creation of play scenarios that require engineering concepts and practices to solve a problem. The role of the educator is to create conditions to promote and extend engineering education and problem-solving through games, role-play, imaginary play, and physical movement. It stresses that recognising choices, interests, and natural dispositions is central to STEM learning. The review notes that goal setting, planning, researching, teamwork, and reflection are key. The review proposes that babies, toddlers and young children are not always afforded opportunities to engage with playful STEM learning because of a lack of attention to inquiry-based learning. The review proposes learning trajectories as a tool to support engagement with STEM concepts. It states that learning trajectories have three components:

1. a learning goal
2. a developmental progression for a particular concept
3. and learning experiences which are supported by the educator who supports the progression through questioning, investigating and problem-solving and through scaffolding, feedback, prompting, and encouragement.

A key trend in the literature is recognising and naming STEM experiences, critical thinking, and logic in daily life, and using these to plan and prepare for learning experiences that extend and consolidate knowledge.

Intentional teaching and purposeful pedagogies

The review stresses that a key theme emerging from the literature, particularly concerning STEM learning is the concept of intentional pedagogies. These are defined as responsive educator interventions with a purpose to support the achievement of a learning goal. It notes that responsive, intentional pedagogies have gained prominence and are seen as powerful teaching strategies in early childhood. The review notes the concept can be misinterpreted despite evidence demonstrating the learning and development outcomes of intentional teaching approaches and remains a contested concept as it can appear at odds with the familiar, well-established play pedagogy prevalent in many early childhood approaches. However, current studies highlight the important role of educators in facilitating, modelling, provoking inquiry, offering solutions, and questioning problem-solving strategies to support and encourage understanding and exploration of new ideas.

Responsive, intentional pedagogies have gained prominence and are seen as powerful teaching strategies in early childhood.

The review argues that effective intentional pedagogies require educators to be equipped with subject knowledge and skills that encourage and promote goal-oriented activity that nurtures curiosity, creativity and playful nature to promote learning and development. Intentional teaching is purposeful and is not interchangeable with a more formal approach to education. The review asserts that intentional teaching requires deliberate pedagogical actions by educators. This includes play partnership, facilitation of free-play and exploration, and intentional approaches that connect and extend content knowledge and build dispositions for learning. Educators require a range of practices to facilitate learning and development in play-based learning, including sustained shared thinking, modelling, questioning, and direct adult-led learning experiences. The review notes that contemporary studies, particularly in the field of STEM and oral language, offer evidence-based insights into the potential of intentional pedagogies as powerful strategies for early learning and development. It suggests that careful consideration should be given within curricula framework and guidance to the articulation and conceptualisation of intentionality.

Funds of knowledge

The review notes that funds of knowledge is a key trend in early childhood. It highlights that the importance of funds of knowledges and of social, cultural, and historical contexts, lived experiences, and the knowledge, ideas, and beliefs that contribute to early learning were relevant across the four Themes of *Aistear* (2009). The Exploring and Thinking Theme (2009) sought to support babies, toddlers and young children to make connections between new learning and what they already knew and to use their experiences and knowledge to explore and develop working theories about how the world works. The concept of funds of knowledge recognises learning identity resulting from the unique developmental and socio-cultural context and lived experiences of each baby, toddler and young child. It uses existing ways of knowing and being from lived experiences to support their learning and development.

The review highlights the importance of using the knowledge, skills, and resources babies, toddlers and young children bring to early childhood settings. When preparing for a new learning experience, they draw on existing understanding and knowledge to make sense of the world. Funds of knowledge come from everyday experiences of the home, their digital lives, the setting, and the wider community and influence how they collaborate with others, approach problem-solving and experience, and explore their world. The review notes that socio-cultural theories, interests, funds of knowledge, and play can combine to generate a more responsive curriculum that responds to interests and supports new connections and understanding.

The concept of funds of knowledge recognises learning identity resulting from the unique developmental and socio-cultural context and lived experiences of each baby, toddler and young child.

The review suggests that a challenge for educators is the recognition of funds of knowledge as shown through their engagement in everyday practices, play preferences, interpersonal skills, and relationships and experiences. Their differing ways of being and knowing can be supported or inhibited by the cultural practices and norms of the setting. Existing funds of knowledge may not always be welcome, influencing voice, agency, and experience. The selection of specific knowledge and interests as 'appropriate' or 'inappropriate' by educators can exclude some babies, toddlers and young children and exacerbate power relations, especially for those in the minority. This can potentially inhibit babies, toddlers and young children's recognition of themselves as competent and capable explorers and thinkers. Therefore, the review stresses educators must be open to new and different ways of understanding and responding to differing experiences to create opportunities to co-construct meaning, extending strategies for exploring, investigating, negotiating and understanding.

Within the literature, funds of knowledge are considered alongside other socio-cultural approaches such as working theories and dispositions. The review notes there was a focus on curiosity and the process of making connections between current understanding and new knowledge in the original Theme of Exploring and Thinking (2009) to support the development of skills and strategies for inquiry, observation, problem-solving, negotiating and exploring. It notes these align with current research interests and policy commitments to early STEM experiences. The review suggests that in the update of *Aistear* STEM learning could be integrated to a greater extent.

Aim 3: Children will explore ways to represent ideas, feelings, thoughts, objects, and actions through symbols

The review notes there is a significant body of work which shows babies, toddlers and young children's representation of their ideas, feelings and understanding. This offers rich data on the purpose, function, and meaning of representations, and the different ways in which they express and symbolise different ways of being and knowing. Documentation of their experiences and understanding through their interactions, narrative accounts, drawings, play, and photo documentation, mark-making, storytelling, play, and digital and symbolic representations is key. (Covered in more detail in the Theme of Communicating). Within the context of Exploring and Thinking, the review highlights the importance of integrating experiences and representations of digital lives and virtual worlds as this as an area where educators are likely to benefit from curricular guidance and support.

Children's digital lives and virtual worlds

The review details that babies, toddlers and young children have important knowledge and lived experiences of popular culture, digital technologies, and media that influence their play and learning. It goes on to note there can be discord between early experiences of digital play in the home lives and how these are applied to learning experiences in early childhood settings. The review suggests that early childhood curricula can offer guidance on responding to experiences using digital technologies, media, and popular culture to harness their interests, skills, and understandings as babies, toddlers and young children increasingly use digital technology to represent ideas, feelings, and understanding. As a result of this increase in use of and interest in the use of digital technology, a focus on digital play/use of devices and their interest in digital technologies is warranted in the update of *Aistear* (2009). These funds of knowledge need to be embraced, and early childhood curricula documents must be inclusive of them. The review suggests *Aistear*'s

updated Themes should reflect technology's impact on babies, toddlers and young children's lives as it is a cultural tool enabling them to participate in digital learning experiences, find information, create, communicate and learn. It notes technology can benefit prosocial skills, enhance the curriculum and pedagogy, support identity and belonging and collaborative learning, motivation and interest. Using the internet, apps and programmes can enrich pedagogy and curricula and can increase motivation and interest.

Engaging with technology can also support second language acquisition and use. However, the literature notes that some educators can be concerned and challenged by early engagement with digital technologies. The reviews states that to harness its potential requires careful consideration.

The review suggests that early childhood curricula can offer guidance on responding to experiences using digital technologies, media, and popular culture to harness their interests, skills, and understandings as babies, toddlers and young children increasingly use digital technology to represent ideas, feelings, and understanding.

Aim 4: Children will have positive attitudes towards learning and develop dispositions like curiosity, playfulness, perseverance, confidence, resourcefulness, and risk-taking

The review states that high-quality early childhood education and care experiences have positive outcomes for babies, toddlers and young children and wider societal benefits. It notes that Exploring and Thinking in *Aistear* (2009) paid attention to the processes that support positive dispositions for learning, such as playfulness, perseverance, confidence, resourcefulness and risk-taking. The Framework (2009) also asserted babies, toddlers and young children as competent and capable, with a natural inclination for independence and autonomy. They can experience feelings of failure and frustration and require educator support to develop skills that welcome challenges and encourage them to keep trying, take risks and be open to new ideas and uncertainty. The review advocates for pedagogical approaches underpinned by socio-cultural theoretical perspectives that value and respond to individual dynamic learning trajectories.

Dispositions

The review explains that dispositions refer to innate tendencies and inclinations that influence learning, behaviours and expression. The focus on dispositions is embedded in many early childhood curricula and frameworks. Dispositions can be observed in play, interactions, exploration and engagement in learning experiences. The review notes that *Aistear* (2009) considered the importance and function of dispositions, knowledge, skills and attitudes. The review outlines that certain dispositions are necessary for scientific inquiry including curiosity, creativity, and imagination, alongside skills such as problem-solving, hypothesizing and experimentation.

The review outlines that certain dispositions are necessary for scientific inquiry including curiosity, creativity, and imagination, alongside skills such as problem-solving, hypothesizing and experimentation. It highlights the need to foster both understanding of scientific concepts and processes along with support for dispositions. The review suggests the following three key steps be followed when building on early scientific working theories:

1. Provide opportunities to discuss ideas by asking about babies, toddlers and young children's prior experience or using images as prompts; this reveals different and often complex perceptions.
2. Provide opportunities for peer-to-peer interaction in the co-construction of science concepts at the early childhood level (use pairs to begin and expand).
3. Use babies, toddlers and young children's initial explanations as a meaningful starting point to scaffold teaching/plan from.

Certain dispositions are necessary for scientific inquiry including curiosity, creativity, and imagination, alongside skills such as problem-solving, hypothesizing and experimentation.

The review notes that interesting environments invite babies, toddlers and children to explore ideas and can be supported by knowledgeable educators to enhance learning dispositions when hands-on, meaningful, and relevant experiences are provided. The review stresses that dispositions, preferences, and habits of mind are influenced by everyday environments, as well as recognition, support, and encouragement from trusted, knowledgeable educators.

Interesting environments invite babies, toddlers and children to explore ideas and can be supported by knowledgeable educators to enhance learning dispositions when hands-on, meaningful, and relevant experiences are provided.

Working theories

The review suggests that working theories are not well understood in early childhood. It goes on to explain that working theories are the tentative, evolving ideas and understandings of babies, toddlers and young children as they take part in their families, communities and cultures. They can be described as thinking in progress, evolving to accommodate new information and understandings. Supporting working theories requires educators to carefully observe and listen so they can understand knowledge and motivations and take the time to notice and develop emergent thinking and interests. Working theories combine knowledge, skills and strategies, attitudes and expectations. Educators response to and encouragement of working theories can be supported by an understanding of babies, toddlers and young children's interests. Funds of knowledge are a critical component in forming working theories that demonstrate their thinking, their understanding of personal motivations and what they consider important.

Working theories are the tentative, evolving ideas and understandings of babies, toddlers and young children as they take part in their families, communities and cultures. They can be described as thinking in progress, evolving to accommodate new information and understandings.

Funds of knowledge are a critical component in forming working theories that demonstrate their thinking, their understanding of personal motivations and what they consider important.

The review notes that updating *Aistear* (2009) presents an opportunity to connect and promote funds of knowledge and to respond to learning preferences and dispositions to promote engagement, participation, knowledge, and understanding. It highlights the importance of recognising that learning and development results from unique and dynamic socio-cultural contexts and is supported and given meaning through everyday experiences and participation in family and community.

Conclusion

The Theme of Exploring and Thinking (2009) focused on how babies, toddlers and young children make sense and meaning of the things, places, and people in their world. They use their life experiences to explore, interpret, understand and work in partnership with their family, peers, educators, and community members to learn and develop. The Theme of Exploring and Thinking in *Aistear* (2009) broadly aligned with trends in the review. Across the four Aims, concepts of participatory pedagogies emerged. However, in the update it is recommended that concepts of funds of knowledge, dispositions, and working theories be strengthened and made more explicit. The review highlights guided teaching, and intentional interactions are powerful strategies that increase engagement and can lead to higher-order thinking and conceptual understanding. It goes on to suggest that further consideration could be given to these pedagogical strategies along with embedding STEM education, environmental education, and broader global sustainable development goals in the update. The review also highlights the important role of access to and agency in enabling environments (both indoors and outdoors) as play, movement, agency, and engagement are influenced by the ability to choose and influence the spaces babies, toddlers and young children inhabit. This requires access to well-resourced indoor and outdoor environments that enable discovery learning, risk-taking and information seeking. The review lists six key areas for consideration in the update as emerging from the review. These are sustainability, STEM, funds of knowledge, dispositions, working theories, purposeful pedagogies, digital childhoods, and risky play.

Updates to the Theme of Exploring and Thinking

Like *Aistear* (2009), *Aistear* (2024) states that the Theme of Exploring and Thinking is about babies, toddlers and young children being *fiosrach* (curious) and making sense of the things, places and people in their world by interacting with others, playing, investigating, thinking, questioning, and forming, testing and refining ideas. The findings of the review re-affirmed the relevance of *Aistear*'s existing Theme of Exploring and Thinking and identified areas for updating, which have now been incorporated.

The update reaffirms babies, toddlers and young children are competent and confident individuals. It recognises their natural curiosity, creativity and capacity for inquiry and strengthens the recognition of them as agentic. Their abilities in problem-solving, deep thinking, active exploration and risk taking are further embedded in the updated Aims and Learning Goals of Exploring and Thinking.

Working theories – the tentative, evolving ideas and understandings developed by babies, toddlers and young children as they engage with their families, communities and cultures – are receive further emphasis in the update. Funds of knowledge, a critical component in shaping these working theories also garner additional consideration, as does the fostering of positive learning dispositions such as independence, curiosity, playfulness, perseverance, resilience, resourcefulness and risk-taking.

The update further emphasises the importance of play and playful experiences in fostering positive dispositions, deep-thinking and inquiry-based learning, while also placing a greater focus on risky play. Guided and intentional interactions are included in the update with particular attention to free play, guided play and educator led playful experiences.

The update clarifies that interesting, well-resourced environments and high-quality provocations – resources set out or up to spark curiosity and engagement – indoors and outdoors, invite babies, toddlers and children to be agentic, explore ideas, inquire and deepen their thinking. The importance of babies, toddlers and young children being supported by knowledgeable

educators to develop positive learning dispositions through hands-on, meaningful and relevant experiences has been given great attention. Greater emphasis has also been placed on babies, toddlers and young children as agentic global citizens who must have opportunities to spend meaningful time outdoors and to be supported to learn to live sustainably, so they understand their role in caring for the earth.

Like *Aistear* (2009), the update promotes opportunities for babies, toddlers and young children to engage in learning experiences to support their holistic learning and development. This includes experiences that promote mathematical competencies, which form the basis of STEM. In addition, the update highlights the importance of supporting STEM education as an integral part of holistic learning and development. The benefits of digital technology are balanced alongside the rights and safety of babies, toddlers and young children within the updated Theme. Sustainability, STEM, funds of knowledge, dispositions, working theories, intentional pedagogies and risky play are embedded in the updated Theme of Exploring and Thinking, encouraging babies, toddlers and young children to extend their knowledge, refine their skills, strengthen positive learning dispositions and work together to solve problems – nurturing them as curious and resilient explorers and creative thinkers.

Transition from Early Childhood Education to Primary and Special Schools

The alignment between *Aistear: the Early Childhood Curriculum Framework* and the *Primary Curriculum Framework* plays an important role in ensuring continuity and progression in children's learning as they make the transition from early childhood education to primary and special schools.

This alignment is particularly evident in the Principles of Early Learning and Development in *Aistear* and the Principles of Learning, Teaching and Assessment in the *Primary Curriculum Framework*. Although developed for different sectors, both frameworks place the child at the centre of their learning and acknowledge the unique learning journey that each child is on.

The redeveloped Primary School Curriculum is intentionally grounded in the rich learning that begins in early childhood. *Aistear* provides the foundational principles, dispositions, and playful learning experiences that shape children's earliest encounters with curriculum, and these are explicitly recognised and built upon in the *Primary Curriculum Framework*.

Both frameworks share a strong pedagogical focus—particularly in their emphasis on play as a central approach to learning and teaching. The *Primary Curriculum Framework* reinforces the appropriateness and centrality of play and playful approaches in primary classrooms, strengthening the connection with children's earlier play and playful experiences in *Aistear*.

Sample Learning Experiences for the Theme of Exploring and Thinking

The following sample learning experiences offer a starting point of suggested ideas for educators on how to support babies, toddlers and young children's learning and development across the Aims and Learning Goals of Exploring and Thinking. They are illustrative rather than exhaustive and some sample learning experiences are adaptable across all three age groups, while others are more suitable to a specific age group or stage of development. The sample learning experiences also offer guidance on how to support and progress learning across the three age groups, at a pace that is responsive to individual needs, rights, interests, abilities and wants of babies, toddlers and young children. This helps promote an inclusive learning environment where every baby, toddler or young child can participate meaningfully and reach their individual potential.

Through nurturing relationships within a supportive environment, the educator:	**Birth to 18 months** *For babies, the educator:*	**12 months to 3 years** *For toddlers, the educator:*	**2.5 to 6 years** *For young children, the educator:*
promotes slow relational pedagogy through a key person approach to extend knowledge and refine skills through exploring and thinking within everyday learning experiences.	provides unhurried time for exploring the world around – noticing their fingers and toes, touching leaves, experiencing water trickling, splashing in shallow puddles. Notices and affirms early explorations through warm, responsive interactions – smiling, clapping. Describes actions and discoveries and sharing these moments with others to acknowledge efforts and achievements. Offers repeated opportunities to practise emerging skills within daily routines.	spends time with them exploring and thinking – pausing together to look at a lady bird. Wonders aloud to model early thinking, *I wonder how the puddle appeared this morning when it wasn't there yesterday?* Spends unhurried time with them practising important skills – putting on shoes, pulling up zips, washing hands. Encourages curiosity by responding to their questions and extending their ideas through conversations.	spends time noticing interests, ideas and emerging theories about the world. Takes time to consolidate and extend rather than rushing ahead to the next experience. Listens attentively to their stories, explanations and problem-solving attempts. Uses open-ended questions to support their thinking. *I wonder why …?; What were you thinking when…; Would you like to find out more about…?* Offers supportive guidance as they continue to develop skills and understanding through meaningful experiences, *I wonder which block might help your tower stay balanced*.

provides opportunities to develop physical skills, including through risky play opportunities.	provides safe, open spaces for them to move freely, explore and touch things on safe surfaces. Offers sturdy objects to hold on to, balance against, and pull up on as they begin to stand and move. Encourages early physical actions – grabbing, crawling, lifting, walking, climbing in, on, around, under, over, and through. Putting appealing objects just out of reach to motivate grabbing, stretching, reaching, movement. Facilitates sensory exploration – touching, smelling, seeing, hearing, tasting. Provides safe, natural, open-ended objects that support investigation and discovery.	encourages them to become increasingly skilful in movement through running, jumping, hopping, pedalling, navigating space around people and objects. Provides opportunities to extend large and fine motor skills. Supports safe risk-taking by inviting them to walk on uneven surfaces, balance on low beams, walk along or jump from low walls or benches. Helps them explore slopes by sliding or rolling down grassy banks. Invites them to carry or push heavy objects – logs, large blocks, buckets of water, big cardboard boxes to build strength and co-ordination. Provides fine motor experiences – picking up small items, threading beads, doing up zips, using scissors, staplers. Provides wheelie objects to push, pull, manoeuvre on different surfaces.	encourages the development of gross motor and fundamental movement skills – balancing, cycling (on balance bikes or bikes), hopping, jumping, running, skipping, climbing, bouncing. Creates obstacle courses and encourages playing team games with rules. Provides beanbags, balls, bats, hula hoops, racquets, skipping ropes to refine co-ordination and control. Supports fine motor skill refinement through activities that involve picking up and inserting items – buttons, jigsaws, weaving, sewing, building with small construction toys. Provides opportunities to safely use real tools with educator guidance and support – hammers, drills, screwdrivers, saws, wearing protective clothing and goggles.
builds on funds of knowledge, and supports meaning-making and working theories.	knows likes and dislikes and provides opportunities to explore how the world works through varied sensory experiences, while being mindful of personal sensitivities. Keeps handing back items they drop to help them begin to understand cause and effect. Plays hiding games to help develop the concept of object permanence. Encourages pretend play by responding to initiatives – drinking from the empty cup they offer.	supports their efforts to make sense of their world, including a deeper understanding of cause and effect. Encourages thinking about what happens when they interact with playthings and everyday objects in different ways – touching, shaking, pushing, rolling, squeezing, throwing. Builds on previous experiences by introducing tools – magnifying lenses to study small creatures and their habitats. Experiments with how water affects materials – sand, stones and paper. Ensures there are opportunities to do everyday tasks – washing up, sweeping, tidying, pouring.	provides extended periods of time to revisit ideas and experiment with new materials. Encourages testing their ideas and thinking about and reflecting on their understandings -exploring whether objects float or sink; using magnets with various objects; testing materials for waterproofing and transparency. Supports deep thinking by using discussion techniques – listening carefully and building on what they know. Poses open-ended questions, *What would happen if ...?* to stimulate inquiry.

supports an understanding of numbers	uses numbers and counting during everyday routines – putting on two socks, drinking from one bottle, moving four wheels on a push-toy. Points out numbers in the environment – *There are two birds on the fence. I must need three bananas. You have one spoon in your hand*. Helps them count their fingers and toes. Sings songs and rhymes with numbers – *Five Little Ducks; One, Two, Buckle My Shoe*. Reinforces counting as they play: One scoop, two scoops of sand. Introduces number problem-solving – *Can you find two cars?*	counts during everyday routines – stairs, snacks, clothes, toys, claps, jumps. Holds up fingers to show age: *You are two!* Creates number games and tactile number cards – sandpaper, wooden. Displays numbers in meaningful contexts and pairs numerals with words and objects – 2, two, and two items. Reads books that support number learning and draws attention to the language of size in stories – small, medium and large in *Goldilocks and the Three Bears*.	provides spaces for counting objects and labelling them with corresponding numbers. Draws attention to the use of numbers in the environment, in their play and in everyday situations – *That's our bus, can you see the number 3 on the front?; My mobile number is 275, can you call me?; What size are your shoes?; How many pieces of carrot would you like?* Rolls a dice and counts dots together. Encourages thinking about numbers through questions – You gave one car away—how many are left?
provides opportunities to compare, sort, order/sequence	provides opportunities to notice differences and similarities using senses – rough and smooth, full and empty, heavy and light. Provides objects that stack or fit inside each other – nested boxes, shape-sorters. Models stacking and sorting – big block first, small block on top; putting all blocks in one basket and soft toys in another. Explains sequencing through routines to help them understand what comes first, next and last – nappy off, wipe, new nappy, then clothes back on.	supports sorting, pairing and sharing different items in play and everyday experiences – giving a piece of mud pie to each customer. Encourages sorting by colour or category Can we put all the blue cups on one table and yellow on the other?; Can we put bears in one box and tigers in the other. Reinforces sequencing through routines such – socks before shoes; bath, pyjamas, story, bed. Reads books that include repeated maths concepts to strengthen understanding.	plans experiences for ordering objects and uses mathematical language – big/bigger/biggest, tall/taller/tallest, wide/wider/widest. Talks about sequencing when preparing a sandwich or baking – First we… then we…. Encourages thinking about amounts through questioning, *Can we divide the orange so that everyone gets two pieces?* ; *How much flour do we need?* Encourages problem-solving through prompting, *This piece doesn't fit into the space. I think it's too big. What should we do?*
encourages experimentation with colour, shape, size, pattern, light and texture.	encourages messy play with hands and feet using non-toxic materials – cooked pasta/rice, yogurt, gloop (cornflour and water with food colouring), jelly, pureed fruits or vegetables, custard. Encourages play with natural materials – sand, water, stones, leaves, acorns, grass, flowers. Draws attention to the physical properties of objects through language – colour, texture, size, and shape. *It's a big red truck; Your blue scarf is very long.' The stone is rough.* Explores light and shadows together and baby-safe floor mirrors and soft lighting (natural or fairy lights behind sheer fabric).	provides opportunities to explore and classify textures (rough/smooth, thick/thin), heights (high/low). Sets up small group experiences to investigate and classify flavours, colours and textures of different foods (sweet, sour, salty, crunchy, soft, hard). Uses lightboxes to explore shadows created by different items. Encourages creative and messy play through homemade play dough and mud kitchens.	provides opportunities to mindfully mix paint colours to explore different shades. Encourages collecting and sorting objects and natural materials – shells, leaves, stones, seeds, flowers. Talks about patterns in the natural environment – the spiral of a snail's shell; the colours and shapes of leaves. Encourages thinking about shapes – dropping round objects into a round container only.

supports sustainability through caring for self, others and the environment	encourages respect for self through care routines – washing hands, putting on coats. Helps them to develop caring behaviours by looking after dolls and soft toys, holding hands, being gentle, giving hugs to comfort peers. Models and supports care for the environment – sorting and putting rubbish into the correct bin, turning off lights and taps, using recycled items (cardboard tubes, plastic containers, and packaging for art and construction).	supports good recycling habits by encouraging sorting of paper and plastic into different bins. Encourages decision-making with questions like, *Where do you think this should go?* Encourages caring for self through dressing and toileting routines. Supports understanding of cause and effect during hand washing *'Soap removes dirt and paint – how does this happen?'*. Introduces child-safe gardening tools – small rakes, trowels and watering cans. Encourages care for others through taking turns and using kind words and gestures.	encourages thinking and predicting during experiences – watering plants, *'What happens if we give too much versus too little water?'* Discusses the consequences of not caring for living things and natural resources. Reads books and introduces digital technologies, where developmentally appropriate, to support learning about sustainable living. Organises visitors or outings to learn about local sustainable practices – a visit from an animal rescue centre; visiting the local tidy towns group to find out a compost heap or wormery. Explains about conversation – native red squirrels versus grey squirrels.
helps develop an understanding of the process of change as part of everyday life.	draws attention to changes in the weather (in a day, and from day-to-day) and the different clothes we wear because of these changes. Talks about changes to self – learning to roll, crawl, walk; getting first shoes; getting a first haircut. Helps them to understand how their bodies and abilities change over time – when their clothes no longer fit, celebrating milestones like birthdays.	explores changes in the weather and the seasons – day and night, buds appearing, leaves falling, lambs and calves being born, clouds disappearing, the sun appearing, rainbows forming. Helps them sort clothes for winter and summer. Draws attention to preparing for celebrations throughout the year. Involves them in baking and discusses how ingredients change – butter or chocolate melting or hardening; dough rising; pastry crusting; ice cream melting.	supports exploration of change – comparing ice melting indoors and outdoors; observing the life cycle of a frog during regular visits to a nearby pond. Helps them grow, harvest and use herbs and vegetables. Encourages investigation of change through baking or cooking – making scones, soup, smoothies. Encourages them to record daily and weekly weather changes and to measure rain fall or shadows at different times of the day. Poses questions and encourages speculation about how and why things change.
supports understanding of measure concepts (weight, height, length, capacity, time, space, money).	sets up boxes, cushions and other safe objects along with climbing frames to crawl into, over, around, behind, on top of, beside, in front of. Helps them to notice the location of objects, rearrange them, and look at them from different viewpoints. Encourages filling and emptying items to explore volume.	models using measuring spoons, filling cups with water or sand, using a weighing scales. Encourages exploration of weight by carrying heavy and light items – a basket with soft toys compared with a basket of books or blocks. Asks them to predict which will be heavier, and afterwards, encourages them to think about their experience – *Why was it harder to lift?* Supports their learning about capacity through exploration – pouring water between cups, jugs, containers and encouraging their thinking: *I wonder will it overflow?*	encourages exploration of space – moving in, out, under, over, near, far and through crawling through tunnels or playing hide and seek. Introduces money concepts in play – buying food using coins and explaining that money is exchanged for goods. Uses comparative language – heavier, lighter, longer, shorter, smallest during daily experiences. Discusses time by looking at the clock and the visual daily routine and talks about what happens before, after, during and while waiting. Encourages thinking about sequencing and the order in which events happen.

helps builds on natural curiosity and supports inquiry, critical thinking and problem-solving.	encourages exploration through touching, tasting, and observing as they begin to find out why things happen. Talks about how they repeatedly open and close a box with a lid to figure out how it works. Supports early investigation and experimentation by offering different containers to shake and helping them to notice which one makes loud/soft sounds.	supports critical thinking by encouraging them to make choices, and to compare and contrast. Observes them as they repeatedly drop leaves or stones into a puddle or stream and chats about what is happening. Helps them to find out more by reading books together or asking other people. Uses open-ended statements and questions to encourage problem-solving – *I wonder would your Gran know about that, she is a farmer isn't she?*; *'Where did we hear about that before?*; *'... knows a lot about dinosaurs maybe we can ask them?'*	supports problem-solving skills and encourages persistence, planning, trial and error. Uses everyday experiences, stories and photographs to prompt discussion. Asks open-ended questions – *I wonder why... ; What would you do ?; What do you think would happen if ... ; Why do you think that..?* Encourages the use of different sources to gather information. Slows down and pauses to listen carefully to their thinking and ideas and spends time finding out why things together.
supports integrated STEM learning.	organises experiences that encourage thinking about how things work through play and hands-on experiences. Encourages the use of unplugged resources – hands as tools to build, stack, knock down and rebuild to promote early engineering thinking. Models how to use a magnifying glass. Talks about experiences using STEM vocabulary – *The rock is heavy and sinks; The ice is melting in the sun; You pushed the car down the ramp and it went fast!*	embeds STEM learning in play and hands on experiences – music, movement, construction, pretend play, baking, cooking, growing, gardening, harvesting, fixing things together. Introduces and supports STEM vocabulary and thinking naturally within these experiences – measuring, comparing, predicting, balance, heavier, faster. Involves them in real-life tasks – cooking, fixing things together – sink/float, heavy/light, fast/ slow, wet/dry, hot/cold, push/ pull, up/down, melt/freeze.	introduces STEM concepts – cause and effect; living and non-living things; weather and seasons; force and motion; gravity and speed. Extends STEM vocabulary and ideas – *That bridge you made looks strong! Let's test to see if it holds the car.* Explains that technology includes all kinds of tools from hands to digital devices and that tools help us do tasks. Introduces STEM vocabulary during experiences – build, fix, connect, design, test, stabilise, balance, persevere.
helps build connections with nature and the outdoors.	provides opportunities for sensory nature exploration – touching grass, leaves, bark, sand, stones, shells, water, inside or ideally outdoors. Organises bug, bird and animal watching experiences and offers magnifying glasses to observe ants, butterflies, birds, or worms in the garden. Points out local wildlife – birds, insects, cats, dogs, squirrels, badgers, hedgehogs, horses, foxes, sheep, cattle. Listens with them to environmental sounds – bees buzzing, birds singing, animals calling, leaves rustling. Supports safe outdoor risky play – climbing ramps and steps; crawling/walking barefoot on grass.	ensures they experience different weather conditions – playing outside in light rain; feeling the wind; exploring puddles; looking at cloud formations; touching frost or ice. Organises nature walks and treasure hunts to collect leaves, rocks, horse chestnuts, acorns. Sets up an inside area with natural items – leaves, bark, pinecones, wild flowers, stones for exploration and creative play. Introduces nature related songs and story time outdoors. Extends risky play experiences appropriately.	organises transient art experiences outdoors using leaves, sticks, stones, flowers, shells. Introduces songs and stories about nature – birds, insects, animals, weathers, flora, fauna. Organises trips – walking in the woods; feeding ducks at the river; visiting a local farm to feed the calves or collect eggs; splashing in puddles in wellies and raingear; having a picnic in the garden. Reads books and uses technology (where developmentally appropriate) to learn more about nature. Further extends risky play experiences in safe and supported ways.

supports emergent interests and introduces new ones including through the provision of inviting provocations.	encourages learning by giving them time and space, indoors and outdoors, to explore objects, people and places that interest them. Develops engaging, safe and developmentally appropriate provocations to spark curiosity – a treasure basket with natural and household objects (wooden/metal spoons, fabric, measuring cups, orange/lemon). Sets up sound exploration provocations with shakers, bells, drums, crinkly fabric, tapping sticks. Creates a texture wall or crawl path using different textures – a soft rug, bubble wrap under fabric, a grass mat, foam.	sets up provocations that invite exploration and discovery. Creates displays of objects related to their emerging interests – mini-beasts; colours; vehicles; princesses and fairies; flying creatures; musical instruments. Sets up water play provocations – shallow trays, cups, jugs, pipes, sponges, floating toys, shells, keys, stones. Sets up box exploration provocations with large and small boxes for climbing into, posting objects, hiding. Observes closely and notices emerging interests and responds to extend these.	set-ups more complex provocations that encourage exploration and sustained shared thinking – wind and movement provocations using fans with educator guidance and support, hanging ribbons, blowing bubbles, playing with scarves outdoors. Encourages them to get involved in projects based on their interests and provides a wide range of materials, books and props to support deeper exploration. Shows interest and actively joins in to model curiosity and extend learning. Encourages them to share their projects with others. Organises occasional trips in response to emergent interests or inquiries.
nurtures schematic learning.	notices schemas (repeated patterns of play) they enjoy and supports these. Provides opportunities for the trajectory schema – throwing and dropping items – objects, food, their own bodies. Provides ramps, balls, vehicles, tubes and water pouring opportunities. Encourages playful throwing games using soft balls or blowing bubbles to chase and pop.	ensures opportunities for the enclosure schema hiding; filling and sitting inside spaces – tunnels, cubbies, large boxes, pop-up tents, blanket dens. Supports them to use small-world play materials to make enclosures for people, vehicles and animals. Provides opportunities for containment schema – filling and emptying – post boxes, buckets, saucepans with lids, water play, baskets. Provides opportunities for positioning schema by encouraging them to line up items and arrange them in patterns – vehicles, animals, stones.	provides opportunities for rotation schema; turning and spinning resources – wheeled toys, windmills, spinning toys, waterwheels, spoons, bowls, taps, bottles, jars. Provides opportunities for connecting schema through joining objects – bricks, Lego, linking chains, tape with boxes/ papers, magnetic tiles, Velcro boards. Supports transporting schema by providing wheelbarrows, baskets, buckets, bags, tractors with trailers, toy shopping trolleys so they can move objects around the environment, indoors and outdoors.

nurtures positive learning dispositions particularly those that support STEM.	nurtures curiosity by offering everyday objects to explore without interruption. Supports early problem-solving by placing toys slightly out of reach. Introduces simple cause-and-effect experiences using pop up toys, post boxes, water wheels. Encourages persistence by smiling and nodding, giving them time to try again themselves rather than stepping in too quickly. Invites them to explore water, sand and light and talks about what is happening to foster early scientific thinking, for example, *It rolled; That's heavy; It's cold*.	nurtures inquiry by providing opportunities for hands-on experiences – playing with ramps, magnets, funnels. Encourages problem-solving by providing open-ended materials to try different solutions. Encourages prediction skills through asking open-ended questions – *What might happen when…?* Encourages persistence – allows time for trial and error; acknowledges efforts with comments *You kept trying and figured it out all by yourself*. Supports learning maths and engineering concepts – encouraging sorting everyday items by size, colour, or shape; providing opportunities to stack, balance and connect materials indoors and outdoors.	encourages deep thinking by asking questions – *Which ramp is fastest; or What do you think will float?* (and asking why they think that). Facilitates recording ideas using drawings, photos, or charts. Nurtures problem-solving and creativity – offering open-ended materials; encouraging persistence and resilience by facilitating long periods of uninterrupted play and normalising mistakes, *That didn't work yet*.

Aistear
Creatchuraclam na Luath-Óige
The Early Childhood Curriculum Framework

NCCA
An Chomhairle Náisiúnta Curaclaim agus Measúnachta
National Council for Curriculum and Assessment