Framework for Exhibits and Learning Experiences

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KidsPlay Children's Museum

What We Do: KidsPlay Children's Museum was founded in 2012 and currently operates over 11,000 square feet of interactive, hands-on exhibits. The Museum is a place for children aged 1 to 10 to practice pre-academic skills, build curiosity, and explore through purposeful play. The Museum presents learning concepts in ways that are meaningful and accessible to children and enriches the educational landscape for families from all the socio-economic, cultural, and educational backgrounds.

A children's museum is a vital component of a strong and vibrant community. KidsPlay Children's Museum is committed to serving children and families by providing exhibits and programs that stimulate curiosity and motivate learning. Since inception, KidsPlay has welcomed over 200,000 visitors and has been recognized by the Connecticut Economic Resource Center, Inc. (CERC) for positively impacting the Northwest Connecticut economy.

Vision: A sustainable anchor institution, preparing a diverse community of children to thrive intellectually, socially and emotionally.

Mission: Provide children with an environment that fosters imagination and creativity through interactive exhibits and play that will deepen their appreciation and understanding of the sciences, the arts and the world around them.

Beliefs:

- A safe, fun and stimulating environment should be accessible to children and families across the socio-economic, cultural and educational spectrum.
- Children and their caregivers should feel welcome and comfortable in the museum.
- Hands-on multi-sensory play is a natural mechanism for learning.
- Curiosity motivates learning across all fields of study, including, but not limited to, all aspects of science; the visual and performing arts; history and culture; mathematics; and health and wellness.
- Pre-academic skills such as perspective taking, sharing, communicating, motor control and self-control are crucial to lifelong success.
- Multi-cultural literacy informs creative work.
- Child/caregiver engagement promotes exploration of learning concepts and guides discovery.
- A children's museum is an important part of a strong and vibrant community.

A children's museum is ever changing, welcoming guests of all ages, backgrounds, and interests. These guests come to the museum to engage in joyful, discovery-based play. Play is the vehicle by which children explore, experiment, imagine, test, learn, create, fail, and most importantly, have fun!

It is the role of a children's museum to provide an environment that encourages, stimulates and supports playful learning. This environment is created through the collaborative work of caregivers and facilitators, the careful review of and reliance on research-based educational philosophies, and a consistent process to both create and evaluate learning experiences and exhibits.

At KidsPlay, we strive to create and support this environment on a daily basis in order to help us achieve the highest rate of playful engagement with our visitors.

The Importance of Play

Why is play so important to a child's development? It is through play that children engage, experiment, and interact with the world around them. Play is an opportunity to promote social-emotional, cognitive, language, self-regulation, and self-awareness skills that are essential for later success. These skills develop and strengthen as the child practices problem-solving, builds relationships, uses imagination, engages in role-play, negotiates rules, takes risks, and tests boundaries.

Both guided and self-directed play have benefits to the child. Guided play, in which adults craft the environment to optimize learning, allows the child to master skills that might otherwise be difficult to master alone. It helps the child focus on important aspects of the learning experience and facilitates caregiver-child communication and support. Self-directed play gives the child the opportunity to take the lead and follow his or her own curiosity, constructing knowledge through independent exploration and experimentation.

Optimal learning through play happens when the activity is experienced as joyful, when it helps children find meaning in what they are doing or learning, when it requires active, engaged, minds-on thinking, when it involves iterative thinking and experimentation, and when it encourages social interaction. A child who plays is developing skills that will both support and enhance his or her later success in navigating our changing world.

The Role of the Adults: Play Facilitators and Playful Caregivers

Both caregivers and play facilitators serve an important role in the creation of an environment conducive to joyful play, skill development, and lifelong learning by the whole child.

<u>Caregivers</u>
Children thrive when they are actively engaged in their learning and have stable and supportive relationships and nurturing interactions with adults. Relationships with caring adults is essential to healthy human development and the Museum encourages caregivers to be active participants in the child's play.

The Museum seeks to model ways of fostering inquiry-based learning for children to experience with their caregivers. Emboldened by a clear role within exhibits, caregivers will be able to show greater participation in play and attunement to their child's activities, show a deeper understanding of the learning goals embedded within exhibits, and connect museum exhibits to their everyday experiences with their children.

The focus on caregiver engagement is a vibrant part of preparing a child for long-term success. KidsPlay supports caregivers in their chosen role, which may include observer, play partner, mentor, and/or advocate.

Play Facilitators

Play Facilitators respect that children learn through play, open-ended experiences, appropriate challenges, connections to home and to caregivers, self-directed questions to answer, and problems to solve. Knowing that there are multiple ways to do things, solve problems, and express creatively, play facilitators encourage children to use executive function and reflect on their experiences and knowledge.

In order to support staff in their interactions with families in an interactive children's museum, KidsPlay has adopted the following ten Standards of Engagement developed by The Boston Children's Museum and the Chicago Children's Museum, with support from the Institute of Museum and Library Services (IMLS).

1. **Ourselves as invitation**: We provide inclusive physical and verbal cues that let the visitor know we are approachable and knowledgeable about the museum, its philosophy, exhibits, and programs.
2. **Fun**: We create a playful climate that is conducive to fun – whatever that means to our individual visitors.
3. **Environment as invitation**: We create and maintain a physical environment that is comfortable and engaging for both children and adults.
4. **Nurturing the adult-child bond**: We support adult caregivers in their chosen role, which may include play partners, observers, learners, or mentors.
5. **Respect for families' cultures**: We employ an array of skills as we interact with families with a variety of backgrounds, needs, and styles.
6. **Exemplary play and learning facilitation**: We model positive, educational, creative and respectful ways to interact with children and their caregivers through play.
7. **Play and Learning for all**: We recognize and can adjust for each individual child's and adult's cognitive, physical, cultural, and social differences.
8. **Making learning visible**: We provide opportunities for families to witness and talk about their learning and experiences.
9. **Extending learning beyond the museum**: We engage in strategies that help museum experiences resonate after families leave, providing resources, ideas, or inspiration for extending learning beyond the museum visit.
10. **Reflective practice**: We engage in an on-going professional improvement process that includes reflection on successes and challenges, setting personal goals, and monitoring growth.

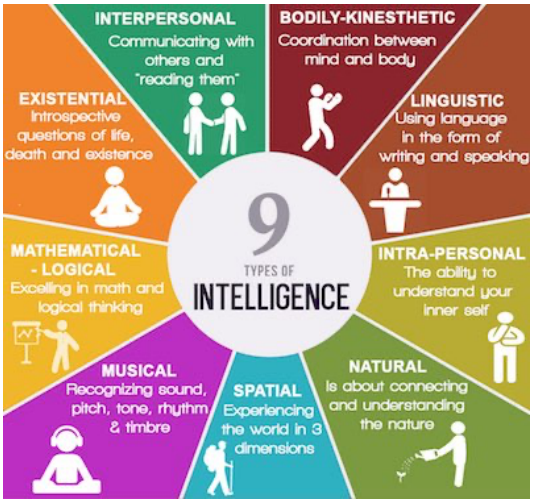
Foundations in Learning Philosophy and Practice

Though different, learning philosophies and practices share the same end goal – to bring focus to the larger purpose of education and its importance in society. The Museum's goal is to have each guest walk away with an educational gain by the end of their visit, remembering that success is measured differently for everyone. It may be that one child learned a new word, another discovered how to use scissors, while still another experimented with how air flows.

We recognize that the development of a child is complex and not easily categorized. Understanding various learning philosophies and practices helps the Museum better adapt exhibits and programs to impact the greatest number of visitors of all ages. Those we rely upon are briefly discussed here.

Theory of Multiple Intelligences:

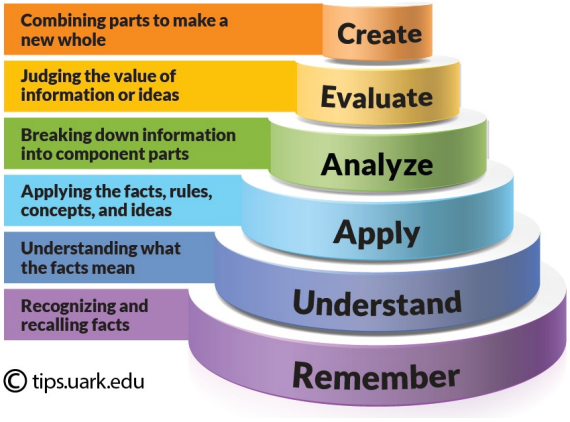
The theory of multiple intelligences was developed in 1983 by Dr. Howard Gardner, professor of education at Harvard University. It suggests that the traditional notion of intelligence, based on I.Q. testing, is far too limited. The theory offers a broader range of methods and modalities that both children and adults use to acquire and process information.



Recognizing multiple intelligences results in the development of a variety of multi-modal activities that have the potential to reach the greatest number of individuals, no matter their preferred method of learning.

Bloom's Taxonomy and Higher Order Thinking:

Bloom's Taxonomy is a hierarchical ordering of cognitive skills created in 1956 under the leadership of educational psychologist Dr. Benjamin Bloom. According to Bloom, levels of thinking can be categorized as follows, with each level building on the last for deeper understanding: knowledge, comprehension, application, analysis, evaluation and creation.

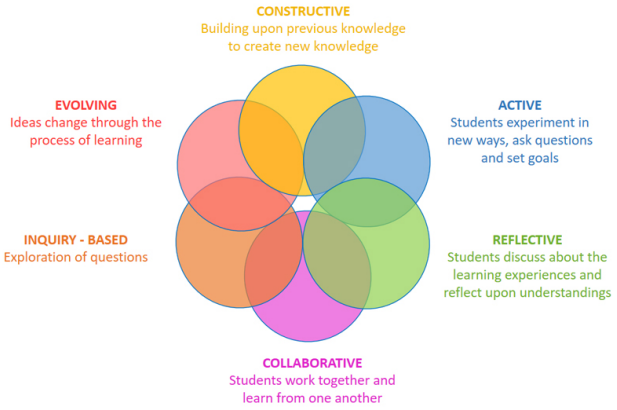


Using Bloom's Taxonomy in crafting lessons and activities helps facilitators lead learners towards higher forms of thinking.

Constructivism:

Constructivism is a theory that says people construct their own understanding and knowledge of the world. Each new experience provides an opportunity to reconcile new information with previous ideas and experiences, resulting in the active creation of knowledge. In order to learn, people must continually ask questions, explore, and assess information.

Incorporating a constructivist view encourages learners to use active techniques like experiments and real-world problem solving to create knowledge and then to reflect on and share how their understanding is changing.



Executive Function:

Executive function is a set of cognitive skills that help children plan, focus, remember instructions, manage time, filter distractions, and control impulses. Strong executive function gives children tools necessary for success.

It is important for children to exercise their developing skills through activities that foster creative play and social connection, teach them how to cope with stress, and over time, provide opportunities for directing their own actions.

Backward Design:

In the backward design model of educational planning, educators first choose the desired learning outcome. Once the outcome is identified, the focus moves to how success at reaching this outcome will be determined and evaluated. Then learning activities are chosen and the lesson content is written.

The backward design process keeps the focus of instruction on reaching the intended goal.

Maker Movement

The Maker Movement is gaining popularity in schools, libraries and other community centers across the world. Children who make things learn that they are capable creators, that they can try something even if it doesn't turn out exactly how they thought it might, that failure is acceptable because it teaches you how to succeed, that persistence breeds confidence and resilience, and that they can learn from and collaborate with others. As they experience each of these things, they are embracing some of the mindsets of making - the ways of thinking that allow them to approach a challenge or a task with confidence.

CT ELDS, Connecticut Early Learning and Development Standards

In order to foster competent learners, the Connecticut Office of Early Childhood developed Connecticut's Early Learning and Development Standards (CT ELDS). These standards provide the basis for supporting children's growth and development across settings.

Early learning environments should recognize that children are capable and confident, learn best when their basic needs are met, are unique in their growth and development, and develop and learn within the context of their family and culture. The aim is to foster children who are creative, inquisitive, flexible, critical thinkers, purposeful, reflective, and social.

Connecticut Common Core Standards:

The Common Core State Standards (CCSS) are a set of academic standards in mathematics, English language arts/literacy, science, social studies, foreign languages, the arts (performing and visual), health, and physical education that are grounded in evidence and designed to ensure that all students have the academic knowledge and skills they need in these core subjects to succeed after high school.

The Museum designs learning experiences that connect to and build upon these standards to support teachers in meeting the needs of their curriculum.

Learning Framework – Learning Experiences

Using the Learning Framework while developing and evaluating learning experiences is a way to ensure that the educational goals and philosophies are recognized and incorporated into activities. Each section of the framework addresses an important aspect of the learning process.

First: Personal Connections and Experiences

Social Learning, Relationships, Open-ended Questioning, and Prior Knowledge

Does the **experience**…

- offer a playful and welcoming environment?
- incorporate a personal connection with the facilitator and other participants?
- provide an opportunity for visitors to share their prior knowledge and receive positive feedback?
- include open-ended questioning techniques and encourage questions from children?
- recognize and accommodate cultural and familial differences?

Second: Building Understanding

Evidence, Materials, and Cause and Effect

Does the **experience**…

- provide time for visitors to explore, play, and learn from interacting with materials and/or resources?
- offer a materials-related problem or a challenge for the visitor to solve?
- provide concrete information about the task or challenge?
- add new materials, tools and/or information to help the child reach the activity objective?

Third: Mastery, Exercise, and Practice

Concrete Information and Experience

Does the **experience**…

- give visitors the opportunity to understand new concepts, practice new skills, and apply new strategies?
- provide additional feedback about the task or challenge?
- introduce questions and/or challenges that encourage higher-order thinking?

Fourth: Self Expression

Creations, Solutions, Designs, and Comparisons

Does the **experience**…

- offer the visitor the opportunity to design a solution to the challenge or create a new product that addresses the task or challenge?
- provide opportunity for the visitor to share the details and features of his/her design, including the process used to create it?
- offer visitors the opportunity to display their work?
- encourage visitors to reflect on the learning process?

The facilitator uses the Learning Framework to way to evaluate his or her own role in the learning experience, incorporating learning goals, philosophies, and practices into interactions with individual children and with the group as a whole.

First: Personal Connections and Experiences

Social Learning, Relationships, Open-ended Questioning, and Prior Knowledge

Does the **facilitator**…

- use a variety of engaging tools to invite children and caregivers to the learning experiences, e.g. pictures, songs, and/or actions?
- access what understanding and background knowledge the child and caregiver bring to the learning experience?
- stimulate the child's language development, engaging in active and reflective listening and modeling conversational skills?
- encourage and support children's focus and attention during the learning experience?

Second: Building Understanding

Evidence, Materials, and Cause and Effect

Does the **facilitator**…

- provide mental space for the child to learn from his or her own experimentation?
- stimulate and expand the child's language through open-ended questioning?
- expand the child's thought processes through the use of the scientific method?
- guide, support, and build on the child's understanding so as to meet the activity objective?
- connect the child's experiences to the real world and/or bigger ideas?
- adjust activity methods and/or goals to accommodate differing learning styles and knowledge levels?

Third: Mastery, Exercise, and Practice

Concrete Information and Experience

Does the **facilitator**…

- help the child connect the experience to the real world?
- encourage problem solving as a process which includes mistakes, multiple attempts, and multiple solutions?
- support executive functioning skills, e.g. time management, self-control, and focus?
- offer opportunities for fine- and gross-motor interactions?
- introduce relevant vocabulary?

Fourth: Self Expression

Creations, Solutions, Designs, and Comparisons

Does the **facilitator**…

- give the child time, materials, and opportunity to create his/her own design or solution?
- encourage children to reflect on their work, accept and learn from failure, and celebrate success?
- encourage children to make connections to books, reading, writing, speaking, music, and movement?
- provide ways for the visitor to extend learning at home?
- reflect on the activity's effectiveness at reaching the stated objective?

The following page provides an example of the Learning Framework for our Rigamajig Learning Experience.

Learning Framework: Rigamajig – A Mission in Motion
Objective: To use the Rigamajig exhibit to experience working as an engineer to solve a problem.

First: Personal Connections and Experiences
Social Learning, Relationships, Open-ended Questioning, and Prior Knowledge

Ask the children to tell about a time they needed to build something to solve a problem.
- What problem did you need to solve?
- What materials did you use?
- Did you work with others?
- Was your creation successful in solving the problem? What could you have done differently?

Introduce the word "engineer."
- What does an engineer do?
- What kinds of engineers are there?

Second: Building Understanding
Evidence, Materials, and Cause and Effect

Tell the visitors that they will be participating in a building activity with a special exhibit called Rigamajig.

Show the Rigamajig materials to the participants, identifying the different parts and their uses.
- Build a simple corner to show how the parts fit together.

Present the participants with a building challenge:
- From Here to There, Animal Habitats, or Machines that Help People
- An original idea designed by the visitor
- A curriculum-related challenge

Third: Mastery, Exercise, and Practice
Concrete Information and Experience

Observe and offer support as participants begin to create solutions to the challenge.

Encourage participants to challenge themselves, work together, and to see that sometimes "failures" lead to innovation achievement, and success.

Use descriptive and technical vocabulary while participants are engaging in hands-on learning. Include terms such as force, stress, strain, compression, and tension.

Suggest that participants keep the goal of the challenge in mind as they work.

Fourth: Self Expression
Creations, Solutions, Designs, and Comparisons

Have participants share their creations with the entire group. They may wish to share a story or song to describe their creation.

Ask the children to sketch their creations and then to reflect on the questions asked at the start of the activity in relation to their experiences as a Rigamajig Engineer.

Collect and use the sketches and writings to create a collection of Rigamajig ideas. This may be given back to the School, Library, or public service organization for the purpose of reflecting and sharing with others.

Learning Framework – Exhibit Development

The Physical Environment Committee, working with both the Museum Director and the Education Team, relies on the Learning Framework when conceiving, designing, evaluating, and seeking funding for Museum exhibits. The guidelines in the framework are a reference point for updating and extending existing exhibits as well as planning for new exhibits.

First: Personal Connections and Experiences
Social Learning, Relationships, Open-ended Questioning, and Prior Knowledge

Is the **exhibit**…
- engaging and visually inviting?
- accessible, inviting, and respectful to children and caregivers?
- respectful and sensitive to multiple cultures?
- safe?

Second: Building Understanding
Evidence, Materials, and Cause and Effect

Does the **exhibit** provide…
- developmentally appropriate materials?
- multiple activities for a variety of ages?
- activities that stand on their own, independent of facilitation?
- workspace for independent, small group, or large group work and play?
- appropriate tools for investigation?
- opportunity for playful, fun and open-ended exploration?
- supportive materials and resources to enhance exploration?

Third: Mastery, Exercise, and Practice
Concrete Information and Experience

Does the **exhibit**…
- advance knowledge and understanding of learning concepts, skills, and strategies?
- offer engagement through multiple modalities?
- encourage iterative educational interactions?
- foster social interactions, communication, and collaboration skills?
- advance vocabulary and language skills?
- stimulate learning beyond the Museum?
- allow for both fine- and gross-motor movement?

Fourth: Self Expression
Creations, Solutions, Designs, and Comparisons

Does the **exhibit**…
- connect to the real world outside of the Museum?
- stimulate problem-solving and creativity?
- inspire dramatic play and role playing?
- avoid screen-based technologies unless proven vital to the learning experience?
- provide suggestions for extended learning at home?

The following page provides an example of the Learning Framework for our Maker Space Exhibit.

Learning Framework: Maker Space Exhibit

Objective: To provide a safe space and developmentally appropriate materials that encourage visitors see themselves as builders, creators, and problem-solvers.

First: Personal Connections and Experiences

Social Learning, Relationships, Open-ended Questioning, and Prior Knowledge

The exhibit provides:

- a welcoming and comfortable workspace for visitors, set apart from the main museum floor.
- familiar, workable, and accessible materials; e.g. cardboard, yarn, tape, pipe cleaners.
- easy access to past and current projects through the use of display cases and countertops.
- projects ideas appropriate for a variety of ages and cultures.
- necessary safety precautions and warnings.

Second: Building Understanding

Evidence, Materials, and Cause and Effect

The exhibit:

- offers opportunities for the visitors to hear and see technical and descriptive vocabulary.
- provides a variety of developmentally appropriate and engaging materials and projects.
- allows the visitor to explore materials and projects based on individual interests.
- provides space for the facilitator and visitors to learn together.
- offers resource and reference materials to assist in project creation, development, and completion.
- encourages creativity through facilitated and visitor-led learning experiences.

Third: Mastery, Exercise, and Practice

Concrete Information and Experience

The exhibit provides:

- weekly challenges for visitors to complete related to overall museum themes.
- opportunities to try new tools and materials, and/or use familiar materials in new and engaging ways.
- tables that can be configured to provide space for both individual and collaborative work.
- workstations that provide space for exploration of a variety of STEM related topics.
- facilitation, supervision, and support when needed.

Fourth: Self Expression

Creations, Solutions, Designs, and Comparisons

The exhibit:

- helps visitors develop self-confidence and build a vision of themselves as creators, problem solvers, and teachers.
- helps visitors develop grit and resiliency through the encouragement of project completion.
- provides display shelves for visitors to share their work.

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