What is a “research toy”?

- museum-style activity, developed from published research article(s)
- generally, facilitated by staff and/or volunteers
- child as ‘participant’, caregiver as education target
- formatively evaluated and iterated through piloting
Why present research in the museum?

Your goals narrow the type of studies that are relevant, and what aspects of those studies are most important.

- **Results** – what scientists know about child development (take-home messages)
- **Methods** – how scientists study child development (encourage visitor observation of child behavior)

Identify tasks that can be modified for demonstration, and that will spark conversation with museum visitors.
Choosing a study

What kind of studies?

**old, well-established studies** are likely to have results that are no longer in dispute

**recent studies** show the “cutting edge” of developmental research and help educate visitors about science as an ongoing process

*activities with tasks similar to research currently conducted in your museum are not recommended*
Research Toys: Conceptual Reasoning

Categories
How does conceptual reasoning develop in early childhood?

Blickets
Are children sensitive to the relationship between the name of an object and its properties?
Research Toys: Mathematical Reasoning

Cardinal Number
When do children understand that the amount of things in a set are associated with a number word?

Intuitive Algebra
How do children understand ‘part’ and ‘whole’ in mathematical relationships?
Research Toys: Executive Function

**Greedy Monkey**
How does impulse control develop in toddlers and preschoolers?

**Inhibition**
How are impulse control and the ability to take different perspectives related in young children?
Research Toys: Understanding People

**Infant Pillows**
How do scientists know what babies are thinking before they are able to talk?

**Emotion Dolls**
How do stories and facial expressions affect children’s understanding of different emotions?
Research Toys: Teaching and Learning

Novel Toy
How does direct instruction affect a child’s play behaviors?

Praise
How does children’s motivation change after being praised for “hard work” vs. “being smart?”
Research Toys: Social Reasoning

Stickers
How willing are children to share and what factors influence the decision to share?

Owner Dolls
Do young children understand when the owner of an object has changed?
Getting Started

Find a study
Develop a toy
Prototype/Pilot
Training
Evaluation
Review the Literature

• Start with books, articles, and other resources – not with research papers!

Online Resources

• Science Daily – Look under the “Society and Education” tab for the most current studies
• Science Friday – Search under the topic “Brain” for studies about children’s learning
Access Original Papers

- www.informalscience.org
  access to EBSCO database = full text articles from 1,000+ journals

- *Early Childhood Research Quarterly (NAEYC)*

- webpages of professors or university labs

- contact the lab, or ask someone with a university connection for help
Develop, Pilot and Refine

• Identify what children did while participating in the study.
• Find, create, or buy materials to replicate the task(s) or create a similar activity.
• Try the activity with visitors, identify success/challenges and make changes.
• Draft an interpretation guide.
• Train staff.
• Observe staff and provide feedback.
Toolkit Resources

• “Developing Research Toy Activities”

• “Reading Research Papers – An Educator’s Guide”

• Formative Evaluation: Research Toy Interaction Observation and Interview Instrument