Keeping Parents Informed about Research

The **Research Spotlight** section of the monthly newsletter is one way Children’s School parents can learn about research in progress. Also, each time your child participates in a study that involves playing a “game” with a researcher (i.e., as opposed to merely being observed), he or she will get a **participation sticker** suggesting that you, “Ask me about the … game” and a **study description** detailing the task. We also have **recent articles** resulting from Children’s School research posted on the Family Bulletin Board, and a notebook of additional articles in the office.

**Observations for Psychology Assignments:** Students from Dr. David Rakison’s Child Development class will be doing periodic observations this fall. For each assignment, they observe specific differences between preschoolers and kindergartners in motor skills, social interactions, etc.

**Research Methods Class Studies:** Student’s in Dr. Erik Thiessen’s Research Methods course will start with a lab to explore whether teaching children to subdivide a number line will help them better understand the relative size of numbers. Then they will work in groups to conduct a study of their own design, which will be approved both by their teacher and by Dr. Carver.

Feel free to contact Dr. Carver to discuss any questions you have about research.

Research Spotlight

**The Curiosity and Question-asking Game**

Jamie Jirout, a graduate student working with David Klahr, is studying young children’s curiosity and question-asking behavior. The goal of this project is to investigate the relationship between children’s curiosity and their ability to ask questions in order to solve problems or learn about a science topic. In this study, children play several games in two sessions. One session includes computer games, and the other session includes hand-on games. There are two computer games. The first of these games allows children to explore underwater in a submarine to see different kinds of fish. Children choose what to explore when presented with different amounts of information about what they will see, and we use children’s preferences of what to explore as an indication of their curiosity. The second computer game involves children watching a short video about a science topic, and then generating questions to learn more about that topic. There are three hands-on games. In one game, children ask questions to identify a specific picture from an array of similar pictures. This game is similar to “Guess Who?”, but with pictures such as bees or leaves instead of people. In another game, children identify helpful and not helpful questions when trying to solve a mystery. In the third game, children explore a novel toy and try to discover what it is, what it does, and how to play with it. Sessions are tape-recorded so that full attention can be given to each child during the game. The value of this study is to advance our understanding of what motivates children to explore, and to identify ways that educators can use this understanding to design lessons and classroom activities.
Research Spotlight continued …

The Finding Game

Dr. Anna Fisher’s research team, including graduate student Bryan Matlen and undergraduate Naomi Shah, are studying how linguistic labels affect children’s generalization of knowledge. In this game, children are shown three objects and asked to select two objects that “go together.” Two of the objects are thematically related; whereas, one object is unrelated to the other two. For example, children might be shown a picture of a castle, a king, and milk and be asked to choose the two items that best go together. In a previous study, these researchers used items that they considered to be thematically related. In this study, they are simply assessing whether children also view these items to be thematically related.

The UP or DOWN Magic Game!!!

Lauren Lorenzi is a research assistant working with Drs. Mayu Nishimura and Marlene Behrmann (Department of Psychology) to examine the development of face and object recognition. Recognizing faces is an important social skill, and adults have a remarkable ability to recognize and discriminate many faces. In particular, adults have an amazing sensitivity to the spatial relations among facial features, such that adults can notice a change in eye position (e.g. moving the eyes closer together) in a photograph within a few pixels! This study examines how this skill develops by comparing the ability of young children to older children and adolescents. Children will be told that a tricky wizard has changed our photographs, so that the eyes of a face are in the wrong place. We need children to help us out by sorting each photograph into bins of “eyes too far up” or “eyes too far down”, so that we can use the appropriate magic to move the eyes back to their original positions. This game will be repeated with photographs of dominos (dots too far up/down), and houses (windows too far up/down), to examine how this visual ability develops with age, and whether it develops specifically for faces (because faces provide important visual information to interact successfully with others) or more generally for all objects.

Training Pictures:  
![Smiley face]  ![Happy face]  ![Sad face]

Test Pictures:  
Up or down?  
Original  
Up or down?
Research Spotlight continued …

The Deer or Tear Game

Dr. Dan Hufnagle and Dr. Lori Holt are investigating how children learn sound categories. The children hear a story about a friendly space alien who is learning how to say words correctly. The children help the alien learn how to say deer and tear. Then, they hear those words many times, and are asked to tell the experimenter which word they hear. Sometimes the sound is ambiguous (acoustically between “deer” and “tear”). We are testing children at several ages to understand how they learn the cues that make up sound categories (like “d” and “t”) and how those categories develop across time. The answers will help us understand the nature of auditory perception and language development.

The Listening Game

Research Assistant Malika Sinha, who works with Dr. Anna Fisher, is investigating how young children learn synonyms. The researchers are particularly interested in examining how factors such as co-occurrence in child directed speech (e.g., bunny-rabbit) influence how children learn synonyms. In addition, they are exploring whether children are able to use their knowledge of synonyms in order to solve reasoning problems. In this study, children listen to audio recordings of word pairs (co-occurring synonyms, like rock-stone, or non co-occurring synonyms, like rock-cup) while engaging in a task such as coloring a picture or building a puzzle. At the end of the session, children will complete a variety of reasoning tasks requiring them to rely on their knowledge of synonyms in order to solve the problem. The researchers are interested in the degree to which children utilize their knowledge of synonyms in various reasoning tasks. Parents will receive separate descriptions for each of the reasoning tasks used.

The Classroom Game

Karrie Godwin, a graduate student working with Dr. Anna Fisher, is starting a longitudinal study of children’s selective attention. The purpose of her study is to investigate how children allocate their attention in learning environments. She is particularly interested in examining how physical features of the environment (e.g., toys, posters, art work, etc.) can contribute to or hinder kindergartners’ ability to attend to the content of a lesson, and she is examining whether children’s ability to effectively distribute their attention has consequences for learning new content. The researchers are teaching children 15 mini-lessons in a small group format. For 10 of the lessons, the physical environment includes items that are typically found in early childhood classrooms that may be potential sources of distraction (e.g., posters, artwork, manipulatives, etc.). For the remaining 5 lessons, the physical environment only includes visual aids and materials directly relevant to the lesson. Each lesson lasts approximately 10 to 15 minutes. During each lesson, children listen to a short story and answer questions about the content of the story. For example, they might listen to a story about plants and then be asked to circle the picture, from among four choices like those above, that they saw in the book.
Research Spotlight

Building Robby’s House Game

Dr. Dan Hufnagle and Dr. Lori Holt are investigating how context influences sound perception in children. The children help Robby the Robot (in the center of the picture below) to build his house by repeating the name of the building block that they hear. Another robot (upper right) tells the children over headphones what kind of block is needed, either “da” or “ga”. The child then tells Robby, who chooses one from the appropriate pile of blocks. Before the robot says the name of the block, it either beeps or says, “Please say what this word is.” Sometimes the name of the block is ambiguous (acoustically between “da” and “ga”). For adults, the context influences what sound they hear, depending on the pitch of the tones or words. We are interested in whether these sounds influence children in the same way they do adults in order to determine how the effect develops. The answer to this question will help us understand the nature of auditory perception.

The Da and Ga Game

Dr. Dan Hufnagle and Dr. Lori Holt are investigating how children learn sound categories. The children hear a story about a boy named Da and a bird named Ga. We ask them questions about the story to gauge how well they have understood it. Then, they hear the words “da” and “ga” many times and are asked to tell the experimenter which sound they hear. Sometimes the sound is ambiguous (acoustically between “da” and “ga”). We are testing children at several ages to understand how sound categories (like “d” and “g”) develop across time. The answers will help us understand the nature of auditory perception.

Your Baby Could Be A Scientist!

The Carnegie Mellon University Infant Cognition Lab and Language & Learning Lab are looking for infants between 3 and 26 months to participate in our safe, quick, and fun studies.

What we do: We are interested in how babies learn about the world around them. Our studies last no more than 45 minutes, and take place in the infant labs located next to the Children’s School. We will have your child watch a computer display and play with some small toys while we observe his/her behavior.

To learn more or schedule participation, please contact us!
(412) 268-6122
cmu.icl@gmail.com
Research Spotlight

Show me the word!

Dr. Dan Hufnagle is investigating the development of children’s knowledge of sound categories (See November’s newsletter for descriptions of the Building Robby’s House and Da and Ga games, and October’s for the Deer or Tear game). One aspect of Dr. Hufnagle’s research focuses on determining the relationship between children’s developing categorization abilities and their vocabulary abilities. This new game assesses children’s vocabulary levels using the Peabody Picture Vocabulary Task (PPVT-4), which is designed to test vocabulary from 2.5 years of age through adulthood. During the game, the experimenter asks children to “point to the ____.” Children look at a display of 4 pictures and point to the picture that matches the word. For example, children might be asked to point to the sink in the pictures below.

Children begin the task at various levels, depending on their age at the time they are tested. For every 12 words, the experimenter checks to make sure that the child gets more than 4 correct before continuing to the next 12 words, which are a little more difficult. No feedback is given, so children do not know if they choose correctly or incorrectly. The results of the vocabulary measure will be matched to data from other tasks in this series of experiments in order to understand the relationship between sound categories and vocabulary. We predict that children who know more words will demonstrate well-defined sound categories. If you have any questions about this research, do not hesitate to contact Dr. Dan Hufnagle at hufnagle@cmu.edu or 412-268-3647.

Cognitive Control Games

How do children learn to adapt their behaviors to their changing environment? When does children’s ability to monitor and control their own behavior reach mature levels? What factors affect the development of the cognitive side of this important process? These are some of the questions that senior Janelle Higa is investigating in the honors thesis she is conducting on cognitive control, with the support of Dr. Anna Fisher. Cognitive control is an important ability that allows people to adapt their behavior to the changing demands of their environment. This ability has been found to develop very differently in each individual. The purpose of Janelle’s thesis is to investigate social factors that may contribute to variations in children’s development of cognitive control. As a part of the study, she will ask parents to complete a brief survey to determine whether children’s level of cognitive control in her tasks correlates with family demographics and styles.

Continued …
Research Spotlight continued …

• The Sorting Game
Janelle’s first of two games is designed to measure cognitive control via a computer-based card-sorting task. Children are shown cards on a computer and asked to sort them either by shape or color first. They are then asked to switch rules to sort by the opposite dimension. The example to the right shows the shape dimension of the card-sorting game. The child would be asked to sort the middle card into the either the fish or star pile.

• The Waiting Game
Janelle’s second task is a standard Delay of Gratification task. Children are given the option of eating an appealing snack immediately or waiting for five minutes. They are told that if they wait for the full five minutes, they will receive a larger amount of the snack. This task tests children’s ability to cognitively control their behavior in order to receive a greater reward in the future. The Delay of Gratification task is a well-documented research tool, shown to be predictive of later success. The child on the left is deciding between eating the snack in front of her immediately or waiting to receive a larger amount of the snack. View an informative video about this standard task at http://www.youtube.com/watch?v=amsqeYOk-w&feature=related.

Undergraduate Spotlight: Getting to Know You !!

My name is Laura Pacilio. I am a senior psychology major. In addition to working at the Children’s School, I also do research in the Human Computer Interaction Institute and am a member of Strong Women Strong Girls, an organization where I am a mentor to elementary school girls in the Pittsburgh area. After I graduate this spring, I am planning on attending graduate school in counseling psychology or social work.

I have worked at the Children’s School for two years and have many fond memories and hilarious stories from my time there. Some of my favorite Children’s School memories are: learning how to make play-dough, gym with Ms. McMichael, hearing all the children’s creative Halloween costume ideas, and watching them act in their class plays during the theater unit last year.

Working at the Children’s School has been one of the most rewarding experiences of my college career; and though I am excited to graduate this spring, I am sad that this will be my last year working with all of the phenomenal children and staff!
Research Spotlight

Parenting & Children’s Behavior

Senior Ashley Herrick is working with social psychologist Dr. Brooke Feeney to study the effects of parent attachment style and parent socialization strategies on preschool and kindergarten children’s behaviors. It is well known that the relationship between a parent and a child affects how the child develops physically, mentally, and emotionally. However, less is known about the ways in which a parent’s own attachment style in their relationships affects how they interact with their children. Ashley’s research project involves investigating how parent’s own attachment style, the amount of stress they experience, and the harmony in their marriage affect the parenting strategies they use with their children. Then, she will investigate the relationship between these strategies and the observed behavior of the children in a variety of school situations.

For children whose parents volunteer to complete a set of confidential questionnaires that will not be seen by Children’s School staff members, Ashley will observe six categories of the children’s behavior: prosocial behavior, social interaction, exploration, emotion regulation, gender roles, and negative behavior. To test prosocial behavior, children will participate in a play-doh session with two other children and their sharing behaviors will be observed. To examine social interactions, the parent will give researchers the name of the child’s closest friend. The child will then be shown a variety of cards displaying various tasks they may complete with their friend, differing in levels of closeness. From these choices, the researchers will infer the depth to which the child has developed close relationships. Exploration will be measured through observing the tasks a child engages in during free time. Emotion regulation will be measured by observing children during transition periods throughout their day to observe how they separate from their attachment figure when brought to school, how they transition between tasks in the classroom, etc. Gender roles will be measured with the help of the parents, who will be provided with a list of general household chores and indicate which member of the household typically completes the task. Then, the children will be shown cards relevant to the make-up of their household and will be asked who generally completes certain tasks so that the consistency between the parents’ and children’s views of gender roles is evident. Lastly, negative behavior will be measured by the actions children portray while playing with plastic toys, such as police officers, generally aggressive animals, etc. In order to triangulate the data, teachers also will complete a behavior scale rating the frequency of different behaviors for each child, which can then be compared for consistency with the scores from the other measures.

The data from this project will allow the researchers to draw conclusions about the ways in which parents’ relationship styles affect their parenting strategies, as well as how they in turn affect their children’s behavior. Parent consent forms are included with this newsletter, and questionnaires will be sent to those families who return the consent forms for each parent in the household. During the spring undergraduate “Meeting of the Minds”, Ashley will share her summary data, and she will provide a report for the May Children’s School newsletter.
Research for Undergraduate Courses

Carnegie Mellon’s Psychology Department offers multiple courses to provide undergraduates with a variety of theory, research, and practice experiences.

**Non-Participant Observation:** Students from Dr. Carver’s *Principles of Child Development* class will do two observation projects during the spring semester, in order to have firsthand experience with the dramatic developmental progress that occurs during the early childhood period (i.e., rather than just reading about it in a textbook). For each assignment, they observe specific differences between preschoolers and kindergartners in motor skills, social interactions, etc., using a checklist to record observations and then discussing the similarities and differences in an essay. Dr. Anna Fisher (mom of Sasha in the AM 3’s) is teaching a new freshman seminar called *How Children Learn to Learn*. Her students will also learn observation skills by watching classes in a variety of contexts to better understand their approaches to learning.

**Research Methods Class Studies:** Students in Dr. Erik Thiessen’s Research Methods course will start with a lab to learn basic strategies for conducting ethical research with young children. Then they will work in groups to conduct a study of their own design, which will be approved both by their teacher and by Dr. Carver. The course is designed to teach undergraduates both the theoretical and practical skills necessary to conduct effective early childhood research.

**Undergraduate Spotlight: Getting to Know You!!**

Sam French is an assistant in the Children School’s Kindergarten and is a freshman directing major at the Carnegie Mellon University School of Drama. In high school, in Saint Petersburg, Florida, Sam founded a children’s theater company dedicated to taking shows to local elementary schools and introducing children to theater. He also taught theater during the summers at local camps. After college, Sam is planning on continuing theater outreach with young students to help develop new audiences for theater and to help develop artistic passion in children.
Research Spotlight

Do Pretests Reduce Children’s Learning?

Senior Lauren Gumbel is conducting her honors thesis in collaboration with Dr. Robert Siegler to expand our knowledge of how pretests impact children’s subsequent learning. Children learn numbers with experience. Their “comfort range” is the set of numbers a child understands, which is typically 0-10 by age 4. Numbers greater than that range are fairly indistinguishable. When asked to place numbers on a number line, children overestimate the small numbers that they know best. Below are examples of how children who are comfortable with numbers between 0 and 10, but not with numbers between 10 and 20, could incorrectly place numbers on a number line. These estimates would be quite accurate if the number line was from 0-10, but they are inaccurate for 0-20.

Studies investigating this phenomenon begin with a pretest, which could be affecting results. If the pretest problems are out of the child’s comfort range, they estimate the problems incorrectly (as in the above examples), which might make it harder for children to learn the correct strategy. They would then perform less well on the posttest because they have not been able to absorb the feedback from the learning phase of the study.

Lauren is testing the effect of pretests with Children’s School students ages 4 and 5. The computerized study consists of a pretest, feedback phase, and posttest. The study consists of one 20-minute session. Children are randomly assigned to three study variations. The pretest for the first version is a set of random numbers 0-10, numbers that should be in the children’s comfort range. Version two’s pretest is 0-20, which will most likely lead to the children overestimating, making learning during the feedback stage potentially more difficult. Version three has no pretest, which helps us determine the effects of the other variations.

The children click the place on the number line where they think the number displayed on the screen should go. A red line appears (as in the above examples) where the child clicked. During the feedback problems, a blue line appears where the correct answer is. If the answer was close, the computer says “Very Close!” and Lauren tells them so as well. If not, the computer says “Not Quite” and she explains where the line should have been.

This study is important because it could tell us whether the common practice of testing children’s knowledge before instruction might sometimes lead to less learning than if no pretest had been given. If so, a change in this classroom and research practice may be needed.
Robotics Research Featured on Plum TV

The robot Keepon was featured on Plum TV's "Masters of Innovation" in an episode entitled "Robots" about Carnegie Mellon University's Robotics Institute. Keepon is a small yellow robot designed to study the underlying mechanisms of social communication by interacting with children. Keepon has four motors, a rubber skin, two cameras in its eyes, and a microphone in its nose. Its simple appearance and behavior are intended to help children, even those with developmental disorders such as autism, to understand its attentive and emotive actions. For several years, we have collaborated with Marek Michalowski (Robotics Department) as he works to improve Keepon’s synchrony with children’s motions so that the robot behaves as naturally as possible.

View the segment filmed at The Children’s School...

http://vimeo.com/18431799

The link to the full episode is…
www.plumtv.com/videos/masters-of-innovation-robots

Undergraduate Spotlight: Getting to Know You !!

Alexandra Tapak is currently a CMU sophomore doing undergraduate work-study at The Children’s School for her second semester. She loves interacting with the children because they always have the most interesting things to say, and every day is a new adventure with them. Alex observes so many things every day because the children are constantly growing and changing. She’s seen an amazing difference since she started in September and can’t wait to see what has happened by the time May rolls around.

Alex is majoring in Psychology and Biological Sciences; she plans to go to medical school to pursue a career as a neurologist. At Carnegie Mellon, Alex is on the tennis team and cannot wait for the season to start in a few weeks. She loves spending time with her teammates, who are all so talented in many ways. Alex is also the sports editor of The Tartan, which is the campus newspaper. In that role, she gets to meet other athletes and watch Carnegie Mellon’s various sports teams compete. This fall, Alex joined Kappa Kappa Gamma, which has really been a wonderful experience of meeting so many new people and getting involved in the Carnegie Mellon Community.
Research Spotlight

The Pet Name Game

Dr. Dan Hufnagle is investigating the development of children’s knowledge of sound categories. While children understand ambiguous language very well in context, they often categorize individual sounds in a very graded fashion, especially if those sounds are acoustically ambiguous. Adults, on the other hand, tend to perceive sounds in a less graded manner. The goal of this experiment is to understand what kind of language input helps children shift to adult-like categorization patterns in an experiment that takes 2 sessions.

Children hear a computer say names of animals (Daw and Taw are pictured below), which they repeat to the experimenter while playing a game of helping identify someone’s pets. In one session, children hear daw and taw in distinctive contexts (Dawgoo and Tawbow). In the other, they hear daw and taw in similar contexts (Dawbow and Tawbow). Children also hear the syllables daw and taw on their own in both sessions. Sometimes the sounds are ambiguous (acoustically intermediate between daw and taw). Your child’s responses to these intermediate sounds help us understand how they are categorizing sounds.

The researcher predicts that children will show more adult-like categorization patterns for daw and taw when they are exposed to sounds that include more distinctive contexts (tawgoo and dawbow) than sounds that include less distinctive contexts (tawbow and dawbow).

Participate in an exciting science project to learn how the brain develops!

Researchers in Dr. Marlene Behrmann’s Neuroscience Lab are seeking right-handed, 5-8 year old subjects for a study of how the brain becomes organized for processing objects and faces. Each 1.5 hour session will be conducted at the new Scientific Imaging and Brain Research Center (SIBR) at CMU. The child will lie in the brain scanner and be shown pictures of objects, while the researchers record his/her brain activation. Afterwards, the child will look at pictures of objects on a computer to determine which objects are the same or different. There is a flyer with additional information enclosed with this newsletter.

Please contact Lauren Lorenzi at Carnegie Mellon University if you are interested in having your child participate (412-268-8228 LLorenzi@andrew.cmu.edu).
Research Spotlight continued …

The Matching Game

Graduate student Bryan Matlen and undergraduate Emma Adair are working with Dr. David Klahr to investigate how children learn relational categories. In this study, children are shown two standards of a relational category and are asked to select another member of that category. Among two possible answer choices is a category choice that is related relationally to the first two sets (e.g., they all are facing each other) and the other response category choice is a set that is related perceptually to the first two sets (e.g., they are the same objects). Examples of a relational category are shown below. The researchers are conducting this study because previous research suggests that providing comparisons fosters children’s learning of relational categories.

“These are both Daxes, do you see why they are both Daxes?”

“Which one of these is also a Dax?”

EITC Scholarship Funding Update

Thanks to Highmark Casualty Insurance Company for contributing $5,000 to the Children’s School Scholarship Fund through the Educational Improvement Tax Credit (EITC) program. If you would like more information about your business participating or can suggest prospective businesses, please contact one of our Educational Administrators, Mrs. Rosenblum & Miss Hancock, at ed-admin@andrew.cmu.edu.
Undergraduate Research

Dr. Erik Thiessen’s Developmental Research Methods students are preparing their final projects for the semester. Though the research procedures are still being finalized, the topics are listed below. Families whose children participate will receive fuller parent descriptions via the child’s backpack. Everyone can read the study descriptions on the Research Bulletin Board outside the Children’s School Office. Notice the interesting range of important topics in early childhood development!

**Impact of Collaborative Puzzle Completion on Sharing Quantity** – Exploring whether preschool 4’s who complete a puzzle with a partner later share more stickers than those who complete the puzzle alone. (The Puzzle Game)

**Self-Control When Told Not to Touch** – Testing the effectiveness of stern vs. friendly directions not to touch an appealing toy on preschool 3’s likelihood of obeying. (The Plasma Ball Game)

**The Role of Sound in Letter Naming** – Determining whether pronouncing a “pseudoword” shown on a card helps preschool 3’s and 4’s name the letters. (The Letter Name Game)

**Decision-Making about Toy Quality** – Exploring the role of conscious vs. unconscious thought in kindergartners’ judgments of toy quality after being given multiple attributes. (The Thinking Game)

**Memory for Stories with Same vs. Opposite Gender Character** – Testing whether kindergartners answer more comprehension questions correctly when the main character is the same gender. (The Storybook Game)

Undergraduate Spotlight: **Getting to Know You!!**

Anna Rosenblum is a third year architecture student at Carnegie Mellon University who enjoys reading, watching movies, listening to music, and spending time with her family (especially watching Desperate Housewives with her mother, Mrs. Rosenblum). Her interest in sustainable design, urban issues, and history led her to CMU, where she is very much enjoying her experience. She has been working on and off at the Children's School since the winter of 2008 and has had the pleasure of volunteering and being a part of the Children's School community for the past 11 years. Her time at the Children's School has provided her with invaluable experiences that have greatly prepared her for positions assisting with the School of Architecture's Saturday Sequence architecture programs as well as her experiences last summer as a teacher for the Carnegie Museum of Art's Architecture Summer Camps. While pursuing a Bachelor's degree in Architecture as well as a minor in history, her schoolwork keeps her busy during the semester, but she does look forward to helping us again in May.

Anna has also been helpful in supplying the school with her own and some of her peers’ old drawings and models from their studio last semester. The main focus of her studio last semester was "site" and so many of the projects are concerned with issues of site and the environment, dealing with matters such as sunlight, how their buildings interact with the ground and integrate into their surroundings. We hope that these plans, sections, elevations, diagrams, experiential images and other planning and architectural drawings will be a great addition to our building unit, when the students may enjoy drawing or just examining these drawings.
Research Spotlight

Testing Reasoning Skills

Graduate student, Karrie Godwin is working with Dr. Anna Fisher to investigate young children’s reasoning skills. In particular, they are interested in investigating the relationship between young children’s reasoning skills and other general cognitive processes such as memory, attention, processing speed, and language ability. Because the study involves diverse measures, our 3, 4, and 5-year-old children will participate in multiple research sessions with Karrie over the course of a month’s time. Many of these experimental tasks have been described in previous newsletters, so herein we introduce only the new ones. As usual, parents will receive descriptions of each session on the day the child participates.

The Thinking Game

In the Thinking Game, children are presented with a variety of reasoning tasks from the Weschler Preschool and Primary Scale of Intelligence (WPPSI). They are presented with various objects and asked to answer questions about the objects or physically manipulate the objects (e.g., rearrange, build, or sort the objects). Children are also asked to label various pictures, complete a puzzle, and build a block tower.

The Memory Game

In the Memory Game, children will listen to a list of words. Subsequently, children will be asked to remember the words from the list. In the first part of the game, children will be read a series of familiar nouns and asked to repeat them in the same order they were presented. For example, children may be presented with the words "duck, house, chair" and then asked to recite the words in order. In the second part of the game, children will be asked to repeat the items but in the reverse order in which they were presented. For instance, if children are given the words, "duck, house, chair", the correct response would be "chair, house, duck".

The Help Zibbo Game

In this game, children will assist Zibbo as he organizes and counts objects. In this task, children will be told where Zibbo will put a particular object. Then children will be asked to predict where they think Zibbo will put other objects. For example, children may be told that “Zibbo will put his cup here. Where do you think Zibbo will put this cup/basketball?”). Subsequently, children will be shown pictures of various objects and asked to help Zibbo make “more-or-less” judgments about the pictures. For example, children may be shown 7 pictures of flowers (5 red roses and 2 white daisies). Then children may be asked to help Zibbo find out if they have more roses or if they have more flowers.
The “Hear Me” Project

In collaboration with the Carnegie Mellon University CREATE Lab and the Pittsburgh Association for the Education of Young Children (PAEYC), the Children’s School is participating in a regional project to capture and distribute youth voices from across Southwestern Pennsylvania. “Hear Me” involves collecting children’s digital audio stories on a web site so that they can “hear, see and read each other’s stories, while educators, parents and policymakers can listen to the poignant and playful insights of our children.” We have already begun talking with the children about creating their own stories and using Flip Cams to record and replay them. If you are willing to have your child’s stories shared via the “Hear Me” project, please sign the enclosed permission slip and return it to the Children’s School office as soon as possible. You can explore the stories that have already been created, edited, and posted at www.hear-me.net. Note that no full names or visual images of the children will be shared on this web site.

Innovation Time at Camp

Jeremy Boyle, an artist in residence in the CREATE Lab at CMU, will partner with our summer camp staff so that the children can explore electricity. During this pilot project, the children will run experiments and learn to make simple circuits, with a primary goal being to offer technology to the children as a creative and expressive medium. The facilitators will work to keep balance between exploration, guided learning, and expressive application. The children will be introduced to a wide range of electrical and electronic components and concepts. Initial lessons will involve exploring disassembled electronic and electrical equipment with observations and conversations about what we see, what things might do, how they might be used, etc. The process of disassembling will be a recurring theme over the course of the program, culminating in dissembling small electronic toys to identify and repurpose components that will by that time be familiar to the children.

Between each recurrence of disassembly, the facilitators will introduce concepts and components, beginning with the most basic components of simple circuits, including the wire leads, batteries, knife switches, lamps and motors. Children will have the opportunity to explore and learn the fundamentals of circuits and build their own, working in small groups of 2-3 students. Children will learn, explore and test many fundamentals, such as conductivity. For example, the children will take a known circuit that they have made and use it as a device to test for and sort materials by conductivity. This activity will lead to explorations and discussions of various types of switches. The facilitators will continue to introduce new components and concepts, such as polarity with LED’s and battery capacity as circuits are built in series. Along the way, children will frequently sketch the circuits they are making as a method to demonstrate and communicate their growing knowledge.

Later in the program, the children will explore sound generation circuits. They will apply their knowledge of components to find ways to control and vary sounds (with switches, potentiometers and other sensors), effectively inventing their own electronic instruments. As they work with facilitators to develop a language for describing the electronic and electrical components and principles, they will do the same with sound. They will explore composition and the organization of sound, balancing their learning of science with expression through sound.
Research Spotlight

Did you hear bee or pea?

Dr. Dan Hufnagle and Dr. Lori Holt are investigating how children learn sound categories. In Session 1 of this game, children hear a friendly space alien who is learning how to say words correctly. The children help the alien learn how to say bee and pea. Then, they hear those words many times and tell the experimenter which word they hear. Sometimes the sound is ambiguous (acoustically between “bee” and “pea”). In cases like this, adults rely on pitch as a clue. The experimenters are testing whether kindergartners similarly use pitch to disambiguate sound categories like “b” and “p” as a means of understanding how native language speech sound categories develop across time. The data from this session will establish a baseline for how strongly pitch affects the child’s responses. Adults judge a sound to be more “bee”-like when it has a lower pitch, all else being equal. A follow-up session then tests how sensitive children are to changes in pitch, such as those that might be encountered in listening to a person with a nonnative accent.

During Session 2 of this game, children hear bee and pea many times and tell the experimenter which word they hear. As in Session 1, sometimes the sound is acoustically ambiguous between “bee” and “pea”. The goal of Session 2 testing is to understand how kindergartners learn the cues that make up sound categories (like “b” and “p”) and how those categories develop across time. Session 2 emphasizes and de-emphasizes pitch to test how quickly children learn new patterns of how the secondary pitch cue relates to the sound categories. Adults learn to adjust perception very quickly when pitch varies, but psychologists do not yet know whether this quick learning is present early in language development. In an earlier experiment with different sounds (deer and tear), the same researchers found that pitch strongly influenced how children perceive ambiguous dear/tear sounds, but children did not learn to adjust the mapping of pitch to sound category when it varied in the experiment. In this follow-up study, the experimenters emphasize pitch more and use sounds for which adults are more sensitive to changes in pitch (“b” and “p”). Understanding whether children are able to flexibly remap how sound cues relate to speech categories will help psychologists understand the nature of auditory perception and language development.

Kindergarten Collection for Japan Relief

During March, the Kindergarten studied the culture of Japan. In that context, they discussed the earthquake & tsunami and then decided to collect money to support the relief efforts. During their unit, they collected (and counted) $100.06 to give to the Japanese Student Association (JSA) on campus for sending to the Japanese Red Cross. Thanks to all the children and families who contributed to this donation!