

Summertime Science for School-Agers: Just for Fun?

“Now hold on a second. You’re telling me I have school in the summer, too?” “Science?” “Give me a break, Mr. Wizard. I just want to have fun!” Could those sentiments actually be a child’s first impression when he hears of a new summer science program starting up? What, don’t children trust us? Don’t they know it’s possible for grown-ups to have imaginations and to be able to relate with them and have fun as well? Hey, it could happen! The Discovery Express, a franchise center headquartered in Toledo, Ohio, is one particular child care facility that is making it happen with new and innovative programs. These programs promote the child’s individual talents and abilities by providing these unsuspecting students the opportunities to learn about their world through their own discoveries.

“We want our program to help us become known as *the science place*, have any ideas?” Those were the words of Lois Mitten, the founder of Discovery Express, as she invited me to develop a science

curriculum for the summer school-age program. Developing exhibits for the Toledo Zoo provided me with many years of opportunities for interpretation and observing the behaviors of children; however, developing curriculums was new to me, and a challenge I couldn’t turn down.

As we began to dialogue about the Reggio Emilia philosophy, it became evident that the emergent curriculum would be well suited for the scientific method of inquiry. We had already developed an indoor environment that included many interactive exhibits, so this newest location, with its natural setting of trees and streams, would be perfect for science-based programming.

“There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.” — Albert Einstein

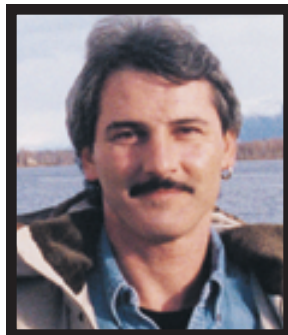
► How Do We Do It?

All right, let’s first take a look into the fascinating way in which children’s minds work. With their unbiased and unbridled imaginations, they clench their fists, and their pointed index fingers can shoot “real” bullets. Likewise, if they run fast enough with their arms stretched way out, they can actually experience flight. Whether you envy this mind power or find it dreadfully intimidating, these are the miracles we have to compete with.

“What is essential is invisible to the eye, only the children know what they are looking for.” — Antoine De Saint-Exupery, The Little Prince

by Steven L. Snyder

Steven Snyder has a background in architecture and a lifelong respect for science and nature. His 14 years as a curator for the Toledo Zoo specialized him for interactive display development and interpretation. In addition to his private work consulting and developing interactives, he manages museum projects at the firm Exhibit Works, Livonia, Michigan.



We plan to have fun while educating these children by providing opportunities to experience things and to learn about their world through their own discoveries. We will get on their level, identify with them, promote curiosity, be imaginative, and find out what it is they are “looking for.” If this has sounds of a mission statement, then it will be fulfilled without the use of a system that measures only the amount of information retained, since that may barely determine the teachers’ success, not the child’s potential.

“The greatest obstacle to discovery is not ignorance — it is the illusion of knowledge.” — Daniel J. Boorstein

There will be no test to determine “how SMART are you?” Our program will enhance the spirit for learning, participating, and achieving. We are certain that all children are intelligent, and that learning is a very personal experience unique to each individual. Therefore, we shall believe in you, child. We know “how smart you ARE!” We want our curriculum to help you uncover “HOW you are smart.”

► Challenges Become Achievement

Preplanning the program and choosing a method to teach some basic science, we first acknowledged a few challenges:

1. Involve a mixed-age group consisting of kindergarten through fifth grade levels and maintain the interest level of the older children while not going over the heads of the younger ones.
2. Address a summer-time *fun* mentality; include a physical exercise component. Some parents were concerned about “too much school” during what is supposed to be their child’s summer vacation.
3. Achieve a sense of accomplishment by completing projects, but leave subjects open ended for the possibility of continuation into the winter, or with the next summer group.
4. Use the existing property assets, including a wooded natural habitat, a small bridge, and a stream with periodic water levels.
5. Provide an agenda of activities that the staff teachers can direct throughout the week between each class session.

► Physically Fitting

Reviewing the list of challenges generated many ideas

covering the physical sciences. This fitting list of concept ideas meet class criteria by interpreting complex subjects with fun and creative sessions designed to inspire and create role models.

1. Theatrical performance and interpretation style of class: As the instructor, I would dress in a different costume to represent a famous scientist, themes for the lesson of the day, i.e., Copernicus, Newton, Einstein, etc.

2. Experiment-based lessons: Formulate imaginative theories and discuss them: “What would happen if . . .” — then conduct experiments to prove or disprove and help develop the child’s critical thinking abilities.

3. Subjects would include, but not be limited to, math, geometry, geology, anthropology, and archaeology. We would study fossils, rocks, minerals, which could lead to field trips in prime fossil-hunting grounds of the local area.

4. Use the children as participating *models* to demonstrate various scientific concepts, physics, or astronomy.

5. Invite a monthly “Special Guest” who would be a real, live scientist from the local area to visit and discuss her field of specialty and her working projects.

► The Natural Ingredients

A chief asset of Discovery Express is its surroundings of flora and fauna — which create a favorable environment for many projects and foster its becoming known as *the science place*. Many lessons covering the natural sciences are possible where the individual talents of each child contributes to the overall scope — and teachers benefit from more predictable agendas.

Lesson possibilities:

1. **Water:** Take samples, look for presence of microbiology, discover and discuss where the water came from, where it is going, how to make it cleaner.
2. **Plants:** Identification, relationships to insects and animals, how much light is needed for growth, experiments placing the same type of plant in various lighting conditions, indoors and outdoors, then comparing those results.
3. **Insects:** Locate, collect, and study; camouflage, defenses, relationships to plants, birds, and humans.

4. Birds: How to attract different species, build a *backyard sanctuary*, choosing the correct plants and foods, and building birdhouses.

5. Animal Olympics: Kids invent games then compete with local wildlife, i.e., clock a bird flying from one tree to the next then kids run the same distance; ant weight lifting, squirrel jumping, etc. Allows for art projects to design awards/ invitations. Program starts out academic but concludes in physical activities. Satisfies parents concerns about “too much” science conflicting with summer fun-time needs. Chart physical progress. Should promote many humorous activities throughout the summer while the kids learn about physical achievements and adaptations of the animals. The fourth and fifth grade role could be as coaches and trainers for the K through third grade “athletes.” This program is designed to stimulate teambuilding and positive interactions between individuals of various ages, abilities, and interests. Family and friends attend the full Olympic competition and the presentation of medals and awards, ceremoniously concluding the program and the ending of the summer session.

➤ **Interaction and Reaction**

“The greatest compliment that was ever paid me was when one asked me what I thought, and then attended to my answer.” — Henry David Thoreau

My anxieties faded quickly as the first session unfolded, while the children and I got to know each other through simple conversation and story telling. Interests emerged as they drew favorite pictures. Each in turn was offered an explanation to their mind’s most puzzling inquiry from the “Answer Guy,” who received plenty of support as the children constructed their own theories and assisted with creative rebuttal.

A simple question opens many different perceptions and viewpoints. “What’s the difference between a tomahawk and a hatchet?” asked Eli, age eight. A *grown-up’s* perspective might see very similar objects, and much can be learned from that; but from a child’s point of view, the differences are important matters. One object may be a tool to perform a task, while the other was a way of life. One was manufactured, the other was *made*. One of them has technology-refined materials, the other takes advantage of the available natural materials. Which rocks make good tools? What minerals make good rocks? There are many stories an object can tell.

Throughout the eight weeks, the program continued to be fluid and dynamic. We attended to the children’s interests and their diverging advances by reviewing transcribed recordings of dialogue and progressions of each class, evaluating for commonalities, then preparing a revised agenda for the following week’s session. Managing the evolving program content was eased by supportive and resourceful staff teachers who followed the progress and created spin-off activities. Occasionally, at times of restlessness, we would spontaneously break, go outdoors, and simply explore the environment. Finding and catching bugs, beetles, toads, grasshoppers, and even the “elusive” rocks, leaves, sticks, and dirt provided much stimuli and discussion. At the stream, one child, following the mud-collecting trail of a wasp, grabbed the attention of all with his discovery; and the interest level led the way of animal architecture, home building, and animal adaptations with subsequent projects.

“I would rather live in a world surrounded by mystery — than live in a world so small my mind couldn’t comprehend it.” — Henry Emerson Fosdick

➤ **Accomplishments**

1. The “Living Museum” provided much learning outdoors and indoors. Crafts and collections contributed to an overall consolidated project. They built a pond and habitat models. The study of habitats, both urban and natural, led to a field trip to Nature’s Nursery, a licensed rehabilitation facility for native wildlife, which provided close animal encounters.
2. A captive hog-nose snake became a learning experience in animal husbandry, environmental needs, field research science, ledgers/field notes, release, tracking, and predicting migration.
3. The group learned about animal architecture, home building, and special adaptations. These topics generated many individual projects, created imaginary animal structures, and contributed to the Living Museum. Topic related sidebar conversations between children occurred.
4. Bridge and pond interests paralleled and generated topics in mathematics, proportions, mapping, and measuring. We studied the mechanics of structures and shapes, which generated game playing, bridge models in clay, truss bridges with sticks, and a study of photographed local bridges. Pond designs and mapping conjoined with the Living Museum project.

5. I introduced and discussed animal locomotion and told stories of animal oddities and amazing feats, partly to test the *Olympics* project concept, and in part just for fun.

Interestingly, our activities that produced topics at previous sessions resurfaced and joined others into new themes with common interests and projects. Some areas only partially pursued created opportunities to revisit, become independent projects, or for continuation to the next year. We rarely discouraged the children when they frequently shared personal experiences or news events that caught their ears. These accounts, appearing to have little to do with the topics at hand, captured interests; but, more importantly, they put to ease the timid members, which resulted in their greater participation.

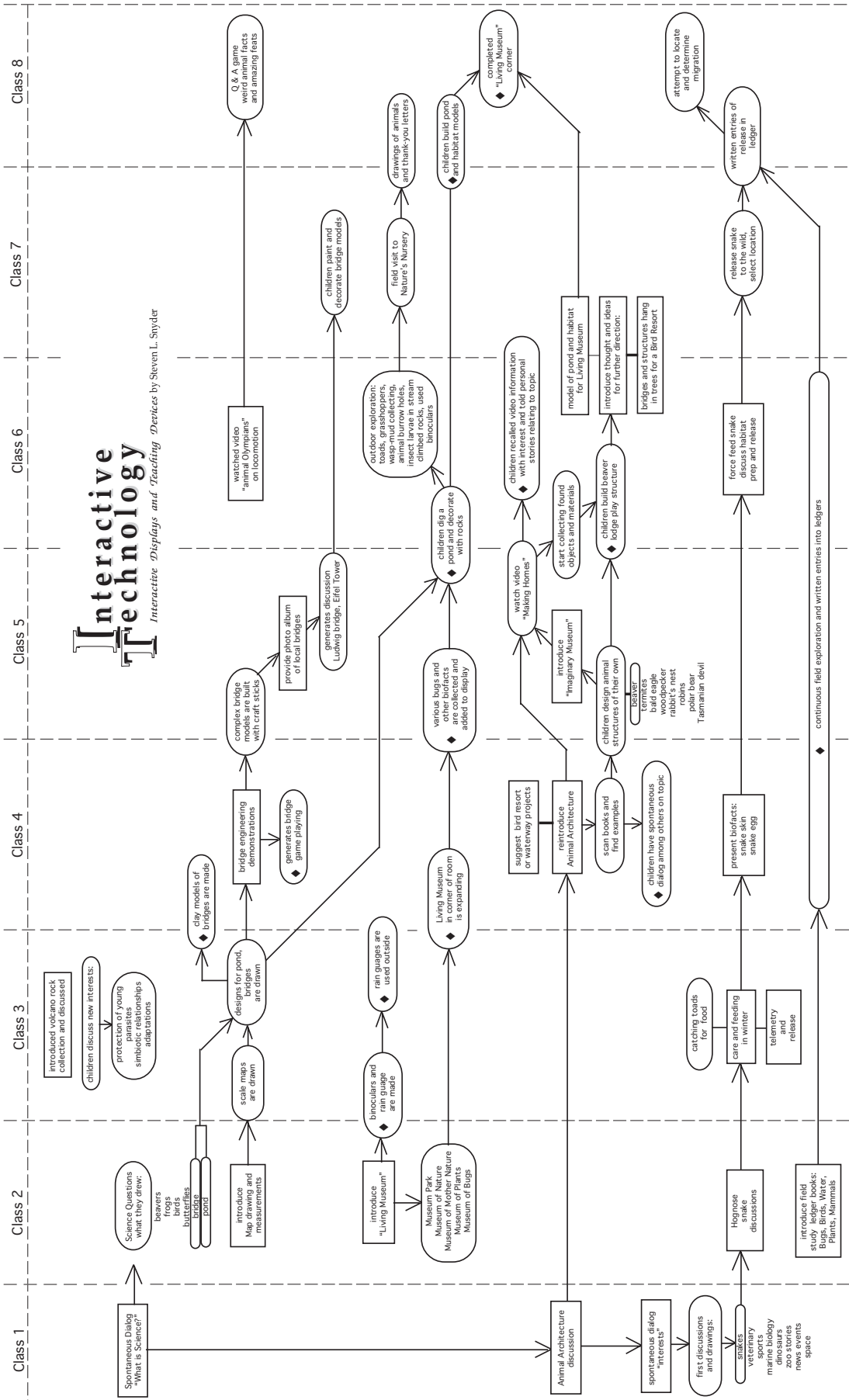
The group overall responded with a great deal of enthusiasm as we wrapped up the program. "I want to come back here next summer." "Can you do this again next year, Mr. Steve?" Those words enhanced my own sense of accomplishment as I heard the children's voice of approval. I suspected they had abandoned their fear of *summer school* early on in our new adventure. From their perspectives, I realized their main concerns were to have something to do (play) and to avoid boredom (fun). Perhaps there was, however, a very personal intention to learn. It is up to us to provide opportunities.

"The playing adult steps sideward into another reality; the playing child advances to new stages of mastery."

— Erik Erikson,
Childhood and Society

To obtain detailed information or a transcript of class activities and observations, you may contact the author by phone (419/474-3774) or e-mail (SnyderTec@aol.com).

Beginnings Workshop



SCIENCE PROGRAM PROGRESS CHART