

# Chapter 1: What Nurturing a “Scientific Mind” Means

Sony Foundation for Education strongly believes that the sense of wonder and excitement (“Wow!” “Interesting!”), curiosity and imagination (“Why?” “How?”) are important for young children. With the desire to help children discover the value of life, the fun of play and the joy of living with others, we have proposed the theme, “Nurturing a ‘Scientific Mind.’”

On these pages, we describe from a variety of perspectives how different kindergartens have interpreted what “nurturing a scientific mind” means to them, how they have linked their thinking with their philosophy and what activities they have implemented in their day-to-day activities with the children.

## 1. Mechanism for Nurturing a “Scientific Mind” Sumiyoshi Kindergarten (Kariya, Aichi Prefecture )

Based on research conducted last year, we discovered that nurturing “the first signs of science in early childhood” was not something that needed to be done as a special, separate activity. Rather, we realized that daily life, not only through contact with nature but also with a variety of people and familiar objects, led to children’s development of a “scientific mind.” To discover how children grow and develop, we felt that the research topic needed to be further defined. As a result, this year, we have focused our research theme on “Experiencing Wonder: Observe, Touch and Experiment” to better understand the mechanism for nurturing a “scientific mind” that is linked to overall development.

### 1. Research Goal

We interpreted a “scientific mind” to mean “being curious or inquisitive, having the ability to think on one’s own, and having the desire to take initiative.” We looked into what environments and experiences we should introduce to the children to develop this to study the mechanism for nurturing a “scientific mind.”

### 2. Portrait of the Ideal Child

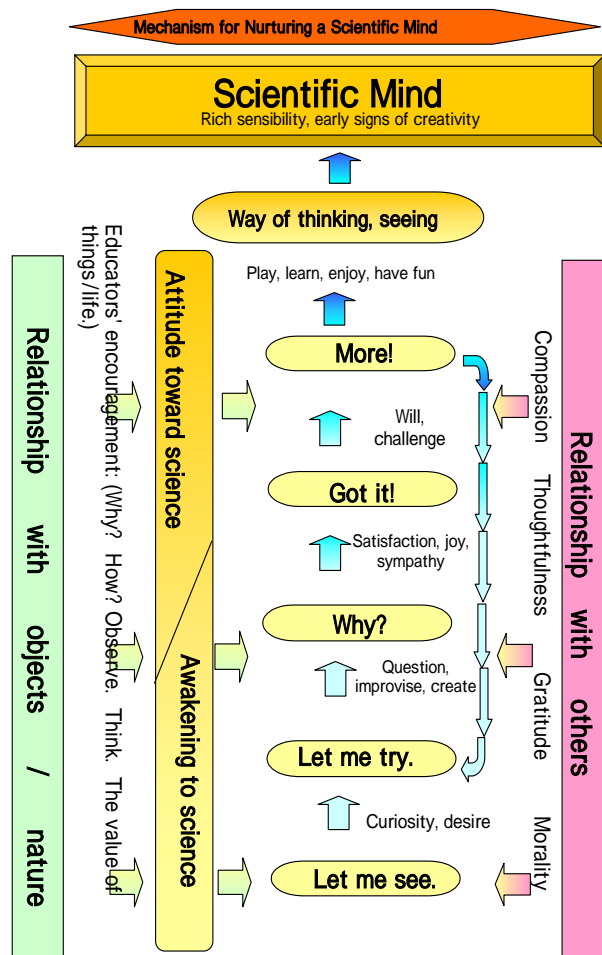
- A child with an interest in nature and natural objects, who feels excitement in discovery
- A child who likes to experiment and improvise with things in his/her own environment
- A child who relates to many different people and acts with compassion for others

### 3. Mechanism for nurturing a “scientific mind”

To bring us closer to the ideal child, we felt it was important to let them experience the excitement of “Wow, look at that!” or “How did that happen?” through events in their everyday lives, plants and animals in their surroundings and contact with a variety of people.

Though the teacher’s gentle encouragement, children become curious, make new discoveries and learn to improvise and think on their own. We believe allowing children to experience the joy of discovery nurtures their “scientific mind.”

In the chart on the right, we outline what we believe is the mechanism for nurturing a scientific mind – how to stimulate a child’s curiosity, desire and attitude within his/her own environment – and are carrying this out in practice.



**Example: Bubbles**

This example of 5-year-olds playing with bubbles describes their behavior and that toward teachers, the environment and others.

Teacher's action: Convey to the 5-year-olds the 3-year-olds' desire to play with bubbles.



Teacher's action: Allow children to realize the technical difficulty of the task and observe.

Bubbles / Bubble liquid / Misc. materials

**Scientific Mind**

Rich sensibility, early signs of creativity

Way of thinking, seeing

Play, learn, enjoy, have fun

More!

Will, challenge

Got it!

Satisfaction, joy, sympathy

Why?

Question, improvise, create

Let me try.

Curiosity, desire

Let me see.

Case 5  
The 5-year-olds make bubble liquid for the 3-year-olds, talk about how to make bubbles and make bubble liquid to give as gifts.

Case 4  
The children make bubbles with a fan and discuss how they are different. They get excited creating a world of bubbles, have fun creating bubbles with a fan and enjoy making different types of bubbles.

Case 3  
The 5-year-olds compete to make the biggest bubble. Many have difficulty making bubbles and make repeated attempts but are unable to complete the task as desired.

Case 2  
Children pair up with a teacher to make jumbo bubbles at a birthday party.

Case 1  
At the party, the birthday child and parent work together to make a huge bubble. All comment on the appearance, movement and other aspects of the bubble or cheer them on.

Some children discuss their thinking and work together. They go over what happened at school and refer to family input.

Three-year-olds want to make bubbles, too. But many of them are unable to do it.

As a diversion, some children go to where the materials have been set out, pull out a fan and try to make bubbles.

Some children work together to try to make bubbles.

Some teachers join the children to try to make bubbles.

The birthday child and parent make a jumbo bubble and compete with others.

**Editor's Comments**

By defining a "scientific mind" to mean "being curious or inquisitive, having the ability to think on one's own, and having the desire to take initiative," Sumiyoshi Kindergarten showed that "I want to watch," "Let me try," "Why?" "I got it!" and "More!" to be five indicators of childhood development. Based on this, they studied the mechanism of nurturing a "scientific mind" and expressed it in a simple diagram that has helped to build a better common understanding. Of course, the children did not always follow the pattern set out in the diagram and as in case 3, there were instances where children stopped challenging themselves. However, because of their common understanding, the teachers were better able to judge situations and act appropriately, and hence, nurture a "scientific mind."