

**It would Have Been helpful to Have More detail on specifics of activities and Their structure. Further detail on the balance Between Directly Engaging with children and training teachers and parents Their would Have Been useful.**

The activities have three different audiences:

1. Children aged 0 to 47 months
2. teachers, psychologists, special educators and social workers.
3. Parents and caregivers

**children:**

For the attention of children will attend 10 monthly Institutions in which 2 groups of 20 children with one hour of intervention will be addressed.

Sun:Throughout the sessions addressed topics such as

- Earth and Search bring children to use simple tools like the magnifying glass observation to explore their immediate surroundings.
- Moon and exploration:will be shown to children basic features of the moon as its color and appearance, imagination journey will take and are encouraged to lunar exploration.
- Planets: In which we will bring children to features through multisensoriality, seeking to observe and find similarities and differences between them.
- Stars and constellations: In which motivate observing the night sky, they know characteristics of stars and imagine figures with them.

**Methodology**

<b>Time</b>	<b>Name</b>	<b>Description</b>
<b>5-8 minutes</b>	Hello ... and ready to learn!	At this time children have to start the activity through songs that allow them relate to others
<b>3-5 minutes</b>	A trunk to discover	the person charge will take the material of the session in a trunk or suitcase where children can not watch content. You will be encouraged to guess what is and will be allowed, smell, touch, hear, taste. The object will draw slowly and then submit them saying clearly and slow your name and form of use. Depending The material will be made available for direct use by children, which can be individual, group or demonstrative as required. Each time new material is used throughout the session the submission process will be repeated

<b>10-15 minutes</b>	Enriching my world	currently the mediator discuss the a thematic session using as tools, story, videos, films, star projector etc ... to contextualize exploration and closer to words, procedures, own shares sciences such as astronomy.
<b>15-20 minutes</b>	Exploring my environment	currently with the materials presented, with the contextualization given and helping the environment as third master (Reggio Emilia) that will enable children explore through their senses, achieving a significant experience through astonishment that leads to ask questions and hypotheses have sensory memory, and approaching positive attitudes towards science
<b>5-8 minutes</b>	See later!	Children complete the activity through songs that allow them collect what learned and finish theSession:

## Masters

Before starting the process with children, teachers and other team of the institutions will meet with those responsible Planetarium Bogota to know the project and the sessions will with them. In this project welcome activity expectations towards the project will sound and the proposed methodology, thematic and material to be used will be discussed. In a second stage teachers are invited to create different materials to be used in implementing each of the institutions. Finally, in order to encourage their participation in the development of the proposal and to have basic elements they will be given a kit with the following items:

- Document astro-babies with pedagogical and didactic recommendations. (Posterior primer for teachers)
- Document with the planning of the four sessions with the group, where the schedule is specified, space requirements and materials.
- Material designed to adapt the space where the proposal will be made.

also will loan them material such as CD's, Stories, Foils, research tools for children etc.

Attend Each group deployment with professional Bogota Planetarium with teaching participants will meet to feedback from the proposal, listen their suggestions and observations, addition to providing other tools that motivate to continue the process independently. Upon completion the process will be given a kit farewell, which includes:

- CD with photos and videos of the implementation of the proposed
- final document feedback
- Invitation to participation blog Astrobébés

Other hand, they will meet teachers one day weekdays from 3-5 pm to socialize and strengthen their educational practices aimed at promoting attitudes, skills and scientific thinking in children from 0 to 3 years. The meetings will be made on a monthly basis taking into account the following themes:

- March 16: Earth, a planet by exploring
- April 20: The sun gives us energy
- May 18: A Moon for exploring
- June 15: The rocky planets
- 13 July: the gaseous planets
- August 17: the colors of the stars
- September 21: Figures in heaven
- Oct. 19: Galaxies
- November: Closing: Presentation of booklets for teachers

### **Father, mothers and caregivers:**

interventions in educational institutions will be made at meetings of parents for the children participating in the proposal in kindergarten enhance their scientific skills in the home environment and daily life.

Another strategy to make with this population is the monthly meetings the third Sunday of each month at 10:00 am and 3:00 pm.

The schedule is as follows:

- March 19: You are his world.
- April 16: Bring your astronaut and explore the universe with him.
- May 21: Babies Milky Way taken
- July 18: My dad is a being from another world
- July 16: Commanders! Let a space adventure
- August 20: Kites: spaceman
- September 17: A very spacey love.
- October 15: Bring your extraterreste and live an experience of another world.
- November 19: All to explore the universe.

In these activities with one hour it seeksgive guidance to parents to accompany daily exploration of the environment of children aged 0 to 3 years.

**lack of interest from parents - the emphasis of the project on the children and astronomy just Mentioned as a Means to Improve the kids' well being, That will help Retain Those Who are Passionate about the children as Opposed to scare away people Because of the science . A note on the target audience - the urban poor and vulnerable children in Their Those environments. While the proposer's plan to Involve parents and carers closely, They Do not mention the risk of absent parents / carers Because of long traveling & working hours, carers substitute, or the fact That the parents or carers Themselves May be**

**vulnerable. They Recommendation That Involve social workers in the project as They can Provide supporting framework in the context of the project can be Which Carried out. Not clear if this is part of the plan.**

Preschools that will part of the proposal to hold meetings on a regular basis and people will in this space planetary intervention to ensure the attendance of parents and caregivers of children participating.

Other hand, institutions have a comprehensive team work which include social workers, special educators and others, which guarantees the work in context and the inclusion of the project.

**The creation of an adequate space is a very good point - a bit more context would be appreciated, eg where can Such a space be in September up- School, Classroom, Community center? Where do you plan to Stimulate the establishment of Such spaces?**

Taking into account the particularities of each of the institutions are two options:

1. the institution have a space (toy library, library, auditorium, artistic laboratory, science lab, etc.) that meets the basic safety standards and that can guarantee the permanence of the adequacy of space throughout the implementation of the proposal.
2. If the institution does not have these free spaces, the procedure can be performed in one of the classrooms of the participating groups.

Adequate space if performed outside the institutional environment can be done from the safety of children is guaranteed. For example, community libraries can accept the idea since they have a safe space.

**Plan to carry out research THROUGHOUT the project, Which is good. The research needs to be planned Cleary (eg questionnaires designed and when and how things are Measured, etc.) before the project starts and Could Be Submitted to the OAD for validation and advice**

Based on the few references regarding the work of science and specifically Astronomy Early Childhood is necessary make an observation work and systematization, that will uncover the strengths and weaknesses of a program that is pioneer in the world regarding the relationship of Early Childhood with the environment especially with the space and universe, making processes of observation, contemplation, exploration, explanation of phenomena among others, so is essential to a process of systematization and research experience.

Research can have two streams:

Quantitative  
Qualitative

In the program Astrobebés but uses quantitative records, which indicate the units by activity and its impact in terms of people served, it does not measure the impact the project on the life of children, family transformations and changing conceptions of scientific abilities of children, so it is very important give relevance to a qualitative research approach. "In qualitative research there different techniques of data collection, whose main purpose is obtain information from participants based on perceptions, beliefs, opinions, meanings and attitudes so the interview is a valuable technique"

### **Interview as Assessment Tool**

qualitative interview allows the collection of detailed information in view of the person reporting orally shares with the researcher that concerning a specific topic or event occurred in his life, as they say Fontana and Frey (2005). It Still practiced hand in hand with the method of participant observation, although it is assumed by quantitative scientists who worry about the rigor of the measurement in investigations of large areas.

### **Note: Another way to evaluate**

Observing is not simply look, but to seek. This requires a structuring principle of the look and thought. To observe rigorously educate need eyes to see. But not only that. You have to train the mind to allow theories decipher the meaning of what has been seen.

"Scientific observation is carried out not only deliberate and conscious but in a systematic way, ordering parts, noting the results of observation, describing, relating, systematizing and, above all, trying to interpret and capture its meaning and scope "(Ruiz and Ispizua, 1989)project.

### **Interview Unstructured**

**Astro babies**

**Bogota Planetarium**

**Carolina Pulido**

### **Objective:**

- analyze the impacts of Astro babies program in the community
- Evidence changes from the conceptions of children against science

the unstructured interview in qualitative research allows establish a dialogue with the investigated object in a haphazard manner. For this reason, the interview will be with parents and other caregivers who approach the stage with children of Early Childhood and resume their perceptions about the experience.

Some guiding questions set out below arise:

- How did you hear about babies Astro Bogota Planetarium and motivated to approach?
- Do children can learn science in the early years of life?
- How work at home different scientific content?
- Do think that children are natural scientists?
- How do you find the material that has been used for work with children?
- Do see that your child is motivated or you feel you are being stimulated by the activities presented?
- How important is experimentation in the early ages?
- Are boys and girls can learn astronomy in the early ages?
- Would Planetarium De Bogota Astrobébés program?
- Have you seen or done similar activities in other settings?

order to demonstrate the mobilization of thought of accompanying children, the chance to make a first part of the interview when they reach the niche wood and have not participated in many activities, nor have entered the dome and finish in arises the time they are to leave the Planetarium and see how the activity promotes or positive attitudes towards science in relation to children of Early Childhood

### **Feedback Instrument AstroBebés**

Given the activities program Astrobebes Bogotá Planetarium, are interested in knowing their insights and comments, to feedback and strengthen our programs for children.

Please fill the following information:

**Child Name:** \_\_\_\_\_ **Age:** \_\_\_\_\_  
**Name Guardian:** \_\_\_\_\_  
**Email:** \_\_\_\_\_

Rate the following aspects, considering that 5 is completely agree and 1 completely disagree with the following statements.

Items	1	2	3	4	5
1. Activities in <b>My astronomer baby</b> are relevant to participants ages 0 to 3 years.					
2. You recommend activities in <b>My astronomer baby</b> to other children from 0 to 3 years.					

3. you think that persons responsible for carrying out the activities are trained in related to astronomy and pedagogy areas					
4. Consider that the time spent on activities in <b>My astronomer baby</b> is not appropriate.					
5. The arrangement of space (Multiple Chamber) is suitable for children who participate in activities <b>My astronomer baby</b>					
6. Resources (Bottles, stories, visual layout Wooden Nicho space) are not useful for the development of activities made in <b>my small observer</b> because does not provide the educational tools needed to work with children.					
7. Persons responsible for the activities of Astro-Babies have recreational and educational development of activities with children from 0 to 3 years tools.					
8 The material used is unsafe and nondescript for children who participate in <b>my small observer</b>					
9. Activities in Astro-Babies had a favorable impact on the positive attitude towards astronomy in participating children					
10. Agrees with the cost of the activity <b>astronomer baby My</b>					

Answer the following questions

1. What positives found the Astro-Babies **program**?

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2. What negative aspects he found in Astrobébés?

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3. What suggestions would you do to Astrobébés program?

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4. How did you hear about Astro-Babies program? What motivate dto participate?

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Project: JCPG, CG and ALE

**There is a mention in question 12 esta That has Already Happened in 2015.  
More information would be appreciated About That, preliminary findings such  
as, existing information about it online, etc.**

**ASTRO BABIES 2015**



### a. Astro Babies

The educational program for infants, **Astro-babies**, is an educational strategy Bogota Planetarium in the context of fulfilling its mission: achieve popularization of astronomy, astronautics and related sciences to all citizens of the capital from the country.

Therefore, with this program we are expanding our audience attention in an effective manner and corresponding to an inclusive look for all visitors the stage, not only opening the doors but welcoming people with some activities designed from the characteristics and needs of each therefore to fulfill this mission, it is necessary to seek develop programs that enable all people regardless of age, creed, political or economic status or characteristics such as physical, cognitive or sensory limitations, they can bring scenes and activities that enable them know the wonders of the sky.



Early childhood is a stage of the human being characterized by sensory wealth you have and the opportunity to learn to know the world, giving the basis of what the person will understand his surroundings and interactions you can do with its environment. Therefore, working with children in early childhood is fundamental because we can harness the research spirit and innate curiosity that they have to fascinated to know and understand the phenomena that surround him, and specifically to know the wonders of heaven and secrets that the Universe hides for those who venture to travel with his mind for him.

The Astro-Babies Bogota Planetarium program, is Pedagógico Marco work from sensitive education, art being a cross member, given the word, corporeality, imagination, creativity and evocation to approach the Indeed, the understanding of the phenomena taking into account the social and cultural interpretation of these, giving importance to cultural and ancestral knowledge, making the program a family and social work.

### Babies astro June and July

Time	Activity	Space	Capacity	Duration	Responsible
10:00 a.m. to 5:00 pm	Pluto a planet to know.	Nicho wooden	15 children 1 escort	45 minutes	Support SENA or Ana and Mary
10: 30-12: 30-3:00	boxes Light Story: What knows the moon?	ChildrenRoom	15 children 1 escort	20	Lady Ortizminutes, Carolina Pulido
11: 30-2: 00-4:00	Leo and know new worlds	Astroteca	20 children 1 escort	20 minutes	Mayra
11: 00-1:00 - 2: 00-4:00	portable Dome: A visit toNight Zoo	multiple room	20 children 1 escort	30	Lady Ortizminutes, Carolina Pulido

### Description of activities:

1. **Pluto a planet to know:** is a space created for children aged 0 to 5 years to explore the planet Pluto, taking into account the needs and interests of Early Childhood, as are the work of the different senses, the investigation of their environment and imagination, thus enhancing the different dimensions of children. Different materials are proposed with different colors, sizes and

textures that allow the boy and girl explore new environments through a simulated environment, taking into account different astronomical tips for older children, which called attention the different data curious.

The activity begins with a welcome activity where children become astronauts and conduct an interplanetary journey to Pluto.

You are invited to meet young astronauts new planet and create their own Extraterrestrial with different materials that will be freely available for.

Tagline: Trying to another planet Pluto visit and explore!

2. **Light boxes, Story: What knows the Moon ?:** will reading the book silhouettes what does taste the moon? taking into account the various changes of light and developing the interests of the children what the text going to commenting, making some astronomical data regarding

tagline: Wanted a piece of moon know ?, What are and find out

3. **Leoand know new worlds:** reading leaves us exposed lot knowledge, therefore, approach a reading animation allows us stimulate interest in it, besides being an environment conducive to learning the secrets that keep the books now. The reading is designed to learn more about Pluto reading mythology and features.

Phrase Promotional: Read and learn more about our distant friend: Pluto

4. **Dome Inflatable, A visit toNight Zoo:** Meet the sky is fascinating and make shapes with the stars is very appealing to children, however with the first ages should be sought attractive ways to do it. Songs and animations with characters is a striking alternative to early childhood, which is why that this product promotes night observation showing the different constellations that form figures of animals, linking with songs and with a character named Arthur who accompanies for entire journey.

Promotional phrase: Come and meet the animals that are in heaven.

### **Astro September and October Babies**

Children city will enjoy a series of specially designed for them, activities seeking to strengthen its exploration processes and contribute to their relationship with the environment through the senses, providing multiple opportunities learning, especially in attitudes and procedures of science, such as investigative spirit and ability of observation and analysis to solve problems and create hypotheses.

The three activities are:

1. My baby Astronomer

Children aged 0 to 3 years are innate observers, and just observation is the basis of Astronomy. Give learning opportunities where every child can begin to understand the characteristics of celestial objects is the aim of this workshop, in which a single piece of observation will be developed and where start a space adventure, through music , images and activities for parents and caregivers who are motivated to continue working at home.

This activity will be accompanied of graduates and consists of several stages:

- Welcome, in which have to children to carry out the activities, through a musical activity.
- The development of binoculars, with recyclable material, in which children with parents will help the construction and decoration of an observation instrument.
- The observation of various materials arranged in space, with the help of our object of observation, which will emphasis the sense of sight.
- Finally, we invite on a journey through space, using their imagination and thrusters previously prepared.
- Closing activity Musical



## 2. My Little Observer

Children aged 0 to 6 years like explore and discover the world and create through their senses and creativity. My little observer is an environment created to give a free learning opportunity for the children and girls who visit us, emphasizing this month to sense of sight.

In space there will be sensory resources such as bottles, bags and sensory mobile that will allow the child perform their spontaneous activities with the support of their caregivers.

## 3. Orion For children

This activity is a function at the Dome aimed at children of all ages and their families, so that they begin to familiar with the sky and most prominent constellations. This time is talk of Orion and history accompanying music and lots fun.

### **FEEDBACK FROM EXPERIENCE 2015**

experiment conducted in 2015 regarding the work of art, science and childhood has had important results not only reflected in the number of people who participated in the planned activities, but also on the impact they had in terms the positive attitude

that presented the participating children and samples of satisfaction guardians of them.

Here show the number of children served in astrobebes and clubs:

**Astro-Babies:**



Mes	Cantidad Participantes
Junio	201
Julio	141
Agosto	72
Septiembre	176
Octubre	183
Noviembre	107
Diciembre	45
<b>TOTAL</b>	<b>925</b>
VACACIONES ASTRONÓMICAS	
Mes	Cantidad Participantes
Julio	14
Noviembre	1
<b>TOTAL</b>	<b>15</b>
Eventos Externos	
Evento	Cantidad Participantes
Jardines ACUNAR Nocturnos	166
<b>TOTAL</b>	<b>166</b>
TOTAL ATENCIÓN 2015	
<b>1106</b>	

#### Conclusions:

- ★ Working for Early Childhood is not only necessary and a commitment as state entity, it is a requirement of society, this evidenced in the good reception of programs and demand that this results in as attractive as the Bogota Planetarium stage. Each time the Early Childhood is showing as an important factor of attention in terms of educational programs not only the formal spaces such as schools or gardens, but is also essential for unconventional scenarios for them also falls the responsibility to make a city for everyone and not just access but the quality of the projects that are offered to this population.
- ★ The methodology used for the work of art-science and childhood is based on the characteristics of children aged 0 to 5 years characteristics, respecting its rhythms, interests, needs and particularities and responding to that playful and curious southern own human of this age. Therefore, the methodology is based from the game, music and songs rounds, the bright colors and a pleasant atmosphere. This environment must be enriched by material that allows the child explore all your senses, sois **sensory material called**, such as bottles, bags, boxes, fingerprints and other material with colorful materials, sound, texture and smell the child favors exploration of the environment, essential to this age and the approach of science and art.
- ★ It is suggested work at least once a month with this population following the methodological suggestions and planning activities to a joint science and art that allows the child explore the environment and expression.

- ★ It is suggested parent workshops hand clubs, vacation or monthly Astro-babies and thus may have permanently tools for working with children of this age.

## BABIES ASTRO 2016

In 2016 we performed monthly babies astro activities, addition to the holiday, addition to offerings as part of the portfolio. The following table presents data of children served:

Date	EXPERIENCES			Total
	My Little Observer Exp Free	My Baby Astronomer	Orion Children	
Sunday, March 20 2016	87	79		96 262
Sunday, April 17 2016	49	42	53.	144
Sunday, May 15, 2016	29	60		53 142
Sunday, June 19, 2016	0	32	15	47
Saturday, July 17 of 20156	41	43		22 106
Sunday, August 21 2016	20	22	14	56
Sunday, September 18 2016	27			15 March 45
Sunday, October 16 2016	34			20 Oct

				ober r 64
Sunday, October 30 2016	32	18	0	50
Sunday November 20 2016	90	41		18 149
				<b>106 5</b>



### **Qualitative:**

#### **FEEDBACK FROM EXPERIENCE 2016**

Astro Babies, has I started to be recognized as pioneer of science activities, especially astronomy Early Childhood, evidenced in its participation in the CAP Medellin where he was presented by Lady Ortiz, was also presented to the Ministry of Health and Education at the event "the first 1000 days" and finally ran for TF3, financing program of the International Astronomical Union, taking second place and receiving financial support and which the following news was published in the Planetarium Page:



Thursday 03 November 2016

Brand news

Average: 5 (1 vote)

the District Institute of Arts (Idartes) is pleased to announce that the Office for Astronomy Development (OAD), the International Astronomical Union, awarded by second consecutive Bogota Planetarium with its Astrobébés program, which was selected among 25 participants from different cities year.

Astrobébés received support of 6000 euros, thanks to which the maximum astronomical scene of the city, will continue bring the stars to the smallest, and thus continue its efforts to educate the public about space science

Moreover, based on observation, unstructured with participants and accompanying interviews have highlighted the importance of Bogotá Planetarium scenarios, expect activities for children in early childhood.

he companions also rescue the importance of the material used in the activities, because they are the materials of easy use and access, they ask for it. The sunglasses everyday, and in the way Astro Bebidas transcend the scenario that permeates the family camp of children And girls.

It also rescues the strategies that have been proposed for the work of children, such as the use of titles, music, elements based on sensitivity, literature, image and others that generate astonishment, contemplation, generation Hypothesis and questions, evidenced in the dialogues generated by the companions with the participants and in the case of the smallest, based on the observation of their gestures, where they can evidence the gestures of joy, wonder, restlessness, Which shows the development of attitudes that leads to the promotion of scientific skills.

## FINAL CONCLUSIONS AND RECOMMENDATIONS

During the year 2015, 1,061 were attended, and in 2016 1,065 children from 0 to 5 years were counted in the various experiences offered by the Astrobébés program, which shows the invitation of the program and the impact it has generated in the community .

It is necessary to continue developing, implementing and evaluating the experiences of the program permanently.

It is necessary to create alliances with other entities to extend this initiative and to be able to replicate in other cities and expand the coverage of children.

It is important to use everyday materials, safe and eye-catching for the experience. Literature, sensibility, music, the other child The fundamental strategies for work in Early Childhood

Involving family and institutional environments allow the proposal to transcend the scenario and impact in a more significant way the experience of children from 0 to 5 years.

Please consider how vulnerable populations can visit the planetarium as well? For example, is there a program in the planetarium to reach underserved communities that can explode?

For the attention of the people in vulnerable state will work together with two public entities:

The Secretary of Social Integration that is in charge of attending children and adolescents with and without disabilities in the city of Bogota, through CRECER centers, RENACER and kindergartens.

The District Institute of Arts - IDARTES, has an entity called Tejedores de Vida, who work in artistic laboratories in different locations in the city.

The methodology of work is based on the visits that the personnel of the Planetario of Bogota makes the periodical fashion in the Institutions.

In addition, the Planetarium of Bogotá has a free activities offer for parents, mothers, caregivers, teachers and children of the city.

Creating a suitable space is a very good point - a little more context would be appreciated, for example, where can a space of this type be established - School, Classroom, community center? Where do you plan to stimulate the establishment of such spaces?

The appropriate space of Astronomy is made with material of easy access and has certain specificities of security. When working with different educational institutions, it

is encouraged in the creation within these scenarios, for example in their classrooms, libraries and auditoriums.

On the other hand anything else can do taking into account the didactic and safety parameters that are developed in the proposal document.