

FIRST STEPS IN ASTRONOMY (WHICH CANNOT START TOO EARLY)

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Abstract. The introduction to astronomy at the kindergarten age is still on a very elementary level. There are no adequate curriculum, system and syllabus, which could be accessible to kindergarten teachers or parents. As far as our knowledge goes, such a publication did not appear in Europe yet. On the occasion of the International Year of Astronomy 2009, we want to compensate this gap with our book (which will be soon come out) *Children's Eyes on the Sky* (Kindergarten Astronomy). This playfully documentary took place in a kindergarten with a great success in children places. In this paper we present our basic ideas regarding this subject.

Key words: astronomy – education – kindergarten.

1. INTRODUCTION

The astronomical knowledge (example: orientation) in kindergarten is very useful. Children are very interested and active in this subject, because astronomy is a theme of our days. They can see the astronomical matter on television, internet. But in the kindergarten are no adequate curriculum, system and syllabus, which could be accessible to kindergarten teachers or parents.

On the occasion of the International Year of Astronomy 2009, we want to compensate this gap with our short book entitled *Children's Eyes on the Sky*.

This playful documentary (Sun, Moon, Earth, planets, orientation, ecology, and spaceflight) took place in a kindergarten with a great success in children places. In the next we present some tested astronomical subjects.

2. SUN AND MOON

In this part we explain the Sun's and the Moon's characteristics. We emphasize the property as form, color and temperature. One example is the *Phase-play*:

What we see on the night sky is the Moon always round as the Sun? Sometimes it's a ball, sometimes a crescent roll like what we eat, and then it's all gone and starts all over. We call it full moon, crescent moon, new moon. Now, let's try to do together what happens to the Moon.

Everyone try to expand his belly as much as he can, this is the full moon. We gradually pull our bellies back, that's crescent moon, finally we imitate shrinking, that's new moon. Then we stand up slowly, start all over and repeat it.

What do the dogs at night? On full moon they bark, on crescent moon they shrink and whine.

I'll be the Moon and you're the doggies. It's full Moon (woof-woof). On Full moon the Kids bark, on new moon they whine.

Observation: Children love this play, especially when they can bark and they are dogs. They understand that the Sun is a big, yellow, always round, hot and bright gas sphere and the Moon is big (but not so big as the Sun), grey, round (but from our viewpoint has phases), cold, bright less, natural satellite of our home, Earth.

3. STAR AND PLANET

In this section we comment on a very important and useful subject: the difference between star and planet. One example for this part is the *Cooking mush-rhyme*:

The Sun is a Star. Why? Because it's very hot? Can you step on it? Everything we would put on there would burn like in the furnace. Have you ever seen Mommy cook Mush? It's so hot it even spits. Let's stand up and say it all together:

I'm cooking the mush, (Stirring movement with hands.)

Stirring the hot mush, (Stirring movement with hands.)

Don't you put your hands in it, (Imitate dipping, our finger into it.)

It burns and hurts and makes you sick. (Try to cool it by shaking it.)

This is what the Sun does too, you cannot step on it, because it's a huge, hot, bright sphere of gas, it boils and burns and spits like the mush when it's cooking.

I have a riddle: Behind the mountain a yellow ball is rising, what is it? The Sun. But Earth is a planet since we can step on it...

Observation: Children singing and playing learn the planets (mythology, color, size, movement property) and the motion of planets (spinning-circling). They can rotate and revolve as the true planets.

4. THE ORIENTATION

Here, we present a very useful and important theme for little children: the orientation in space. When a child understands his position in space and what he can do, when it is lost and alone, then our astronomical learning makes sense.

One example is the *North-East-South-West song*:

What were the directions? North, East, South and West. Now we just need to know which way is North, and then we can find our way anywhere! Look at that, here's a compass! It shows us which way is North. How? The pin always points North. Look, it's pointing that way. We'll turn that way, and now we can sing our song. If we have no compass, are we in trouble? What we can do? Sing our song:

***Pointing EAST and WEST we'll find,
NORTH in front and SOUTH behind.***

(Left hand points right, right hand points left,

Both hand point in front and both hand point behind.)

Observation: After our presentation the orientation in space at night and in the daytime make no problem for little kids; they just search the North direction and then they sing the known song.

5. ECOLOGY AND SPACEFLY

In this section we present other important subjects for children: the ecology (what we can do to protect our blue planet) and the space flight (how we can fly in the space). One ecological example is the *Ecology-discussion*:

Global warming might be a big problem, I'm sure you heard a lot of that in the television or the radio. What do you think it would happen, if the air would get hotter, maybe here in Cluj? The trees and the grass would die, because they would dry out. What did we say, how is the air made? The trees and the plants are producing it. If they would dry out, there would be no air at all! If there would be no air... we wouldn't be able to live either...

So that's why it's very important to be careful, that global warming doesn't happen because, if the plants don't live we can't live. I'm not damaging trees and plants, don't kick the trunk or the bushes, don't hurt them, always think about it: without them, we can't either exist. We shouldn't let cut down the trees, but if they have to do it, we have to plant as many trees instead, as many fingers we have on our hands.

Observation: Children can be educated for an ecological behavior, to collect and to put the garbage on the right place, in trash can. They can save, protect and help the fauna. The space flight is the dream of every child to be able to fly in the space, without limit.

6. CONCLUSIONS

It is a first trial to make a didactical and astronomical book for little children. Our purpose is to introduce the astronomic knowledge in kindergarten in English, German, Romanian and Hungarian languages, by using the play and music.

We did this by tested screenplays in kindergarten, and we can say that the kids love astronomy and they have a great imagination in searching the Universe.

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