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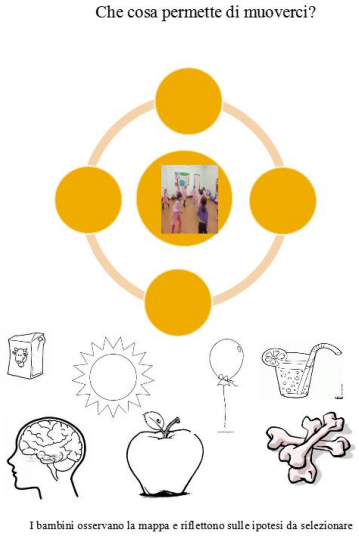
BotSTEM – Erasms+ KA2 Project

2017-1-ES01-KA201-038204

Good practice template

1. Title of the activity / practice	**The body and the movement**
2. Origin of the activity	Carmela Donnarumma – teacher at the pre-school M.Serao of the I.C. "2°De Amicis - Diaz " Monterusciello a Pozzuoli (NA)
3. Age of the students	5 years old
4. Target group (type of the learners, size of the group)	15 preschool children, often dividen in groups of 4
5. School subjects + topics concerned	Knowledge of self Anatomy
6. Educational goals of the practice	The didactic experience describe an educational pathway to discover the body realized according to the Inquiry Based Science Education method (IBSE method) that is based on what is called assisted teaching: the teacher helps the pupil to build the own knowledge by solving problems using the investigative method also called the 5E method: Engagment, Explorer, Explain, Prelaborate, Evaluate. In this experience, the technologies and in particular the Interactive Whiteboard have supported the application of the method.
7. Duration	Each phase can be implemented in different days (6 phases)
8. Place	Classroom with the Interactive Whiteboard
9. Short description of the activity	**Phase 1. Is the body able to take various postures?** The proposed activity is divided into 3 parts A. children are led into the salon to play with body and music, B. in the classroom they record the experience through drawing C. Children choose a posture and must rebuild it as a puzzle on the IWB. Through the puzzle the image is discovered little by little, pushing each child to be more careful and to memorize more easily the details of the human body.

Phase 2. What allows us to move?
It is the stimulus question with which the activity begins according to the IBSE method. Each child finds on the table a card, a scissors, a stick of glue, crayons, a colored flag (red - yellow - blue - green): on the card is drawn a conceptual starting map with four empty squares on the bottom of the card the student will find drawings of objects (apple, sun, bones, drink, brain, balloon, milk)



I bambini osservano la mappa e riflettono sulle ipotesi da selezionare

Each child in the group observe the objects and select four, then color them, cut them out and glue them into the four squares of the map; in this way each child composes his response, the result of an individual reflection. The class is divided into 4 groups, each characterized by its colored flag, represented by a spoke child. Subsequently within the group they discuss, discuss what has been achieved, choose among the four cards what the spokesman should represent on the IWB. The four groups thus outline the map which, in the opinion of all, seems to be the right answer for the initial question.

Step 3 - How are we made inside? What does it support us?
Each child can answer the question with a drawing, without the actual form of a skeleton being presented to them beforehand. The reading of the individual drawings allows us to focus on every doubt, misconception, certainty of the individual children.
On the IWB only 3 of these drawings are projected, the children discover that the drawings are not the same: they are different for the number and shape of

the bones and they have been designed as present only in some parts of the body. Then the image of a skeleton is shown and the 3 drawings are compared with the latter and are the same children (singly or in pairs) to choose the one that deviates less from reality.
Then they are left free to develop their reflections in front of the short video of a puppet - skeleton (https://www.youtube.com/watch?v=z6WMbV5Op58)

Step 4 - How are the bones?
With the skeleton - 3D model in the hands of children everything becomes more evident: being able to touch, count and move takes on added value. Touch and see the actual shape of the pelvis, the length of the femur, the multiplicity of the bones of the foot, the difference between the shape of the bones of the skull from the ribs etc., excites everyone, every child becomes curious but above all establishes a relationship direct without virtual intercessions.

With the questions that arise you can open internet links for new information or insights: find out what is the longest bone, the flexibility of the bone, or how does a knee move? It is preferable, however, to avoid too many investigations, which although synthetic, can confuse them, better to prepare a file with the many curiosities to send by email to the interested parents.
If the children are not tired, they can propose a video of a music video (https://www.youtube.com/watch?v=e54m6XOpRgU) Each child listens to a song and points to the bones.
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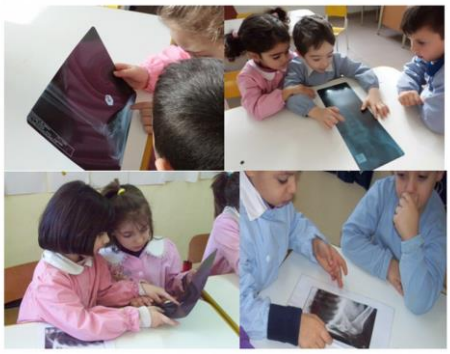
Step 5 - Are we sure we have bones? How can we prove that there are?
The classroom is set up with desks arranged in groups of 4, the groups of children are spontaneously formed with the mark the colored flag (red-yellow-blue-green). The activity starts by asking if anyone has ever broken an arm or a foot or has ever heard the word X-ray. To simplify, you can compare the x-ray

	to a photograph of the bones explaining their usefulness in case of injury. The children are intrigued and share information and ideas with their classmates, as well as their perplexities in the face of such unusual but clear images with precise contours. X-rays are of great interest to children, they observe them carefully by referring to what they notice in particular. Even facing each other and touching the head, the knee, the side has allowed these 5-year-old children to imagine what is hidden in our body; through the comparison within the group each child agrees that it is bone and recognizes them in X-ray from the form, identifies their location and function.  Children discover the colors, opacity and thickness, the size of the radiographs and spontaneously ask a question: how big is this camera? The answer is in the video taken from the internet. (https://www.youtube.com/watch?v=DhVKdhtKBFE) **Phase 6- Does the skeleton also support the movements as well as supporting them?** The children are divided into 4 groups, the spokesperson chosen by the children with the help of their mates plays a digital game in which to place the bones in the right place (http://www.giochiperragazze.net/play/Mettere-le-Ossa. html). This requires attention: do you have to place the bones on the right or left side? It is the case of the bones of the feet. Up or down? It is the case of the femur and of the tibia. In order not to tire the view, the desks are organized in groups of 4, to continue with the card, scissors and glue activity. it is the single child who has to rebuild the skeleton. This part has an evaluation function

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	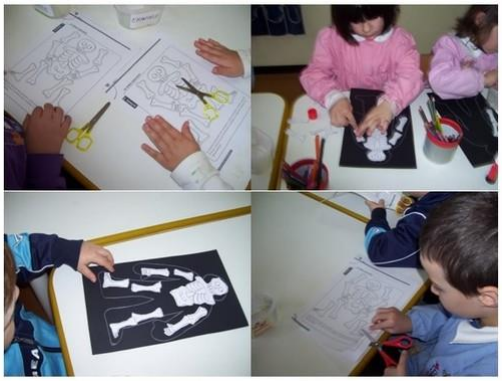
10. Evaluation	Divided into groups of 4, each child must cut and paste the various bones of the body creating a skeleton in an upright position. Determined truths emerge, acquired certainties, errors made: it follows the need to make corrections and integrate the initial conceptualization. Through the socialization of the IWB, children learned to argue with mutual respect and to recognize their mistakes, so it was easier to correct the map and reach a clear definition that everyone shared: the skeleton supports the body.
11. Materials / Resources / technical requirements	Interactive Whiteboard paper, glue, scissors, felt tip colors X-ray 3D models of the skeleton
12. Tips for educators / theoretical background (if applicable) or curriculum context	It is necessary that the proposals make the child meet with things, with objects, the teacher must act as a mediator in the learning process. Scientific education in kindergarten should be aimed primarily at a timely awareness, an attitude of confidence and critical reflection towards the more specifically scientific aspects of the world (and language) in which today's students are immersed, and to contribute to the acquisition of that pervasive dimension of the personality that can be indicated as a scientific attitude and a scientific method, facing the most urgent problems of daily life. ' (Pontecorvo-Guidoni, 1979).