

Learning Journey: Exploring materials

Age group: 4-5

Learning activities:

Observing, questioning, explaining evidence

Creative dispositions: Motivation, sense of initiative

Synergies:

Dialog and collaboration, problem solving and agency, motivation

Background Information

School setting: Bucharest, 4th ward

School policy for science: The lesson responds to the educational policy of the kindergarten, in accordance with the National Curriculum.

Curriculum links:

- Stimulating curiosity about explaining and understanding the surrounding world
- Developing the ability to solve problematic situations by acquiring appropriate strategies
- Developing the ability to observe and establish causal, spatial, temporal relationships.

Setting the Scene

Focus

- Stimulate collaboration by working in groups
- Increasing children's curiosity and creative thinking by asking questions
- Encourage children to engage in exploration

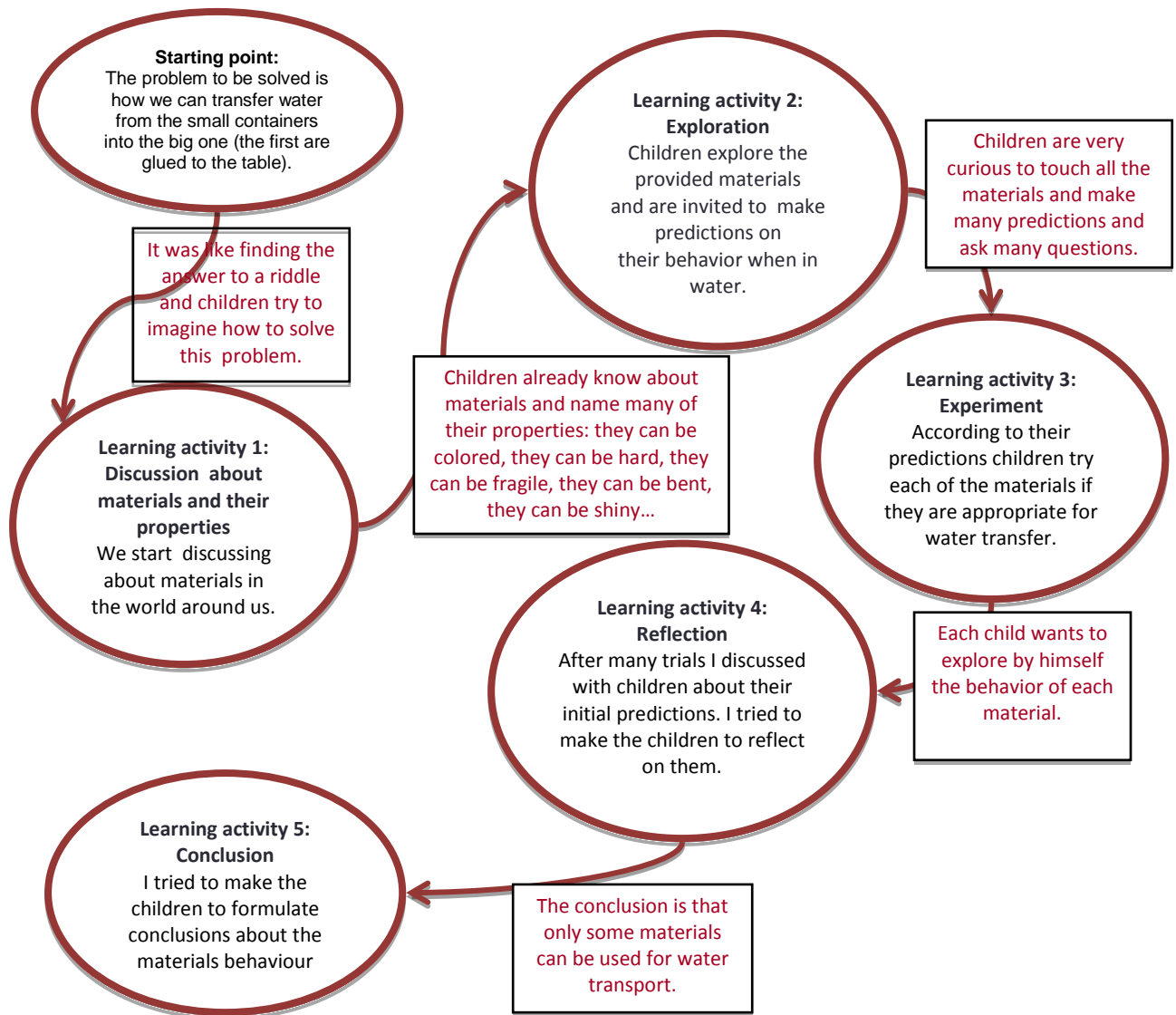
Rationale:

I know that children can easily collaborate and share ideas but I wanted to foster more questioning and motivate them to explore and observe the materials and find out their behaviour when they are immersed in water.

Implications for planning and teaching

- My plan was to have an inquiry activity when children can understand how materials behave in relation to water, to make children curious and stimulate their thinking.
- By discussing about the properties of materials I wanted to provide opportunities for children to ask questions, explore and take decisions for grouping the provided materials according to their property of being waterproof or not. At the same time I wanted that children can observe and understand the structure of the materials and make connections between their porosity and the possibility to transport water.

Outline of learning activities and resources



Developing the Learning Journey

Starting Points

- In order to foster children interest and motivation for the science lesson I introduced the problem of transferring water from the small containers (glued to the table) to the big container in the middle of the table.

- My intention was to encourage children to solve the problem by making connections with their previous experience and knowledge about materials.
- I tried to make children curious and stimulate their thinking, but at the same time I conducted the discussion in such a way that they draw their attention to the materials on the table.



At the beginning children were not so confident that they can solve the problem. It was my role to talk about absorption and materials with such a property we can use for water transfer.

Rationale

The purpose of these activities was to motivate the children and to foster curiosity about materials provided and their behavior in water, what they could predict what would happen next.

Children's responses

The challenge is rather difficult... I offered them many materials: paper, plastic, cotton, sponges, napkins, pencils, cardboard, bread, fabrics, etc. and this made children share opinions about transferring water in the big container.

Developing the learning sequence

Activity 1: Discussion about materials and their properties

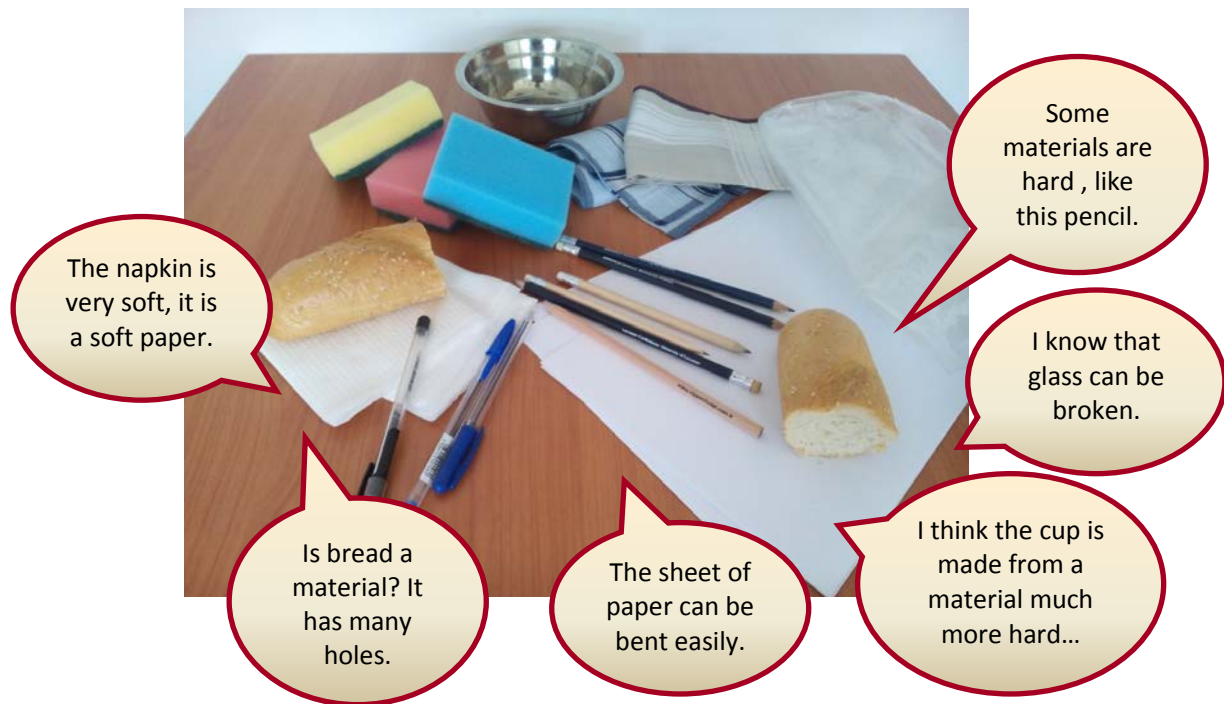
Materials have different properties that make them useful for different jobs. Can you name some materials?

Rationale

The discussion started from the materials I prepared for the experiment. I tried to make connections with what children already know about materials. They named some (glass, wood, metal, plastic, fabric) and with my help, some properties of the materials : hardness, transparency, absorbance, etc.

Children's responses

My questions challenged the children to reflect and communicate their ideas.



Activity 2: Exploring the materials

What materials from these on the table we could use to transfer water from the small containers to the big one?

Rationale

The purpose of this activity was to involve the children in making connections with their previous knowledge and encourage thinking skills.

Children's responses

It is another moment when children could collaborate and share ideas.

Children make predictions and separate the materials in two groups: absorbents and non absorbents.



Activity 3: The experiment

Children are very curious and want to touch all the materials and experiment with them.



Look! I like very much
this sponge, water
trickles from it...



This fabric is
good for water.

Children's responses

- Children talk to each other and share opinions, observing at the same time what their peers are doing and saying.
- Children want to see the behavior of materials by themselves even the colleague from the left said that a specific material does not absorb the water...



I put the pencil in the water. It was wet, but I could not squeeze it into the bowl !!!!!



I managed to squeeze the water from the sponge into the bowl.

The bread soaked in the water ... It will break into pieces.



Wait, let me do it.

The napkin is good, I can collect all the water with it.



Reflections and Implications

I stepped back and let the children the freedom to act and try everything they think is good for the experiment.

Results

At the end of the experiment I discussed with the children about the predictions they have made before experimenting and we were very pleased to conclude that almost all of them were correct. Children knew from previous experience or from intuition how the materials will behave. But the whole activity was very interesting and motivated them to work, collaborate, observe, and explore.

Reflections

Children's progress

- During the activity, the continuous collaboration between children has led to the increased curiosity and creativity in using the available materials.
- Every child was very curious and wanted to try all the materials made available.
- Verbal communication and information sharing took place between children throughout the activity.
- Even if they found out from a colleague that some materials did not absorb water, children wanted to try by themselves.
- Children discovered the property of some materials to absorb water.

Role of the teacher

- The role of the teacher was that of an observer, without interfering in the actions of the children.
- I tried to motivate children to explore the available materials and select the suitable ones for the challenge I proposed.
- My support was reduced during the activity and children could act following their own predictions which proved to be correct.
- I encouraged children to observe and make connections and also: help children to formulate questions and foster their curiosity, encourage dialogue and collaboration to support children's ideas, promote reflection and reasoning.
- I tried to direct children questions to the scientific aspect of the materials: their structure.
- Throughout the activity, a continuous formative assessment was carried out through the direct observation of the children and conversations.
- I made notes, observations and photos.
- I plan to use in my teaching more inquiry activities for science lessons.

Reflection questions for the reader

- How do you foster children's curiosity to make their own observations?
- What is your involvement in children's investigations, how much support do you offer to children?



- How do you support children in expressing their ideas and questions?
- What is the role of appropriate materials in supporting children's investigations?



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