



Curriculum Materials

Learning Journey

Make Bread Right Now



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Water, salt, wheat flour – make bread right now!



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The kindergarten “Ciupercuta” is located in Bucharest in a densely populated area. It has a large yard full of greenery. By its size and contents (objects, tools, materials that awaken taste for investigation and action) the yard offers the child a stimulating setting for learning.

The resources in the kindergarten are quite generous allowing a large variety of activities to be performed.

Science activities are planned each year in accordance with the national curriculum

Age: 5-6 years old

Learning activities: observing, questioning, making connections, explaining evidence, communicating explanations

Creative dispositions: curiosity, thinking skills, ability to work together, making connections

Synergies: Play and exploration, questioning and curiosity, dialogue and collaboration, reflection and reasoning

Context: This is a science lesson in the context of the project “**The bread journey**”. The lesson will be repeated each semester and children will be introduced through activities to knowledge about the world around them and the common materials and objects they are using every day. The lesson has characteristics of an inquiry activity fostering children’s **curiosity**, encouraging them **to ask questions** about both the materials and the processes, to **investigate and draw conclusions** from their work.



Setting the scene

Focus

The focus of this activity was to increase **children's interest in working in groups and exploration**. My main goal was to provide the opportunity for them to **make observations** of materials and processes and **communicate their opinions** by **connecting all these with their prior experience** and knowledge. This will lead to the enrichment of vocabulary too, as they learn new words naming different materials and stages of the process.

Rationale:

To foster children's **curiosity and interest** in the surrounding world through **exploration** of a variety of materials.

To provide the opportunity for an interesting inquiry activity so that children can **collaborate and share their ideas** based on predictions.

To develop an activity based on **children's prior knowledge**.



Setting the scene

Implications for my planning and teaching

- I provided specific materials/ingredients related to making bread and started discussions about them. Many **questions** rose, as children tried **to find explanations** for their use.
- I fostered children's agency through **dialogue and collaboration**, knowing that encouraging communication between them would lead to new ideas as well as **reflections** on their scientific work.
- I was also interested in **building on children's prior knowledge** as bread could be a subject discussed in many families. Children worked in groups and this was very useful in sharing ideas and explanation.
- After the activity started, I acted as an observer, helping children when necessary and encouraging the peers to respond to their colleagues' questions.
- Children could make notes (mainly by drawing) to express their thoughts during the activity or at its end.

Developing the learning journey

Starting point

Activity: The science lesson “Water, salt, wheat flour – make bread right now” is a sequence in the project “The bread journey”, where children learn about the cultivation of wheat and how it is processed. I started by presenting images of the whole cycle, from wheat grains to the final product: bread.

Rationale: The images of the bread journey were designed to encourage children to share their initial ideas and questions.

Children came with lots of questions and comments: *How to get bread from wheat grains? What shall we do if we cannot find bread at the store? Sometimes my grandmother prepares bread for us, but I do not know how she does it.... Of what the bread is made? How can we make the flour stay stacked together?*



Developing the learning journey

Starting point

I brought into the classroom some ears of wheat in order for children to understand how the grains are produced by the plant.

Discussions rose when I came up with explanations about transforming the grains into the flour. **Children made connections** with their prior knowledge saying that the process is similar with that in which “... *my mother is grinding the coffee grains*”.

It was a very motivating starting point as children concluded: we can be bakers for a day and make bread using the necessary ingredients (water, salt, flour, yeast).

Importance of time for discussion. This encourages children to make links with everyday experiences.

Developing the learning journey

First stage

First stage – knowing about the materials to be used



Activity: I split the class into groups and children prepared themselves for the process of making bread, by wearing the protection equipment. This made them aware of the importance of their role.

Rationale: Children were grouped to promote collaboration. Wearing hats and aprons encouraged excitement and a sense of responsibility.

Developing the learning journey

First stage

First stage – knowing about the materials to be used

Children were enthusiastic and started to touch every material on the table and discuss about it, **sharing opinions**. This provided evidence of their **motivation** and **interest** in the activity.

I encouraged children to **express their own thoughts** and asked them how all the ingredients should be mixed together. Is it any order of mixing?

Children made **predictions** about the taste of the bread given by different ingredients. I did not interfere in the process, but I let them **explore** and produce the dough.

I felt it is very important to stimulate them in **making predictions**: if we do not use water, what do you think we can get?

Developing the learning journey

First stage

First stage – knowing about the materials to be used

I reminded them about the task: mix the ingredients so that you get dough for bread. Do not forget to use all the ingredients.



I think my grandmother is adding milk sometimes...

What if I add some sugar?

Dialogue and collaboration helped children reflect on their **explorations** finally they could formulate **simple explanations** about the process of making bread.

Working in groups was successful in encouraging children to **come up with ideas** and **make links** with everyday life.

Developing the learning journey

Second stage

Second stage – knowing about the process

Activity: I helped with mixing the ingredients and kneading the dough. I **asked questions** about what would happen if we did not use yeast. I explained the process behind the investigation: the CO₂ produced by yeast makes the dough rise.

The role of yeast in making the dough fluffy was as magic. It was difficult for them to wait for one hour or so to let the dough double its volume: *Why should we do this? We want to prepare the bread now.* The chemistry behind the experiment was not very difficult to be understood by the children: They asked questions : *How can we see the gas? What if we have no gas in the dough? What if we use much yeast?*

Rationale: The purpose of this activity was to find out about children's ideas and support their understanding of the processes involved in making bread.

Children had lots of opinions about *what if we do not use yeast?* but found it hard to imagine what bread without yeast can look like or taste like.

I decided to come back to this issue at a later stage, when the dough will be ready for modelling the bread.

Developing the learning journey

Second stage

Second stage – knowing about the process

Children's **questions** gave me ideas for extensions of this activity: I shall give them the possibility to explore some other types of pastry dough and try to analyze the role of ingredients in each case.

My bread is very tasty, you'll see

Finally time passed and the dough had raised enough for children to shape it into different kinds of bread.

We shall make lots of good bread.



I wonder if the gas is still inside the dough...

I am not sure I can work with the dough

Developing the learning journey

The third stage

The third stage – shaping and baking the bread

Activity: Children were given worksheets and asked to draw the bread in the form they want it to be after baking.. Children showed the drawings to their colleagues and discussed the size, aspect and shape of the bread.

Rationale: The aim was to help children **imagine** what the bread will look like and **make decisions** about the shapes they wanted.



The preparation and shaping of the little breads were very **serious and enjoyable** activities as the children could feel the texture of dough and could model the bread into the shapes they preferred.

Developing the learning journey

The third stage

The third stage – shaping and baking the bread

Finally, all the little breads covered the tray and children waited anxiously for them to be baked.

Tasting the bread, the conclusion was: it is not difficult to make bread; we can try again with other ingredients.



Opportunities for children to handle materials themselves and make decisions helps foster **motivation and discussion.**

Reflections – Children's progress

In the previous activities I had observed that children do not really cooperate when they look for solutions to their problems. Therefore, once they had the opportunity to work with many ingredients, they **started to cooperate**: they were **interested in the solutions proposed by their peers** and **came up with new ideas**.

As a result of children involvement in **exploring the ingredients and the procedures**, they enriched their vocabulary and could also understand the science involved.

Children really liked the activity and the possibility to combine (mix) various materials/ ingredients **by themselves** made them more **involved and creative**. They made **predictions** and came with many **investigative questions**.

Reflections – Teacher role

The fact that the children could **manipulate the ingredients by themselves** and explore was a **strong motivation for cooperation and investigation**. They could play with the flour and then feel the different texture of the dough.

Initial **discussions and questions** were for me helpful in fostering children's **curiosity and agency**. My support was reduced during the activity and children could act following **their own predictions**. I encouraged children to discuss at home with their parents and grandparents about the process of making bread. This will help children to better understand and **make connections** with their own experience. I tried to enhance children's creative thinking by helping them **formulate questions** and by **allowing enough time for exploration and discussion**.

Classroom environment

Through **discussions and their own reflections** and judgment children understood that not only the ingredients (materials) used are important to get good bread, but the fact that the dough has to rise under the effect of the yeast (process).

The **assessment** of the activity was done by observations (making notes, asking questions, taking photos), but I also encouraged children to repeat the experiment at home, for a better understanding on how to use natural ingredients (materials) to obtain food.

Various materials and dedicated workspace were provided for children, as well as protection equipment like hats and aprons.

I found very useful to let children **express their own thoughts and formulate questions and comments**. Sometimes corrections were needed to vocabulary - children needed to be introduced to scientific vocabulary - and it was my role to do so.

Next steps for learning and teaching

I would like to **involve parents** in this type of practical activity so that they can understand the role of exploration and inquiry for creativity and development of children's thinking.

I plan to organize such science lessons as frequently as possible and **give children the freedom to work with and experience with materials** in the surroundings.

In the future activities I shall use **children working in groups** more frequently. it is a good method to encourage children to **communicate and share ideas**.



Reflection questions for the reader

How do you motivate children in science?

In what ways do you encourage children to discuss their ideas?

How do you record children's ideas/comments? In what ways do you build on them in your planning and teaching?

How do you organise science activities? Do you provide a specific space in the classroom for science activities?



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