

# WINNING THE RACE

## Presenters

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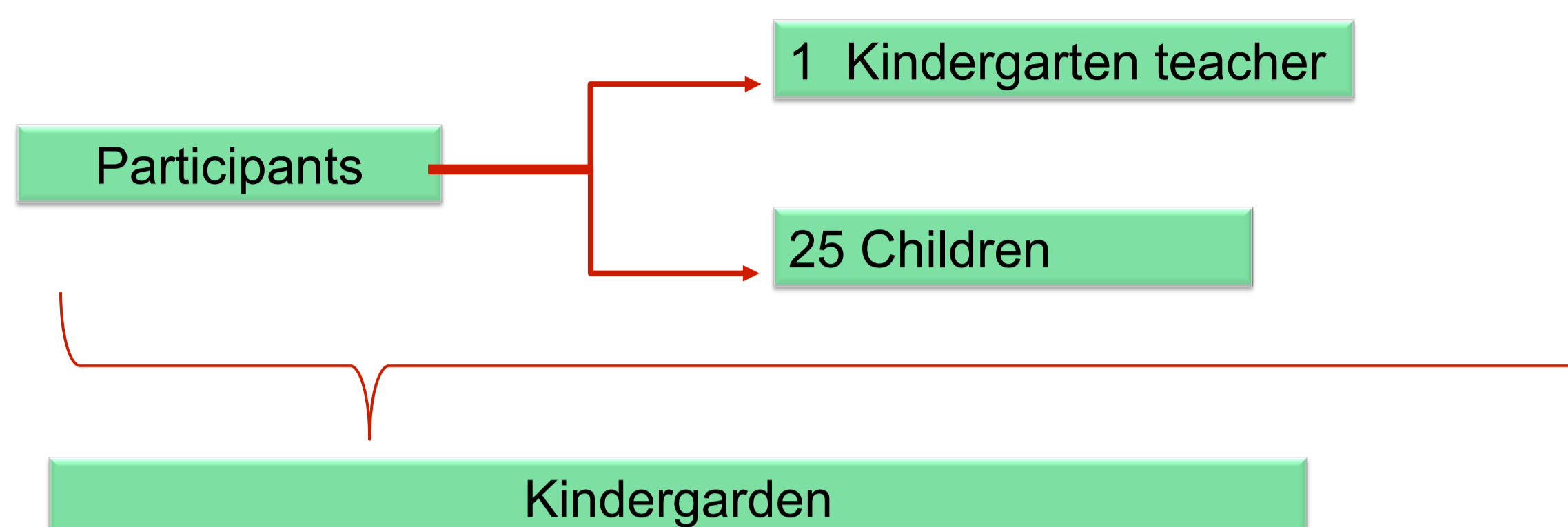
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## CONTEXTUALIZATION

Science activities provide opportunities for cooperation, negotiation, rules following, rights and duties understanding, group learning involvement, and education for citizenship. These are essential skills for critical thinking and to create, conscious, participatory and supportive autonomous citizens.

The learning experiences developed in kindergarten constitute an excellent way to use procedures and skills such as: observing, recording, measuring, comparing, counting, describing, and interpreting. These skills are not exclusive of science; these are capabilities that enhance a holistic worldview. In this study we describe an experimental activity, in the scope of chemistry, associated with viscosity of liquids. This subject is present in the everyday life of children and the discussion of these issues enables them to understand the world.

## CONTEXT AND PARTICIPANTS



## OBJECTIVE

The activity was developed with a group of 5 years. With this activity we want that children observe and compare the speed of fall of a marble in liquids with different viscosities.

## PLANIFICATION OF THE EXPERIMENTAL WORK

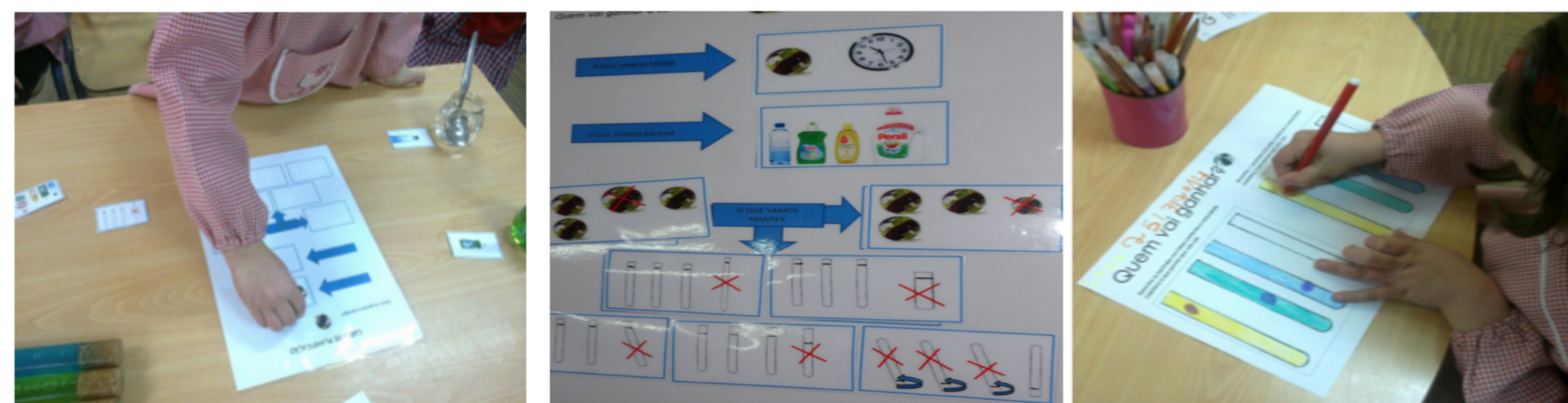
**1<sup>st</sup> Step:** This activity in particular, arose from a situation experienced by children when they washed their hands, noting that water and liquid soap had different behaviors.

In order to identify the previous ideas of children, Kindergarten teacher questioned them, about what they thought about: the difference of movements of liquids; the way they are stirred by the spoon and trickle down, when they are poured.



**2<sup>nd</sup> Step:** The next step in the experimental process was to complete the plan.

- What will we observe?
- We will see how long takes the marble to get to the bottom of the tube. - Leonor
- What are we going to change?
- The kind of liquid – Jessica
- What we can't change?
- The marbles have to be all equal, none can't be bigger or smaller than the others – Marlene
- We can't, also change the tubes.



## EXPERIMENTAL WORK

**3<sup>rd</sup> Step:** The four tubes was distributed by four children, and all of them took into account the experiential rules defined previously to control the variables. During the experimental process, children verified which was the faster marble. They realized that if the liquid contained in the tube was less viscous the marbles get faster to the bottom of the tube.

## MAIN FINDING OR DISCUSSION



**5<sup>th</sup> Step:** The activity ends with the systematization of discoveries, where children are encouraged to express their conclusions and the teacher translates with appropriated language the results.

**4<sup>th</sup> Step:** The discussion of the observed data was focused on the difference in the speed that each marble had to slide in the liquids (viscosity) and in the relationship between this and the viscosity. Some conclusions of children was:

- The yellow liquid is more viscous because it makes more strength and because of that the marble doesn't fall fast - Leonor
- Who will win the race will be the marble of the transparent liquid, then the blue ... - Marlene
- Then the green .... and the last will be the yellow – Samuel
- In the transparent tube there are only water, such as does not make strength the marble fall faster. I think it's not viscous - Amir

## FINAL CONSIDERATIONS

During the experimental work:

- Was valued the learning by discovery and adopted different practices, focusing on cooperation and respect for the different interests of children;
- Educational opportunities that favored cooperative learning and the involvement of children were created, contributing to the success and learning process of all;
- The kindergarten teacher was an active mediator of learning and development of children being alert to the learning processes and trying to understand the conceptions of children to organize the experimental work.
- The children were encouraged to interact with the world around them, so that their learning could be meaningful to them;
- The child was valued as competent, having the opportunity to expand their knowledge about subjects of their interest.