



MA\_Class\_Drums\_NoS

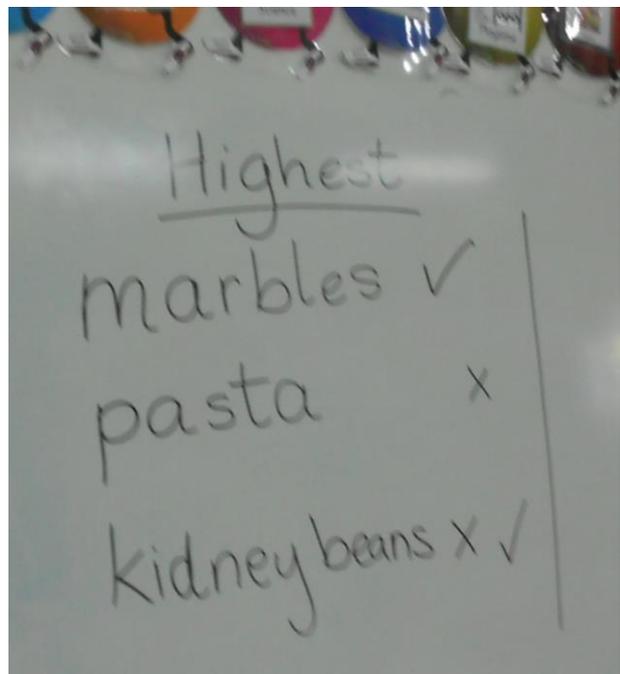
<b>Teacher Education Design Principle + code:</b>	3. Teacher education should advance teachers' understandings about the nature of science and how scientists work, confronting stereotypical images of science and scientists. <b>TE: NoS</b>
<b>Specific Teacher Outcome(s):</b>	3.1 Teachers should be able to advance children's understanding about the nature of science and how scientists work, confronting stereotypical images of science and scientists. 3.2 Teachers should be able to recognize young children's capabilities to engage with processes associated with the evaluation as well as generation of ideas in science and mathematics, since these processes are also important for the development of learner creativity.
<b>Factors linked with:</b>	<b>P: R and R;</b> <b>LA: Connect;</b> <b>P: Affect</b>
<b>Type of material (image – interview (int) – classroom extract (class):</b>	Classroom extract (class)
<b>Originating from:</b>	
<b>Country report :</b>	D4.3 – report Malta
<b>Case:</b>	Case 3
<b>Episode:</b>	3.3 Drums
<b>Teacher:</b>	Sabrina
<b>Age Group:</b>	5-6
<b>Selected episode present in D4.4 Appendix</b>	No



## Context for Drums episode extract:

The teacher introduced this inquiry activity by demonstrating how to build a drum out of different materials. She provides the children with time to build their own drums mirroring scientists who build their own equipment for experiments. She then presents a set of research questions and asks children if they can find an answer. The children on their own communicate that in order to find the answer they must experiment and try the different objects "one by one" to see which object vibrates the most when placed on drum and when the drum is struck. This also mirrors the nature of science as the teacher provides the children with scientific questions, encouraging children to think and design their own experiment. When evaluating the different answers the children came up with, the teacher looked at the most common answer and communicated that the majority rules when answering a research question. Therefore, it becomes evident that the teacher wanted to make an explicit link between the inquiry activity in class and the nature of scientists and how scientists go about answering their different questions. An implicit link between the nature of science and this episode includes the idea that in science outcomes of experiments are not always clear-cut. This could have been followed up by a discussion about the kidney beans and what happened during the experiment that made the children conclude that it vibrated the most, also commenting on how common this instance occurs during scientific experiments scientists conduct.

**Introducing children to the nature of science; predictions, investigation and results.**



*Uncovering the Nature of Science: Scientific experiments do not always lead to clear-cut answers*

The teacher then takes out a lot of things from a large bag and places them on the front table. The teacher shows the children how to cover a bowl so that they can produce a drum. The children are excited. The teacher then repeats the process, but this time placing the beans on it and striking it



with a stick. The children perform the experiment. The beans fall on the floor. The teacher asks the children if they think that the sound changes if she uses a smaller bowl.

**Sabrina:** If I use different size of container, will the sound vary?

**Child:** Yes!

**Sabrina:** But can you test it?

**Child:** Yes, we try them out one by one.

The teacher tells the kids that they have beans, pasta or marbles to test.

**Child:** Yes, ... we have them here.

The children do the experiments in groups.

**Sabrina:** We have two questions:

1. Do different containers produce different sounds?
2. Will the different things bounce the same or not, and see which ones bounces best.  
Which do you think?

**Child 1:** The marbles...it shows.

**Child 2:** Because they are harder and it is faster, it bounces more...if you bang it harder it goes up high.

**Sabrina:** What about the pasta?

The teacher then calls all the children to attention and collects the observations from each of the groups. Three groups noted that the marbles bounced most while one group identified the beans. The teacher concluded with the children that the most common conclusion – preference for the marbles was the answer. The teacher here provides an example of nature of science where the outcome is not always clear-cut.



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