

<b>Teacher Education Design Principle + code:</b>	7. Teacher education should familiarise teachers with a range of formal and informal inquiry- and creativity-based learning, teaching and assessment approaches and strategies and their use in relation to authentic problems within the areas of science and mathematics. <b>TE: CreatInqPed</b>
<b>Specific Teacher Outcome(s):</b>	7.4 Teacher should be able both to build in new and to make the most of existing opportunities for child-initiated play, recognising and capitalising on the potential of children's explorations beyond the teacher's original intentions.
<b>Factors linked with:</b>	<b>P: Play;</b> <b>P: Agency;</b> <b>M: Expl;</b> <b>A: Form</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 UK (Scotland)
<b>Case:</b>	Case 18
<b>Episode:</b>	Water Play
<b>Teacher:</b>	Martha
<b>Age Group:</b>	3-4
<b>Selected episode present in D4.4 Appendix</b>	No

## Rich physical environment for exploration Material organised to support independence and improvisation

In the nursery provision is made each day for the exploration of materials including water, sand and malleable materials. Adults vary the resources provided in the water tray over time based on their observations of children's interests and wider events in the life of the nursery. Children also have free access to trays of resources nearby to extend their observations. The organisation of space allows easy access for groups of children.



*The setting for the water tray*

On this occasion a wide variety of resources had been set out at the start of the day to support children's explorations including measuring jugs of various sizes, boats, whisks and spoons. To these children had added plastic pipes and syringes taken from the trays of resources behind the water tray. Staff had placed balance scales and pipettes on a table right next to the water tray intended to support the exploration of ice balloons. These resources too were incorporated by children into their water play. Children were mostly left to explore on their own or in collaboration with others throughout the morning. Adults interacted occasionally to show interest or ask questions in response to the direction of children's activities.

The episode reported here concerns the sustained and focused explorations of one child, Anna. Across the episode she engaged in a series of repeated activities, showing focused attention throughout.

In the first phase of her explorations she repeatedly poured water into the bucket on one side of the balance and then the other – gradually filling each side to the top and making the two sides balance.

Anna noticed connections between the level of the water in the bucket and whether it was heavier or lighter, '*heavier when it's higher*'.

Noticing the children had moved the balance scales into the water tray Vera, one of the nursery officers, came over to see what was happening and suggest ideas.

**Anna:** Too much water (*on one side, commenting on balance tipping*)

**Vera:** Will you put some on the other side as well?

**Anna:** Need to put some here.

Vera: Good idea.



*Anna pouring water into buckets on the balance scales*

Anna then started filling the bucket with the syringe. Following this her focus of attention shifted to the pipette. She tried various ways of filling the pipette, first trying to fill it with the measuring jug and then by attaching the pipette to the syringe, but she could not manage to attach it securely. Eventually she asked the researcher what the pipette was and was shown how to fill it.



*Filling the bucket with a syringe.*



*Trying to fill the pipette with the syringe*

Next she used the whisk to create bubbles in the water – singing away as she did so ‘swish, swish, swish’ and watching closely the bubbles produced. She returned to the whisk on several occasions during her time at the water tray.

A further activity that gained her close attention was using one of the balance scale buckets to fill a measuring jug. She filled the jug very slowly and carefully until no more water could be added saying ‘careful, careful and pour’ ‘put one here put one there’ ‘all of the water in there’ feeling the rounded surface of the water in the jug. She repeated this several times.

A final focus of activity that provoked Anna’s attention and commentary was watching the water flow through holes, through the bottom of a bucket with holes and through the holes in a plank that ran across the water tray. She articulated her observations for example ‘Going through the holes – – shhhhh’ (pouring water through the hole in the middle of the plank). She made connections

between her actions and the water flow for example *'If you pull this up it comes out the bottom'* (the bucket with holes).

**Recognising and capitalising on the potential of children's explorations**

Dialogue with Anna prompted by photographs of her explorations and her drawing of her experiences provided opportunities for reflection and gave further insights into her explorations and thinking. For example in discussing photographs of her activities with the researcher Anna explained

*'I was putting the water in to see which one was the heaviest (balancing activity)'*

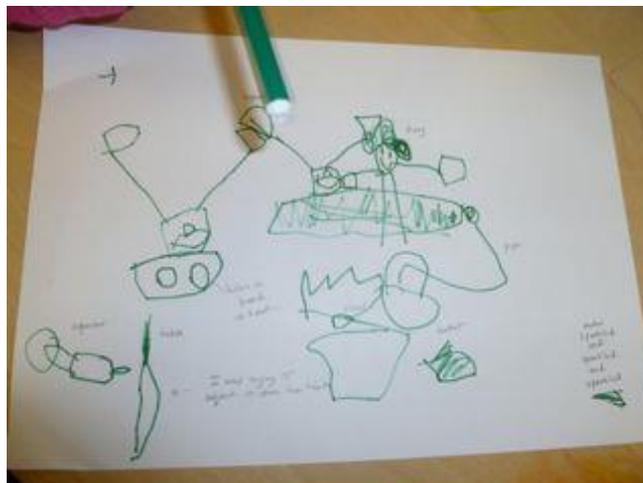
*'I was squirting – yeh something happened and it squirted in my face (syringe).'*

*'I was it put through the little 'tuber' and it didn't work' ... 'it kept slipping off, slip, slip, slip (trying to fix the pipette on to the syringe).'*

When asked what she found most interesting she quickly referred to *'the tuber'*. When asked what she thought was new or special she commented on her observations of water flow – the sound it made and its appearance:

*'Well the special thing was the water goes woo, woo, woo'.... 'the water glows a wee bit.'*

Key equipment and events also featured in her reflective recording of the activity with annotations dictated to the researcher. The drawing highlights the balance scales, the holes in the board, the incident with the syringe and the pipette *'I was trying to squirt it down the tube'* and her observations of moving water *'water sparkled and sparkled and sparkled'*.



*Anna's drawing of her experiences in the water tray*

The photographs, drawing and dialogue were recorded in Anna's profile, providing valuable evidence to support staff and parents in recognising and building on Anna's interests and capabilities.



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