Learning Journey: Changing Seasons: Ice

Age: 3-4 years old
Learning activities: Questioning; Gathering evidence
Creative dispositions: Thinking skills; Curiosity
Synergies: Questioning and Curiosity; Teacher scaffolding and involvement
Contextual factors*:* Group work

Background Information

School setting: Free Flow nursery (in England).

Curriculum links: Development matters in the early years foundation stage (Early Education, 2012), Early years (under 5s) foundation stage framework (DfE, 2014)

Characteristics of Effective Learning:

- Playing and Exploring
- Active Learning
- Creating and thinking critically
- Question why things happen and give explanations. Asks e.g. *who, what, when, how*

Setting the Scene

Focus

The focus of this project was on developing children's questioning and curiosity and providing the opportunity to develop thinking skills.

Rationale

The children in the nursery have just moved into a free flow environment. I had noticed that the children were unable to access activities and resources without adult direction. I wanted the children to start to develop thinking critically, finding ways to solve problems and thinking of new ideas. They needed to be able to ask questions about the world around them and provide explanations.

Implications for my planning and teaching

The implications for my planning and teaching were to foster questioning and curiosity by modelling and promoting questions in the nursery and standing back more whilst the children were investigating. By standing back more it will allow the children to develop thinking skills as the children will have to make connections themselves rather than being provided the answer by the teacher. This would be done through active investigation of their own choice, recorded and reflected on through photographs and observations linked to their individual learning journals and next steps**.**

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Outline of learning activities

Starting point:

Through my planning and teaching I wanted to foster *questioning and curiosity* by modelling and promoting questions in the nursery and standing back more. In order to achieve that I introduced the question board.

Activity 1: Exploring ice

Talking about weather changing had prompted children to begin to talk about ice and snow. Exploring how to freeze water and make ice. Placing various small toys inside the ice and see what happened.

Activity 2: Building igloos

Children were asked if they could make their own Igloos from ice.

Activity 3: Freezing materials

What else can we freeze? A selection of materials from the messy play box were put out and the children decided what they wanted to freeze.

Activity 4: The Results

Exploring the results and melting the materials. We collected the trays from the freezer and investigated what we found. Seeing if and how we could turn it back to its original state.

Developing the learning journey

Starting point

Rationale: Children were not used to being the ones to ask the questions and had no concept of questioning verbally.

Activities: During group time, we started to promote questioning by encouraging children to ask questions of each other during show and tell. In the first few weeks the adult modelled the questions for the children. Each time a question was asked it was placed on the question board. It was obvious that the children were not used to being the ones to ask the questions. The more we celebrated questions by modelling, displaying what the children said and praising any questions the children came up with, the abler the children were to ask question verbally and otherwise.

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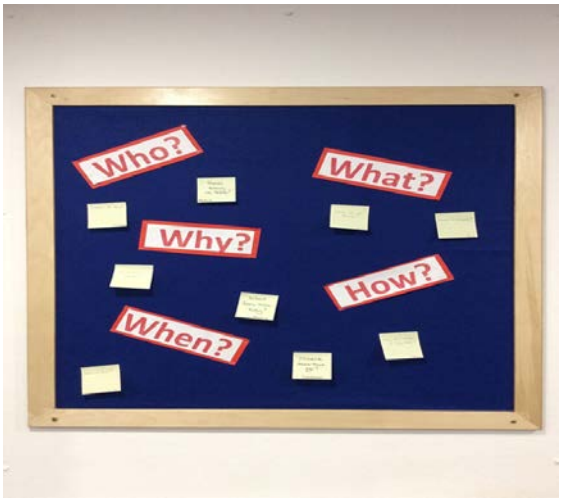

What day did you go on holiday?

Where did you get it from?

Photo 1: Our Question board

Developing the learning sequence

Learning activity 1 – Exploring Ice

Rationale: Talking about changes and weather changing had prompted the children to begin to talk about ice and snow. I wanted the children to start a scientific investigation with a hands-on experience from their interest. I wanted them to start using the questioning skills we had been working on over the past few weeks.

We went into the garden and tried to find some ice which had naturally formed. The activity was based around exploring how to freeze water and make ice. We changed the colour of the water the day before and placed the coloured water in the freezer over-night.

The children also placed various small toys inside the ice to see what would happen. At first the children needed some initial direction and a problem to solve. Once they were provided with this they were able to work together, thinking of new ideas and sharing ideas and knowledge with each other. Once the activity was underway the children were highly motivated and engaged. They were questioning each other about the ice and the best way to free the toys that were trapped inside the ice. I stood back and waited to see in which direction the children would take the activity. This would keep the children motivated as the activity was not adult directed but emerged from their own interest.

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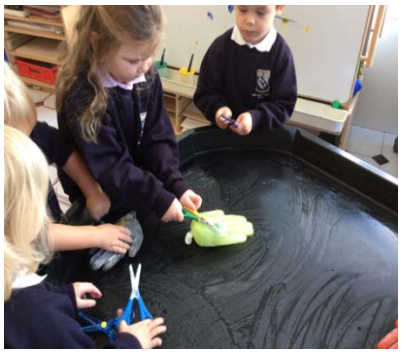

Photo 1: Using tools to break the ice

Reflections: Children were highly motivated and engaged. They did use the questioning skills we had been working on over the past few weeks. They were constantly questioning each other and they were able to work together thinking of new ideas and sharing them.

Learning activity 2 – Building Igloos

Rationale: For the next activity I wanted the children to understand more about the properties of ice and have another hands on approach exploring the texture of ice and seeing if the children could verbalize what they were experiencing. A hands on approach for children this age keeps them highly motivated as their learning is still exploratory based. We were still looking at habitats so decided the activity would be building Igloos. The children were asked if they could make their own Igloos from ice.

Some of the children who were more reluctant on previous tasks were more willing to join in this time and were internally questioning by trying different methods to build with the ice. They were more willing to join in due to the levels of motivation and excitement that they saw from the children taking part in the first challenge. This sparked their natural curiosity.

The children from the previous activity were far more able to work together to try to find a solution to the problem. Communication increased and they verbally made suggestions to each other as to what they thought would work and as one child made suggestions the others tried different methods and added their own thoughts depending on the outcomes.

Photo 2: Building with the ice

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Photo 3: Exploring the ice and working togther

Reflections: I noticed that the children were far more able to work together to try to find a solution to the problem. Many more children joined the task and suggested different materials to make the ice stick. The children's attempts to use different materials (e.g. rice) to make the ice stick informed our next activity.

Learning Activity 3: Freezing Materials

Rationale: The children were increasingly motivated by the process of freezing and melting and begain to talk about it independently. For example, when the sun came out in the conservatory area at Nursery the children would see what would melt and would ask to make ice. To extend this I asked the children what else they thought we could freeze over night?

The children came up with a few suggestions including their own toys and very large items.The children had learnt from the previous activites that the materials needed to be cold so we all went to look at the freezer and talked about size and what might fit. I provided the children with some ice cube trays and a variety of materials to freeze. During the activity they were clearly able to think about which materials might freeze more effectively , even selecting and asking for resources that were not provided. One of the children for example asked if he could use paint and went to get it from the cupboard.

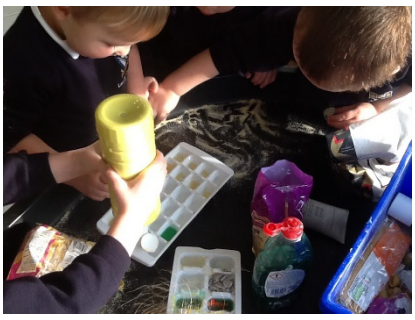

Photo 4: Using different materials to fill the ice cubes

I was careful not to interfere with the process and to stand back allowing the children to have their own ideas and question what may happen. During the activity the children were

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able to make connections to the previous activities and started to make predictions, for example the children thought that all the materials would be ice, not understanding that only water makes the ice.

Reflection: The children clearly extended their thinking skills while exploring different materials: they asked questions, they made predictions about which materials might freeze more effectively, and they even selected and asked for resources that were not provided. They could not wait for the next day to see the results.

Learning Activity 4: The results

Rationale: I was curious to find out how exploring the results and melting the materials would influence children's thinking about and understanding of ice.

We collected the trays from the freezer the next day and investigated what we found. Once we looked at the frozen items the children made very clear observations about the results. One child had commented that "the seeds didn't freeze, they are just cold". And asked "Can we put them in again?"

The children then wondered if and how they could turn it back to its original state. I had noticed that by this point the children needed far less adult suggestion and were asking questions of each other. They were also sharing their own knowledge and working out solutions as a group. One child asked the others "how can we make it soft". The other responded "we can use hot water. It will make it runny" One child had made some observations on the results saying "this one didn't work, we need to put it back in the freezer" while pointing at the shaving foam which was still soft. Another child had observed "these ones haven't made ice" while pointing at the seeds.

Photo 5: Finding solutions

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Photo 6: Thinking skills in action

Reflections: The children were far more motivated and curious. Standing back more and modelling had started to allow them to ask their own questions, they had started to think critically and find ways to solve problems. As I fostered the questioning and curiosity the thinking skills were developing.

Overall Reflections

Children's progress

By promoting questions within the Nursery before starting a learning activity it enabled the children to be aware of what questions were and see them as an achievement. It allowed children to start to think differently about their own learning and to become more motivated and engaged. Due to this the learning sequence could be extended beyond one activity and allowed me to extend the learning and build on the children's knowledge.

The children were able to make connections during the learning sequence and by building on the childrens own interest it meant that the levels of curiosity and questioning were naturally higher. As the children became more confident in the new approach to the teaching input the communication increased. This was seen not only during these activities but throughout learning within the nursery.

Working from the childrens interest and allowing them more time for play and exploration at each activity also enabled the children to come up with new ideas, use their imagination and work together. Their curiosity, questioning and thinking skills developed.

I have observed three children closely and noticed that Child 1 became more motivated and engaged; Child 2 became more confident and the communication increased and Child 3 increased levels of curiosity and questioning.

Teacher role

I wanted the children to develop their own creative dispostions and become confident learners. Due to the age of the children this was done in small steps. I started by promoting the concept of questions and what questions were. I celebrated the childrens voices by using displays and putting up any 'wow' work or 'wow' questions asked by the children as well as verbally praising the children each time they asked questions. I modelled questions

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and I verbalised my inner dialogue for the children with the aim that they would become used to this and start to follow suit.

During the activities I was far less directive in my approach and for each activity I allowed the children to take a lead. I provided the basic knowledge and asked the children 'I wonder…' I was careful to allow the children plenty of time while they were working and did not rush in to provide help or the answers.

Each time a child came up with a new idea or was able to make connections I celebrated this by using the display boards. I revisted the work with the photos I had taken and the children were able to start to reflect on the activites and recall what they had achieved or learnt.

This approach also keeps the sense of motivation high and in turn helps foster their own sense of initiative. The children have benefited from this style of teaching not only in scientific investigations but across their learning.

Classroom environment

The nursery enviroment is a free flow environment meaning the children have free access to a large number of rich resources. We have a display area for each individual child to hang work they are proud of called the 'wow' wall. During this learning sequence I ensured the children had access to a number of different materials. I set up the activity in an area where they could get messy if they wanted and had access to the sink and running water. I ensured that I worked with smaller groups of children allowing children to come and go from the activites as they wished. I encouraged the children to explain their own knowledge to others if they were new to the activity, both reinforcing the learning and giving the children communication skills.

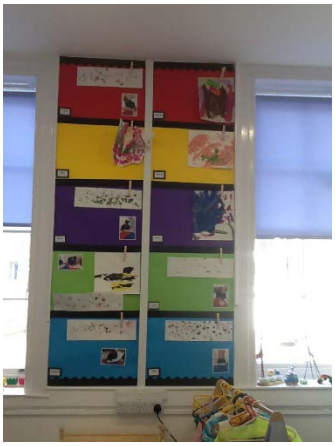

Photo 6: Classroom environment

Next steps for learning and teaching

- To provide a science exploration area for the children, allowing them to access this area at all times and start to create their own activities.
- To link the science activities to Forest School and extend the creative science to the outdoors linking it with the ethos of Forest School.

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- Create Floor Books with children before activities, with the headings 'what do you know now?' ,'what would you like to find out?' and 'what have we learnt?'

Reflection questions for the reader

- How can you promote questions in your own setting?
- How would you build from children's interests?
- What is your role as the teacher and can this be adapted to foster creativity?

Practical Information

Resources

Starting point

Paper
Area for Display

Learning activity 1

Rubber gloves/balloons
Food colouring
Water
Scissors
Small toys
Freezer

Learning activity 2

Ice cube trays
Builders Tray
Freezer
Extra materials to choose from (rice, glue, etc.)

Learning activity 3

Materials to freeze (shaving foam, paint, small toys, seeds, pasta, rice, liquid soap, bubble bath)
Ice cube trays (containers the same size to freeze)
Builders tray
Freezer

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