CEYS
Creativity in Early Years Science Education

Curriculum Materials

Learning Journey

Bath Bombs

Erasmus+

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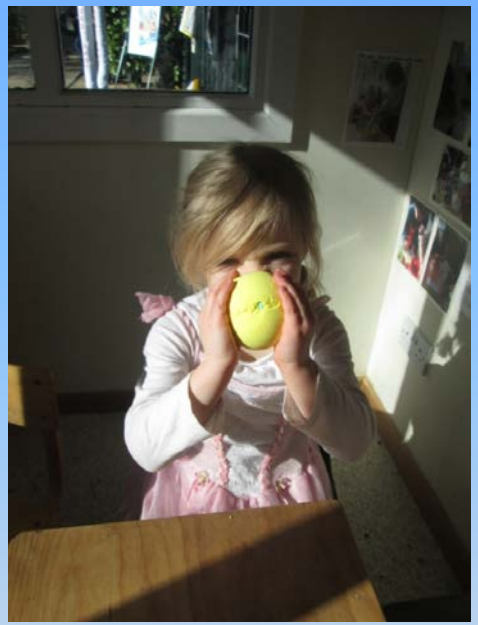

Learning Journey

Bath bombs

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Exploring materials and their changes: Bath bombs

Links to CLS Framework

Learning activities: designing and planning investigations, gathering evidence (observation), making connections

Creative dispositions: Ability to work together, develop thinking skills and making connections through opportunities to talk

Synergies: Dialogue and Collaboration

Background
Age group: 3-5 years
School setting: Free Flow Kindergarten Early Years environment
Curriculum links:
EYFS-Development Matters, 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*

Aim 1: To increase the number of children taking initiative in science learning

Aim 2: To increase children's ability to make connections and develop creative thinking skills in science through profiling dialogue and collaborative working

Setting the scene - Focus and rationale

Focus:

To develop children's creative thinking and ability to make connections in science through profiling their dialogue and collaboration

Rationale:

I noticed from previous activities (Electricity) that when working together some children were beginning to build on each other's thinking to develop ideas. Leading on from this I aimed to increase their collaborative learning and explicit talk in the area of science.

Implications for planning and teaching

- To provide interesting and stimulating resources specifically linked to the children's interests to increase their participation, talk and collaborative working through wanting to explore shared interests.
- To highlight and capture one child's creative thinking in science to enable other children to build on his ideas, thus furthering their own understanding and ability to make connections in their thinking
- To provide adequate time and space for children to talk and collaborate together to enable them to listen to and add to each other's scientific ideas

Highlights of previous activities ‘Electricity”

You have to make it a full circle!

The metal has to be touching or it doesn’t let the electricity run through.

Overview of Learning Activities

Starting point:
One child's interest led to exploring bath bombs and how they react in water

Children showed interest in one child's story about her birthday present (a bath bomb)

Learning activity 1a: Invitation to exploration
Children were invited to play with a bath bomb. Children added the bath bomb to water

Children were keen to explore smell and texture. They listened to each other's comments and bounced ideas off each other.

Learning activity 1b: Making bath bombs
I then planned to make bath bombs with the children. This was an adult directed activity with elements of the children being able *to 'wallow' and ponder over ideas*

Children each wanted to experience the feel of their bath bomb in the water and their exclamations and language prompted other children *to make connections* and to express their ideas and thinking

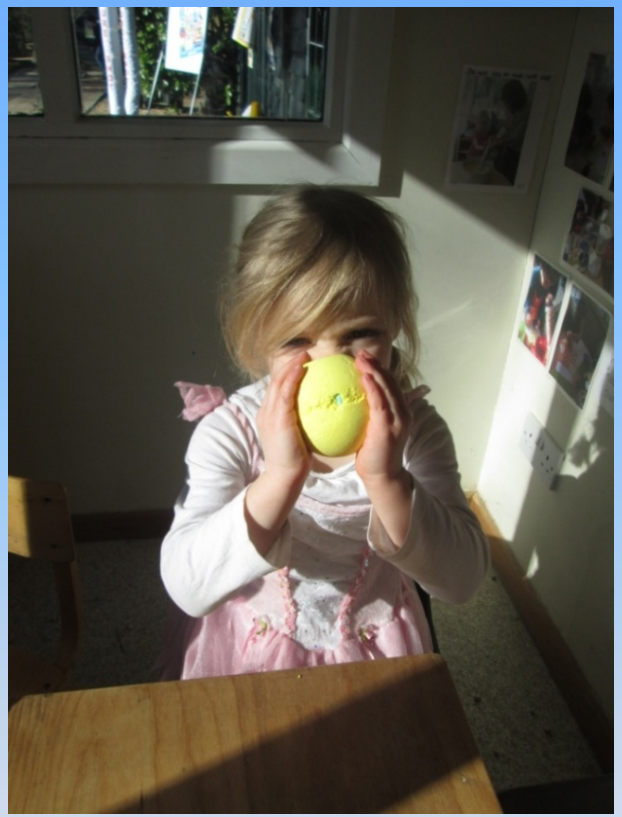
Learning activity 2: Testing with other materials
I facilitated this by providing a wide selection of ingredients and apparatus for children to freely explore

Children explore their interest in making "things that fizz and fuzz!"

Learning activity 3: 'Aromatherapy'
I provided essential oils, olive oil and water, fresh and dried herbs, and pots and sticks to mix 'lotions and potions'.

Prior experiences of exploring and talking together enabled the children to make connections

Children stayed motivated and express a wish to to do more scientific experiments and to discuss and share ideas



Starting point

Rationale: One child who has in the past shown less initiative to engage in scientific activities, shared with me her excitement at receiving bath bombs for her birthday. I then brought in a bath bomb for her to explore with a group of children, anticipating that perhaps she would pursue her exploration and be encouraged to work collaboratively, as the opportunity was directly linked to her interest and prior knowledge and experience.

Activities: Following this starting point, I planned a sequence of related activities around and developing from the child's interest in bath bombs, which led to exploring materials and their changes, exploring fizzing, dissolving and making potions.

Developing the Learning Journey: Activity 1a
Invitation to explore

Children were simply invited to play with a bath bomb. They were keen to explore smell and texture. Children added the bath bomb to water, readily sharing observations, whilst a few listened closely without yet speaking themselves.

Children's thinking was extended as they listened to each other's comments and bounced ideas off each other. For example, one child who until this stage had simply been observing, picked up on other child's comment about "adding stuff" to make it stronger and suggested adding spices, in particular turmeric. When we could not find turmeric, the child happily decided to add cinnamon instead.

Activity 1a: Invitation to explore

When I had it at home it wasn't so green...because we had more water.

If we put it in the water tray we will have more water...but it won't be as strong...we can add stuff to make it stronger!

Through their dialogue and collaboration children enabled each other to make new connections such as how to make the bath bomb water less "green".

It's fizzing quickly!

Because it's hot!

I don't know what will happen...

I noticed that the children commented on the volume and temperature of the water, and noted this for follow up activities and exploration.

Activity 1a: Invitation to exploration

The children were happy to share their thoughts and ideas in the knowledge that an adult would be available to help facilitate further exploration. Agnes picked up on a child's comment about "adding stuff" to make the mixture stronger and another child's comment about the bath bomb smelling spicy. She built on this idea suggesting they add more spices.

Her **creative idea and the connections she made in her thinking**, developed from the talk and collaboration of others, were **celebrated and acted upon.**

Developing the Learning Journey:
Activity 1b

Making bath bombs

The bath bomb interest evolved as I then planned to make bath bombs with the children. This was an adult directed activity however there were certainly elements of the children being able *to 'wallow' and ponder over ideas, talking together to make connections and develop their thinking.*

What if we added water? It would go fizz, pop, bang! We wear goggles so it doesn't fizz in our eyes!

Activity 1b: Making bath bombs

The children each wanted to experience the feel of their bath bomb in the water and their exclamations and language prompted other children *to make connections* and to express their ideas and thinking

Developing the Learning Journey: Activity 2

Testing with other materials

Rationale: I wanted to enable the children to further explore their interest in making "things that fizz and fuzz!" so I provided another opportunity for them to work collaboratively to create various bath fizzers, potions and mixtures. I facilitated this by providing a wide selection of ingredients and apparatus for children to freely explore. I chose to stand back and observe, listening particularly for children's dialogue and collaboration and sensitively intervening to provide further opportunities to make connections where appropriate

The cocoa powder is not really mixing in. It's a bit powdery in the water.

Activity 2: Testing other materials

This sand doesn't mix in!

It just doesn't like the water!

Try mixing it with cocoa, it might mix!

Stir it fast to make it mix better.

Blenders cut stuff up so tiny. I'm spinning it fast like a blender, make it like a smoothie!

Activity 2: Testing other materials

Vinegar, it's got acid in it.

Our potion has a lot of gas, gas is very fizzy!

Yeah if we add more vinegar it will grow right to the top. I think because it's got lots of gas.

What will make it fizz like a bath bomb?

Through their talk children were able to make connections between certain liquids, their properties and the reactions that can be made.

Activity 2: Testing other materials

We mixed all of our chocolate fizzies together and it exploded!

Too much acid!

Watch it swirl underneath, you can see it better.

Fabian: The tea leaves didn't dissolve. Ok we've got very thick bubbles!

Leo: It's bubbling, it's growing! What makes it bubbly, vinegar or tea? Add more water, see if it gets bigger..... The tea still didn't mix in.

Matilda: The salt mixed in. Tea made it smell like candies!

Leo: The water has gone green! I think that's dissolved my mixture because it's made it all bubbly again (has combined his mixture with Alice's).

Developing the Learning Journey: Activity 3
'Aromatherapy'

Rationale: I followed up the sequence of activities by prompting further dialogue and linking to home knowledge and experience. For example, one family have a background in homeopathy and aromatherapy.

I provided essential oils, olive oil and water, fresh and dried herbs, and pots and sticks to mix 'lotions and potions'. The children were able to choose ingredients freely, with adult support given to dispensing essential oils due to their strength. It was evident that their prior experiences of exploring and talking together enabled the children to make connections in this activity.

Having mixed together a potion a child decided, without any provocation or adult input, to pour it into the water tray. The child commented “it’s making swirlies on the water; it looks like it’s running away”. Reuben, who had previously been involved with Alice in attempting to mix the hydrophobic sand with water, commented “I think oil doesn’t mix with water you know!” Children continued to build on each other’s ideas through collaboration and to make connections throughout the activity.

Prior experiences of exploring and talking together enabled the children to make connections

It’s making swirlies on the water, it looks like it’s running away!

I think oil doesn’t mix with water you know.

Reflections: Children's progress

-By initially providing the bath bomb (based on one child's interest stemming from her birthday present) several children were motivated to take initiative, participate and became engrossed in playful exploration.
-Emergence of a learning sequence linked to children's ideas and home experiences proved motivating. For example, by providing adequate time and 'bath bombs' , Alice became highly involved and engaged, and 'wallowed' in her learning. Both she and several children voiced new ideas and discoveries.
-Unexpectedly a much younger child made the comment about adding spices to add to make the mixture stronger, compared with previously when she did not seem so confident to share her ideas with others. Through working together, making connections and voicing their thoughts, they developed their creative dispositions.

Reflections: Teacher role

-I sought to develop the children's creative thinking linked to science by providing sufficient time for them to 'wallow', think, ponder and wonder over what they experienced.

- I was able to extend and develop children's ideas through sensitive interventions at the appropriate time, for example when Alice and Reuben were encouraged to further test the properties of the hydrophobic sand by taking it out of the water and instead pouring water over it.

-I used explicit scientific language when the children involved me in their talk and discussion and modeling this vocabulary through my prompts, as well as through asking thought-provoking 'what if…' questions to develop their ideas and extend their learning.

-I ensured that I profiled and really celebrated the children's voices and ideas by drawing other children's attention at the time and then following up by including ideas and children's creative thinking within the 'floor book' I began.

- I made creative dispositions and synergies explicit to parents.

Classroom environment

Rich resources linked to children's home backgrounds and their previous interests and experiences

Scientific exploration area with scientific provision that can be explored independently

Regularly changing provision demonstrating respect for what the children want to know and test

Space to wallow and tinker

Next steps for teaching and learning

-To create ‘request’ slips for children to suggest resources they would like to have included in our independent science provision enabling them to take some ownership and responsibility.
-To develop our ‘reflection floor book’ in order to promote dialogue through reflecting upon scientific play and experiences.
-To run a parent workshop to make scientific learning explicit to parents and to highlight the value of play, exploration and dialogue.
-To foster parental contribution by developing science-based exploration prompts and resources (for example scientific story sacks or lending resource kits) to enable children to further develop understanding at home.

Reflection questions for the reader

How could you provide enough time and space within your science curriculum for the children to ‘wallow’, wonder and ponder in their playful exploration?

Where, when and how could you use one child’s prior interest to develop a learning sequence with a scientific focus?

In what ways do you capture and record the essence of children’s creative thinking and ideas through listening to their talk?

Continued Independent Science Provision

I have set up independent science materials for children to access as part of the continuous provision we offer. I envisage that this will continue to develop as a regularly changing area for scientific exploration which would demonstrate respect for what the children want to know and test, which will encourage children to explore, talk together and provide the space to wallow and tinker. So far the materials are as open-ended as possible to enable the greatest range of use, including:

pipettes, funnels, measuring jugs, spoons, pestle & mortar, garden herbs, filter paper, magnifying glasses, feathers, shells, leaves, petals...

Acknowledgements

Creativity in Early Years Science EDUCATION (2014-2017)

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