

Learning Journey: The Life Cycle of a Frog

Age group: 4-5

Learning activities:

Questioning, communicating explanations, making connections, gathering evidence, designing and planning

Creative dispositions:

Motivation, ability to make connections, curiosity, thinking skills

Synergies:

Questioning and curiosity, teacher scaffolding and involvement, reflection and reasoning

Background Information

School setting: Inner London

School policy for science: Using the 'Big Ideas' of science as a starting point for planning and to promote open-ended learning activities

Curriculum links: (from Development Matters for children aged 0-5)

- Looks closely at similarities, differences, patterns & change. [Understanding of the World 40-60]
- Children know about similarities & differences in relation to places, objects, materials & living things. They talk about the features of their own immediate environment & how environments might vary from one another. They make observations of animals & plants & explain why some things occur, & talk about changes. [Early Learning Goals]
- Finding out and exploring, Being involved and concentrating, Having their own ideas, Making links, Choosing ways to do things [Characteristics of effective learning]

Setting the Scene

Focus

The focus of this project was to develop children's curiosity and motivation to promote children's abilities to make connections and build on prior learning.

Rationale

The children are motivated and enjoy playing and exploring. I wanted to build on my role as a teacher to support them to make connections and develop their thinking skills. I wanted to design the learning around the children's interests and ideas to maintain their motivation and ownership of the learning, paying attention to my role in teacher scaffolding and involvement. I aimed to do this through planning a sequence of activities linking to our topic, building on what children already knew, and providing experiences to make links and extend and consolidate learning.

The implications for my planning and teaching

I needed to ensure planning could be flexible to build on each activity, while allowing time for assessment to determine what the next learning activity would be and my role in it, as well as ensuring materials and resources were available in the time frame. Grouping was also relevant for ensuring children had opportunities to share ideas and communicate explanations and I encouraged collaboration and strengthened their ability to work together and remain motivated.

Outline of learning activities and resources

Day 1: During our Minibeast topic, I shared finding frogspawn in my pond. I followed this with a whole class story activity reading the Teeny Weeny Tadpole.

Children's responses: Children want to keep the tadpoles. Some don't believe the tadpoles will grow into frogs.

Day 2: Children set up a tank with the newly hatched tadpoles in the classroom referring to books on how to care for them.

Children's responses: Children are motivated to observe and ask questions about how the tadpoles will change.

Days 3-5: Children make observations and photograph the tadpoles and watch videos of tadpole development on YouTube.

Children's responses: Children engage with activities through **continuous provision** making connections and sharing ideas.

Days 5-6: Children represent the life cycle of a frog in different ways including drama, modelling, bookmaking and sequencing.

Children's responses: Children identify the need for a different habitat for the froglet.

Day 7: Children apply their understanding of frog development to adapt the habitat ready for the new froglets.

Children's responses: Children apply knowledge and understanding to different minibeasts.

Day 8: Children apply their and knowledge and understanding of various British minibeasts to classify them by habitats e.g. water, land.

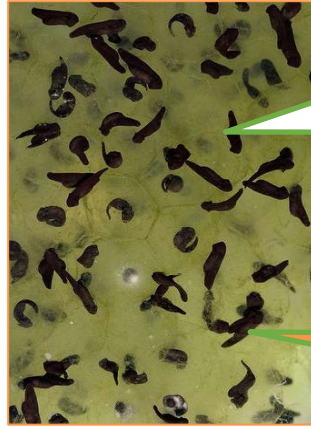
Developing the Learning Journey

Starting Points

Activity: What is Frogspawn?

As a class we looked at frogspawn I had found and discussed what it might be.

Child : It looks like jelly!

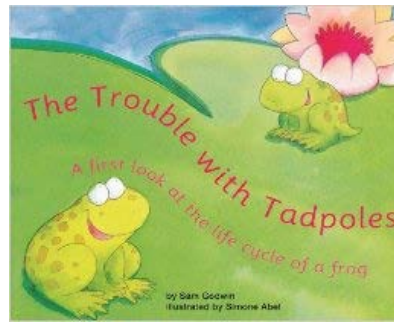
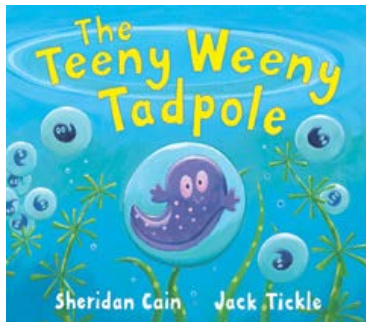


Teacher: I wonder what this is I found in my pond?

Child: How they gonna grow legs?

Photo 1: Looking at frog spawn

We found and read two stories about tadpoles that we had in our book corner then talked about how our eggs might hatch and change. The children made predictions about the eggs/tadpoles based on the books.



Children: It's going to grow back legs then front legs then be a frog.

Photo 2: Story books

Rationale

The purpose of these activities was to motivate the children and to foster curiosity and their ability to make connections between the stories, what they could see and predict what would happen next.

Children's responses

Children were curious and motivated to look after the tadpoles and to draw on their knowledge to give the tadpoles what they needed to grow.

Reflections and implications

I felt it would support children's understanding and ability to make connections if they decided how to set up a suitable home for the tadpoles.

Developing the learning journey

Activity 1: Setting up the tank

A group of children who were highly interested in the frogspawn volunteered to make the tadpoles a home. They used magnifying glasses to look closely and iPads to record the tadpoles.



Child: They need some food. What do they eat?

Child: They got gills you know that's why they need water.

Teacher: I wonder what the tadpoles will need to grow into frogs?

Photo 3: Children making observations

Rationale

The purpose of this activity was to involve the children in deciding the learning activities and encourage thinking skills. I was able to move the learning on using adult scaffolding and questioning to extend the children's thinking and to encourage them to gather evidence using non-fiction books and iPads for research and recording.

Children's responses

Children were curious and motivated to find out more. They returned to observe the tank once it was set up and to share ideas with their peers and to observe tadpoles more.

Reflections and implications

I needed to ask questions to promote thinking, and modelled making observations to encourage children to voice theirs: "What are those stringy bits?"

The children thought that the larger tadpoles were the parents and I felt the children would be motivated to observe over time and gathering evidence would develop their understanding and ability to make connections between what they had observed and their knowledge of the lifecycle of a frog.

Activity 2: Observing the tadpoles

Children used different equipment to look at the tadpoles and discussed in small groups what they noticed. I provided children with non-fiction books to refer to the stages of the life cycle.

My role was to scaffold learning by modelling making observations and posing questions that made children think about the cycle and changes: "I wonder why the bigger tadpole looks different."

Child: It's so small. I can see it has got two eyes and no legs. It's like a tiny fish.

Child: I can see the frilly gills on their heads.

Teacher: I wonder how the tadpoles will look next week?



Child: It has a long wiggly tail. It's moving so quickly!

Photo 4: Children making observations

Rationale

The purpose of this activity was to develop observation skills, curiosity and to make links with what they had learnt from the previous learning activities, such as the stories, discussion and from noticing change.

Children's responses

Children observed features they had heard about and seen on videos. They made links between the stages of the life cycle e.g. noticing the tail size, external gills and amount of legs.

Reflections and implications

Children were engaged for long periods of time and interested to the stage of the tadpole/frog. I planned practical and motivating ways in which children could consolidate their understanding of the life cycle of a frog and provide opportunities for assessment.

Activity 3: The Life Cycle of a Frog

Children sequenced the life cycle of a frog in different ways, through model making, sequencing and through role-play during adult focus groups and continuous provision during free-flow. We found activities that allowed children to represent their ideas and draw together and make sense of their experiences while the tadpoles had time to develop.

Photos 5-8: Children use role play to model the life cycle of the frog



Teacher: How could you be an egg?!



Child: These are my gills.

Child: Now I'm getting legs. Back legs then front legs.



Child: First they are eggs, then the tadpole comes out, then they grow legs and then they're a frog!

Photo 9: Models of life cycle

Photo 10: Children sequence the life cycle

Rationale

The purpose of these activities was to encourage children to make connections between what they had observed and what they had learnt about how frogs change and to communicate their ideas in different ways through accessible activities that motivated and engaged them.

Children's responses

The children realised that when the tadpoles became froglets they needed to breathe air and get out of the water.

Reflection and implications

At this point the children were motivated and had their own questions and were leading their own learning and I was able to give ownership to the children.

Activity 4: Preparing for froglets

The children made changes to the froglets' environment, applying their knowledge that frogs breathe air to creating a suitable habitat for the tadpoles and the froglets to survive.



Child: We got to take out some of the water.

Child: We got to take out some of the water.

Teacher: I wonder what we need to change so that our tadpoles and our froglets can live in the tank.

Photos 11 and 12: Children modify the habitat for the froglets



Teacher: Maybe we need something that doesn't float. What do you use to get out of water?

Child: It needs something to stand on to get to the air. We can put something in for it.

Rationale

The purpose of these activities was to provide resources and opportunities for the children to take control and answer their own questions. My role was to support them by offering suggestions and asking questions that promoted thinking skills, when solving problems they had identified themselves, and making connections with what they had learnt about the anatomy of frogs.

Children's responses

Children used trial and error, but needed suggestions from me to move them such as finding materials that were waterproof or that would enable the frogs to climb onto.

Reflections and implications

At this point the children were confident in their knowledge of froglets, and were designing and planning their own investigations from their questions. The activity highlighted gaps in their knowledge of materials and next steps for planning.

Continuous Provision and follow up activities

Activities for independent learning:

- Minibeast sorting by habitat
- Pond habitat sensory play
- Pond life observations



It's still a tadpole, it needs to live in the water.



This one can live on the land and in the water. It's 'amphibenum'



I can see his mouth. He is eating the cucumber!

Photos 13 - 17: Examples of activities set up in the classroom

Rationale

The purpose of this activity was to provide opportunities for children to make sense of what they had learnt and to apply knowledge and scientific skills, make connections, promote curiosity, inquiry and questioning during child-initiated learning.

Reflections and implications

It was difficult for the children to know what might be in a pond without seeing and experiencing one. While children remain interested we will continue to follow the changes in our tadpoles and hopefully take a trip to a pond to release our frogs! The children will have opportunities to gather evidence, follow up on their own questions and lines of enquiry across the topics this term.

Overall Reflections

Children's progress

Child 1: Dania was interested in science, but needed to support to apply her knowledge and to make links. By building her understanding of how to gather evidence and her confidence to question and make connections she was motivated to build on prior learning and to work with and share her discoveries with others.

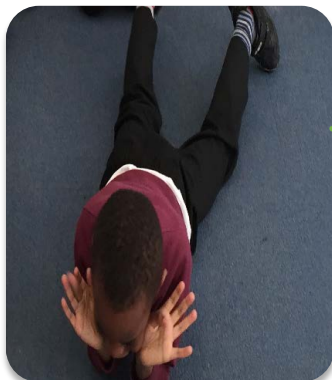


Dania: Why is it eating the cucumber?

Dania: It doesn't have gills now so it needs to breathe air like people.

Photo 18: Dania making observations

Child 2: Moses was enthusiastic and the nature of the activities enabled him to make connections between the learning activities and to demonstrate his understanding in different ways. Moses could explain his knowledge and knows ways to work scientifically to find answers to his questions.



Moses: It has the gills outside, but then they go inside, then it gets to breathe air and can't breathe under water.

Photo 19: Moses models the life cycle of the frog

Child 3: Machel made predictions based on facts he had learned and his own ideas. He was able to find theory to support and explain his ideas and build on prior learning. Machel is able to apply his skills in inquiry and working scientifically to different projects for example gathering evidence and designing his own investigations.



Machel: If we take out $\frac{1}{2}$ the water they can still swim and eat, but it can get out and breathe the air as well.

Machel: The frog lays eggs then they will grow and make a frog again.

Photo 20: Machel in the classroom

Review of children's progress

- The children were motivated in all aspects of the activities. Particularly later on when the children took ownership of the learning sequence and decided what they wanted to do next.
- The children became increasingly confident, building on knowledge gained from each activity, to make connections and to plan their own investigations. For example, children were able to make predictions and demonstrate their understanding of the life cycle of a frog.
- Throughout the learning sequence children were asking questions and finding ways to problem solve... "They need to get out to breathe the air... We can make them something to climb onto. It needs to float."

Learners were so interested in the topic it was difficult to plan and resource activities quickly enough and to work with the volume of children that wanted to take part. I was surprised by some of the children that wanted to be involved and also at the groups of children that were brought together through their enthusiasm both for learning and to share their ideas and collaborate with others.

The children understood they knew more facts about animals and understood that animals change like people do.

Evidence that children had acquired new knowledge:

Children's statements:

I wonder how big it's gonna get.

I didn't know that a baby frog was a tadpole!

Is it going to talk when it's bigger? My baby doesn't talk yet.

Can we get some more?

Teacher role

Overall my role was to be a learner alongside the children, being involved and scaffolding, sharing my ideas and knowledge as they did their own. Showing my own motivation and exploration, commenting and asking questions together helped build the children's understanding of what was expected in the activities and gave them confidence in what they did and said. Genuinely being curious and sharing in enjoyment, dialogue and collaboration as a learner myself provided a stimulating and equal learning environment. I learnt how to use questioning to keep learning going when children become stuck, while guiding the learning sequence, while the children remained ownership over key aspects. Using play and exploration as a key tool for investigation meant that the learning activities were inclusive for to children at different stages of learning. Keeping focus children in mind I needed to monitor children's observations and ideas and act on these as quickly as possible to maintain the learning momentum.

Continuous assessment on what the children have said and the way in which they work was vital to link to the various different curriculums we are working from (Development Matters, EYFS, Framework, Big Science Ideas) and plan for next steps. To ensure I was extending learning it was important to have a strong subject knowledge. In my case our whole-school policy to teach from 'The Big Ideas in Science' provided insight into the bigger picture and the ideas and scientific skills we are trying to teach rather than facts.

Next steps for learning and teaching

Based on evidence of learning I will continue to discover alongside the children following their interests and questioning to promote deeper thinking and enquiry. The more modelling of scientific questioning has increased children's ability to question and confidence in planning and carrying out their own investigations and their ability to collaborate, discuss and explain their findings.

Reflection questions for the reader

How do you stimulate children's interests in science?

In what ways do you encourage children to communicate their ideas?

What opportunities do you provide for children to reflect on their learning?



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