

Curriculum Materials Learning Journey On the go



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Learning Journey

On the go

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Setting the Scene

Focus

The focus of this project was to promote agency and ownership of learning by following the children's ideas. The impact I wanted to make was higher levels of motivation in creative science learning by providing opportunities for children to explore their own questions and therefore solve problems.

Rationale

The children in both of the classes already enjoyed having their own ideas and I wanted to further this level of agency by providing time for developing these and answering their own questions. They are good at sharing their ideas but I wanted to foster more questioning and motivation by encouraging the children to lead their own science thinking, both through exploring naturally and designing their own investigations.

The implications for my planning and teaching

Our original plan for this sequence of learning was to explore motion and friction, but by providing the children with agency we developed deeper understanding and a longer sequence of learning.

Aim:

Exploration of how problem solving and agency are increased through child-led questioning and how this impacts on motivation

Links to CLS Framework

Learning activities: Questioning, designing and planning investigations Creative Dispositions: Motivation, sense of initiative Synergies: Problem solving and agency, motivation. Contextual factors: Independent and Group work

Background School setting: A small village school with mixed year group classes.

Age group: 4-7

Curriculum links: (Science curriculum) Pupils should ask simple questions and gather data to help them answer these.



Overview of Learning journey

Starting point: Creation of the 'I wonder... book" to encourage children questioning and to acknowledge their questions that are later followed up into action

Children loved this - it was a special book and their ideas and auestions were recognised

> earning activity 1: **Free exploration** Children were invited to bring in their own wheeled vehicles to ride on and naturally explored different speeds

> > Children frequently browse and add to our Question book

Learning activity 2: **Ramp experiment A** Children were invited to race the toy cars and find the fastest so I introduced t he ramps so they could explore for themselves

Children already demonstrated lots of scientific knowledge about vehicles (e.g."light", "heavy", "fast", "powered"). They asked many questions which I captured. I knew I could follow their leads

Learning activity 4: **Encouraging reflection**

I asked the children to go back to their original questions and ideas and think about whether they could respond to these using what they now know

Children were happy to see that they can now answer their questions

Children are motivated to race their cars and they make many predictions and pose many questions

Learning activity 3: Ramp experiment B I introduced the children to a range of materials and let them investigate them themselves.

> Children decided what surfaces they were going to test and why. They draw conclusions

My original starting point

Rationale: The children in my class (4-6 year olds) struggled to form their own questions and so I planned to model and profile questioning.

I discovered that sticking to 'I wonder...' questions and modelling, the children were able to express their ideas more easily as a question.

Activity: From this, I created the 'I wonder...' question book which later developed into a record book of all our questions. The children loved this – it was a special book and their ideas and questions were recognised. We have returned to this several times to promote reflection, they are aware these are their questions which they've followed up into action and this has promoted their agency and a sense of ownership of learning. This has advanced their thinking skills and capacity to ask questions and has been highly motivating. 'We wonder if bricks will make it strong?'



Sophia followed her original question and used bricks to make her house



Developing the Learning Journey: Activity 1 Free Exploration



Once back in the classroom, the children compared toy cars and talked about the different sizes and wheels. "Some toy cars have metal wheels, some have plastic ones." (Penelope)

Next I needed to think about how to gather initial ideas and questions the children have.

Luke told me "The harder I pushed on my scooter, the faster I was going".

Activity 1 – Free exploration

I invited the children to bring in their own wheeled vehicles to ride on. They played on them and naturally explored dif ferent speeds, how their vehicles worked , how their vehicles differed and more When we got back to the classroom, they were so motivated to share their ideas and talk about their wheeled vehicle.



Scientific ideas about the vehicles such as 'heavy', 'light', 'fast', 'powered' arose.



Capturing children's initial ideas and questions



Developing the Learning Journey: Activity 2 Ramp Investigation A



Activity 2 – Ramp investigation A I started by sharing with the children their initial ideas/questions so that they had a focus and then we let them test for themselves the cars on the ramps. I wanted the children to be responsive and reflective and be agents of their own learning. The children were very excited to race the toy cars and find the fastest, so we introduced the ramps so they could explore for themselves.



We wanted to keep them motivated, whilst providing the opportunity to problem solve.

Activity 2: Ramp investigation A Reception children's ideas and questions



"I think the shiny one will go fast because of its wheels" (Penelope)

"I would put the blue car down. I would test if it goes faster or slow" (Ronnie) "I think I will drive it there and check where it lands" (Lucas)



Activity 2: Ramp investigation A Year 1 children's ideas and questions



Activity 2: Ramp investigations A Year 2 children's ideas and questions





Activity 2: Ramp investigation A

I tested the ramp at different heights to see what would happen.

The children loved testing different cars! As their teacher, I observed that they were more confident and much more willing to 'have a go'. I had allowed them to follow their own ideas which not only promoted agency and motivation but it really impacted on their confidence – they knew what to test and why they were testing it.

I tested different cars to find out which was the fastest.

Now we developed our ideas further by designing a different investigation



Developing the Learning Journey: Activity 3 Ramp investigation B



Rationale: The first experiment was such a success that we decided to try a different one.
Activity 3 – Ramp investigation B: I introduced the children to a range of materials and let them investigate them themselves. For this investigation, the children decided what surfaces they were going to test and why. As the children really enjoyed this activity, I left the ramps and materials out for days! They explored these in so many different ways – they even created their own ramps out of wooden blocks!

In order to keep the children motivated and still promote problem solving and agency, I decided to let the children choose what materials to test and how to test it.



Now the children can continue to be agents of their own learning by choosing what to test and how.

Activity 3: Ramp Investigation B

It was interesting to hear the conversations the children had as we discovered some misconceptions, such as: 'fur will be fast because it is soft' (RP). I was able to record these misconceptions which may have otherwise been missed and this was achieved by allowing the children to follow their own ideas which also helped to develop problem solving skills.





"I think fur will





the second se

Date: 10-Feb-2016



Aspects contributed to by this experience:

Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.

Notes

RS

Observed by

Collaborating to build ramps to put cars down.

Learning throughout the process

Here are some examples of how we evidenced learning throughout the process. These are examples show how how we evidenced independent, childinitiated learning in Reception and linked it to statements from EYES: **Development Matters.**



"It goes better because it is more smooth." Observed by

Science Curriculum: Pupils should ask simple questions and gather data to help them answer these.

Activity 4 – Encouraging reflection I asked the Year 2 children s to go back to their original questions and ideas and think about whether they could respond to these using what they now know.

This is an important part of the National Curriculum in Key Stage 1 – Working Scientifically, as the children need to be able to ask questions, recognise that they can be answered in different ways and gather evidence to help them answer these questions.

By asking the children to reflect on their original questions, they were enabled to be agents of their own learning and this helped me to gauge the impact of the learning journey activities.

Developing the Learning Journey: Activity 4 Encouraging Reflection

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Why do small cars go faster than big cars? 19.1.16 because they are tutting lighter. 2.2.16

The children need to apply what they have learnt by designing and creating their own moving vehicle.

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Reflections: Children's learning

My Original Aim: To promote agency and ownership and have an impact on motivation.

My focus: How is problem solving and agency increased through child-led questioning and how does this impact on motivation?

Outcome: As the learning journey progressed, the level of agency and motivation increased; children were following their own ideas and they developed the ability to reflect on what they had done. The children were more focussed in their learning – their ideas and questions always related to the learning and this developed.

Unexpected Outcome: The children were much more confident and enjoyed following their own ideas.





Children's progress

The serfis Smoot can go De Sast some cars dond! 19.1.16 2.2.16

Hattie (7 years old) A learner with lots of curiosity who has really enjoyed the opportunity to follow her own ideas. Hattie has thoroughly enjoyed exploring her own scientific enquiries and being allowed the opportunity to solve her questions. The level of agency provided in open-ended scientific experiments has motivated her and allowed her natural curiosity to develop her knowledge and understanding further.

because it built L.A.W 2.2.16 19.1.16

Luke (7 years old) A logical learner who thinks carefully in science lessons. He is now more confident and motivated to take his learning further. Luke showed determination to find out the what, why and how. He was able to reason using scientific knowledge and explain what happened well, particularly when comparing the suitability of everyday materials. He is **now** more comfortable with working collaboratively.



Sophia (5 years old)

A learner who is good at explaining her thinking. She is now much more motivated and her agency had improved her level of concentration. She has worked well alongside others and was able to communicate and explain what was happening, noticing changes and discussing these with others. By encouraging her to have a go herself and allowing her the opportunity to decide how/what to investigate she had a higher level of agency which motivated her to focus.

Children's progress

Here is an example of progression seen in observations of Sophia (5 years old) from October 2015 to April 2016:

Sophia Oct 2015 – "The ball is rolling down".

Sophia Jan 2016 – "Why do cars go faster when the ramp is higher?"

Sophia Apr 2016 – "How hard will eggs fall when the egg box is lighter?"



In **January 2016**, she was already developing her questioning skills by asking 'why' questions.

In **April 2016**, she was frequently asking questions and some were of a higher level and more detailed 'how' questions.

This evidence of creativity has demonstrated Sophia's continuous development throughout the Learning journey



What the children thought about the question book...



Reflections: Teacher Role

Important aspects of my role included:

- Question modelling
- Question book
- Stepping back
- Directed questions
- Observations and photos



Classroom Environment

- The question book was displayed in the classroom for children to independently access
- We had exploration corners linked to the science lesson with resources, pencils and post it notes





Next Steps



- I would like to develop a 'floor book' which incorporates the children's questions but is child friendly and includes photos, quotes and observations
- I would also plan more independent investigation time which can be used for children to follow their own ideas and questions
- I am still concerned that a small proportion of children, particularly those in reception, still do not voice their questions so I will need to continue modelling questions clearly.
- I would continue to develop exploration corners where children can record ideas and questions in a setting linked to the science learning

Reflection questions for the reader

- How could you improve the motivation of your children in science?
- In what ways could you encourage your children to voice their questions?
- Are there areas in your classroom which allow the opportunity for independent learning? How do they promote this?



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