

Ballantrae Primary School



Explorify and its impacts

About Ballantrae Primary School

Ballantrae Primary School is a rural school in South Ayrshire, Scotland. It has 63 pupils between the ages of 3 and 12 years old. An Education Scotland inspection in late 2017 rated the school as “Very Good” in three indicators of the inspection framework and “Good” in one indicator.

The school is in the third year of a Cluster Schools Science Project, with continuing professional development (CPD) provided by the Scottish Schools Education Research Centre (SSERC). The project aims to improve staff confidence and competence in teaching Science, Technology, Engineering and Maths (STEM) education, and provide pupils with STEM skills and knowledge they can continue to use throughout their lives.

How science is led and taught at Ballantrae

The Head Teacher leads both the science project for the cluster and science within Ballantrae, and advocates for improving science resources and teaching throughout the school. Following a break in the delivery of the science project due to the pandemic, leaders are focussing on science which features as a key priority in their school improvement plan for 2020/21. Teachers completed some CPD with SSERC during the lockdown and leaders aim to continue developing staff and implementing new ideas and techniques in the next academic year.

Further to CPD delivered as part of the science project, the Science Leader used lockdown to research and trial science resources such as Explorify, which was subsequently introduced to teachers during the pandemic.

Ballantrae typically teaches science in ‘blocks’ with one topic per afternoon each day for a week resulting in coverage of between four to eight science topics per year. This approach ensures continuity of learning and encourages a more in depth look at a subject. It was not expected that teachers covered science during the lockdowns although this may have been covered indirectly as a result of their focus on refreshing prior learning and research. This was a deliberate decision by senior leaders not to add to the significant pressures being experienced by both teachers and parents during the pandemic, resulting in less science taking place.

“I don’t feel I’ve done as much science as I would have normally throughout the year, just due to the lockdowns and not putting added pressure onto the parents. I think probably the breadth of experience has been affected by lockdown as well. But I’m hoping that, because of the focus that were putting in next year on science, that the gap will lessen.” (Principal Teacher)

Teachers overcame various challenges during the pandemic. Resources were scarce when teaching remotely. It was difficult to undertake science investigations and experiments with less equipment available at home and children did not always engage with the lessons. Some teachers and pupils were also experienced problems with connectivity due to the rural area in which they live. However, despite these, teachers quickly adjusted to using Teams for remote learning. The Science Leader gave staff time and space to adapt to the new ways of working and was understanding of the difficulties they faced, making them aware of the support available.

“Just giving staff time and space, but also working within a supportive collegiate environment; taking that step back and as a leader saying this is new to us, we just need time to get our heads round it.” (Science Leader)

As a result of some of these difficulties teachers turned to resources such as Explorify and the natural world around them in the home, garden and local area. This approach to science learning continues within the school. Subjects like lifecycles, biodiversity and air quality lend themselves easily to this approach.



How Ballantrae uses Explorify¹

Further to the science project, Ballantrae is currently embedding Explorify in their curriculum. The project not only advocates the use of Explorify but runs sessions where teachers can learn how to best use it in their teaching. All teachers are expected to use the resource regularly in science lessons in the next academic year.

Teachers mainly use Explorify as a starter to a new topic or lesson and to gauge pupils' prior knowledge. Explorify videos further enhance lessons. For example, the video showing a barn owl in flight is useful to show how their feathers adapt, bringing the subject to life and helping pupils understand key concepts.

"I love the odd one out because there are no right or wrong answers there, and the children do get really engaged, and you learn a lot about what the children's knowledge already is about the subject before you then carry on with the science activity. And because it is short, sharp, you know, interesting, focused, the children really enjoy them as well." (Science Leader)

By listening to the vocabulary pupils use, the ideas they have and the questions they ask, teachers assess their level of understanding about a topic and identify areas where pupils need help.

Pupils engage with science quickly when teachers use Explorify and find it fun and exciting. Teachers find it opens debate and children are more likely to ask questions and continue discussions.

The school is placing more emphasis on the skills pupils are developing in science which represents a shift from a previous focus on acquiring knowledge. Explorify is being used more to encourage questioning from the pupils, a key skill they can use across the curriculum.

What works well about Explorify?

Teachers most commonly use the *Zoom In Zoom Out* and the *Odd One Out* activities as they are effective at engaging children because pupils find them interesting. They are especially useful at the start of a lesson to spark interest and encourage pupils to talk about the subject, fostering a culture of enquiry in the school.

Teachers like Explorify because they can search for information on any topic they are covering quickly and easily. The resource is child friendly and encourages pupils to challenge ideas and develop creative thinking. Pupils do not just accept something as true – they are encouraged to prove it. More independent learning is emerging as Explorify generates discussion and encourages pupils to consider different possibilities. Also, pupils are more willing to independently study topics further because there is less fear of being wrong.

Impact of Explorify

Impact on teachers and the school

Explorify, alongside the CPD being delivered by SSERC, has significantly increased teachers' confidence in science teaching, especially amongst those with little or no previous experience. The resource helps frame a lesson and gives them the tools and content they need to deliver it in a child focused way. It helps to refresh prior skills and knowledge, and provides teachers with a resource that they can draw upon to find the information required to teach science effectively. Teachers describe how pupils' enjoyment of the lessons further impacts on their confidence and encourages them to continue to use Explorify in class.

"As a primary teacher who has no scientific knowledge it certainly really gives me the confidence to talk about either dynamics and thrust and force and these kind of things because it's not relying on my knowledge; it's a resource that is created by knowledgeable science people." (Science Leader)

Teachers report an impact on their own ability to ask the right questions, develop the discussion and steer the debate with questioning. They seek to reinforce and review the learning that has taken place by asking questions before, during and after a lesson. Explorify is helping them to develop these skills further.

"I think it's really focused me on the question... beginning, during and after which has been really good.....and [sometimes] the actual questions to ask it has really helped that way." (Principal Teacher)

¹ For more information about Explorify please visit: <https://explorify.uk/>

The pandemic has encouraged teachers to explore Explorify and get to know the resource and what it can do in detail. This opportunity to get to know the website has made them realise how valuable it is as a resource, and it will be further explored in SSERC meetings and CPD over the next term.

“It's easier to put it to the side as a teacher and think I'll come back to that and get it when I've got time. But, yes, the pandemic has given me an opportunity to get to know that website much better, that resource much better and just to realise just how valuable it is”. (Science Leader)

Impact on pupils

Teachers report various impacts on pupils emerging from the use of Explorify in schools. Pupils are more observant and demonstrate a greater ability to explain what they are seeing. With this comes confidence. They speak up more in class and say what they see and think rather than keeping it to themselves. Pupils take more responsibility for their learning as they are confident in their opinions. By questioning, they take subjects in different directions. Pupils are engaged in lessons and think about how they can improve.

This is impacting on boys in particular who are engaging in topics – especially those of personal interest to them – and developing their ideas beyond the initial lesson. For example, a group of boys were enjoying a lesson on the Mars Rover and began to make their own rover as a direct result of the lesson. Explorify is igniting interest in science amongst pupils and inspiring them to take science further.

“That really engaged a lot of boys.... who then went on to try and work out how they could build their own [rover] using the [resources] in the classroom and [they thought about] how they would be able to power it. So yes, it got them really involved.” (Principal Teacher)

Explorify successfully challenges pupils' stereotypical perceptions about the characteristics of scientists, encouraging them to recognise that scientists are all around us and widening their view of the world. They have an enhanced understanding of the different types of scientists that exist and what they do which is opening pupils' eyes to the types of jobs they could potentially do in the future.

“The kind of mad scientist in a white coat, with frizzy hair and glasses, the stereotypical scientist, that is their view of science, and inevitably male. Explorify widens their view of science in the world. It also shows them opportunities for science in terms of work... when they leave school, here's opportunities, this is where science actually happens. Science in food, science in cosmetics, science in animals, all those sorts of things.” (Science Leader)