



INVESTIGATIVE FRAMEWORK :

Further Guidance on our 6 STEPS for Teachers

1

What is your class question?

Generating an “investigation question” is an important first step. Teachers sometimes express concern about finding an investigation that will “work” or be “good enough” to present to the ESB SCIENCE BLAST judges. We really can’t emphasize enough: **it’s the learning journey, and not the destination, that counts.** Our judging process is non competitive and simply provides the children with an opportunity to show what they have discovered. Our Judges are looking to give additional advice and communicate their enthusiasm for STEM learning.



New to ESB SCIENCE BLAST? We have two key tips for getting you started with finding a question...

Tip 1: Familiarise yourself with the core educational aims of ESB SCIENCE BLAST

Tip 2: Use our lesson plan templates as a guide to developing successful investigations.

What are the hallmarks of a great ESB SCIENCE BLAST investigation question?

We find that **the best investigation questions come from ideas proposed by the children.** Teachers may suggest a particular theme but try to avoid picking the question for the class. In allowing children’s ideas and interests to take centre stage you will achieve the best learning outcomes and levels of engagement. If you are new to generating your own science investigations then follow the suggested activities in the template lesson plan to help build your confidence and develop an approach that works for you.

Once your class settles on a question then **be prepared for it to evolve** over the course of the investigation! You may encounter limitations you hadn’t expected, or new areas of interest might emerge. That’s an expected and healthy part of the process. If you find a question that grabs the imagination of your class and has the potential to be explored through SAFE ACTIVITIES, you have the start of a great ESB SCIENCE BLAST project!

2

What is your class prediction?

When children are making scientific predictions you should encourage them to say **WHAT** they expect the answer to the question to be, **and WHY** they think that. Research has shown that children already hold lots of ideas (not always scientific ones) about how the world works and that science learning can be much more effective if you can bring those ideas out into the open at an early stage. Discussing or writing about predictions in this way will lay the groundwork for the next steps. **You may end up with a whole range of different predictions within one class.** That’s fine!



Predicting also has educational value because it mimics what real scientists do. In scientific research an initial question quickly takes the shape of a ‘testable hypothesis’. In other words scientists often design their investigations around a possible explanation of the problem they are working on. It’s a subtle but important feature of how scientists work.

INVESTIGATIVE FRAMEWORK : *Further Guidance*

3 *How will your class gather evidence to answer your question?*

If you've followed our lesson plan advice then your class will have already floated lots of ideas on **HOW** to answer your question. This step is about honing in on plans that generate activities, experiments or surveys that can actually be carried out by the children. Don't be afraid to enlist the ideas of parents and carers and lots of ideas can be found via YouTube, Google and the resources suggested on the ESB SCIENCE BLAST website.



Do not feel that a 'whole class investigation' means that everyone in the class is doing the same activity at the same time, in the same way. If you feel it is manageable you could assign different groups to work on different ideas or parts of the investigation. What matters is that the whole class brings all that evidence together.

The more evidence you collect from different sources, the better!

Teachers are often concerned that experiments may not 'work' as planned. Our judges would say that the best projects are not always the ones that go without a hitch. Investigating can sometimes lead to dead ends or throw up problems no one has foreseen. See these moments as an opportunity to problem solve and redesign, rather than a disaster. That's good science!

4 *How will your class organise information?*

How you present your information will very much depend on the work that you have been doing. You may have measurements from an experiment or the results of a survey to organise. All data should be brought together in tables and then you can discuss what kinds of simple graphs or pie charts might be created from it. Not all investigations will lead to graphs and some observation can be recorded on video, with photographs or through audio recordings.



5 *What do your findings mean?*

This is a point in the journey where your class pauses and reflects on whether the investigation has gathered enough evidence to answer your question. In reviewing the data you have gathered you may see new avenues to explore or ways to refine your experiments to get a clearer picture.



6 *How can you piece all your information together to answer your class question?*

To maximise the benefit of the ESB SCIENCE BLAST experience do not underestimate the importance of this last step. Your class can take this as the moment where they can compare their findings with their predictions. It is also important to get children to articulate the lessons that they have learned, and to ask; "if you did this again, what would you do differently?"

