

# SCIENCE GUIDANCE



You should enter your project into the science stream if your work focuses on investigation, discovery and use of the scientific method.

The below guidance is to help you present your project work against the judging criteria. The questions listed under each section are simply prompts to get you thinking about each step of your project, however it is in no way a checklist!

The main advice from the judges is for competitors to do their best and provide as much relevant information as possible. They also understand that recent restrictions may impact students' ability to fully complete their projects and will of course bear this in mind when judging projects.



## PROJECT OVERVIEW

A brief summary of your project.

This is the first time judges will hear or read about your project. Judges look for a brief but clear outline of your project aims and hypotheses, how you planned to achieve your project aims, your key results or findings and conclusions, and how your work may impact the wider community/world.



## PROJECT CONCEPT

What is your project aim(s) and objectives? Why did you choose this project?

This is the beginning of your project journey. Judges will look for a clear project aim(s), your reason for choosing this area to focus on, and an understanding of the wider impact your work may have on the world.

To get started, think about the following questions:

- What is the aim(s) of your project? What is the purpose of your project? What are you hoping to find out?
- What is your starting scientific hypothesis/hypotheses? What theory/prediction will you be trying to prove right or wrong throughout your work?
- Why did you choose to work on this topic? Who or what inspired you?
- Who could benefit from your work? What impact could your project have on the wider community/world?



## PROJECT PROCESS

How did you set out to achieve your project aim(s)?

Next, we want to know what steps you took to achieve your project aim(s). Judges look for evidence of background research, consideration of different approaches to achieve your project aim(s) and why you chose your selected approach, and an understanding of how you planned and organised your time.



To get started, think about the following questions:

- What background research have you done? What did you learn through your research, and how did this help you understand the topic your project focuses on?
- Has anyone else tried to answer the same question/solve the same problem your project focuses on? How are you going to do it differently, how does your project build on their work?
- Did your background research support the need for your project?
- What different approaches could you have followed to achieve your project aim(s)?
- What are the benefits and negatives of the approach(es) and methodology you chose?
- How did you plan to collect and evaluate your results? How will you know if your results support your project aims and hypotheses?
- How did you plan your time and organise your work? Did your tasks have a logical order? Did you have to work towards a deadline?
- If working as a team, how did you delegate tasks amongst yourselves? Who was responsible for what?



## **PROJECT OUTCOMES**

What did you find out?

It's time to tell us what you found out during your investigation. Judges will be looking for clear communication of results, an understanding of how your results support or challenge your project aims and hypotheses, your conclusions and how your findings impact the wider community/world.

To get started, think about the following questions:

(if you were able to carry out your project, please look at this section):

- What were your results?
- Discuss your results, were these the results you expected? Did you discover anything new or unexpected?
- Do your results support or challenge your project aims and hypotheses?
- What conclusions can you make based on your results?
- Having learnt what you have learnt, would you change your starting hypothesis/hypotheses?
- What impact could your results and conclusions have on the wider community/world?

(if you were unable to continue with your project as planned, please look at this section):

- Did you manage to do any small-scale investigation? What did this show?
- If given the time and resources in the future to further work on your project, how would you design and choose which methodology to use?
- If you had been able to complete your project, what would you have expected to see? Why would you have expected to see these results?
- What difficulties might you have experienced during the project process, and how would you have gone around these?
- What impact could your results have had on the wider community/world?



## **NEXT STEPS AND REFLECTIONS**

What could you do to continue building your project work? What did you learn about STEM project work?

This is the time to reflect on the work you have achieved so far. Judges will be looking for ways you can continue to build on your project work, things you might have done differently, what skills you feel you have developed and what you enjoyed.

To get started, think of the following questions:

- What did you learn whilst working on your project?
- What could you do to continue building on the work you have already achieved? What are the next steps to continue your investigation?
- If you could do your project again, would you change anything?
- Did you learn any new skills? (take a look at 'Personal skills' for some ideas!)
- Were there any aspects of the project that were challenging? How did you overcome any challenges?
- What was the most enjoyable part of the project work, and why?
- What advice would you give to someone who wanted to do STEM project work in the same field?



## **PERSONAL SKILLS**

Throughout your entry, judges will be assessing the following skills you may demonstrate throughout your project work. Judges will be looking for:

- Understanding and application of scientific method
- Clear and concise communication
- Enthusiasm and passion
- Evidence of innovation and creativity
- Problem solving and how well you dealt with challenges
- Teamwork and leadership (group projects)
- Independence and self-motivation (individual projects)

**GOOD LUCK!**

For more tips, ideas and resources, head to [www.thebigbang.org.uk/competition](http://www.thebigbang.org.uk/competition)

