

# HOW CAN AN INTERDISCIPLINARY ITE DAY SUPPORT STUDENT TEACHERS OF RE AND SCIENCE IN PLANNING AND COLLABORATION?



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This project is being funded by Templeton World Charity Foundation as part of a wider scheme of research titled Big Questions in Classrooms.

Although studies have explored school pupils' attitudes concerning science and religion, there has been little research on beginning teachers' experiences in their development and formation and not much is known about how big questions are framed in classrooms or the extent of teachers' experiences of the science/religion encounter. This project addresses the gap, develops informed responses for teacher education and finds some preliminary understandings of the impact of the use of that knowledge in teacher education programmes.

Find out more at: **[www.nicer.org.uk/science-religion-encounters](http://www.nicer.org.uk/science-religion-encounters)**



**TEMPLETON WORLD**  
CHARITY FOUNDATION



**BIG QUESTIONS**  
*in* CLASSROOMS

# HOW CAN AN INTERDISCIPLINARY ITE DAY SUPPORT STUDENT TEACHERS OF RE AND SCIENCE IN PLANNING AND COLLABORATION?

## Science Religion Encounters Toolkit 7

A collaborative day is an opportunity for beginning teachers to explore science/religion encounters

### INTRODUCTION

Two universities we spoke to had developed a collaborative day for science and RE secondary student teachers to come together and plan collaboratively around some big, overlapping questions.

There are new challenges in ITE, but how might we give beginning teachers, especially student teachers of Science and RE, opportunities to come together and talk about the topics they have in common?

#### **Acknowledgements**

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## TASK 1



### Guided conversation: Science ITE lead and RE ITE lead

- What are the perceptions science ITE students have of RE? What about RE students of Science? Are they accurate perceptions? What are they based on?
- How confident are your student Science teachers to talk about religion, or answers questions about religion in their Science lessons? How confident are your student RE teachers to talk about scientific topics in their lessons? What role could ITE courses play in developing that confidence?
- How might RE and Science student teachers benefit from developing a more accurate perception of the nature, purpose and content of the other curriculum? How might pupils benefit if Science teachers were aware of RE content, and vice versa?
- The nature of knowledge and ways of knowing are two trends that emerge from this research. How competent are your student teachers in making explicit to pupils the limitations of scientific knowledge or different ways of knowing? How/should they be supported in that?
- There are some big, important topics that appear on schemes of work for both RE and Science e.g. the Big Bang, evolution, .... How would pupils' understanding of such topics develop if Science and RE teachers were aware of what was being taught in the other subject? What role might ITE play in developing this approach?
- If you were to set up a collaborative ITE session between Science and RE, what would be the focus? How might your students benefit? What barriers and limitations would you need to consider? How might you ensure that developments were sustainable and that students ended the day wanting to plan further dialogue and collaborations?

## TASK 2



### 1. Scenario

One university ran a specific joint session for PGCE Science and RE students. PGCE students were interviewed there across two different cohorts. Students were unanimous that it was a really important session.

Groups were given a topic or controversial issue and tasked to work together to write a lesson plan. Focus groups were held with RE and Science PGCE students who had experienced this collaborative day across more than one year group.

Some of their perceptions of the session are reported below.

The changing ITE context means it may be more difficult in future to pull together two PGCE groups in this way, but those responsible for teacher education and early career teachers need to consider how teachers of Science and RE might be brought together to consider the topics they have in common and how they might benefit from dialogue or collaboration with one another.

### 2. Perceptions of student Science teachers

*The RE student ... said that she was religious and had come from a religious family. However she had quite a lot of scientific views. So she kind of spoke about how, in her opinion, different scientific views could interlink with some things in RE... So she said she was open-minded to different outcomes which was fantastic.*

*I mean for me I don't think it would change my view personally because my view would be particularly kind of like the science and what I've seen...*

*I personally was very wary of challenging someone's beliefs on a really fundamental level. Obviously it was partially what it was there for and partially to understand how they teach and how we teach and bring it all together. But it was quite nerve-racking.*

### 3. Perceptions of student RE teachers

*[The science teachers] struggled to see the purpose or the role of incorporating religion into their teaching strategy. I mean that could be really off the mark but just from the group I was with that just seemed to be the case.*

*I feel like they seemed a lot more set in their views in the Science bit than like we were. And I feel like we sort of, yes, saw the benefits of bringing their subjects into ours rather than them bringing ours into theirs. They didn't really seem to have a lot of knowledge about ethics at all.*

*The group that I had were actually quite the opposite. They very much wanted to talk to me about religion and how they thought that it was really important as part of science. So we got set the activity and we didn't really do it because we ended up just talking about religion and science for the whole time. But they were asking me loads of questions and they were saying how they think it's important that the two crossed over.*

# TASK 3

## 1. Collaborative Day: Resource 1 - Student Survey

Conduct the survey, collate results and share findings with the cohort.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Science explains things in one way; religion explains them in another.						
Religion and science both explain the origin of the world in different ways.						
Evolution is God's way of bringing species into existence.						
I believe science and religion are compatible.						
My family believes science and religion are compatible.						
It is possible to believe in God and still hold a view that life on Earth, including human life, evolved over time as a result of natural selection						

## 2. Collaborative Day: Resource 2 – possible lesson titles

Students were put into mixed groups, with student science teachers and student RE teachers in each group. They were asked to work together to devise a lesson which paid due attention to both science and religion.

### POSSIBLE TOPICS

- When genes do not determine what cells look like.
- Top-down and bottom-up effects in an ecosystem.
- Managing a new disease, such as bird flu.
- Dealing with ADHD.
- Do we have free will?
- The ethics of cloning.
- The race for space.
- Or your own idea...

### Resources for teachers on Science/Religion Encounters

Download a pdf of resources using the link below:

- <https://nicer.org.uk/docs/vignettes/resource-ideas-for-secondary-teachers.pdf>



# RESEARCH SUMMARY

## Extract from a presentation given at BERA 2021 by Dr Caroline Thomas and Dr Mary Woolley

One university in our selection of 6 ran a specific joint session for PGCE science and RE students. We interviewed PGCE students there across two different cohorts.

Students were unanimous that it was a really important session. The session was set up as group work throughout the day and one thing the students commented on was the imbalance in numbers – some groups 4:1 science: RE, difficult to avoid when science ITE tends to recruit more successfully than RE ITE.

Groups were given a topic/ controversial issue and tasked to write a lesson plan. One issue raised by the RE students, in talking about the session, was that some of the student science teachers couldn't see the point of incorporating any talk of religion into their lessons

*[The science teachers] struggled to see the purpose or the role of incorporating religion into their teaching strategy. I mean that could be really off the mark but just from the group I was with that just seem to be the case. (student RE teacher)*

*It was the same for my group... I feel like they seemed a lot more set in their views in the Science bit than like we were. And I feel like we sort of, yes, saw the benefits of bringing their subjects into ours rather than them bringing ours into theirs. They didn't really seem to have a lot of knowledge about ethics at all. (student RE teacher)*

There are challenges apparent here; the possibility that the science curriculum, as a National Curriculum subject, is less flexible. Science is a compulsory GCSE in most schools; it's high stakes which could lead to less room for experimentation. RE is likely to have much less curriculum time in non-faith schools, but in exploring issues like evolution and the Big Bang, science is clearly a part of what is taught. Our research shows that religious views are being represented in some science lessons, but nuances of the varieties of beliefs within certain religions could be missing.

Some of the groups of students had a more positive experience:

*The group that I had were actually quite the opposite. They very much wanted to talk to me about religion and how they thought that it was really important as part of science. So we got set the activity and we didn't really do it because we ended up just talking about religion and science for the whole time. But they were asking me loads of questions and they were saying how they think it's important that the two crossed over [3 RE PGCE students]*

These experiences certainly highlight the need to create opportunities for dialogue across subject or disciplinary boundaries.

When interviewed, the science student teachers agreed with the RE teachers that it was an important session, but perhaps didn't approach it with the same mindset.

*The RE student was particularly, she said that she was religious and had come from a religious family. However she had quite a lot of scientific views. So she kind of spoke about how, in her opinion, different scientific views could interlink with some things in RE... So she said she was open minded to different outcomes which was fantastic. [Science PGCE student]*

There seems an element of surprise here, from the science teacher, that religious belief and scientific views might be compatible. One wonders, what's fantastic here? That she's not too religious? That she can agree with him?

*I mean for me I don't think it would change my view personally because my view would be particularly kind of like the science and what I've seen... [Science PGCE student]*

There's something here about not wanting to be changed, but also something about epistemology. This student believes in evidence and what he's seen. Does he need to be introduced to the idea that there might be limitations to science, or other ways of knowing?

For one science student teacher, who had talked about his personal religious beliefs, he felt a fear of offending

*I personally was very wary of challenging someone's beliefs on a really fundamental level. Obviously it was partially what it was there for and partially to understand how they teach and how we teach and bring it all together. But it was quite nerve racking. [Science PGCE student]*

In conclusion, student teachers had vastly different experiences of this inter-disciplinary ITE day. There is little doubt that it was an important experience for all. What students got from the day might have depended on their starting point, their worldview and the group they were placed in. Moving groups during the day could have been a way forward for those who had particularly tricky conversations. For all the students, however, this opportunity for rich dialogue across the subject boundaries seemed to be a new experience and one they would remember.

This results shows less misconception in secondary science teachers than in RE teachers. It could be argued that the beginning science teachers simply know their scientists better than the beginning RE teachers.



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