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Introduction to the Course

The aim of the *Test of Faith* materials is to help meet the enormous need in churches and parachurch groups for accessible materials on science and Christianity. The issues this course addresses have an impact on our faith and are relevant to life in the world today.

Why 'Test of Faith'? The challenge that has been put forward so many times recently is that God is a delusion and science has removed the need for faith in anything. How do believing scientists respond to this? They have all been trained to think and test ideas to the limit. If their faith and their science are both genuine searches for truth, we need to hear from them.

The main message that you should take away from the *Test of Faith* documentary is that there are many practising scientists who have a sincere Christian faith, even at the highest levels of academia. All of us can share their experience of awe when they find out more about God's creation through science. These scientists also help us to explore a number of issues that affect our own lives.

This course is designed to help you make the most of the documentary: to take any new concepts on board and then discuss them. The material is very much an introduction to science and Christianity. It may well provoke some questions that people didn't know that they had and open up some new areas of interest. There are many good books, articles and mp3s available to take things further, some of which are recommended in the Taking it Further lists for each session. There are also extra resources tailored specifically for the course on www.testoffaith.com.

The scientists interviewed on *Test of Faith* are all Christians. We have also interviewed some theologians, most of whom also have a scientific background. The book *Test of Faith: Spiritual Journeys with Scientists* tells the stories of ten of the scientists – their personal discovery of faith and how that has affected their work. It's a short book and an easy read. For many people this will be the most useful background reading for the course, so try to make a number of copies available for your group.

Christians hold different views on some of these issues. We're not expecting everyone to agree with all that the scientists and theologians say in the documentary. These are complex issues, and in the course material we have often laid out several different views that Christians take on a particular topic so that you can discuss them openly.

Most of all, *you do not have to be an expert* to run this course. In fact, being new to the subject can be an advantage, because you will be learning along with the group and are less likely to try to cover the material too quickly. We have provided all the scientific information that you need in the glossary and Briefing Sheets. For most of the questions we have given helps for the leader so that you can guide the discussion in a helpful direction and drop in hints if needed. If you don't have a science background yourself, and want to save time in preparation, you could invite a science graduate along to answer your questions.

Who is it for?

This course is designed primarily for small groups in an informal setting. It will also work well for larger groups that can break into smaller groups for discussion. Each session includes options for introduction and epilogue activities that will work for large groups (see guidelines for large groups on page 14).

We aim to bring the latest issues to churches and other groups in a number of settings – maybe at school, on campus, or at work. We've chosen a format that is flexible and user-friendly and have tried not to use scientific or theological jargon. These materials should be suitable for an audience of different ages, educational levels, learning types and faith backgrounds.

You do not have to be a scientist to be interested in science, and you definitely don't need any scientific knowledge to have Christian faith, but we hope that if people have the opportunity to think about science and faith together they will be able to engage with the scientific issues that have an impact on our faith, culture and practical aspects of our lives in a new way.

The main requirement for anyone taking part in the course is to be interested and open-minded. We have worked within a theological framework that is based on a high view of Scripture and in line with the major creeds of the Christian church. Where issues are secondary we have made that clear and laid out a range of views that Christians hold. Pastors from a number of different denominations have reviewed the materials.

Although the materials have been written for Christians, we have kept a second audience in mind: people who are interested in Christianity for a number of reasons and have questions about science and faith. Scientific issues often come up as Christians talk about their faith with their friends, so as well as being an excellent training tool for church members, the course has been designed to be used with mixed groups of Christians and others. So although the focus is on Christian faith, we have deliberately avoided Christian jargon and Scripture references in the documentary so that you can explore the biblical material at a suitable pace in the course (see page 14 for further details).

Our approach

The aim of each session's introduction is to help people see how the subject they will be tackling is relevant to them personally. This will be especially important for a group that is new to science-faith issues, and these activities will lead to livelier discussion later on in the session.

The documentary begins with questions that come from the world around us and proceeds to unpack them from a perspective of faith. Some people will relate to that initial feeling of conflict and want to work through that tension in the parts of the course that address it. Others may want to look at some of the specific issues raised at a deeper level, and they can use the bonus and/or in-depth sessions (see 'Course Overview', page 10) and the accompanying bonus DVD clips to do that.

After watching each episode of the documentary, general discussion or the optional Short Questions will allow people to digest the main points. Each discussion topic then brings out a key question from the documentary and allows the group to ask, 'What do you think?', 'Do you think these people are justified in what they are saying?' and 'What does the Bible have to say?'

These are issues that affect everyone at a deep level, and there are rarely easy 'black and white' answers. The Bible was written in a pre-scientific time and doesn't speak directly to all of the issues that new technologies and scientific ideas raise. There are always broader biblical principles that Christians can apply to any given situation, and so the course material brings those out where possible. These are subjects that have theologians and biblical scholars hard at work, so it's difficult to have a really in-depth discussion without a good deal more background knowledge. Having said that, everyone has to start somewhere and you do not need a degree in science or theology to understand the basics. This course will help people to find the answers where they do exist and to equip them for an informed discussion.

It's important to recognize that it is possible for Christians to hold different views on some issues. For example, where creation is concerned, the fact that God created the universe is vital, and the 'why' of that is important to all of us. The 'how' – the mechanism by which that happened – is a secondary issue, and as such it is open to discussion. The questions in every Discussion Topic will guide people in developing a broad understanding of the issue, but – especially towards the end of the topic – there are always some questions that will stimulate an open discussion and allow people to air their views.

The purpose of the epilogue activities is to help people process the things they have learned or discussed during the session – personally and spiritually, as well as intellectually. For some, this will be the most important part of the session and will help them to unwind and absorb what they have heard and remember it. Some sessions touch on issues that are personally challenging or sensitive, and here there are activities that deal with these issues on a more pastoral level using Bible passages, quotes from theologians and suggestions for prayer and reflection.

Taking it Further

The 'Taking it Further' sections will help people to keep on learning, but course leaders may want to do other things to address the questions that have been raised. Some members of the group may want to read one of the recommended books and come together again to discuss it. You may want to invite a speaker or arrange a series of talks with several churches in your area.

Finally, Christians in Science (UK) and the American Scientific Affiliation (USA) have regular conferences, and local groups are active in many different locations. There are similar groups in other parts of the world (see www.testoffaith.com for details).

Feedback

If you have feedback on how you found the course, and suggestions for improvements, do let us know. You can email us at info@testoffaith.com or write to:

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Ruth Bancewicz

Session 1: Beyond Reason? Science, Faith and the Universe

Planning

Aim

Science and faith are important in areas that affect all of us, including education ('Why aren't there dinosaurs in the Bible daddy?'), medicine ('Should we use this new technology?'), and politics ('Why are we being told to be "green"? Surely the world has got to end at some point anyway?')

This session will set the scene and get people interested in thinking about how science and Christian faith might speak to each other before they move on to thinking about more practical issues later in the course. What people learn in this session should affect the way they think and react in conversation with friends, family and colleagues, and also how they relate to current events. The optional preparation and introductory activities will help those who have never really considered these issues to realize that they are relevant to them personally.

The first part of the documentary should leave the viewer with three main messages:

- It is possible to be a scientist and a Christian, even at the highest levels of academia.
- The world is an incredible place. Science is a way of learning more about God through understanding what he has created.
- Astronomy raises some interesting questions about God. These questions are a good example of how science and faith can speak to each other.

The discussion time is an opportunity to unpack several of the issues that the documentary raises in more detail, and especially:

- Ways of relating science and faith
- The Big Bang, and how the universe looks as if it was 'fine-tuned' to be suitable for life
- 'God of the gaps'
- Prayer and miracles.

Note: This part of the documentary looks at the Big Bang and a universe that is billions of years old. For some this may be new or controversial, but our aim is to engage with 'mainstream' science – what are these scientists, who are Christians, encountering every day in their research? How could we think about these issues as Christians? The course material does not mention Genesis here because Session 2 will deal with it in depth, so try to defer questions on the age of the universe until then. Even if the jury is out for your group on how to interpret Genesis, it is important to know how Christians working in science are dealing with these issues in the light of their faith. The focus should be, as much as possible, on the many insights in this section that are not related to the actual timescale of creation.

Equipment needed

- If using Introduction Option 4 for a large group, photocopy Sheet 1 or 2 and bring post-it notes and Blu-Tack.
- You may want a flip chart or sheets of paper if using Epilogue Option 2.

There are four Briefing Sheets for this session. The session notes refer to three of these, and 'Scientists and Faith through History' is extra reading for those who are interested.

Some suggestions for a 1 ½ – 2 hour session:

	Basic introduction	In-depth	Big picture	A group with a lot of scientific knowledge
Introduction Option	1	4	2	3
DVD	✓	✓	✓	✓
Ch. 1: How Do People See the World?		✓	✓	✓
Ch. 2: The Big Bang / God of the Gaps? / Miracles	✓			
Ch. 3: The Anthropic Principle		✓		✓
Ch. 4: How Do You View Science and Faith?			✓	
Recap	✓			
Epilogue Option	any	1	3	2

To split into two shorter sessions (40–60 minutes each)

Ask the group to read the material related to this session in the *Study Guide* beforehand.

First half-session:

- Introduction activity in pairs (5 minutes)
- DVD – watch and discuss for 5 minutes after each chapter – you may only get through the first two or three chapters in the first half-session
- Epilogue (5 minutes)

Second half-session:

- Quick recap by leader (5 minutes)
- Finish watching DVD if needed
- Discussion Topics – pick one or two that raised the most interest, or split into smaller groups to discuss different topics
- Epilogue (5 minutes)

Preparation for Participants (optional):

Why bother thinking about science and faith?

The aim is to help people to realize that science and faith do come up in the media and science-faith issues do affect their lives. People could do either of these two exercises, and when you come to the session the most relevant introductory activity would be Option 2 or 4 – or you could just generally discuss what people found out.

Of course, if this is your first session and you want to use one of these activities, you will need to contact the group at least a week in advance.

Ask two or three friends, family members or colleagues if they can think of a situation where science and religion (or beliefs) affect each other. What issues or questions arise?

For example, what about:

- In medicine? (Religious beliefs often affect ethical decisions.)
- In education? (Children sometimes ask questions like 'Who made human beings, God or evolution?')
- In politics? (E.g., the Archbishop of Canterbury is campaigning on climate change.)

or

When you watch TV, listen to the radio, or read the paper, keep an eye out for stories that mention both science and faith. What issues or questions arise? What effect do these issues have on society?

Introduction (10–15 minutes)

This section will set the scene for the course and, most importantly, will help people to realize how these issues are relevant to their own lives.

Note: Option 1 is related to the questions addressed in the documentary and will help a group to take in what is said more easily – especially if they are completely new to this topic.

Option 1: True or False

Here's a series of statements about the issues that the documentary will tackle. Read them out and ask people to say or make a note if they think each statement is true or false, or if they are not sure (our answers are written in the 'Recap' section on page 25). If you want this to be more active, you could allocate three different places in the room as 'true', 'false' and 'not sure' and ask people to move to the appropriate place to answer.

Q1: Science and faith are at war

Q2: There are some conflicts between science and faith

Q3: Most of the first scientists in history were Christians

Q4: When science can't explain something, that is evidence for the existence of God

Q5: When science *can* explain something, you see evidence for God

Q6: Science and faith are two different ways of looking at the same world

Q7: Some questions cannot be answered by science

Q8: If the universe started with a Big Bang, God lit the 'blue touch paper' (the fuse)

Q9: Some scientists think there are many universes

Q10: Understanding more about nature will help us to learn more about God

Option 2: Sharing Experiences

Q: When in the past have you been challenged to think about science and faith? What did you learn?

For example:

- A conversation with a friend who claimed that science has disproved the existence of God
- An incident in the classroom, lecture hall or workplace
- A TV programme, book or newspaper article

Option 3: How do you view science and faith?

Use the Discussion Topic for DVD Chapter 4 (page 24) to talk about what people think of the relationship between science and faith. You could either discuss your views openly as a group or ask people to hand in slips of paper (anonymously) with their particular views and present the results in a suitable way. It should be useful and interesting to do this exercise at the beginning of the course, and you could revisit it again at the end of the course to see if people's ideas have changed at all.

Option 4: Have you heard this?

Use the list of quotes on Sheet 1 or 2 (pages 28–30). Has anyone heard something like this before? (Perhaps not the exact quote, but something like it?) Have they thought about any of these things themselves? The idea is to jog people's memories and help them to realize that these issues do affect them. Give people time to say how they felt before moving on to the documentary and addressing the issues directly.

- You could photocopy the sheet, cut each quote out, and discuss them in turn.
- Or you could spread them out and let people choose one that they have heard before.
- For a larger group you could enlarge them, cut them out and stick them around the walls with Blu-Tack, and use post-it notes or markers for people to indicate which ones they have heard before.

Watch *Test of Faith Part 1: Beyond Reason?* (45–60 minutes)

Use the chapter menu to watch Part 1 of the documentary a chapter at a time.

Note: The last chapter of Part 1 is the trailer for Part 2, so you could play it at the end of the session to inspire people to come again.

After each chapter take a few minutes (depending on the size of your group) to help people process what they have just seen. For general discussion use an open question such as:

- What was new or most interesting for you?
- What did you find most surprising or challenging?
- What do you think the main messages were?
- What do you think? Do you agree?

Or you could use the Short Questions below.

Short Questions:

Chapter 1

Q: Why do people today sometimes think that there is a conflict between science and religion?

A: Partly because of the work of Huxley and others who wanted to give science a higher profile and take it away from the clergy, who held most of the scientific positions at the time.

Q: The scientists interviewed are all Christians. How do they say science and faith are related?

A: Both science and faith are concerned with the search for truth (John Polkinghorne gave the example of a boiling kettle – see the Briefing Sheet: *Beyond Reason?*).

Chapter 2

Q: What different views did the scientists in the documentary express on the Big Bang?

A: All the scientists believe that God created the universe – and that, according to the current theory, God created using the Big Bang. Also, science doesn't know yet what happened right at the start of the Big Bang.

Q: Why aren't the gaps in scientific knowledge good proof for God?

A: One reason is because scientists may be able to explain them in the future.

An example of 'God of the gaps' was given here by David Wilkinson, who used to believe that God was needed to light the 'blue touch paper' (the fuse) at the beginning of the Big Bang. But the famous physicist Stephen Hawking has come up with a workable theory for what happened before the Big Bang, so the 'blue touch paper' argument isn't a great one anymore, because one day it may be proved wrong.

(Another reason is given in the Discussion Topic for Chapter 2 below, 'The Big Bang': God is at work in everything, not just the 'gaps'.)

Chapter 3

Q: What is fine-tuning (the Anthropic Principle)?

A: It is the idea that the universe has been finely tuned to allow the existence of life.

Chapter 4

Q: Why are the scientists in the documentary not worried about the multiverse theory?

A: The multiverse is a theory with absolutely no evidence behind it. Even if there were evidence, God is still sovereign over all that he made, multiverses included.

Q: Can science answer the question: 'Why is there something, rather than nothing?'

A: No. Science cannot answer that type of question. We need science and faith to make sense of the world.

Glossary	
atheist	Someone who believes that no gods exist.
cosmologist	Someone who scientifically studies the origin, development and overall shape and nature of the universe.
fine-tuning (the Anthropic Principle)	The idea that the physical constants of the universe are set at the precise values necessary for the existence of biological life.
God of the gaps	An argument which says that when we can't explain something in nature scientifically, that is proof that God exists.
metaphysic	Any particular way of interpreting the world.
multiverse theory	The idea that there are multiple universes. Some people use this to argue that if there are many universes, it's not so surprising that one of them is 'fine-tuned' for life.

Discussion Topics (25–30 minutes)

The topics below relate to each of the four DVD chapters. Pick one or two to discuss. You may want to watch the relevant chapter again as a refresher, especially if you are spreading the course over more than one session.

? Chapter 1: How Do People See the World?

Level: Intermediate

The aim is to help people to discuss different ways of relating science and faith, and to think about the difference between scientific evidence and the interpretation of that evidence. (The Discussion Topic for Chapter 4 also deals with this question.)

Dr Ard Louis said that the debate between science and religion is really about how we decide whether something is true or false: is science the only reliable way of finding things out about the world, or does religion have something valuable to contribute as well? [Time code: 1 min. 28]

Q1: With this in mind, what views have you heard from scientists (either in the media or that you have met personally) on the questions, 'Does God exist?' and 'How does God interact with the universe?'

Hints:

Discussion here will link back to the introductory activity. The main views you could discuss are:

Answer 'no' to the existence of God:

- Science answers every important question. God doesn't exist (scientism/atheistic materialism).

Answer 'yes' to the existence of God:

- There is a god that started the universe going, but that god doesn't interact with us (deism).
- God created and sustains the universe, shared our human nature by coming to live among us in the person of Jesus Christ and interacts with us day by day (Christianity).

There's a difference between scientific evidence and the interpretation of that evidence. It is possible for people of any religion or none to come up with the same results when they run the same experiment – but how do you interpret that evidence? Obviously some interpretations will be more reliable than others. The truth of a particular interpretation can be tested with more experiments.

Q2: Which of the views above (scientism/atheistic materialism, deism or Christianity) do you think could fit with the evidence the scientists have described about the universe in the documentary?

Hints:

- To be an atheist you must either believe in some sort of multiverse – which is also a step of faith – or that the whole thing is an incredible coincidence.
- A single finely-tuned universe is compatible with deism, Christianity, and indeed many other religions. Session 1b explores the fact that scientific arguments will not get you all the way to Christianity – they only open the discussion (and in the bonus DVD clips for this session two scientists talk about what other factors are important for their faith).

? Chapter 2: The Big Bang

Level: Easy

In this chapter of the DVD the narrator asks the question, 'Hasn't the Big Bang done away with the need for a Creator?'

Q1: What do you think? Do you think God could have created through the Big Bang?

To help your discussion:

- You could look at the Briefing Sheet: *The Big Bang* (in Appendix 2).
- You could look at the answer to the first Short Question for Chapter 2 of the DVD.
- Try not to get onto the interpretation of Genesis – explain that Session 2 will address this. The question of the age of the universe or the interpretation of Genesis need not be tackled here – in fact, some people believe in both a Big Bang and a young universe. You could explain that while it may be difficult for some to ignore the question of the interpretation of Genesis when thinking about the Big Bang, it's important to introduce what most scientists believe. If the answer to the question for some is simply 'no', that's fine – move on and address that issue in more depth later, in Session 2.

Note: Scientists used to think that the universe had no beginning. But when the Big Bang was proposed, some atheists didn't like the new theory because it gave the universe a beginning and suggested a Creator.

God of the gaps?

“If you say, well, science answers this much about the way the universe is, but science doesn't answer this aspect of the universe's characteristics, and then to invoke God and to **allow God to reside in that gap in our knowledge, that's dangerous** because when a clever scientist comes along that gap will be filled by a deeper and richer scientific understanding. So then, where you posit that God is allowed to reside, gets smaller and smaller and smaller, and this is a practice known as **God of the gaps**, and it's dangerous.

Professor Katherine Blundell [Time code: 13 min. 19]

Read Colossians 1:15–17 and Hebrews 1:3a.

Q2: Where do we see God at work? What do these passages say about this idea of not putting 'God in the gaps'?

Hints:

- God created, upholds and sustains the whole universe.
- We see God at work in everything – whether we understand it scientifically or not.

Note:

- David Wilkinson, who used to believe that God was needed to light the 'blue touch paper' (the fuse) at the beginning of the Big Bang, gives an example of 'God of the gaps'. But the famous physicist Stephen Hawking has come up with a workable theory for what happened before the Big Bang, so the 'blue touch paper' argument isn't a great one anymore, because one day it may be proved wrong. [Time code: 11 min. 18]
- See the section below for a discussion of whether the Anthropic Principle is a gap.

Prayer and Miracles

'God of the gaps' raises the question: 'Do scientists, even if they are Christians, believe that God cannot, or will not, work miracles?' Not at all. Here is why:

“ While some biblical miracles, such as ... the plague of locusts in Egypt, do not directly contradict the laws of nature, other miracles are obviously supernatural. So does science challenge our belief in miracles? ... **Christians believe that God, not natural laws, govern nature.** God typically works through natural laws to sustain the regular patterns of our world, but nature is not locked into those patterns.

Deborah and Loren Haarsma, *Origins* (Faith Alive Christian Resources, 2007), p. 41.

“ **I believe God can choose to step out of his regular pattern and do something different at times**, but it would be for a reason relating to an answer to prayer, or something about God's desire to interact spiritually with his people. So I see miracles of healing, miracles in human history, or miracles in the Bible that God used to establish his chosen people and develop a relationship with them. It seems less likely that God would do miracles in natural history that we couldn't discover until modern science.

Deborah Haarsma, *Test of Faith: Spiritual Journeys with Scientists*, page 97

Q3: How would you define a 'miracle'?

Hint:

- A miracle is a sign of God's special grace that involves a particularly significant timing or God working in an unusual way in the world, sometimes but not always in response to specific prayer.

Q4: How does this match your own experience or knowledge of the Bible?

To help your discussion:

- Not everyone will have experienced something 'miraculous', but they may have experienced answers to prayer and will probably know about some of the miracles recorded in the Bible.

But are these scientists filling the gap with science instead of God? Is this 'science of the gaps'?

There are always unanswered questions in science. Christians working in science are aware that there could be a 'supernatural' explanation for something being the way it is, but the early scientists – who believed in a Creator God – believed that they should investigate creation, and they found answers to their questions. Rather than mourning the apparent loss of mystery in creation, they rejoiced that they understood God's creation a little bit more and were able to praise God for creating the details they had just uncovered. Christians who are scientists still follow in that tradition, and it is their job to keep looking for answers to their further questions. The more we find out, the further we realize we have to go.

Q5: How do you think these two concepts, miracles and 'God of the gaps', fit together for a Christian?

Hints:

- Science has nothing to say about miracles, and Christians who are also scientists believe that they do happen – most importantly, the resurrection.
- But God is unlikely to have made something happen in the world in a miraculous way if it has nothing to do with God's relationship with people. When there is a gap in knowledge about the way the world works, a scientific explanation may well be found in the end. So if that gap has been used to say, 'This is evidence that God exists!' and a person's faith has been built on that 'evidence', then if the gap is closed that faith will falter.