WEEK 2: AN ACCIDENT IN THE MAKING?
CREATION, EVOLUTION, AND INTERPRETING GENESIS

Day 1: Introduction

In Part 1 we examined the question, "How did the universe begin?" and looked at how faith and science interact with each other. In Part 2 we will ask, "How did life develop?" and explore ways of interpreting the Bible.

This can be a controversial subject among Christians and atheists alike, and although it is an important question, Christians must remember what is central and not allow secondary issues to divide us. We must learn to distinguish between the truths that are essential to the Christian faith and those beliefs that are a matter of interpretation. Although we may agree to disagree on how God created life, all Christians can celebrate God's greatness as Creator and his grace as our Savior

Please note that, due to the complex nature of the topics this week, you may need to allow more time to finish each day's assignments. You could allow more time each day (approximately 1.5 hours), skip some of the exercises (as indicated by the red asterisks), or complete Days 2 and 3 over three or four days, if your schedule permits.

Take 15 minutes to complete the following activities.

1. Different views on creation

Christians agree that God created the earth, but they sometimes hold different views about how the creation accounts in Genesis relate to scientific discoveries. What different Christian views have you heard people discuss?

_____

_____

_____

2. Back to basics

Read Genesis 1. What are the most important messages of this passage? What does the passage say about God? About God's relationship with the universe? About God's relationship with people? Hint: You should be able to come up with at least 5 broad answers that would fit with *any* of the Christian views you may have mentioned in question 1 above.

- There is one God
- _____
- _____
- _____
- _____
- _____
- _____

3. *Models for understanding reality

Both scientists and theologians use "models" to explain aspects of reality (theologians often refer to them as illustrations, metaphors, or analogies). Models tell us something about reality, but they are limited. Everything we communicate through language necessarily involves models (descriptions that, unlike mathematics, are not 100 percent literal).

Developing models enables people to study and understand complicated subjects. A good model is fruitful—it suggests further lines of enquiry and allows fresh thinking to take place. A poor model is limited and often results in stagnation, with no new thinking emerging from it.

For example, for years scientists understood the nature of light by viewing it as particles. The particle model proved fruitful and allowed them to explain the way that light behaves. However, scientists began to observe light behaving in ways that could not be explained by the particle model. So they had to develop a new model for light's behavior: the wave model. The actual nature of light had not changed, but as people discovered more about the way it worked, the model they used to describe light had to change. Both the particle and the wave models have limitations, but both explain some of the properties of light and help scientists in further research.

We use models in both science and faith because they help us understand scientific and theological truths. However, no model perfectly "matches" reality. We need to evaluate models and understand their limitations. Below are four statements; two of them are scientific models, and two are biblical models. Think about what makes each one a good model (similar to reality), and what makes it a limited model (different from reality). In the columns provided, fill in the similarities and differences between the models and reality. We have done the first scientific and the first biblical models for you.†

†. *Test of FAITH Resources for Schools*, pp. 33–34, 40. Reproduced with permission, The Stapleford Centre 2009.

Scientific models

Example:

The passage of electricity going along a wire is like a current of water flowing along a pipe.	
Similar to reality (a good model)	**Different from reality (a limited model)**
○ In both a wire and a pipe, resistance (a resistor or blockage) can slow the speed of flow. ○ Energy, like water, begins at one end and moves to the other end.	○ Water can be removed from a pipe, but electrons cannot be removed from a wire.

A.

An atom is like a miniature solar system.	
Similar to reality (a good model)	**Different from reality (a limited model)**

Biblical models

Example

The church, the people of God, is like a body.	
Similar to reality (a good model)	**Different from reality (a limited model)**
○ Each person in the church needs the other people (and each part of the body needs the other parts).	○ Different parts of the body have to act together but people can act independently.

B.

God is like a human father.	
Similar to reality (a good model)	**Different from reality (a limited model)**

Watch Test of FAITH, Part 2 (one-half hour)

Review Part 2

The following sheet summarizes Part 2 of the DVD. To help you review what you have seen, fill in the blanks below:†

CHAPTER 1

Some evolutionary biologists say that the world is without design or purpose. They think that it came into being through a meaningless process, ruled by random chance.

The Bible says that we are made in God's _____

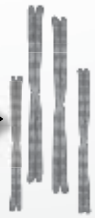
ARE THE BIBLE AND SCIENCE OPPOSED TO EACH OTHER?

Some people are skeptical of anything that predicts a very old age for the earth, and of evolutionary theory.

And some say that living things could not have evolved without any intervention by an intelligent being. They claim that the world was created by an _____ Designer."

CHAPTER 2

But others say that evolution doesn't have to lead to _____



They say that Genesis was meant to be interpreted as an important but not scientific message.

And that you can see reliable evidence for common ancestors in our _____

CHAPTER 3

Some people say that evolution is a process **totally up to chance** – like the **random** throw of a dice – at odds with a purposeful God.

But random can mean two things:

1. In day-to-day life we use it to mean "purposeless."

2. In a scientific sense it means that the microscopic details of a process may be unpredictable – but **the overall process may be very** _____

So although evolution may appear random, it may be the best way of finding solutions to biological "problems."

In fact, the Professor of Paleobiology Simon Conway Morris believes that evolution can only go in a very few directions – and if you started the process again from scratch, you would end up with very similar things – which fits with the idea that **we were meant to be here**.

CHAPTER 4

But evolution has other challenges for faith – **what about the** _____ **and death that are part of the process?**

This is the toughest question for Christians in this area.

Some think that the process of producing fruitful life through evolution is a fitting way for God – who loves and gives his people freedom – to create.

Is disease a necessary product of a creation that is able to have life in such variety?

What we *do* know is the good news of the New Testament …

… and that science cannot make paradise on earth. We know that it can be misused, because human beings are flawed creatures.

CHAPTER 5

THE COMMAND GIVEN IN GENESIS WAS NOT TO FIGURE OUT EXACTLY HOW THE WORLD WAS CREATED, BUT TO _____

What we know about climate change must move us to action.

People in the West have benefited from cheap energy in the past. They have a moral duty to reduce their own consumption and help developing countries to develop in sustainable ways.

That change must start with the human heart.

†. *Test of FAITH Leader's Guide*, page 105. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010.

Day 2: Chapters 1 and 2

Part 2, chapter 1: VIEWS ON CREATION

Introduction

Christians attempt to account for the scientific discoveries about the world in several different ways, based on different methods of interpreting the first chapters of Genesis. This section looks briefly at a few of these views.

In chapter 1 of the DVD we will learn about

1. Young Earth Creationism
2. Intelligent Design
3. Progressive Creationism (the DVD does not mention this view, but we will explore it in the "Discussion and questions" section below)

Watch Part 2, chapter 1 (10 minutes)

Stop at Narrator: "For Young Earth Creationism and Intelligent Design, then, Darwinian evolution is an enemy to faith." (10 minutes 5 seconds)

Discussion and questions

1. Young Earth Creationism

> *"I'm skeptical of anything where you're not seeing the result directly in the laboratory, but you're actually extrapolating back and assuming something that you were not there to see . . . What creationists believe is that God made the world as he said in the Bible in six days. So it's taking the Bible seriously; it's taking the Bible at its word." – Paul Taylor*

According to Young Earth Creationists, the earth is between 6,000 and 10,000 years old, based on genealogical records in the Bible. They read Genesis 1 as a historical, scientific account of the order and timing of creation and believe that God created the world in six 24-hour days. Either the scientific data which points to a much older universe is simply wrong, Young Earth Creationists would say, or the scientific data is right, but that is because God built the appearance of age into the universe, providing us with a ready-made world.

A. According to this view, what sorts of things would God have created to give the earth/universe an appearance of age? (Think about the stars, trees, and geological formations.)

_____

_____

_____

B. Which of the models for relating faith and science (see Part 1, Day 3 on page 25) do you think Paul Taylor might hold? Which one might *he* think of himself as holding?

_____

_____

2. Intelligent design

> *"I have no problem with [a complex structure] evolving, in some sense, from some simpler precursors, but what I do have a problem with is saying that it evolved by a trial and error Darwinian tinkering process because I don't think there's any evidence for that. It seems to me that there are clear hallmarks of design . . . there's got to be some information source." – Dr. William Dembski*

Intelligent Design (ID) takes as its starting point the "irreducible complexity" of certain structures in the world around us. ID holds that these structures are too complex and interdependent to have "just evolved." Those who hold to Intelligent Design say that the camera eye (which we and many other animals possess), for example, could not have developed in the gradual stages that evolution's genetic mutations and adaptations require.

A. What example does William Dembski use of an "irreducibly complex" structure?

_____

Because evolutionary theory cannot currently describe how these irreducibly complex structures evolved, ID holds that they are evidence for an intelligent input into our universe. Unlike the other theories of origins which we are looking at this week, ID does not hold a specific view on the interpretation of Genesis; ID advocates seek to provide evidence for a Designer (not necessarily the Christian God).

B. Why does Denis Alexander warn that Intelligent Design might fall into the trap of "God of the Gaps"?

_____

_____

_____

_____

WEEK 2

3. Progressive Creationism

Some Christians hold another view, called Progressive Creationism (not mentioned in the DVD). Although Progressive Creationists hold different views (see below), in general they believe that the scientific claims of an old earth do not contradict the Bible, and that God created the universe over a long period of time. Each "day" in Genesis 1 refers to an "age," a long period of time (possibly millions or billions of years). Adaptation and change may have occurred during those ages, but God intervened at specific points to form the world as we know it today. Progressive Creationists believe that the earth is old, as the scientific evidence suggests, but they do not generally believe in "macro-evolution" (evolution that produces new species).

There are three main kinds of Progressive Creationism:

1. The "days" of Genesis 1 are not 24-hour days but represent actual ordered periods of time, or "ages" (known as Day-Age Creationism).
2. The days and all other references in Genesis 1, while not literal, match scientific understanding today. For example, "day" = epoch, "firmament/expanse" = atmosphere, etc.
3. The days and the overall structure of events in Genesis 1 may be figurative (poetic), but God separately intervened to create life, the various species (the "kinds" of Genesis 1), and human beings.

Concordism is the practice of interpreting ancient biblical models (ways of seeing and interpreting the world) as scientifically accurate according to today's models. Progressive Creationists of types 1 and 2 above tend to be concordists in the way they interpret Scripture.

Cool words!

Concordism – from Latin: *Con* means "together, with," and *cor* means "heart." Concord means agreement between things.

A. Most proponents of Intelligent Design would be Progressive Creationists of which type (1, 2,or 3)?

_____

B. Compared to Progressive Creationists, do you think that Young Earth Creationists are more or less concordist in the way they approach the Bible?

_____

Part 2, chapter 2: ANOTHER VIEW ON CREATION

Introduction

Since other Christian resources cover Young Earth Creationism, Intelligent Design, and Progressive Creation in depth, this DVD focuses more extensively on another way that Christians make sense of both the scientific data and their belief in the Bible: Theistic Evolution (also known as Evolutionary Creationism).

Many people who hold the three views we considered above think that evolution and faith are incompatible. For different reasons, many atheists also believe that a person cannot both believe in God and accept the evidence for evolution. What we need to examine now is whether Theistic Evolution contradicts the accounts of Genesis 1–3.

In chapter 2 of the DVD we will learn about

1. Theistic Evolution
2. Literary genres in the Bible and how they affect our interpretation
3. A summary of the different ways Christians interpret Genesis 1

Watch Part 2, chapter 2 (5 minutes)

Stop at Narrator: “This marriage of Darwin’s theory and faith is known as Theistic Evolution.” (14 minutes 33 seconds)

Discussion and questions

1. Theistic Evolution

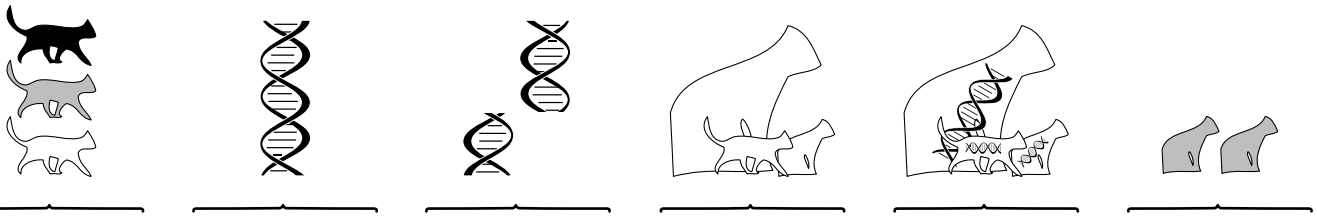
> *“A conclusion which is actually quite comfortable for me as a believer and for me as a scientist [is] that yes, Darwin was right, and a brilliant insight he had, but that all he was really doing was to deduce the mechanism of God’s creation.” – Dr. Francis Collins*

Theistic Evolutionists believe that the Bible and the theory of evolution do not contradict each other. They would agree with the scientific data that the universe and the earth are billions of years old. They believe that God is the Creator, and that God used the evolutionary process as the mechanism (the “how”) of creation. They believe that the book of Genesis is true, and that, when we interpret it within its original context and literary genre, it provides us with a figurative (rather than a historic/scientific) account of creation.

Cool words!

Theistic – from Greek: *theos* means God, so “Theistic Evolution” simply means evolution that God initiated and guided. The Greek prefix *a-* means without, so “atheistic” means “without God.”

Francis Collins thinks that the contemporary study of genetics supports the theory of evolution. The process of evolution depends on how DNA in the nuclei of our cells replicates and sometimes mutates, as shown below:†



1. There is a huge amount of variation in nature – you only need to think of dogs or cats to realize this.

2. Differences in genes (the DNA instruction manual that is in every cell of every living thing) cause a lot of this variation.

3. The differences are caused by very rare changes in the genes as they are passed on. Most will not have any effect. Some will make them sick. A very few will make them healthier than ever before.

4. Some variations will be more successful than others – certain breeds of cat may have more kittens than others, especially in the wild.

5. These genetically more successful cats will pass on more copies of their genes.

6. Eventually these more successful families will build up a range of genetic differences and become so different that they will form a new species that cannot breed with any animals outside of their own group.

Below are two examples of the clearest and most compelling evidence for evolution.‡

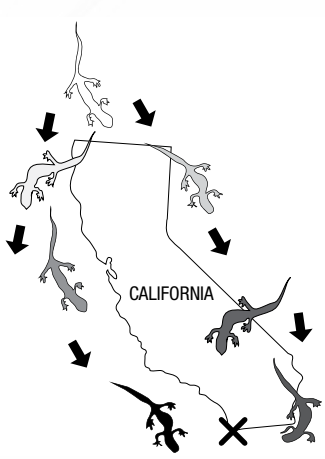
DNA	The molecule inside every cell of every living thing that carries the instructions for its growth and development.
Gene	A section of DNA that contains the instructions for making a single component (e.g., a protein) of an organism.
Chromosome	Each DNA strand in a living cell is wound up tightly into a chromosome. Apart from bacteria and the single-celled "archaea," most living things have two copies of each chromosome. In sexually reproducing organisms, the offspring inherit one copy of each chromosome from each parent.
Species	A set of organisms that can interbreed (there are some exceptions to this rule).

Ring Species

One of the most important events in evolution is the formation of a new species, which is called "speciation." This happens when a group of organisms becomes isolated in some way from a population of the same species. Over time, the genetic make-up of each group changes independently, with the result that members of the sub-population can no longer successfully reproduce with members of the original population. To test whether this has occurred, a biologist must normally bring organisms from the two populations together.

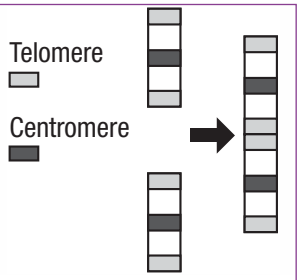
One of the more dramatic examples of speciation can occur when a series of populations, all from the same species, are naturally distributed over a large area. In rare cases, what is known as a "ring species" is formed. If the populations adapt to a gradually changing environment as they spread out over an area, then when the populations meet again, completing the ring, they can no longer interbreed.

We can see an example of a ring species in the salamander population of California. The salamanders spread down from the north, both along the coast and further inland. When the coastal and inland arms of the population met again in San Diego County, they could not interbreed (Mark Ridley, *Evolution* [Blackwell, 2004]).



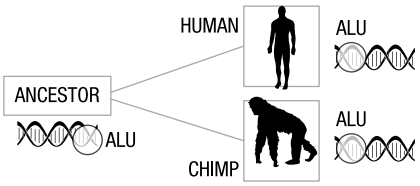
†. *Test of FAITH Leader's Guide*, pp. 57–58. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010.
‡. *Test of FAITH.* Briefing Sheet Session 2: Evidence for Evolution. Reproduced with permission. www.testoffaith.com/resources/resource.aspx?id=248.

DNA Fossils



Many indicators of common ancestry are hidden in the DNA of every organism. These are "DNA fossils," or mutations that do not affect the organism's health, which are preserved in the DNA from generation to generation. Some of these mutations are so rare that any organisms that share them are likely to be descended from a common ancestor in which the mutation first occurred. By analyzing thousands of such mutations, evolutionary biologists can map out the evidence for relationships between organisms. Two examples are given below.

Humans have 23 different chromosomes, while chimpanzees have 24. Every chromosome has a sequence at each end called a "telomere" and one in the middle called a "centromere." Twenty-two of the chromosomes from chimps and humans are very similar, and, when you put the two non-matching chromosomes from a chimp end to end, they look very much like the remaining human chromosome: chromosome 2. Human chromosome 2 has the remnants of an extra centromere, and in the middle of the chromosome there are two telomeres stuck together. From this you could conclude that chromosome 2 in humans is a fusion of two chromosomes, and that an ancestor of humans had 24 different chromosomes. Evolutionary biologists use this as part of the evidence to show that chimpanzees and humans share a common ancestor.



About 50% of human DNA is made up of repetitive sequences, most of which are "jumping genes" that contain just enough genetic information to copy and paste themselves anywhere within a chromosome. "Alu" sequences comprise one of the largest groups of jumping genes. Most Alu sequences are now inactive. The individual carrying them suffers no harmful effects and is able to produce offspring, so the Alu sequence is passed from generation to generation. Nearly all Alu sequences are in exactly the same position in all humans, showing that we all have a common ancestor. Nearly all of these are also shared by all humans and great apes (including chimpanzees and bonobos), and for evolutionary biologists this is compelling evidence that the three species share a common ancestor.

A. When you compare the evolutionary "story" as told above with the biblical story of Genesis, what questions and concerns come to mind? Use the box below to jot down your thoughts. (Another way to think about this question is to ask yourself, "What sorts of issues do Christian evolutionists need to grapple with in order to reconcile their faith with their scientific convictions?")

Some Christians are wary of evolution because many atheists have used the theory to argue that we now have no need to believe in God. Simon Conway Morris makes the point, however, that evolution and atheism do not necessarily have to go together. Remember our overview of metaphysics and worldviews in Part 1? Evolution is a theory, not a worldview (though some atheists hold it as an all-encompassing worldview). No theory can exist on its own; it has to be embedded in a metaphysical framework. Simon Conway Morris says that evolution can fit into either the Christian or the atheist metaphysical framework—but he argues that Christianity (not purposeless, atheist nihilism) is the framework which is most congruent with the scientific evidence.

Cool words!

Congruent – from Latin: *congruere* means to come together or agree. In mathematics, "congruent figures" have the same size and shape. If a theory is "congruent with" reality, then the theory and reality "match up" or agree with each other.

B. If someone tells you his or her religious worldview, can you tell what view that person has of how life developed? Give a reason for your answer.

In the last 150 years, people have used the theory of evolution to justify many different worldviews, ideologies, and movements—many of which have been evil and destructive (and many of which, ironically, conflict with each other).

C. * What are some of the worldviews/ideologies/movements that people have used evolution to support?

Just because some of these movements have been wrong does not mean that the original scientific concept people used to support them is false. We have to be careful not to commit errors of logic in our reasoning. Otherwise, we could end up concluding (as some people have) that because people have used the Bible to justify something evil like slavery, the Bible must be false. Sinful human beings will exploit concepts and ideas, whether scientific or theological, in order to promote their own agendas; we need to be careful to interpret both scientific and theological ideas and their applications carefully.

2. Literary genres in the Bible

For many people, the barrier to thinking that the theory of evolution is a reasonable model for understanding our origins lies in the book of Genesis. If the Bible is the word of God, they argue, we should believe in it regardless of what science says. Scientist-believers would agree that the Bible is true and worthy of our full trust.

> *"To find out who Adam and Eve were [or any of these other questions of origin], we need to start with the biblical text. We do not start with the evolutionary narrative and then try to impose it on the biblical text, but rather do the reverse—listen to what the Bible has to say and then see whether there are any interesting resonances with the evolutionary account."*
> *– Dr. Denis Alexander,* Creation or Evolution: Do We Have to Choose?*, p. 191*

The question then becomes: What is the best way to interpret Genesis? Hermeneutics, the area of study that looks at how we interpret the Bible, requires that we find out the historical and literary context of a passage. This simply means that, in order to understand any passage in the Bible, we need to know who the text was written to, why it was written, and what type (or genre) of writing it is. These considerations influenced how the original readers understood the Bible, so they should influence our understanding of the text as well.

A. In our everyday lives, we read texts differently depending on what genre they are. Different genres are written in different styles. What genres of literature (or types of writing) can you think of?

- Biography
-
-
-
-
-

Cool words!

Hermeneutics – from Greek: the mythic deity Hermes brought messages from the gods, and he was also believed to have invented language and speech. Hermeneutikos means skilled in interpreting.

Genre – French for "kind" or "sort" (originally from Greek, genos).

B. Match the Bible passages below to the correct genre.

○ Deuteronomy 24:17	history
○ Psalm 148	law
○ Luke 11:2–4	letter
○ Ecclesiastes 6:7	prayer
○ 2 Timothy 1:1–2	poetry
○ Luke 2:1–2	prophecy
○ Isaiah 61:1–2	parable
○ Matthew 13:44	proverb

Cool words!

Metaphor – from Greek: *meta* means "along with," *phore* means "bearer/carrier," and *metaphora* means a transfer. In metaphorical language, we transfer or carry meaning from one thing to another; for example, the phrase "A mighty fortress is our God" applies the image of a strong fortress to God.

Scholars estimate that about 40% of the Old Testament is poetry,† which uses pictorial language to describe truth. Other, "non-poetic" parts of the Bible also use figurative language to express ideas. We do the same thing in our conversations ("That was so funny—I died laughing!" "It's raining cats and dogs!" "He turned as white as a sheet."). None of these statements is literally true, but each one conveys what the speaker wants to say. Similarly, the poetic parts of the Bible are just as "true" as the historic parts—we just need to read carefully enough to discover the truth the author was trying to convey through the poetic imagery.

C. * Do you think we should read the following verses literally or metaphorically, and why? If metaphorically, what is the idea that the writer is trying to express?

- The mountains and hills will burst into song before you, and all the trees of the field will clap their hands. (Isaiah 55:12)

_____

_____

_____

- Jesus sat down at the right hand of God. (Hebrews 10:12)

_____

_____

_____

- At Caesarea, there was a man named Cornelius, a centurion. (Acts 10:1)

_____

_____

_____

Now that you know a bit more about genres, you will be able to understand the way in which many Theistic Evolutionists interpret Genesis. They see the first chapters of the Bible as examples of a poetic, story-telling style, rather than as history. The Israelites passed the story of creation down to their children by telling stories aloud. The repetition in Genesis ("And God said . . . and it was so"; "and there was evening, and there was morning"; "And God saw that it was good") would have helped them to remember the story. In their oral culture, the stories were written in memory, not on a page.

†. *NIV Study Bible*, note on Genesis 1:27.

The ancient Hebrews understood that the point of Genesis 1 was not to teach them the exact order and timing of creation, but rather, that there is one God supreme over creation (a radical idea in the ancient Middle East), who created all things good and personally made humans in his image as the pinnacle of his creation. When we try to put ourselves in the shoes of the original recipients of Genesis, the timeless truths that God is teaching us through it become clearer.

> *"I think it's worth pointing out that Genesis was written by a non-scientist for non-scientists, and so it's a bit of an abuse of Scripture to pretend, or to treat it, as though it's a scientific textbook that can only be understood by people in the latter half of the 20th century or the early 21st century. Treating it as a scientific textbook is silly. It's wrong; it's not trying to be that."*
> *– Professor Katherine Blundell*

Remember our exercise on models from Day 1 of this week (page 31)? Theistic Evolutionists would say that God revealed truth to the original audience using a model of the cosmos that they understood. Although scientific research helps us to understand the physical structure of the universe according to a different model, the truths of God's creation and power are as important for us as they were for the ancient Hebrews.

3. Interpretations of Genesis 1: A summary

Having looked at these different positions on creation within Christianity, let's put some of the pieces together by comparing how the different views interpret Genesis 1.

Study the following Venn diagram and answer the questions below:†

GOD IS CREATOR

1

We should read Genesis 1 as a historical and scientific, common-sense statement of the facts.

The six days in Genesis are twenty-four hours long, so in total God created the world in 144 hours, about 10,000 years ago.

This is the only way to take the Bible seriously. The Sabbath commandment in Exodus that refers to the creation week, and the genealogy of Jesus in Luke, support this view.

Advocates of this view look for scientific evidence that the earth is much younger than mainstream science claims, and that evolution cannot have happened.

This view is incompatible with modern mainstream science and says that mainstream science has interpreted the evidence wrongly because of false assumptions about the physical laws (i.e., that they are always the same through time and space).

For example, there is the idea that small changes may have taken place in animal populations (microevolution) but new species could never form, and that gaps in the fossil record back this up.

ASSUME MIRACLES IN CREATION

2

The days of Genesis 1 refer to long periods of time. The Hebrew word *yom* has as many different meanings as day does in English. Hebrew does not have a word for a long period of time (era, epoch, etc.), so *yom* was used instead.

The biblical support for this view comes from the seventh day of God s activity, which is never said to end. This is used by Jesus to clarify the Sabbath law and as a theological theme about heaven by the author of Hebrews. In addition, Scripture teaches that for God a day is like a thousand years, showing that God measures time differently than we do.

In this view, the events of natural history happened in the order given in Genesis 1, but were stretched out over much longer periods of time. This is consistent with the billions-of-years time frame of mainstream science, but the order of events is somewhat different. God miraculously intervened at some points during the development of creation, such as the creation of plants or birds. (These were not created in the order suggested by evolutionary biology.)

VERY OLD UNIVERSE, LONG TIMESCALE OF CREATION

3

There are different types of literature in the Bible: history, songs, poems, parables, etc. Genesis 1 should be interpreted with an eye for literary devices such as repetition and figurative language, and with an understanding of cultural, historical and biblical context.

For example, the sun and moon are not called by their proper names, because these names also referred to gods in the surrounding pagan cultures. Instead, they are called big lamp and small lamp to emphasize that there is only one God. The narrative is structured around God creating spaces by separating things, then filling those spaces:

SEPARATION	FILLING
Day 1, Light and darkness	Day 4, Sun and moon
Day 2, Sky and sea	Day 5, Birds and fish
Day 3, Sea and dry land	Day 6, Animals and humans

In this view, Genesis is not a scientific text. We should look first at what the text meant to the first audience to learn its non-scientific message (the who and why), then at modern science to understand how and when God created the universe, the earth and life.

Note: The diagram does not include Intelligent Design, because ID makes no claim to be a religious view. It is compatible with certain forms of all three of these views.

A. What belief do all three of these views share in common?

_____

†. *Test of FAITH Leader's Guide*, page 106. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010.

A theologically important part of the creation account is that God created humans in the *imago dei* (Latin for the "image of God"). Within the views represented above, there are three main interpretations for Genesis 1:27.

1. God specially created us as we are—evolution had no part to play.
2. God took evolved *Homo sapiens* and chose them to bear his image by divine fiat (decree).
3. There was a growing spiritual awareness in *Homo sapiens*.

In all three of these interpretations, there is a point when humans come into relationship with God. The image of God is something God gives to us and has nothing to do with our own abilities. It would be impossible to know the details for any of these possibilities, but whatever happened, at least as far as the second and third positions are concerned, at some point a pair or group of creatures came into personal relationship with God.

Note: We will be examining the "image of God" in more detail in Part 3.

The concept of models gives us another way of expressing the three views (Young Earth Creation, Progressive Creation, and Theistic Evolution). Each view is a model for interpreting both the biblical and scientific information.

B.* Below are a series of statements taken from Genesis 1–3. For the three models, decide into which column each statement would fit. (For example, how would a Young Earth Creationist view statement 1? How would a Progressive Creationist view it? A Theistic Evolutionist?) Thus you should enter all the statements three times, one for each model. (You may use the reference numbers rather than trying to squeeze the sentences into the boxes. We have done statements 1 and 2 for you.)

1. God made the universe from nothing.
2. God made the universe in six days/ordered periods (this answer fits in more than one column for Progressive Creationists).
3. God existed before creation and is independent from his creation.
4. God made the universe in an orderly way.
5. God made light before he made the sun and the stars.
6. Different species exist.
7. God is powerful.
8. God made his creation good.
9. Humans came last in the order of creation.
10. God formed Adam out of the dust of the earth, and Eve out of Adam's rib.
11. God made people in his image.
12. People care for creation at God's command.

	Similar to my understanding of reality (literal)	Eternal truths (general principles)	Different from my understanding of reality (figurative)
Young Earth Creationism	2.	1.	
Progressive Creationism	2. (6 ordered periods)	1.	2. (Ages, not days)
Theistic Evolution (Evolutionary Creationism)		1.	2.

Amid all of these competing models and viewpoints, we can keep a sense of perspective by focusing on the timeless truths that unify us. Christians believe in God as the sovereign, loving Creator who has sent his Son, Jesus, for us—and he is the source of our unity and our hope.

Day 3: Chapters 3, 4, and 5

Part 2, chapter 3: RANDOM CHANCE?

Introduction

Many people think that evolution equals purposelessness and random chance. This view of evolution would contradict what we know about God from the Bible—that he rules sovereignly and lovingly over all creation. So how do believing scientists reconcile their faith with evolution's seeming lack of purpose? Ard Louis and Simon Conway Morris shed light on this question.

In chapter 3 of the DVD we will learn about

1. The concept of randomness in science
2. The theory of convergence

Watch Part 2, chapter 3 (4 minutes)

Stop at Simon Conway Morris: ". . . are they themselves in any way congruent with those world pictures?" (18 minutes 27 seconds)

Discussion and questions

1. Randomness in science

A. What are the two meanings of the word "random" that Ard Louis describes?

- _____
- _____

_____

B. Which meaning does he say fits with evolution? _____

2. *Convergence†

Simon Conway Morris explains that because the process of evolution *seems* to be open-ended (everything seems equally likely to evolve and therefore anything could happen), some atheists make a metaphysical assumption that everything *is* accidental. However, the field of convergent evolution questions this purposelessness by hypothesizing that there is actually a sort of pattern within evolution. It may be that, instead of random mutations going off in any direction, evolution actually leads down a few well-defined roads.

Simon Conway Morris thinks that there are only so many ways that the process of evolution (on any planet) could "make" things. The evidence he points to is "convergence."

We can see one example of convergence in North American and Australian mammals. The fossil record shows that certain types of mammals evolved independently in these two continents; we can deduce this because the North American versions were placental mammals, and the Australians were marsupials (with pouches like kangaroos).

Cool words!

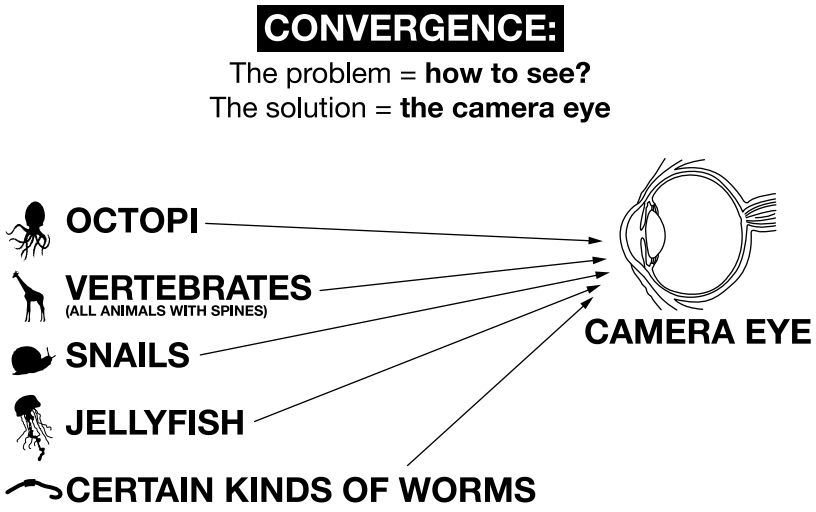
Convergence – from Latin: the prefix *con* ("with, together") has been added to *vergere* ("to bend"). "To converge" means to come together, to approach each other.

†. Excerpts from *Test of FAITH Leader's Guide*, page 107. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010.

However, even though these mammals evolved separately, they acquired remarkably similar characteristics. So in Australia there were marsupial moles, flying squirrels, wolves, and mice, to match their placental North American counterparts.

This example demonstrates that the process of evolution is not completely random, but that natural selection *converges* on certain solutions to a problem (such as how to "make" effective diggers, treetop dwellers, or predators).

Conway Morris mentions another example of convergence, the camera eye:



Convergence shows that evolution is not completely "random" and purposeless; rather, it points to order and structure in the universe.

Does Simon Conway Morris say that convergence proves God? Why or why not?

_____

_____

_____

_____

Part 2, chapter 4: THE PROBLEM OF SUFFERING

Introduction

The early chapters of Genesis are important not only because they teach us about God as Creator, but also because they help us understand human nature and the origins of sin and suffering. The "problem of evil" has forced theologians and philosophers over the centuries to grapple with the question, "How could a loving and all-powerful God allow suffering?" The questions of sin, suffering, and death pose an additional challenge to Christian supporters of Theistic Evolution, because the mechanism of natural selection over millions of years involves genetic mutations and the death of organisms as a natural part of the process.

How do these "imperfections" square with Genesis accounts of a pre-fall paradise, and with the doctrine that death entered the world through sin (with the fall of Adam and Eve)? And, with the reality of death and sin in our fallen world, how can we have hope?

In chapter 4 of the DVD we will learn about

1. How some Theistic Evolutionists address the problem of physical evil
2. How human death fits into the evolutionary and biblical accounts
3. The hope of the gospel

Cool words!

Doctrine – from Latin: *doctrina* means "teaching" (from *doctor*). Christian doctrine means the body of teaching that Christians believe.

Watch Part 2, chapter 4 (8 minutes)

Stop at Alister McGrath: ". . . and until science confronts that enigma, we're stuck." (26 minutes 00 seconds)

Discussion and questions

1. Physical evil

If evolution were the mechanism by which God created the world, how could he include suffering and death as part of his creative process? Francis Collins's explanation is that perhaps some of the suffering in the world is unavoidable, a consequence of the physical nature of our world. For example, the shifting of the tectonic plates (which causes earthquakes and tsunamis) is perhaps the best way to make the earth, as God created it in his infinite wisdom, stable and fit for life. Similarly, evolution requires mutations in DNA, which are good and necessary for the adaption of species even in a non-evolutionary sense—but which also inevitably cause cancer and various genetic disorders.

A. What are some of the causes of suffering in the world around us? Try to come up with a few examples of evil and suffering caused by people, nature, or both.

People	Nature	Both
Corruption	Droughts	People starving

Collins makes a distinction between the pain and suffering we experience as a result of "physical evil" and that which we experience as a result of human sinfulness (although, as you saw above, the lines can sometimes be blurred). Some Theistic Evolutionists might say that while physical evil was part of the world before the fall, evil due to human sin only entered the world after the fall.

B. What are the two possible explanations for the existence/origin of physical evil?

- _____
- _____

How could pain and suffering be part of God's original plan for us in a world God declared to be "good"? There are several possible ways of looking at this:

- What if people did not experience physical suffering as evil before the fall?
- What if God protected people from physical suffering in the Garden of Eden?
- What if the "good world" was not meant to be a perfect paradise, but the place where people are made ready for eternal life in the new creation?

C. *What do you think? Do you think that Adam and Eve, even if they hadn't fallen, would have experienced pain and suffering?

_____

_____

_____

2. Human death

Over and above pain and suffering, how does death figure into both the biblical and evolutionary pictures? The process of evolution depends on death (at least in the plant and animal kingdom). Did plants and animals die before the fall? If the fall had not occurred, would Adam and Eve have eventually experienced physical death? The Bible talks about three types of death:

- Physical death (Genesis 25:8)
- Spiritual death (Colossians 2:13)
- Eternal spiritual death, or the second death (Matthew 10:28)

Which type of death do you think resulted from Adam and Eve's disobedience? When or how did it happen?

_____

_____

_____

3. The hope of the gospel

Now that we have thought through how some Theistic Evolutionists might respond to the various issues that evil and suffering present, Alister McGrath helps us see the big picture.

A. Some atheists might look to science and technology as a way to overcome the evil around us. Why does McGrath say that we cannot ultimately look to science to save our world? (What is the "enigma"?)

_____

_____

McGrath says that although evolution may explain how we got here, it cannot form a Christian's philosophy of life.

> **"** *As I read the New Testament I see a whole series of value statements that are completely opposed to Darwinism. . . . Maybe the gospel actually is saying to us we need to articulate a system of values which contradict those that we see in nature around us; that the way nature behaves is not the way things are meant to be; that just because species are in competition, we don't need to be in competition with each other. It's about a higher ethic than that." – Dr. Alister McGrath*

B. What are some of the "value statements," virtues, and commands from the New Testament that oppose a philosophy of "survival of the fittest"? (Hint: If you are stuck, look up Matthew 5:3–10; Matthew 19:30; Luke 20:45–47; Philippians 2:3–11; 1 Corinthians 12:22–23; Galatians 6:2; James 2:1–5.)

_____

_____

_____

_____

_____

C. *Whether we think that suffering was part of the world from the beginning or entered the world as a result of the fall, the bottom line is that we live in a world where God allows suffering. However, Christians believe that God does love us. God shows his love in many ways and cares for us by helping us to cope with suffering. What kind of help does God give us to face suffering?

Read Revelation 21:1–4.

D. What is God's ultimate purpose for creation?

Part 2, chapter 5: CARING FOR CREATION

Introduction

The book of Genesis not only explains our origins, but it also gives us a place and a role within our world. God gave Adam and Eve a command, known as the "creation mandate," to rule and look after the earth. Humans, however, have not always fulfilled this mandate very well. Christians today carry that same responsibility to care for our planet, as we look forward to the day of Jesus' return when God will redeem and renew the earth. In this chapter we will explore general principles of stewardship and then apply them to a few specific issues.

In chapter 5 of the DVD we will learn about

1. Developing a biblical framework for stewardship
2. Environmental issues in our world today
3. The specific issue of climate change
4. The practical implications of stewardship for our lives

Watch Part 2, chapter 5 (3 minutes)

Watch to the end of the episode.

Discussion and questions

1. A biblical framework for stewardship

> *"When we go back to Genesis and the command that we are given . . . God doesn't give us the command: get everything right about the age of the earth or exactly what happens in biology. . . . The command we have is to look after the earth, to be good stewards of the earth, to care for the earth in the right kind of way." – Dr. Denis Alexander*

The idea that God has put us on the earth to look after it is called "stewardship." A steward rules and manages a kingdom on behalf of the king—just as we are called to care for the earth as God's representatives and image-bearers. What does this stewardship look like? If we want to address the practical concerns of stewardship, we need to learn what the Bible says about how and why God wants us to care for creation. Starting with the truths of the Bible helps us to build what is called a biblical framework.

Look up the following Bible passages and write down answers to the questions.

A. Psalm 65:5–13; Psalm 104:24–31; Psalm 145:9. What is God's attitude towards and involvement with his creation?

B. Genesis 1:28–31; Genesis 2:8, 15; Psalm 8:3–8. What role and responsibilities does God give to humans?

C. Matthew 25:14–30. What is expected of a servant, or steward?

D. Romans 8:19–23. What is the state of creation now? What will it be in the future?

2. Environmental issues

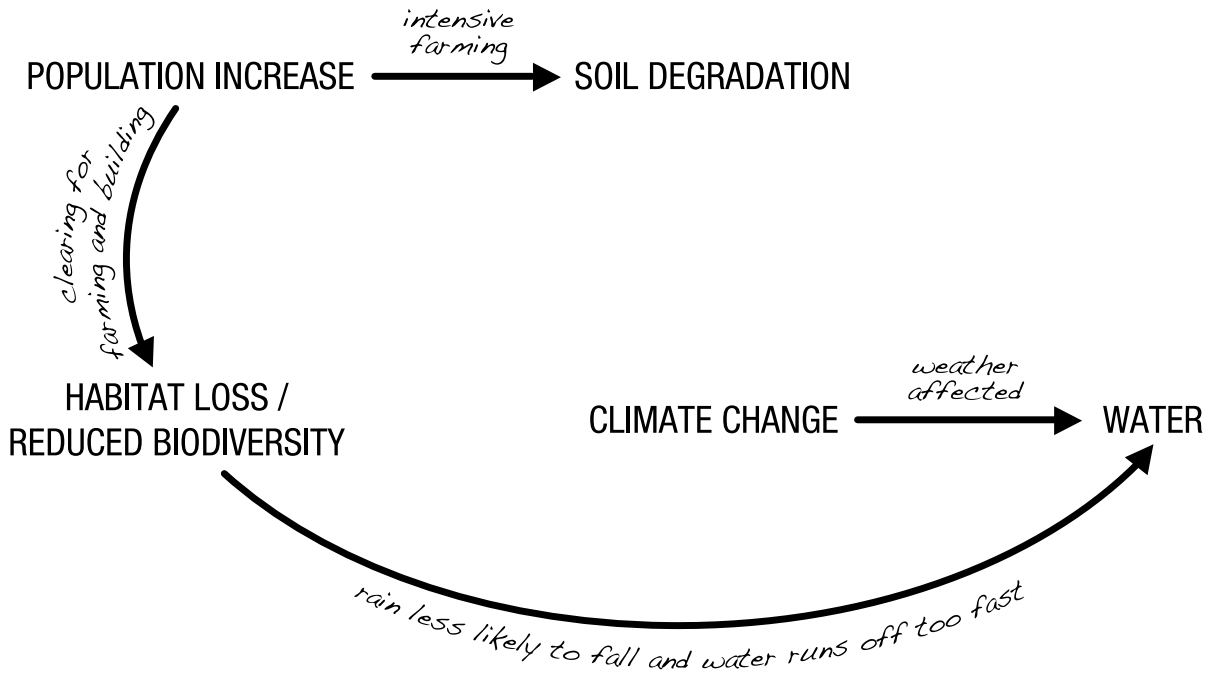
This framework of stewardship, along with Jesus' command to love our neighbor as ourselves, must inform how we approach environmental issues. These issues not only affect the earth, which God created and loves, but they also have a great impact on the poor. The following problems are most likely to harm people in developing countries:†

- **Population size** – The population of the world has more than doubled in the last 50 years, raising concerns about whether there will be enough food and water for everyone. (World population in 2011: 7 billion; and in 1965: 3.34 billion.)

†. *Test of FAITH Leader's Guide*, p. 72. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010.

- **Climate change** – A small increase in the overall temperature of the earth's atmosphere has a huge effect on the weather.
- **Water** – A growing population creates challenges for the provision of clean water. Changes in climate can bring devastating drought or floods.
- **Soil degradation** – Overgrazing and deforestation mean that soil is washed from exposed land.
- **Habitat loss** and **reduced biodiversity** – Human population expansion can destroy places where living things usually grow, which causes a reduction in the number and variety of living things growing in the world.

*These issues are often interconnected. Can you map out how they might be related? (We have given you a few arrows and labels to get you started.)



3. Climate change

How seriously do you think we should take the issues above? (circle your answers)

A. General environmental issues:

Not a problem *A minor problem* *A major problem* *An urgent problem*

B. Climate change:

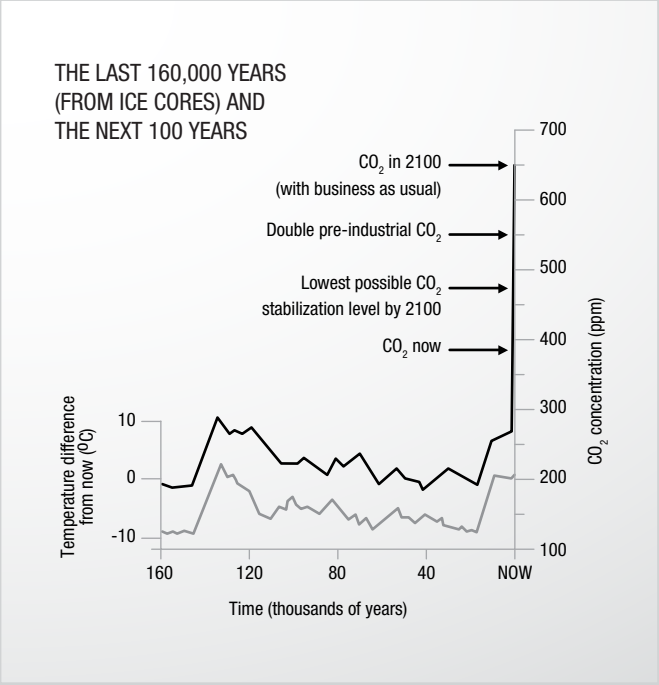
Not a problem *A minor problem* *A major problem* *An urgent problem*

Many people do not agree about the causes and extent of climate change. In order to discuss and address these issues we have to find answers to questions such as the following: What effect has human activity had on the global temperature increase? How much of this increase is due to natural causes? Will the temperature continue to rise? If it does, what will the future hold for plants, animals, and people?

To explore some of these questions, read the information below.† Some hype surrounds the effects of global warming, so we have been careful to present scenarios based on the most accurate predictions and to leave out any that are more speculative.

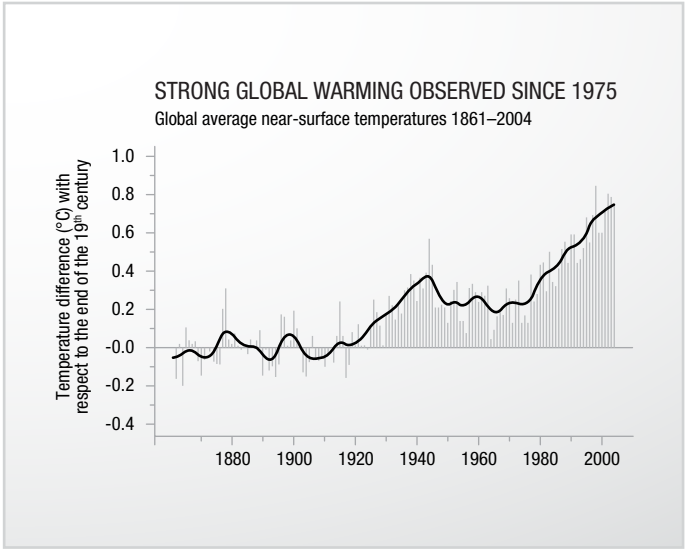
The Science behind Climate Change

"Greenhouse gases" in the earth's atmosphere such as water vapor, carbon dioxide or methane, trap heat and keep the earth warm. This "greenhouse effect" keeps the earth 20 – 30°C warmer than it would otherwise be and is essential for our survival. But the greenhouse effect is increasing. We have a record of what the weather was like in the past, and of the gases in the air at that time, preserved for us in the ice caps in Greenland and the Antarctic. Scientists can drill down through the layers of ice that have built up over thousands of years and analyze the bubbles of gas trapped in each layer. From this we can see that, since the beginning of the industrial revolution in the 1750s, the amount of carbon dioxide in the atmosphere has increased by nearly 40%. With chemical analysis we can see that this is mostly because of the burning of fossil fuels (coal, oil and gas).



The average temperature on earth has risen over the last century. There is strong evidence that most of this rise has been caused by the increase in greenhouse gases, and especially carbon dioxide. Scientists predict that, during the twenty-first century, the average temperature will rise by 2 – 6°C. This doesn't sound like very much, but the difference in average temperature between the middle of an ice age and a warm period is only about 5 – 6°C. The predicted temperature rise could have a huge impact.

As water heats it expands, so as temperatures continue to increase the sea level will rise, flooding low-lying coastal areas around the world. The temperature changes already produced by humans will take hundreds of years to feed into the deep ocean, so the sea level will continue to rise for hundreds of years even if we stopped producing any more greenhouse gases overnight. Warmer temperatures will also cause greater evaporation of fresh water on land, leading to more water vapor in the atmosphere and more rain or snow. This will cause drought in some areas and flooding in others. There is no evidence that hurricanes will become more common, but it is possible that they will become more severe as the surface temperature of the sea increases.



Met Office Hadley Centre

All of these changes in the weather will affect the ability of humans, plants and animals to survive. The worst impact will be felt in developing countries. In the short term, crop yields will increase in colder countries, but the damaging effects in warm countries, flooding and storms will far outweigh these advantages. Eventually crop yields will decrease worldwide as temperatures increase further. If we cut down our production of greenhouse gases now, the harmful effects will be greatly reduced. It has been argued that developed countries, which have benefited from burning huge amounts of fossil fuels, should make the biggest efforts to cut down and allow developing countries to continue to develop.

†. *Test of FAITH Leader's Guide*, p. 109. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010. (Based with permission on the JRI briefing paper by Sir John Houghton, "Global Warming, Climate Change and Sustainability: Challenge to Scientists, Policy-makers and Christians" [2007] www.jri.org.uk.)

Climate Change Questions†

Q1: The earth's climate always varies. Aren't we just in a natural period of warming?

A: The earth's climate varies due to many different factors, including cycles of ice ages caused by changes in the distance between the earth and the sun, volcanic eruptions and changes in the sun itself. However, none of these factors is enough to explain the rapid changes in the last 100 years.

Q2: There isn't enough carbon dioxide in the atmosphere to cause any significant change, is there?

A: Although there isn't a big volume of carbon dioxide (CO_2) in the atmosphere, it can have a significant effect. It has a direct effect because it traps heat very strongly. It also has an indirect effect because, as the earth warms up, water evaporates more quickly from lakes and the sea. This increases the amount of water vapor in the atmosphere, which causes an even stronger greenhouse effect.

Q3: Isn't the increase in carbon dioxide in the atmosphere the result of climate change, rather than the cause?

A: As the oceans and soil warm up they do release carbon dioxide into the atmosphere. Scientists can find the origin of carbon dioxide in the atmosphere through chemical analysis. Most of the increase in CO_2 levels comes from burning fossil fuels.

Q4: I thought that the observations of weather balloons and satellites were inaccurate?

A: In the early 1990s there were errors both in the way that data was collected and in the way it was analyzed. These errors have been corrected, and now the data from weather balloons and satellites agrees with data collected by other methods.

Q5: Aren't computer models of the climate inaccurate?

A: Although the climate is very complex, scientists have been able to create increasingly accurate models of the way it works. These computer models have been used to simulate changes in the climate over the course of the last century, and their simulations have matched what actually happened. Using these models scientists can give general predictions about the course of the climate in the future on a global scale, based on different predictions about human behavior.

Q6: Isn't climate change caused by the sun becoming more active?

A: The sun's activity does play a role in shaping climate. However, that alone is not enough to explain the recent warming. Also, there has been very little change in the sun's activity over the last three decades, so this cannot account for the observed warming.

Q7: Surely it's not a big deal. Aren't climate scientists exaggerating?

A: The earth's ecosystems are very finely balanced. Even a change of 2 – 3°C would be greater than has been seen for ten thousand years, and many species would find it very difficult to adapt. The people most affected will be those in developing countries and the poor, creating greater inequalities in access to food, clean water and medical treatment.

†. *Test of FAITH Leader's Guide*, p. 110. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010. (Adapted with permission from "Climate Change Controversies: A Simple Guide," The Royal Society [2007] http://royalsociety.org)

C. Respond in the box below to the information you have just read. Which area of the debate interests you or raises questions in your mind? Which issues would you like to explore and research further?

4. Practical implications

As stewards of creation, we should be informed and concerned about all of these issues. As believers in a sovereign God, however, we do not have to live in fear or despair because of them. Some environmental activists have used "doom and gloom" to try to scare people into action. By contrast, Christians can act out of a positive motivation: God loves creation and has delegated its care to us. Our hope amid these environmental problems is that God will one day redeem this fallen world—and in the meantime, we can faithfully fulfill our role as caretakers of creation. As we do so, we will be loving our neighbors and letting our lights shine.

A. What are some ways you can care for the environment where you live?

B. Complete the "personal lifestyle audit" below (not all of these options may be available to you, depending on where you live).† These questions provide a measure for checking out your lifestyle and thinking with reference to the environment. Your answers and scores should be a stimulus for discussion and action, so be as honest as you can! Use the definitions below to clarify the questions. Please check a box for each question. What is your score?

"What on earth am I doing?" A personal lifestyle audit

I (or my family members) buy:	I do it	I think about it	It doesn't cross my mind
Environmentally friendly laundry detergent			
Items with less packaging (whenever possible)			
Items with less transport miles (when aware)			
Recycled paper / envelopes / toilet paper / paper towels			
I (or my family members) recycle:			
Newspapers / waste paper			
Glass			
Aluminum or steel cans			
Plastic			
Garden waste (by composting)			
Kitchen waste (by composting)			
Clothes / books (by taking them to a thrift store)			
I (or my family members) make a point of:			
Using local stores instead of out-of-town supermarkets			
Using public transportation or carpooling			
Riding a bike or walking instead of driving			
Using energy-saving light bulbs			
Turning off electrical items when they are not in use (not leaving them on stand-by)			
Eating vegetables/fruits which I have grown myself			
I (or my family members) support:			
Local conservation groups			
National environmental organizations			
Birds, by providing food in my garden and putting bells on any cats I own			
Local wildlife, by gardening organically			
Add up your scores in their columns. Each point is worth:	**2**	**1**	**0**
Grand total	+	=	

†. *Test of FAITH Leader's Guide*, pp. 79–80. Reproduced with permission, Paternoster 2009, Wipf & Stock 2010. (Adapted with permission from Ruth Valerio, author of *L is for Lifestyle: Christian Living that Doesn't Cost the Earth* [IVP, 2008].)

Scores and Definitions

0–13	Being a Christian doesn't impact your lifestyle or thinking about these issues much. Choose an issue which interests you and discover how you can make a difference.
14–28	You're thinking about making a difference, but getting around to it remains a challenge. It's time to do those things you've been putting off!
39–42	Your lifestyle reflects that you've made changes. Challenge yourself to find out more and keep going!

Environmentally friendly means being sensitive to the need to reduce the use of natural resources, considering pollution and the amount of energy used by producing or using a product.

Transport miles refer to the mileage covered by an item from the producer of the raw ingredients to the shop floor. For example, a locally grown potato may travel to a washing center and then to a distribution center before it reaches your local superstore, however the local market will sell it dirty direct from the farm! More transport is used, and therefore more congestion and pollution are produced, by shopping at superstores.

Recycling is the idea of using materials again. If an item cannot be re-used in its present form, it can be broken down and the materials used again. This process uses far less energy and fewer natural resources than using raw materials each time.

Carpooling makes use of spare seats in cars when two or more people are travelling to the same destination at the same time.

Bicycling is a far more environmentally friendly means of transportation than driving. For example, a bicycle can be pedalled for up to 1037 km on the energy equivalent of a quarter of a gallon of gas (nearly 300 mpg). In addition, a regular adult cyclist on average exhibits the fitness levels of someone ten years younger.

Days 4 and 5: Extension

Choose one of the following questions and write a 1–3 page (300–900 word) essay in response. Essay questions are divided into three levels based on difficulty. (Question 1 is not an essay.)

The effective essay will contain an engaging introduction, a well-argued and organized body, and a solid conclusion. Where appropriate, use quotations and cite your sources.

Alternatively, you could prepare and give a presentation rather than write an essay.

Resources to help you in your research are listed beneath some of the more specific questions. General resources are listed at the end of this section.

Please use discernment as you research. Teachers should oversee the websites students are accessing. Test of FAITH *may not necessarily endorse all the material on the websites recommended below.*

Creation

1. The Bible is full of poetry which conveys both truth and emotion. The biblical authors wrote their poetry based on what they knew about the natural world; now, however, science has enlarged our scope for wonder at God's creation. Combine what you know from the Bible about God as Creator with more recent discoveries from science to write your own modern "psalm" praising God. For biblical examples, look at Psalm 104, Psalm 148, and Job 38–41. For scientific discoveries on which to focus your poetic imagery, think about what we now know about the size of the universe, the workings of atoms and cells, the variety of species on earth, the intricacy of the human body, etc. *(Foundation)*

2. Research and describe two or three of the structures that Intelligent Design says are irreducibly complex. Include the objections from other scientists who say that these structures have evolved. Which explanation do you think makes most sense? *(Foundation)*
    - Discovery Institute. <www.discovery.org>.
    - Map of Life: Convergent Evolution Online. <www.mapoflife.org>.
    - Miller, K.R. (2004, July 12). "The flagellum unspun: The collapse of 'irreducible complexity.'" In W.A. Dembski and M. Ruse (eds.), *Debating Design*. Cambridge University Press. <www.millerandlevine.com/km/evol/design2/article.html>.

3. Both Intelligent Design and convergent evolution point to the camera eye as a marvel of intricacy. Research and describe the camera eye. How does it work? (You may need to provide or create some visuals for this.) What is so amazing about the camera eye? Why would both an ID advocate and a convergent evolutionist say that it is the best solution for seeing? *(Intermediate)*
    - Discovery Institute. <www.discovery.org>.
    - Map of Life: Convergent Evolution Online. <www.mapoflife.org>.

4. The famous evolutionist, Charles Darwin, wrestled with questions of faith throughout his life. How did Darwin's "God of the gaps" thinking and his experience of suffering affect his faith? *(Intermediate)*
    - Darwin Correspondence Project. (Search "Themes" to find out what Darwin wrote about religion.) <www.darwinproject.ac.uk>.
    - Spencer, N. (n.d.). "Darwin's test of faith." Test of FAITH. <www.testoffaith.com/resources/resource.aspx?id=251>.
    - Spencer, N., and D. Alexander. (2009). "Rescuing Darwin." Theos. <http://campaigndirector.moodia.com/Client/Theos/Files/RescuingDarwin.pdf>.
5. Research the Human Genome Project. What are some of the discoveries that this project has made about our genetic material? Look at viral insertions into the human genome, and at similarities between the human genome and other organisms. How do you think that this data fits with how God created the world? (You might want to engage with Francis Collins's questions: Are these similarities simply due to the fact that God used common motifs in his creation? Would God make our genes *seem* to point to a common ancestor in order to "test our faith"? Or does the evidence show that we do in fact share a common ancestor with primates?) *(Advanced)*

- Finlay, G. (2009, April). "Human genomics and the image of God." Faraday Institute for Science and Religion. Faraday Paper Number 14. <www.st-edmunds.cam.ac.uk/faraday/Papers.php>.
- National Human Genome Research Institute, Education page. <www.genome.gov/10001772>.
- Test of FAITH. (n.d.). "Briefing sheet: Evidence for evolution." <www.testoffaith.com/resources/resource.aspx?id=248>.

5. Research and summarize the theory of convergence within evolution. What are some examples of convergent evolution? What does convergence imply about the world around us and the process of evolution? How does this developing field of evolution fit with the metaphysical framework of atheism? (What would an atheist say about convergence?) How does convergent evolution fit with the metaphysical framework of Christianity? (What would a Theistic Evolutionist say about convergence?) *(Advanced)*
    - Map of Life: Convergent Evolution Online. <www.mapoflife.org>.

6. Choose a view on creation *different* from the one which you hold or know most about, and interpret Genesis 1–3 through that lens. You will need to research what this viewpoint says and present the best possible arguments that you can find for it. Either (A) provide a general overview that reconciles the scientific evidence with the Genesis 1–3 account, or (B) choose one "tricky bit" of the biblical text to research and explain in more depth, from the perspective of your chosen view. (Questions you may want to address include: What was the mechanism/timing for God's creation of the world? Who were Adam and Eve? What does the "image of God" mean? What happened at the fall? Did physical evil, suffering, and death exist before the fall, or did they enter the world as a result of the fall?) If you wish, at the end of your paper you may critique the view, stating the difficulties with that view from a scientific and/or theological standpoint. *(Advanced)*

    As a starting point for your research, see the general resources page on creation (next page). For specific articles on Theistic Evolution, see the following:
    - Keller, T. (2009, November). "Creation, evolution, and Christian laypeople." BioLogos Foundation. White Paper No. 5. <biologos.org/uploads/projects/Keller_white_paper.pdf>.
    - Lucas, E. (2007, April). "Interpreting Genesis in the 21st century." Faraday Institute for Science and Religion. Faraday Paper Number 11. <www.st-edmunds.cam.ac.uk/faraday/Papers.php>.
    - Test of FAITH. (n.d.). "Briefing sheet: Reading Genesis." <http://www.testoffaith.com/resources/resource.aspx?id=244>.

The environment

1. What is one practical way that you could make a difference in helping to take care of the environment? Make an action plan for yourself and/or your family. *(Foundation)*

2. Choose an environmental issue to research. What are the causes? What are the effects? What could be done on a broad scale and/or on a local level to address this issue? *(Intermediate)*

3. The physicist Albert Einstein said, "Science without religion is lame; religion without science is blind." Science specializes in knowledge, but wisdom begins with the "fear of the Lord" (Proverbs 9:10). How might the Bible and science work together to provide some possible solutions to environmental issues? Choose an environmental issue; research and describe the issue, and then discuss how scientists and believers might come together and contribute their different strengths to address this issue. *(Advanced)*

4. Research and explain the evidence for and against the reality of climate change. Why should Christians be concerned about climate change? Or, why should they not be concerned? Take a position and defend it, using research to back up your conclusions. *(Advanced)*

General resources: Creation

Websites

- www.asa3.org/ASA/topics/evolution/index.html. The American Scientific Affiliation's Creation and Evolution page, which includes many articles from different Christian perspectives (see especially "Biblical/Theological Papers," "A Spectrum of Creation Views Held by Evangelicals," and "Evolution Basics").
- www.answersingenesis.org. Answers in Genesis (Young Earth Creationism).
- biologos.org/questions. BioLogos Foundation (Theistic Evolution).
- www.counterbalance.org. Counterbalance online library, see pages on "Origins," "Where did we come from?" and "Was the universe designed?"
- www.discovery.org. The Discovery Institute (Intelligent Design).
- www.mapoflife.org. Simon Conway Morris's database on Convergent Evolution.
- www.reasons.org. Reasons to Believe (Progressive Creation).
- www.testoffaith.com/resources. Test of FAITH's resource page includes downloadable articles and briefing sheets, as well as footage from interviews with scientists which did not appear on the DVD.
    - Short articles
        - Spencer, N. (n.d.). "Darwin's test of faith."
    - Briefing sheets
        - "What does the 'image of God' mean?"
        - "Reading Genesis"
        - "The age of the earth"
        - "Evidence for evolution"
        - "Intelligent design"
        - "Random chance?"
    - Interview clips
        - Denis Alexander: 10 clips on Young Earth Creationism, evolution, Adam and Eve, the fall, evil and suffering.
        - Simon Conway Morris: 8 clips on convergent evolution, randomness, Intelligent Design, neo-Darwinism, wastage and death in evolution.
        - Darrel Falk: 5 clips on the age of the universe, Genesis 1–3, Intelligent Design.
        - Ard Louis: Young Earth Creationism, Intelligent Design, randomness.
        - Francis Collins: "Practical applications of the Human Genome Project," evolution, altruism, and the problem of suffering.
        - Deborah Haarsma: Genesis narrative in cultural context, randomness.
        - John Bryant: "Is the Bible scientifically accurate?"
        - Alister McGrath: Adam and Eve.
        - Jennifer Wiseman: 2 clips on the age of the universe, 2 clips on stardust.

Articles:

- Lucas, E. (2007, April). "Interpreting Genesis in the 21st century." Faraday Institute for Science and Religion. Faraday Paper Number 11. <www.st-edmunds.cam.ac.uk/faraday/Papers.php>.
- White, B. (2007, April). "The age of the earth." Faraday Institute for Science and Religion. Faraday Paper Number 8. <www.st-edmunds.cam.ac.uk/faraday/Papers.php>.

General resources: The environment

Websites:

- www.blessedearth.org. Evangelical, educational nonprofit with many resources and worksheets.
- www.creationcare.org. Evangelical Environmental Network.
- www.climatestewards.net. A carbon footprint calculator and carbon offset program.
- www.jri.org.uk. Resources, articles, and briefing papers on many topics.
- notbluenotred.com. Answers to common questions and objections about climate change.
- www.pbs.org/wgbh/nova/secretlife/scientists/katharine-hayhoe. Videos from an evangelical climate scientist, Katharine Hayhoe.
- temagami.tosm.ttu.edu/khayhoe/resources.html. Katharine Hayhoe's resource page.
- www.testoffaith.com/resources. Interview clip from Jennifer Wiseman on stewardship.
- www.skepticalscience.com. Arguments against climate change skepticism.

Articles:

- Blessed Earth. (2009). "Creation care themes throughout scripture." <www.blessed-earth.org/resources/creation-care-scripture>.
- Boorse, D. (2011). "Loving the least of these: Addressing a changing environment." National Association of Evangelicals. <www.nae.net/lovingtheleastofthese>.
- Houghton, J. (2009, September). "Global warming, climate change and sustainability." John Ray Initiative. JRI Briefing Paper, Number 14. <www.jri.org.uk/brief/Briefing_14_3rd_edition.pdf>.
- The Royal Society. (2010, September 30). "Climate change: A summary of the science." <royalsociety.org/policy/publications/2010/climate-change-summary-science>.
- --. (2007, June 30). "Climate change controversies: A simple guide." <royalsociety.org/policy/publications/2007/climate-change-controversies>.
- U.S. Global Change Research Program. (2009). "Global climate change impacts in the U.S." <www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/full-report/about-this-report>.
- White, R. (2006, December). "A burning issue: Christian care for the environment." Jubilee Centre. Cambridge Paper, Volume 15, Number 4. <www.jubilee-centre.org/document.php?id=53>.

Bonus interview clips on Test of FAITH *DVD:*

- John Houghton – Environmental issues (climate change, scientific honesty)
- John Houghton – The putrefied world (climate change and the poor)
- Alister McGrath – The purified world (stewardship, restoration of creation)
- Ian Hutchinson – What do we do? (population and consumerism)
- Catherine Cutler – What do we do? (carbon footprint)
- John Houghton – What do we do? (standard of living)