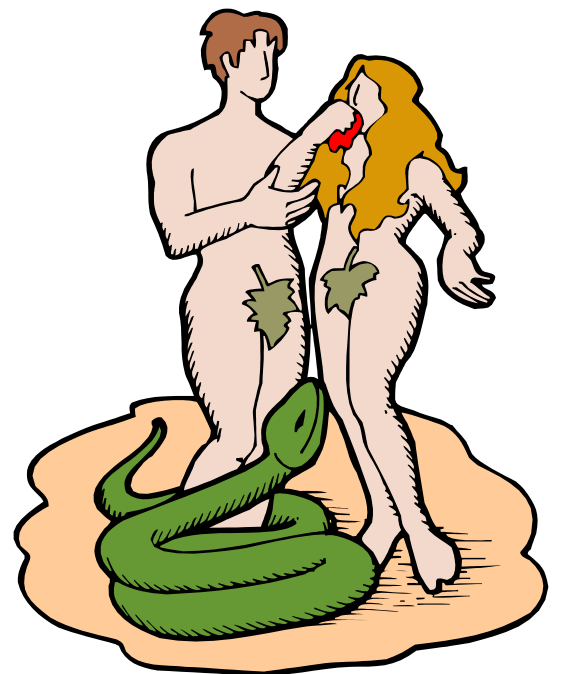
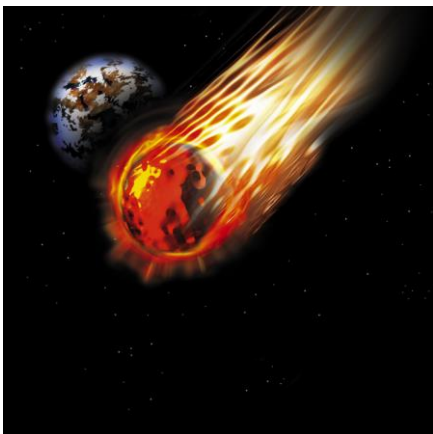




RELIGIOUS AND PHILOSOPHICAL QUESTIONS



RELIGIOUS AND PHILOSOPHICAL QUESTIONS

Course Aims

By the end of this course, you will be able to:

1. Develop the ability to analyse and reflect on, religious, moral and philosophical questions and their impact.
2. Develop a range of skills including investigating and explaining religious, moral and philosophical questions and responses, making comparisons, and the ability to express detailed and reasoned views.
3. Develop detailed factual and abstract knowledge and understanding of beliefs, practices and sources related to world religions.
4. Develop detailed factual and theoretical knowledge and understanding of religious, moral and philosophical questions and responses to them.
5. Develop your own spirituality based on deep thought and reflection.

Unit Outcomes

In this Unit you will be able to:

- 1. Apply knowledge and understanding of religious and philosophical questions by:**
 - Explaining a religious and philosophical question, in detail and referring to relevant theoretical or abstract ideas.
 - Explaining the significance of the question to people's lives, in detailed terms.
- 2. Analyse a religious and philosophical question and responses by:**
 - Explaining a religious response and a non-religious response to the question, in detail and referring to relevant theoretical or abstract ideas.
 - Comparing and contrasting the two responses, in detail and referring to relevant theoretical or abstract ideas.
 - Presenting a reasoned conclusion on the question and responses, with reference to supporting evidence and contrasting viewpoints.

The Nature of God: Introduction

Everyone has different ways of expressing what they believe in and when it comes to a belief in God, people will describe God in different ways depending on what God means to them. Some people describe God in very personal terms, using words like he and she and often giving God human characteristics. At other times God is described in impersonal terms, suggesting that God is above and beyond human comprehension. Often religion uses words like immanent and transcendent to describe God, immanent meaning close to and transcendent meaning far away.

God is also described by many as being all - powerful, **omnipotent**, all-knowing, **omniscient**, all - caring, **omni - benevolent** and everywhere, **omnipresent**. These descriptions are very different from the child-like ideas about God we have when we are younger and perhaps to understand God better one has to try to get rid of our childhood ideas and start to think about God in more sophisticated terms. One thing is certain though, to describe God to be only like a human is to limit God and for many their belief is they will never fully understand God completely.

Task:

- 1) Write down four sentences which describe what you think God must be like if he exists.
- 2) "People grow up in all kinds of ways, but their ideas about God never change." Do you agree or disagree with this statement? Give reasons for your answer.

One belief in God that many religions hold is that God is the Creator of all things. Many believe that the Universe is here as a direct result of God creating it and that everything contained within the Universe is part of that divine Creation.

So God's role as creator is extremely important to certain religions. The three main monotheistic religions, Christianity, Judaism and Islam all have similar beliefs about the creation of the universe and these can be found in their holy books namely the Bible, Torah and Qu'ran.

The idea of God being the creator of all things further emphasises the concept of God being transcendent because only something that is beyond the confines of the Universe could have created it. If God was not separate from the universe and beyond it, he could not have existed before it and therefore created it, and God would be limited by the world.

So for many God is responsible for the act of creation, without God there would be no universe, no earth and no us. However, not everyone believes the same thing and there are many who do not accept that God created the Universe, they believe that there is a more logical and scientific explanation for the origin of all things. To get a balanced picture of the ideas surrounding Creation and God we must also study the non-religions perspectives as well such as the Big Bang and Evolution.

In this next section, we will look first at the Creation stories as told by the Judaeo/Christian account in the Bible. As Judaism and Christianity share the same first 5 books of the Old Testament it will not be surprising then to find that their account of Creation as told in Genesis chapter 1 will be the same.

Copy out the word box into your jotters but keep it open-ended so you can add more key words as we go through the unit.

Theist:	Believe in God
Atheist:	Don't believe in God
Agnostic:	Unsure - Hasn't made up mind whether or not God exists

Atheists, Theists and Agnostics all have different views on how the world came about/ was created.



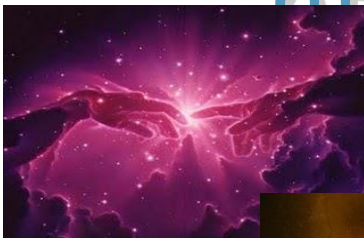
TASK: So before we go on, how did we get here?!!!



In pairs discuss the question below.

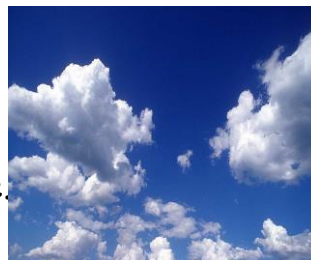
Q: How do you think the world was created?, write your thoughts in your jotter

The Creation Story of Genesis



In the **Genesis 1** creation story, the Bible says that God created everything and that the earth had no form with darkness everywhere. Then God said, 'let there be light', and all of a sudden, light appeared.

On the **second day** of creation, the sky and clouds were made. Then the trees, grass and flowers were created on the **third day** to make a beautiful place.



In order to help to mark the seasons and to provide light to God's creation, the sun, moon



and stars were created on the **fourth day**.

On the **fifth day** the waters were filled with living things and the



skies were filled with birds.



Finally on the **sixth day**, God makes all of the animals of the earth. One thing was still missing though....

Finally, God created the first man and the first woman and named them Adam and Eve. The Bible says that they were created in the image of God which meant that they would have a special relationship with God.



Finally once all of creation was complete, it was the seventh day. On this day, God looked at his creation and was very pleased. He said that his creation was good. Seeing such a beautiful world, God's work was complete and so he rested.

God gave Adam and Eve an important job to do. They were asked to look after the beautiful **Garden of Eden** and to name and care for all of the animals. This shows that God wanted humans to care for his creation because we depend on it. At the same time we should celebrate creation and enjoy it because it is a gift from God.

Not everybody understands or see

What do you see?



Rabbit or Duck?

Just as different people will see a different image in this picture, different types of Christian will understand a different meaning in the *Genesis Creation stories*.

Different kinds of Christian – Fundamentalist, Liberal

.... a lesson on Christian beliefs about the Creation story....

- **Creationist Christians,**
- **Liberal Christians**

Literalists/Creationist Christians are those who view the Bible as the Word of God and believe that it contains literal truth.

They might argue that since God is perfectly Good and perfectly Wise and perfectly Powerful.

He does not make mistakes. Therefore the Creation Story, as told in *Genesis*, is the whole Truth and nothing but the Truth.

They might say that it may be true that the Bible is
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- | |
|---|
| <ul style="list-style-type: none">• a collection of different books, written (according to scholars using textual analysis)• by some 80 different authors - all of them human and capable of making mistakes - |
|---|

- **over a period of more than 1,000 years.** It may be true that these different books were chosen from many more, by a
- **council of leading Bishops**, all of them fallible -

but, a Fundamentalist Christian might argue, all these people were **constantly watched over and guided by God's Hand.**

These people were divinely inspired. So all that they wrote, or all that they selected to be in this book, is exactly what God wished to be there. If He wished us to have something different in our hands today, He would have made it different. We can trust God and we can trust His Word, delivered to us in the form of the Bible. And if something from the secular world appears not to agree with the Bible, then it must be wrong, as the Bible is the only thing you can actually rely on.

This approach may sound ridiculous from the outside - but it gives Creationist Christians a great sense of strength and confidence. They have a firm foundation for their religious lives. And they can just get on wholeheartedly with their worship without looking sideways or wasting time with questions and doubts. Anything that questions the authority of the Bible and in particular the Creation story is seen as a "**test of faith.**" So scientific evidence for Evolution such as fossils are not considered to be real evidence or indeed a threat to Creationist Christians because they believe that God has put these things on the earth to try and trip them up to see who remains faithful to God and who is tempted by science to change what Creationist Christians consider to be the "truth."



Liberal (non literal) Christians view the Bible as an important document full of spiritual truth and guidance. They believe that it is central to their knowledge of God and Jesus and they should read it regularly as part of their worship. But they will also read other books, particularly by scholars who have studied the historical time when different books were written and can put them into the context of the political and social situation prevailing at the time.

Many Liberal Christians are scientists or have a very scientific attitude to life which does not contradict with their Christianity. They fully accept both the importance of the Creation Story and the concept of The Big Bang.

Such Liberal Christians recognise that the genre of many of the stories in Genesis is Oral Tradition, the ancient way of recording important information which human societies used before we wrote things down. In Oral Tradition history and wisdom is

woven into the form of story, song and poetry. This is shared and passed on from the elders of a tribe to the next generation. **Oral Tradition is full of truth** but it is not literal truth or scientific truth. It is **poetic and symbolic truth**. The Genesis story is full of this kind of truth.

In the Genesis Story there is a **deliberate act of creation**, the world has not just come to existence by chance. **There is a Source (God), a reason, a relationship**. And the source is in relationship with all that **IT** creates. **IT 'sees that it is good.'** And it commands human beings to take special care of the rest of the natural world, to be good stewards.

Science can give us the capacity to do things with the physical world, to mine the minerals and chop down the forests, to pollute the waters and the atmosphere - but it can say nothing about the moral issues, the right and wrong involved in doing these things. There is no '**Good and Bad**' in science. But in religion and spirituality there is this kind of question and responsibility. So Liberal Christians would say that both are important.

They might say that the two approaches to truth, scientific and religious, are insufficient on their own. They need each other. Just as we need two eyes to see the world in perspective, we need the subtle wisdom of religion and the factual information of science if we are to live in harmony and balance.



So in summary.....

What do Christians believe?

Not all Christians believe that the world was created in the same way.

Literalists/creationists Christians believe the *Genesis* story *literally* (that the world was created in 6 days)

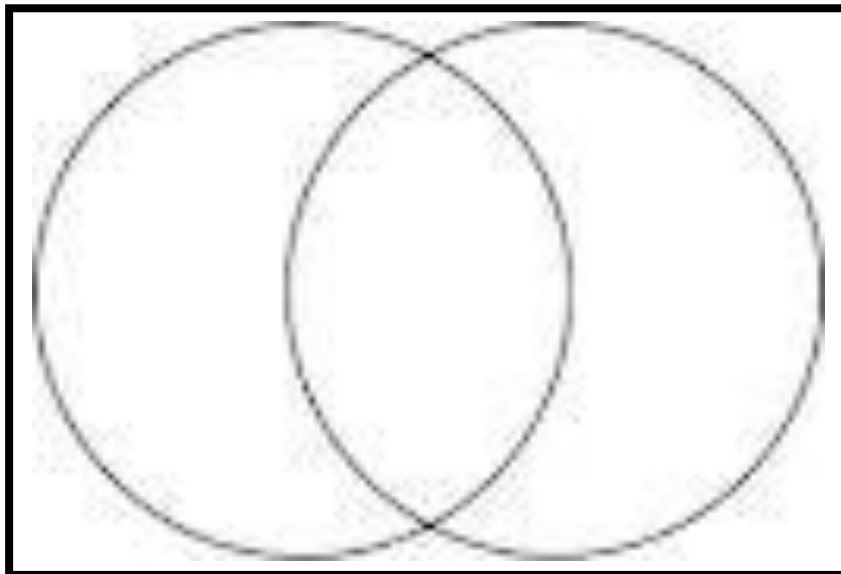
Other Christians, **Non-literalists/Liberalists** don't take the *Genesis* story literally. Liberalists believe it was six periods of time (**YOM**, which is the word used in the Bible actually means periods of time and not day) - not six 24 hour periods of time.

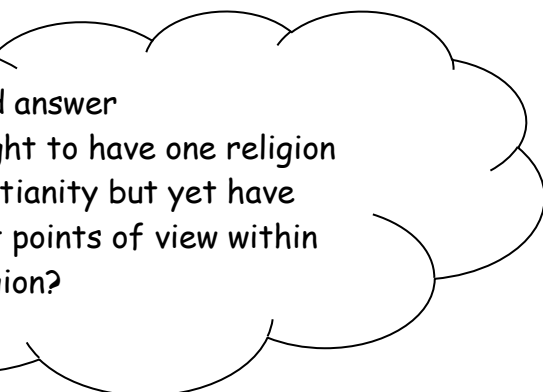
Liberalists can believe in the Big Bang & Evolution - and they believe that God made these happen.

Literalists and Liberalists do agree on some things. They both agree that God made the worlds and that he made the world good. They also both agree that the creation of the world was not an accident and that it was made for a purpose.



Task: Create a Venn diagram showing the similarities and differences between Literalists and Non-literalists.





I answer
ht to have one religion
tianity but yet have
points of view within
ion?

Why do Christians take such differing approaches to the story of creation? It all stems from **the text** of Genesis itself! Look closely at the text: looking at day four, we see that at this point God puts lights in the sky to divide day from night, which are the sun, the moon and the stars. Now how can this happen on the fourth day if there have already been three days? Surely to have a 'day' you would need to have the sun and the moon from the beginning, to mark when the sun rises and a new day begins, and when the sun sets and the day ends? What is this thing that God puts in the sky to divide the waters above the earth from those below? Why is there water above the earth? On the sixth day God creates every type of living creature, so this must mean that evolution is nonsense since God has already created every creature that there could be! If this all happened at the beginning then nobody could have been there to witness it, so where did all these details come from?

These are very valid questions and they inevitably point us to the nature of the text that we are dealing with. **Is it a text that must be taken literally or is it possible to understand the text in another way** while at the same time preserving the truths that it communicates? Well another close look at Genesis will begin to help us answer this.

If you take up your Bible again and turn to Genesis 2, you will find **another account of creation** which is distinctly **different from that of chapter one** and yet **communicates the same message**, i.e. that **God is the creator of the universe**. Why are there two

accounts of creation? Well the answer to that question brings us to why some Christians don't accept a literal explanation of the book of *Genesis* and look to Biblical criticism to help them understand the text and its message.

Creation stories- Genesis 1

This is probably the most famous of the creation stories and it's viewed in different ways by different people. What do you think?

Genesis 2: Summary

The heavens and the earth are completed and God rests of the 7th day declaring it holy.

The rest of the chapter goes back and recounts the details of the sixth day. God creates man from the dust of the ground.

He places man in the garden He created in Eden.

The garden has a river and many different edible fruit trees.

The Tree of Life and the Knowledge of Good and Evil are placed in the middle of the Garden. Man (Adam) is commanded not to eat from the tree of the Knowledge of Good and Evil.

Adam names all the animals while searching for a partner/helper/companion. God creates Eve from Adams rib since no suitable companion could be found among the animals.

One important fact to know about the Bible is that it was never intended to be read as one book. Instead the Bible is a collection of books, songs, stories and genealogies that started out as **verbal messages**. We call this the **ORAL TRADITION**. It was much later before these verbal messages were actually

written down and it can be seen that the writers of these books was heavily influenced by the culture and society they were part of.

So why are there two Creation Stories?

It is accepted that the second of the two stories was probably written in response to foreign ideas about creation. The people of Israel were having to deal with the religion and culture of the neighbouring lands of Mesopotamia and Canaan and they found these ideas to be incompatible with their own beliefs about the One God. The Mesopotamian and Canaanite creation story told that the Universe and everything in it was born out of chaos and this would go against the Israelite belief that God was Creator and that God designed everything in an orderly manner. In Genesis the sole creator is the one God, not chaos. God is in control of all things, and all that is comes to be by his command. Man is made in the image of God and is brought to life by the very breath of God. Man is called to communion with God from the very beginning and The God of Israel is the one God who alone is the sustainer of the universe and all that is.

For this reason, many Christians (namely **Liberalists**) feel able to look at the Biblical account of creation and see it for what they believe it actually is: **a symbolic account of God's creation, communicating very important truths about the purpose and meaning of creation.** They do not believe that they have to accept this as a blow-by-blow account of what actually took place, but are rather more able to connect their faith in God's creation of the universe with what science has to say about the emergence of the world we live in. This is not to deny what is revealed in the Bible about creation, but is rather a means of understanding the origins and context in which the writing of Genesis occurred so that it can speak to them in their own context. For these Christians (liberalists) then, **science does not undermine faith but rather enhances faith** so that it does not, in the end, matter if there was a 'Big Bang' that started the universe. **These Christians believe that God could have created the Big Bang** and that this is the manner in which He began the process of creation. The working out of that process leads them to see His presence in the world.

The question about the origins of the world and of man has been the object of many scientific studies which have splendidly enriched our knowledge of the age and dimension of the cosmos, the development of life forms and the appearance of man. These discoveries invite us to even greater admiration for the Creator, prompting us

to give him thanks for all his works and for the understanding and wisdom he gives to scholars and researchers.

(The Catechism of the Catholic Church, no. 283)

Other Christians **cannot accept this view** at all. Some of them are known as Fundamentalists or **Literalists**, and others as Creationists although they would prefer the term 'creation science' to 'creationism'. They **cannot accept the Big Bang Theory** because it seems to **undermine their belief that God has created all that there is and that the Bible bears witness to this**. Accepting the Big Bang Theory would mean denying that God is the creator and preserver of the universe. Relying solely on science to provide us with accurate knowledge of how the world came to be is insufficient because it depends purely on observation and is prone to missing the bigger picture.

For Creationists therefore, the world cannot be the result of a random explosion known as the Big Bang. On the basis of the Bible, they will argue that God created the world in six days, but that these 'days' are actually a longer period of time than 24 hours. The world itself is too complex to be anything other than the result of a **prime mover (God)** who has instilled his creative purpose in the whole of creation. Take, for example, the properties of water. The amount of water on the earth's surface, estimated to be enough to form a layer over a mile deep spread evenly over the earth's surface, tends to prevent sudden increases and decreases in temperature, as for example between day and night. A rock, for instance, is very hot during the day and very cold during the night. The change in temperature of water, by comparison, is insignificant. The presence of large quantities of water in the great lakes and the oceans is responsible for the fact that that coastal cities are not as warm in the summer or as cold in the winter as inland areas: they have natural air conditioning. The Creationist Christian would argue that **this is no accident but is the design of a creator God**.

Task: Can you think of some examples of design in the world?

Write down some things that you think show design, that they seem to have been made or created exactly right for the purpose they were meant to do (think of natural things and not man-made things!)



Thanks to Todd Regester (See Colossians 1:15-17) 12-28-2004

A LITTLE TO THE LEFT AND A LITTLE UP

Questions

The Book of Genesis

1. In your own words, give a brief account of the creation of the world as reported in Genesis chapter 1.
2. What are some of the problems with reading the text of Genesis 1 literally?
3. What would you say is the significance of finding another creation account in Genesis 2?
4. Explain what the oral tradition is.
5. Give a brief outline of the context in which the creation accounts in the book of Genesis were formed.
6. How would Christians who accept Biblical criticism explain the significance of the creation account(s) in Genesis?
7. How does this help them demonstrate that science does not undermine their faith in a creator God?
8. Why would some Christians find it impossible to accept the Big Bang Theory?

If you look with the eyes of faith you see God in nature, both in creation and in preservation. But if you look only with the eye of reason and of cause and effect you may not see Him. This is why the Creationist can see God while the man who does not look on the phenomena of nature with the same faith does not see him there.

(John W. Klotz, Creationist Viewpoints, in *A Symposium on Creation*, Vol.1, Baker Book House 1968, pp. 34–52)

9. Why is important for these Christians to look with the 'eyes of faith' at the world we live in?

Activity: Listen to the following video and song (YOU TUBE) + activity. Read the lyrics as you listen to the song.

The Big Bang Theory – Words and music by the Barenaked Ladies

14,000,000,000

Our whole universe was in a hot dense state,
Then nearly fourteen billion years ago expansion
started. Wait...

The Earth began to cool,
The autotrophs began to drool,
Neanderthals developed tools,

We built a wall (we built the pyramids),
Math, science, history, unravelling the mysteries,
That all started with the big bang!

"Since the dawn of man" is really not that long,
As every galaxy was formed in less time than it takes
to sing this song.

A fraction of a second and the elements were made

The bipeds stood up straight,
The dinosaurs all met their fate,
They tried to leap but they were late
And they all died (they froze their asses off)

The oceans and pangea
See ya, wouldn't wanna be ya
Set in motion by the same big bang!

It all started with the big **BANG!**
It's expanding ever outward but one day
It will cause the stars to go the other way,
Collapsing ever inward, we won't be here, it won't be
hurt
Our best and brightest figure that it'll make an even
bigger bang!

Australopithecus would really have been sick of us
Debating out while here they're catching deer (we're
catching viruses)
Religion or astronomy, Encarta, Deuteronomy
It all started with the big bang!

Music and mythology, Einstein and astrology
It all started with the big bang!

It all started with the big BANG!

- a) What do you think about the lyrics to this song?
- b) Why do you think the Barenaked Ladies sing the song so fast?
- c) How does it say the world was formed?
- d) How did humans appear?
- e) Do you think this is a good explanation for the origin of the universe?
- f) Using the song lyrics and what you heard on the you tube clip to create a timeline to show the Big Bang theory and theory of evolution.

The Big Bang: in a bit more detail

13.7 billion years ago, the Universe is about to begin.

Everything that exists is squeezed into a spot so small it has no dimensions at all. This is known as a singularity. Get ready for the Big Bang!

Unfortunately you cannot watch this explosion because outside the singularity there is no where. When the Big Bang happens it won't be exploding into space. The only space that exists will be the space it creates as it expands.

You cannot calculate how long the singularity has existed as, until the Big Bang, time itself does not exist.

Within one second of the explosion the Universe is a million billion miles across, and still growing.

From 'A Short History of Nearly Everything' by Bill Bryson

Not all scientists reject the idea of a creator God; however, many of them do because they feel that science has put an end to the view of the universe that was put forward by the Church based on the Bible. These scientists believe that **the idea of a creator God is a device** that was developed to **fill the gaps** in human knowledge, and now that **science has given the real answers** to the origins of the universe, there is **no need to use God** as this kind of device. **So what do these scientists put in the place of a creator God?**

These scientists use the **Big Bang Theory** to show that there is no creator God. **However**, it must be pointed out from the very beginning that scientists who *do* accept a creator God can also use the Big Bang Theory to point to the existence of a creator God.

The Big Bang Theory begins from the observation of the universe as it is at the moment, and on the basis of these observations, calculates what happened at the beginning of the universe. Scientists now agree that there was an actual beginning to the universe because it is an observable fact that the galaxies are moving apart. Those further away from us are moving away faster than those closest to us and, on the basis of this fact, scientists argue that at one time all the galaxies were actually closer together and that they are now moving apart in different

directions. Scientists can therefore tell how far away a galaxy is from us based on the speed by which it is moving away from us. What they also discovered was that the spectrum of light changes if a body is moving away at a high speed in space and, detecting that some distant galaxies seemed to give off a red light, they concluded that the universe is expanding in all directions. This is called the **Red Shift**.

This brings us to the key point. If the universe is expanding in all directions, then what caused this process of expansion to take place? This is where the Big Bang Theory comes in: between 10 billion and 20 billion years ago there was an enormous explosion of energy which set the process of expansion in motion; this is called a *space-time singularity* by scientists. This is very important because it is the point at which space and time are created simultaneously. As a result of this huge explosion, matter in the form of hot gas spread out over enormous distances. As it began to cool down, it condensed to form stars and galaxies that now make up the universe. This process eventually developed the capacities for human life to evolve on the planet that we now inhabit.

The Big Bang theory is based on scientific observation of the universe. It's not an invention. You can encourage students to do project work on the many pieces of evidence for the Big Bang.

Evolution is similarly based on real scientific evidence, both from the geological and fossil record and from biological studies of DNA.

But science is not looking any deeper than the physical structure. It can't. That's what it deals with. **Science** asks '**What?**' and '**How.**' It does not ask questions such as '**Why?**' Or '**From Whom?**', that is left to **religion**.

Religion and spirituality are not asking the same questions as science asks. They are not looking at the surface, at the physical existence, but exploring what is within and behind the physical world. They look at the subtle and elusive truths which give life meaning and direction.



Questions:

The Big Bang Theory

1. Why do some scientists deny the existence of a creator God?
 2. From what does the theory of the Big Bang begin?
 3. Why do scientists agree that there was an actual beginning to the universe?
 4. How can scientists tell how far a galaxy is away from us?
 5. What significance does the spectrum of light (Red Shift) play in this?
 6. What is the Big Bang?
 7. What is the significance of a *space-time singularity*?
 8. How did the planet that we now inhabit develop from the initial enormous explosion?
 9. ***Using the table sheet (teacher will give you one) fill in a personal description of what happened on each of the days of Creation as told in Genesis and a personal description for the description of the Big Bang.***
10. List some of the 'problems' with the Big Bang Theory.
11. In your own opinion explain whether you think there are similarities between The Creation Stories and The Big Bang.

Other theories about the Universe:

Before the Big Bang was accepted as the best explanation for the beginning of the Universe, scientists did have some other ideas. This next section gives you a little background to the Big Bang and other theories about the Universe.

Edwin Hubble (1889 - 1953)

In 1929 (following five years of work) Hubble proved that the speed of galaxies moving away from Earth was connected to their distance. The further away the galaxy, the faster it was moving (this is now known as Hubble's Law). If they are moving away they must have started somewhere, possibly in an explosion (now termed the Big Bang)

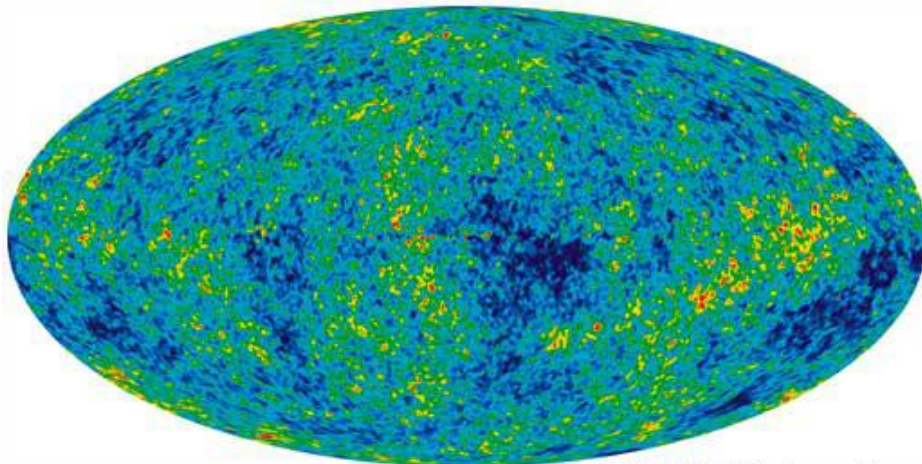
Fred Hoyle
(1915 - 2001)

Hoyle thought Hubble was wrong. He agreed that galaxies were moving apart but thought that new galaxies were being made to fill the gaps (as an atheist Hoyle was unhappy with the idea of a 'beginning of the universe', suggesting a creator). This is known as Steady State Theory. All was well until...

The **Big Bang Theory** states that the Universe 'began' with a colossal explosion 13,700 million years ago and has been expanding ever since. The main evidence to support this is that all observable galaxies are moving away from us.

The bit that convinced scientists that the Big Bang theory is true is the discovery of cosmic **microwave background radiation (CMB)**.

CMB is radiation remaining from the Big Bang explosion; it can be detected throughout the Universe.



NASA/WMAP Science Team

After reading through these different theories of the Origin of the Universe, which one do you agree with the most and why? Answer in your jotter please

Evidence for the Big Bang

To explain the origin of the DNA/protein machine by invoking a supernatural designer is to explain precisely nothing, for it leaves unexplained the origin of the designer. You have to say something like 'God was always there', and if you allow yourself that kind of lazy way out, you might just as well just say 'DNA was always there', or 'Life was always there', and be done with it.

(Richard Dawkins, *The Blind Watchmaker*, Penguin 1990, p. 173)

- **Background Radiation: as mentioned above**

This is the Energy left over from the Big Bang that is evenly spread out throughout the universe.

This background radiation is one observation that supports the Big Bang Theory.

- **The Red Shift:**

Every galaxy seems to be moving away from Earth. The further away a galaxy gets the redder it appears

After examining the Red Shift that appears from distant galaxies astronomers conclude the universe is still expanding at tremendous speeds from the initial Big Bang.

If the universe is expanding, then the objects near the very edge of the universe are the oldest objects in the universe.

The most distant known objects in the universe are over 12 billion light years from the Earth. (This is how science gets an approximate time for when the Universe started)

- **Evidence of Primordial Elements:**

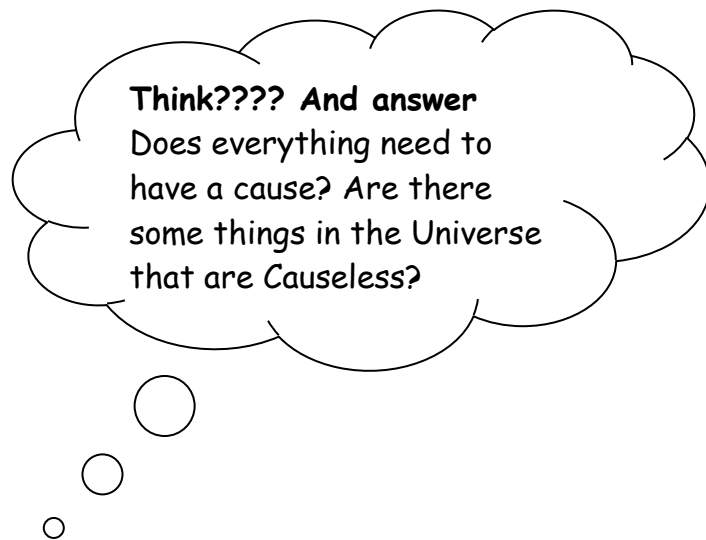
The Universe today contains the base atomic and chemical elements that are the building blocks for everything that exists in the Universe.

The fact that there are so many of these elements in the Universe points strongly towards there being a particular process of their "creation" in the past. In fact the evidence points to the Big Bang.



If the Earth was
formed from the Star
Dust of Dead Planets.
Does that mean we
are all aliens? Answer
in your jotter please

What caused the Big Bang?



Evidence to support the Big Bang is regarded by many scientists to be pretty conclusive and they do not deny that there was a Big Bang but one question remains unanswered and this is; **what caused the Big Bang to happen in the first place?**

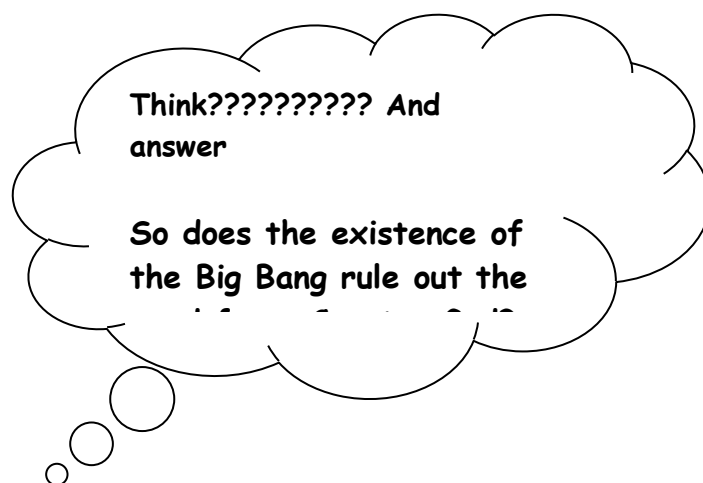
Did time and space have to begin? Couldn't the singularity have remained exactly as it was for all eternity?

Many believe that the cause of the Big Bang can be summarised like this: **with gravitational attraction the only cosmic force available, the Big Bang must simply be accepted as god-given, an event without a cause, an assumed initial condition.**

Paul Davies, a professor of Theoretical Physics, said that if the Big Bang has been any "stronger" or "weaker" the Universe (as we know it) would not exist at all. Davies argues that the gravitational force somehow reached a critical point where the singularity **had** to explode. Basically, the Universe caused itself. The initial conditions which led to the Big Bang are still unknown.

Stephen Hawking, cosmologists, suggests that **the Universe, because it was the beginning of time and space, needed no cause**. Davies agrees with this and says the Universe of space-time and matter is **internally consistent and self-contained**. Its existence does not require anything outside of it; specifically **no prime mover is needed**.

So therefore, according to Physics, the Big bang needs no cause other than the Laws of Nature (e.g. gravity)



Point to think about:

If the Laws of nature are all that is required to allow the Universe to come into being with the Big Bang then did the Laws of Nature come into being at the moment of the Big Bang?

If they did then they could not have caused the Big Bang because they didn't exist before it.

However, if the Laws of Nature existed before the Big Bang, how did they come to be?

So the Big Bang remains a Theory as there is not a definitive answer as of yet as to what caused it and why it came about. At

best science has attempted to explain the Big Bang Theory but the results remain inconclusive.

Strengths and Limitations of the Big Bang Theory

There are certainly some strengths for an acceptance of the theory of the Big Bang for example the scientific basis for the theory is very strong and this is backed up from a number of different scientific areas. (good evidence)

In addition to this the theory offers a rational explanation for something that occurred but which had no eye witnesses to verify it.

However, there are limitations to the Big Bang Theory. One limitation is that most of the evidence is **circumstantial** and **not empirical**, this means it cannot be proven as fact as of yet.

Another limitation may be that the theory of the Big Bang is **so complex to understand** that it is not a useful way for ordinary people to understand how the Universe began.

Finally, although science has tried to explain the Big Bang Theory and the cause of the Universe by relating it to logical, scientific and physical theory, the Big Bang **does not give us any explanations as to the meaning, value and purpose of human life** and our place in the Universe.

The Big Bang is certainly a challenge to the idea of Creation as described in the *Genesis* stories but it is not considered, by some, to be a replacement for the stories. **Is there still room for God?**

TASK:

It is very helpful if you can equip yourself with summaries of the main areas that we study in this section. So you need to know the correct order of the Creation Stories, you need to know the Big Bang Theory and later you will need a summary of Evolution.

So let's try one now

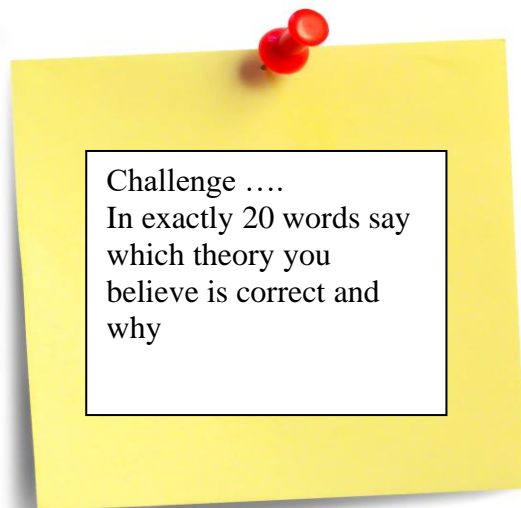
Read through the Big Bang information again and write a bullet point summary of the Big Bang Theory.

These summaries will help you with revision later.

Questions:

1. What does it mean when we say the evidence for the Big Bang is circumstantial?

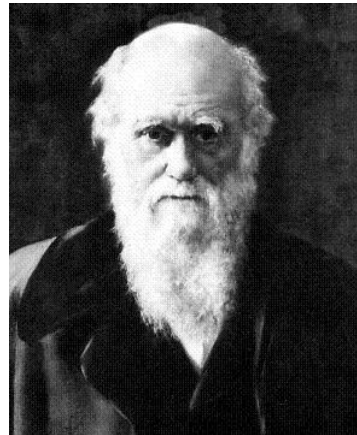
Big Bang or Creation?



The Theory of Evolution:

Evolution- The theory that all species change over time as only those with the features to survive their environment live long enough to breed and pass on their features to the next generation.

Thoughts on Evolution: man is nothing special, just an advanced animal; man is an "accident" of nature;



Charles Darwin: Background Facts

Charles Darwin was a British scientist who laid the foundations of the theory of evolution and transformed the way we think about the natural world.

Charles Robert Darwin was born on 12 February 1809 in Shrewsbury, Shropshire into a wealthy and well-connected family. His maternal grandfather was china manufacturer Josiah Wedgwood, while his paternal grandfather was Erasmus Darwin, one of the leading intellectuals of 18th century England.

Darwin himself initially planned to follow a medical career, and studied at Edinburgh University but later switched to divinity at Cambridge. In 1831, he joined a five year scientific expedition on the survey ship HMS Beagle.

At this time, most Europeans believed that the world was created by God in seven days as described in the bible. On the voyage, Darwin read Lyell's 'Principles of Geology' which suggested that the fossils found in rocks were actually evidence of animals that had lived many thousands or millions of years ago. Lyell's argument was reinforced in Darwin's own mind by the rich variety of animal life and the geological features he saw during his voyage. The breakthrough in his ideas came in the Galapagos Islands, 500 miles west of South America. Darwin noticed that each island supported its own form of finch which were closely related but differed in important ways.

On his return to England in 1836, Darwin tried to solve the riddles of these observations and the puzzle of how species evolve. Influenced by the ideas of Malthus, he proposed a theory of evolution occurring by the process of natural selection. The animals (or plants) best suited to their

environment are more likely to survive and reproduce, passing on the characteristics which helped them survive to their offspring. Gradually, the species changes over time.

Darwin worked on his theory for 20 years. After learning that another naturalist, Alfred Russel Wallace, had developed similar ideas, the two made a joint announcement of their discovery in 1858. In 1859 Darwin published 'On the Origin of Species by Means of Natural Selection'.

The book was extremely controversial, because the logical extension of Darwin's theory was that *Homo sapiens* was simply another form of animal. It made it seem possible that even people might just have evolved - quite possibly from apes - and destroyed the prevailing orthodoxy on how the world was created. Darwin was vehemently attacked, particularly by the Church. However, his ideas soon gained currency and have become the new orthodoxy.

Darwin died on 19 April 1882 and was buried in Westminster Abbey.

Task: Watch the power point presentation on Evolution and be prepared to take notes to help you with your understanding of the Theory of Evolution.

A simple guide to Darwin's Theory of Evolution

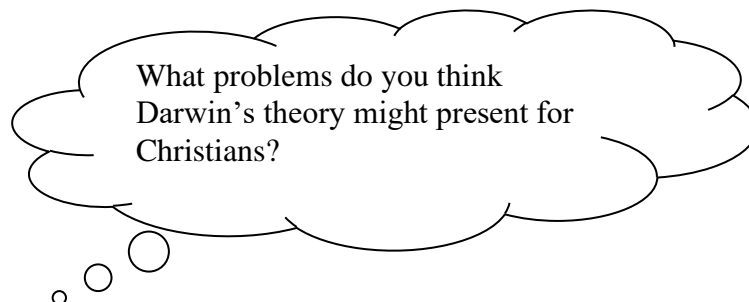
- A living thing depends on its environment to survive, and it can only survive if it fits into the environment in which it lives.
- Fitting in depends on how well the animal/plant is adapted to its **environment**. There is a relationship between the living thing and its environment which depends on biology, food source and climate. For example in a cold climate a living being would need a layer of fat or a good outer coating of heat- trapping fur. Or living in an environment where your food source is high off the ground would require you to have the height to reach the food.
- The living things which are suited or **adapted** to their living conditions survived and those that didn't became extinct.
- These adaptations developed through time (**slow process**) as each generation passed on to the following generation the adaptation which increased their likelihood of survival. (**Survival of the Fittest**)
- Just as breeders select the features they want in a species and breed only from that to pass the required features on to offspring,

so nature selects those species which develop the necessary features to live in a particular environment.

- If the environment changes (gradually or rapidly), then only those who are adapted to the change survive to reproduce and pass on their survival advantages to their off spring.
- This is called evolution through **Natural Selection**.
- **Therefore** the species that are alive to day, including humans, are those which have adapted best to the conditions of life as it is now. If conditions change then these things will have to adapt again or they will die out.

Questions:

1. How did Darwin end up on board the HMS Beagle and what did he do on the journey?
2. What did Darwin notice about people and animals as he travelled around the world and how did this contribute to his ideas about evolution?
3. In what ways were Darwin's discoveries in the Galapagos Islands particularly important for evolutionary theory?
4. Explain what is meant by adaptation in evolutionary theory?
5. How might evolutionary theory explain the extinction of the dinosaurs?



More you should know about Evolution

Discussion Activity: As a class

What are the similarities and differences between humans and other primates in terms of behaviour and appearance etc?

Why don't you invite a member of the Science department to your discussion and quiz them!

Evolution as the Origin and Development of Life on Earth

According to Darwin life on earth began as a natural, slow and random process. What Darwin did not know at the time was anything about DNA but what we know about DNA now helps us to understand what Darwin was trying to explain. We all have DNA and this genetic information is what gives us the advantages and disadvantages we have to either be suited to an environment or not. Random mutations in this DNA led to the organisms being better suited to the environment in which it lived - these organisms survived and multiplied where as others died out.

For example when our Earth was very young the gas oxygen came to be released into the atmosphere. Now the organisms that were able to survive in an oxygen rich atmosphere survived and those that couldn't adapt died out. So from these very early simple, single celled organisms came the more complicated and complex variety of organisms that everything evolved from.

So therefore, all life, plant and animal, evolved from a primordial soup or sludge of chemicals and somehow from that, all organic material developed and thrived.

QUICK & EASY DIRECTIONS
MIX SOUP + 1 OCEAN WATER
RADIATION : HEAT, UNCOVERED IN MICROWAVABLE OCEAN ON HIGH ABOUT 100 MILLION YEARS. CAREFULLY LEAVE IN OCEAN FOR 3 BILLION YEARS, ALLOWING OXYGEN TO ACCUMULATE.
SMOKER: HEAT, CIRCULATING OCCASIONALLY
PROMPTLY REFRIGERATE UNUSED PORTION ON A SEPARATE PLANET. RECOMMEND USE BY DATE ON END OF CAN. STORE UNOPENED CAN IN INTERSTELLAR SPACE.


CONDENSED


INSPECTED BY U.S. DEPARTMENT OF CHEMISTRY
A QUICK MEAL IN 4.5 BILLION YEARS!
PRIMORDIAL SOUP; FOR THE PRIMITIVE... AND THE PRIMITIVE AT HEART!
A SIMPLE, SELF-ORGANIZING MEAL WITH EVERYTHING YOU NEED TO GET YOUR LIFE STARTED BEFORE THE ARCHAEOLOGICAL PASSES BY. GREAT FOR ALL WATERY PLANETS, SERVE HOT WITH LOTS OF REDUCING POWER AND A GOOD DOSE OF IONIZING RADIATION FOR THAT UNIQUE MICROBIAL FLAVOR!


Nutrition Facts

	Amount/serving	%DV	Amount/serving	%DV
Protein	0%		Metal sulfides	100%
Fat	0%		Hydrogen	100%
Carbohydrate	0%		Ammonia	100%
Fiber	0%		Methane	100%
Vitamins	0%		Carbon monoxide	100%
L-amino acids	1%		Formaldehyde	100%
D-amino acids	1%		High MW PAHs	100%
Nucleic acid	0%		NP-40	100%

Serving size based on a 99% chance of a successful Origin of Life.

Rich in reducing power; low in toxic oxygen and reactive oxygen products. High in heavy and transition metals. Great for the hottest, most radioactive watery planet!

Satisfaction guaranteed. For questions or comments, please email arthur_dent@zz9.plural.z.alpha. Allow 5-6 x 10²⁴ years for refund or reply.



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Summary of Evolution:

- Much of Darwin's theory was based on circumstantial evidence and not evidence directly demonstrated for example Darwin didn't know how the changes in species were caused or how they passed on to their off spring.
- This was only solved in the 1950's with the discovery of DNA.
- DNA randomly mutates and sometimes these mutations are to the advantage of the creature and makes it easier for them to adapt to their changing environment, making it more likely to survive.
- So therefore DNA is a major driving force behind evolution.
- DNA mutation and therefore natural selection are a random process - it is a "blind" process and therefore removes the need for God.
- All life evolved from a primordial soup.
- Humans also evolved through the same process sharing common ancestors - e.g. primates.
- This makes human just another life form which has adapted from other and this takes away any belief that we are special or have a God -given purpose in life.

TASKS:

1. How did the discovery of DNA in the 1950's help the Theory of Evolution?
2. Describe what evolutionary theory implies about how life on Earth developed.
3. Evolution suggests that life on Earth originated and developed as a result of chance. Why might a religious person feel uncomfortable about this?

Essay Practice:

National 4:

- a.) What do you think Charles Darwin meant by "the transmutation of genes"? (4)
- b.) How do think Christians would respond to the above phrase? (4)

National 5:

- a.) Describe one piece of evidence Darwin used to support his evolutionary theory. (4)
- b.) "Evolution takes away the need for God." In what ways would Christians respond to this statement? (6)



In conclusion, we have looked at God as Creator of Everything in the Universe and how religion describes the Nature of God as all-powerful, all-knowing and always present. We have studied the two Creation stories in Genesis and seen how these can be interpreted in different ways depending on the type of Christian you are.

In comparison we have looked at how Science explains the origin of the Universe through the Big Bang and the development of life on Earth through Evolution.

It is clear to see that all of these arguments and theories have strengths and limitations but are there views on the origin of life and the Universe that can be shared by Science and Religion? Are Science and religion compatible in anyway?

Hopefully by studying this unit of work and doing the debate you will be able to come to your own conclusion about this issue from an informed standpoint.