BIG QUESTIONS BIG ANSWERS

PUPIL BOOKLET

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Vol.3

Investigating RELIGION AND THE ENVIRONMENT

What can we learn from theology and science about how to care for the Earth?

Featuring environmental scientist Dr Alexander Hall and theologian Dr Simeon Zahl

RE Today Services

Introduction

In this section we are going to look at what we can learn about how to look after the world.

In RE we sometimes think about what different religious and non-religious worldviews say about how we should treat the world around us. We look at what people who follow these different religions might do, and what sacred texts say about the environment and how to treat it.

In this section we are going to do something a little bit different. We are exploring how people use different methods to investigate how to look after the world. You are going to be an investigator. Your job is to find answers to the question **'What can we learn from theology and science about how to look after the world?'**

Theology and environmental science are both different ways we can use to answer questions in RE. Rather than calling them different 'ways', we can say that they are different 'disciplines', because that is the exact word we use to describe methods of answering questions in RE.

When you are thinking about the question, you might even find that the different disciplines give you different answers! That is fine, because each discipline tackles the question in its own way and helps you to collect different information when you are answering it.

Before we start being theology investigators and environmental science investigators, we need to think about the sorts of questions that RE and science try to answer.

Step 1: Big questions and small questions

Can you think of a big question we ask in RE?

A big question might be one where the answers are complicated or difficult to agree on, or where no one really knows the answer. These might be something to do with what it means to be human. One example of a big question for RE might be: 'Where do we go when we die?'

In science we ask small questions, things we can directly investigate.

Can you think of a small question we ask in science?

A small question might be: 'How are shadows formed?'

Here is your first challenge. Can you sort the questions on the next page into big questions (the ones that we talk about in RE), and small questions (the ones we might directly investigate in science)? Draw a line to show whether each question is a big or small question.

Big questions

Why do many people want to be good?

Why do people want to celebrate?

What does it mean to belong?

Does what you eat affect the way your body works?

How are shadows formed?

How does the body feel pain?

Why is it important to look after the Earth?

What do plants need to grow successfully?

How do flowers reproduce?

How are organisms affected by an accumulation of toxic materials?

Why is there suffering?

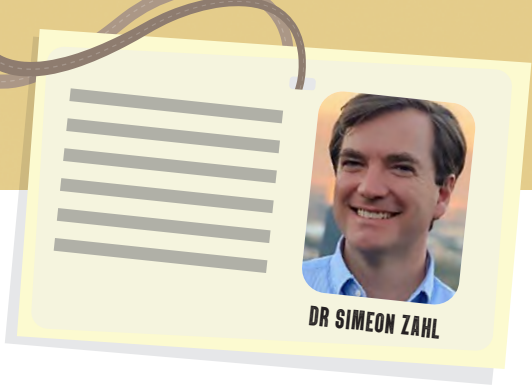
Small questions

Well done for sorting out the questions so well. The small questions we explore in science can help us think about our big questions in RE.

Look at the questions again. Do any of the small questions look like they might help answer any of the big questions? Draw a line to show any matches. Clue: there are not matches for all of them.

Later we are going to meet Dr Alex, our expert environmental science investigator. But first we are going to be theology investigators and help our expert theologian Dr Simeon. Do you remember Dr Simeon? You might have helped him investigate before. He talks about and finds out about God, often by looking at what sacred texts have to say. He often thinks about what that means about what people should do or not do in their daily lives. Big questions for Dr Simeon might include: 'What happens after we die?'

Being theology investigators for a day



INTRODUCING THEOLOGY

Theologians are interested in questions about what God is like and what God does. We think that knowing what God is like has an impact on how people should think and live too.

To find this out, theology needs to pay attention to the past. This is because we find most of our information about God in texts, or scriptures. We usually believe that these texts (such as the Bible, the Qur'an, the Vedas) are in some way inspired by God.

Theologians study their sacred texts and other sources of authority to try to explain the answers to questions about what God is like, how people should live and what our relationship is with the Earth. We usually do this to help people who believe in God today.

Step 2: Theology investigators

If you haven't done this already, imagine that Dr Simeon is going to a conference and needs an identification badge, or a lanyard around his neck. Design an identification badge: on one side list at least three bullet points showing some key things theologians do – use Dr Simeon's introduction above. On the other side, design a logo for theology. Your teacher has a template you could use. Later on you could do the same for Dr Alex our environmental scientist. Remember, theologians often look at and investigate:

- *Is the text reliable? Does it say what we think it says?*
- *How have people through history understood this text? What can we learn from that?*
- *Do these ideas make sense? Do they fit with other things we know?*
- *What impact might these texts have on people's hearts, minds and actions?*

Watch the clip of Dr Simeon – he is going to tell us what our task is.

Now, my group of theology investigators, before investigating some texts we need to make sure we have the background knowledge to properly interpret these sources. You are going to work in a group of three to get some useful background knowledge on some sacred texts for three religious worldviews: Christianity, Islam and Sikhi.

Task A: *Look at Resource 6.1, 'Setting the scene – what do three different religious worldviews think about the environment?' on the next page. Share out the religious worldviews so that each person in your group looks at a different religious worldview.*

- *Note down at least three key pieces of information from your part of the text in your book.*
- *Share the key pieces of information with the others in your group and hear their key pieces of information.*

Share your information with your teacher and the rest of the class. Did you note down all the important information? Investigators need to collect all the clues!

RESOURCE 6.1

Setting the scene: What do three different religious worldviews think about the environment?

Christianity

Christianity began in the first century after the death of Jesus. Most Christians believe that Jesus died, was resurrected to new life and then returned to heaven. Jesus is central to Christian belief. He is a historical figure but also important spiritually because most Christians believe he was God on Earth.

Christians believe there is one God, and that God is three persons in one (the Trinity): Father (Creator), Jesus (son) and the Holy Spirit (who comforts and supports Christians on earth).

The Bible is the sacred text for Christians, made up of 66 books. Christians do not all agree about the Bible, but most of them think that it shows the relationship between God and his people, and gives guidance about how to live.

Many Christians believe they are stewards of God's creation, and so they are responsible for caring for God's creation and looking after the world, to make sure it survives and thrives.

The idea that God came to Earth as a human being in Jesus (Incarnation) reminds Christians just how important the physical world really is to God.

Today, charities like A Rocha work to protect and restore the natural world and to help Christians and churches care for the environment.

Islam

The religion of Islam was revealed to the Prophet Muhammad in the seventh century. The word 'Islam' means submission; being Muslim is about choosing to do what God wants.

Muslims believe there is one God, and that nothing is equal to God (Tawhid). The Prophet Muhammad was born in Makkah (in modern-day Saudi Arabia). When he was 40 years old, he received a series of revelations from God. The revelations were delivered by Angel Jibril and took place over 23 years. These messages are recorded in the Qur'an. While there are translations of the Qur'an, many Muslims learn Arabic so they can understand the exact words they believe were given to the Prophet from God.

Most Muslims believe they are *khalifah*, or guardians of God's creation; they need to look after the world as it has been provided by God and has to be looked after for the next generation. Charities like the Islamic Foundation for Ecology and Environmental Sciences (IFEES) encourage Muslims to work to protect and improve the natural world.

Lots of sayings of the Prophet (or Hadith) refer to the Prophet Muhammad's concern about the environment and treatment of animals, and he encouraged those around him to value the Earth and all of nature.

Sikhi

Sikhism or Sikhi (the word preferred by lots of Sikh people) started in the fifteenth century, making it the youngest of the world's major religious worldviews. One meaning of the word 'Sikh' is 'learner'.

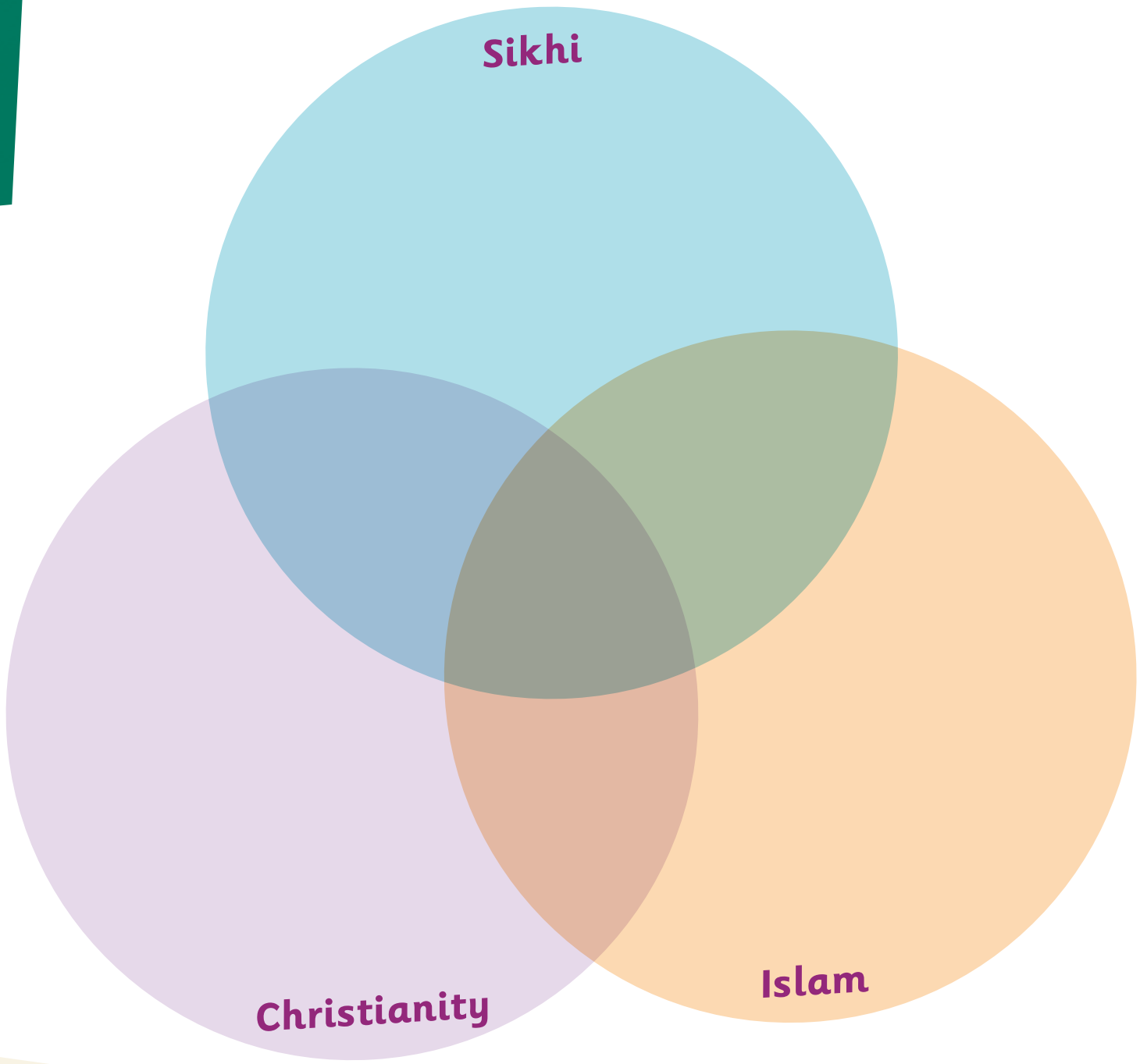
The Sikhs' sacred text, the Guru Granth Sahib, sometimes known as the Adi Granth, is their most important source of authority. The text in the scripture is called the Gurbani, which literally means 'from the Guru's mouth'.

Sikhs believe there is one God, the supreme truth, Creator and eternal. These words can be found at the beginning of the Guru Granth Sahib. One of the words used for God in Sikhi is 'Waheguru'.

There were ten Gurus who each contributed to the way of life that is Sikhi. The final Guru, Guru Gobind Singh, declared that the line of living Gurus was at an end and that the Sikh scriptures were to be the Sikhs' living Guru. The composition of the Guru Granth Sahib was finalised by Guru Gobind Singh and combines teachings of all ten Gurus as well as other holy people.

The seventh Guru, Guru Har Rai, particularly taught Sikhs the importance of caring for the natural world. In the history of all the Gurus there are lots of stories about their love for animals, birds, trees and the wider natural world. Many Sikhs are vegetarian, and all food that is served in the langar of the gurdwara is vegetarian. Charities like Eco Sikh encourage Sikhs to work to protect and improve the natural world. The concept of compassion, or *daya*, is important to Sikh people.

Religious worldviews Venn Diagram – Sikhi, Christianity, Islam



Task B: *Use the information you have collected to put into the Venn diagram above.*

- *If they are only true for one religious worldview, they go in that circle.*
- *If they are true for two religious worldviews, they go in the part where the two circles cross over.*
- *If they are true for three religious worldviews, they go in the part where the three circles cross over.*

Being theology investigators for a day

Step 3: Investigating using texts

Remember what our big question is for this part of the investigation: 'What can we learn from theology about how to look after the world?' As you are my theology investigators, you need to explore some texts from each of the three religious worldviews we are focusing on. You need to look at these texts and see what you think the texts might mean and might say to people who follow these religious worldviews. Check you can remember what you have learnt in the last activity.

Task A: Go back into your theology investigator group of three. You each need to work on one or two of the spiral interpretation sheets on the next pages. Make sure you all use a different one and that as a group you look at a text from each of the religions.

- Read the text in the middle of the sheet.
- Underline any really important words or phrases.
- Write your responses to each of the seven sentence-starters, just as a theologian would. Try to include some of the things you learnt about the religious worldviews in your responses.

Task B: In your group, discuss:

- Were there things that came from the texts that were similar or different?
- Can you list some things Christians, Muslims or Sikhs say about why it is important to look after the Earth?

What would Dr Simeon think of your answers?

Notes:

Spiral text interpretation 1

1. A Christian might say this means … because …

2. A non-religious person might say …

3. This might encourage a Christian to …

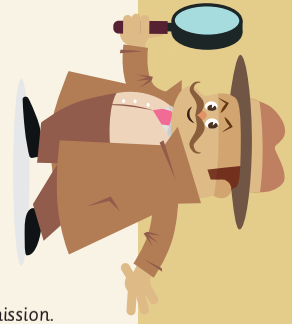
4. What I think about this is …

5. What I think this means is …

6. One thing I want to ask the writer is …

7. One thing I think can be learnt from this text is …

The Lord God put the man in the Garden of Eden to work the soil and take care of the garden.
Genesis 2:15 (ERV)



Spiral text interpretation 2

1. A Christian might say this means … because …

2. A non-religious person might say …

3. This might encourage a Christian to …

4. What I think about this is …

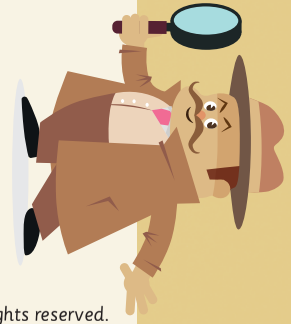
5. What I think this means is …

6. One thing I want to ask the writer is …

7. One thing I think can be learnt from this text is …

The LORD has told you, human, what is good; he has told you what he wants from you: to do what is right to other people, love being kind to others, and live humbly, obeying your God.

Micah 6:8 (NCV)



Spiral text interpretation 3

Eat and drink from the provision of Allah, and do not commit abuse on the earth, spreading corruption.
Qur'an 2.60

1. A Muslim might say this means … because …

2. A non-religious person might say …

3. This might encourage a Muslim to …

4. What I think about this is …

5. What I think this means is …

6. One thing I want to ask the writer is …

7. One thing I think can be learnt from this text is …

Qur'an verse from the Sahih International English translation.

Spiral text interpretation 4

1. A Muslim might say this means … because …

2. A non-religious person might say …

3. This might encourage a Muslim to …

4. What I think about this is …

5. What I think this means is …

6. One thing I want to ask the writer is …

7. One thing I think can be learnt from this text is …

Those who act kindly in this world will have kindness.

Qur'an 39.10

Spiral text interpretation 5

1. A Sikh might say this means … because …

2. A non-religious person might say …

3. This might encourage a Sikh to …

4. What I think about this is …

5. What I think this means is …

6. One thing I want to ask the writer is …

7. One thing I think can be learnt from this text is …

**Air is the Guru,
Water the Father,
and the Earth is
the Great Mother.**

Guru Granth Sahib, p. 8

Spiral text interpretation 6

One who performs selfless service, without thought of reward, shall attain his Lord and Master. He himself grants His Grace; O Nanak, that the selfless servant lives the Guru's teachings.

Guru Granth Sahib, p. 286

1. A Sikh might say this means … because …

2. A non-religious person might say …

3. This might encourage a Sikh to …

4. What I think about this is …

5. What I think this means is …

6. One thing I want to ask the writer is …

7. One thing I think can be learnt from this text is …

GGS English translation by Dr Sant Singh Khalsa

Being an environmental scientist for a day

DR ALEXANDER HALL

ENVIRONMENTAL SCIENCE – FEATURING DR ALEXANDER HALL

As an environmental scientist, Dr Alex gets to do lots of different activities. This is what he says about his job.

The natural sciences are all about observing, recording, understanding and predicting natural processes and the world around us. Natural scientists are interested in measuring and observing nature, and placing this knowledge into theories and frameworks that help us to understand, explain and predict how the natural world works. Environmental science is a part of the natural sciences.

Environmental scientists measure and analyse the natural world to try and better understand how Earth's systems operate. The scientific data we collect is used to better understand how natural systems operate and how humans are affecting natural processes, and to predict how systems will change in the future. Major areas of study in environmental science include climate change, biodiversity loss, plastic contamination and air pollution.

All scientists follow the 'scientific method', which usually involves:

- reading what other studies have said on the same subject
- posing a hypothesis – a prediction about what you think your observations are going to show
- designing an experiment that limits the number of variables, enables you to test your hypothesis and allows others to copy your experiment to see if they can get the same results
- analysing the data recorded, and thinking particularly about studies done before on the same subject
- drawing a conclusion in relation to the original hypothesis (prediction) posed.

As my investigators, you are going to need to do some experiments.

For many natural scientists, these experiments will take place in a laboratory. However, some experiments have to be done outside. This is common in environmental science, where scientists are interested in understanding large-scale natural processes and how humans damage them. Some experiments environmental scientists do may be on a global scale, using data from satellites orbiting the Earth, but some are much smaller and can take place in a laboratory.

Being an environmental scientist for a day

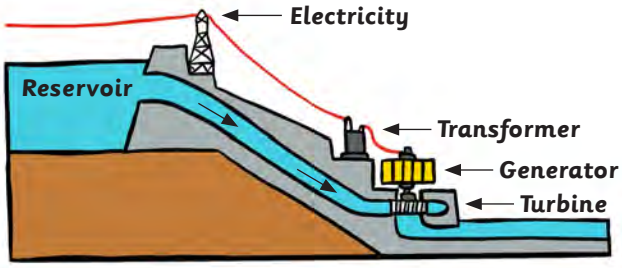
Step 4: Being an environmental science investigator – making a hypothesis

I am an environmental scientist. I want to help people to think about the consequences of our decisions in the real world. For example, suppose politicians are planning to put a dam in a river in order to divert water into a water turbine to create green energy. They need to ask different scientists what the impact will be if they do this.

Your teacher will help you watch the clip from Dr Alex. Read the plan below.

The plan

The Sudanese government wants to use the flowing water in a river to create electricity by installing a water turbine. Part of the river will be dammed and some of the water redirected through the turbine to create electricity from the energy of the flowing water.



So, as an environmental scientist I can talk about the impact of reducing the water flow on any farmland that lies downstream. The question is whether this matters or not. How can scientists know whether this is a good thing or a bad thing?

An environmental scientist goes into the laboratory to do an investigation. In the laboratory we can start with a hypothesis, a theory or idea of what the result of an experiment might be. Now, I need you to help by making a hypothesis, a prediction.

We need to think about what impact reducing water may have on plants growing in the land below the dam.

In a group of two or three you need to come up with a hypothesis to test.

What do you think the impact of reducing the water flow might be on plants?

Make your notes in the box on the right.

Notes:

1.

2.

3.

These were my hypotheses. I wonder if yours were similar.

- *Having less water will make no difference to plants.*
- *Having less water will reduce the growth of plants downstream.*
- *Having less water will kill all the plants downstream.*

Being an environmental scientist for a day

Step 5: Investigating in the laboratory

Now you need to test these hypotheses. Here are some suggested experiments but you can use a different one.

Experiment 1

Use some bedding plants, or germinate some beans. Put six plants on a shelf in good daylight (but not direct sunlight). Water the plants with different amounts of water each day, going from making the plant waterlogged at one end to having no water at the other. Record the results after one week and after two.

Experiment 2

Apply this same experiment to different kinds of plants. For example, water hyacinths and rice need to stand in water, crops like maize and barley need watering daily, and cacti can survive with a little water every few days.

Task A: Choose an experiment to carry out that will help you test your hypothesis (prediction). Make notes to explain your hypothesis, the experiment you carried out and your results.

Our hypothesis (prediction)

Our experiment

Our results

Being an environmental scientist for a day

Task B: What have you learnt from the experiments?

Does this help you know whether it is OK to reduce the water flow of the river (and therefore to the crops in the fields) by building a dam and using some water for a turbine?

What conclusions can you report to Dr Alex?

Note down at least five things you are going to tell Dr Alex.

Our report to Dr Alex

1.

2.

3.

4.

5.

Being an environmental scientist for a day

Right, investigators, I need to know:

- Were your hypotheses correct? Why? Why not?
- What useful information can you give to me about your experiments?
- What have you discovered about whether it is OK to reduce the water flow of the river (and therefore to the crops in the fields) by building a dam and using some water for a turbine?

Did you find out some of the same things that I did?

- Too much water is bad for plants; too little water is also bad (so how much water is going to be flowing below the dam?).
- It depends what plants are going to be grown downstream (definitely not rice; perhaps cacti … but who grows cacti for crops?).
- Rivers provide water that is drawn through the soil, so if there is less water, it will have an impact; for example, the water will not reach as far away from the river.

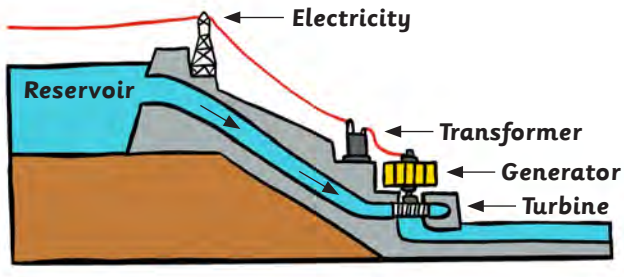
Step 6: The dam and water turbine problem

Now you are going to bring together all the things you have learnt as theology investigators and environmental science investigators to help Dr Simeon and Dr Alex deal with a problem in the real world.

Task A: As a class, discuss the dam and the turbine problem and make some notes to show you understand each of the potential positive and negative consequences of building the dam and turbine.

The plan

The Sudanese government wants to use the flowing water in a river to create electricity by installing a water turbine. Part of the river will be dammed and some of the water redirected through the turbine to create electricity from the energy of the flowing water.



Possible consequences of the decision are:

- The country will create less greenhouse gas as electricity produced by water turbine is cleaner energy.
- Energy may be cheaper as a result of the turbine.
- In creating the electricity, part of the river will need to be dammed. This will reduce the water that will reach the fields of the farmers below. The farmers below grow food to feed their own families and have very few resources. This dam is going to have an extremely negative impact on their lives.
- Some of the riverside land below the proposed turbine has a diverse set of rare plants, and there are concerns that the reduction in water flow will affect these endangered plants.

Being an environmental scientist for a day

Positive consequences

Negative consequences

Task B: Now you need to work in a group to discuss and write your evidence and arguments to present to the committee that is considering the plan to install a dam and divert some water through a turbine.

- Two of the group could write the arguments from the environmental scientist.
- Two of the group could write the theologian's arguments.

Use the resource sheet and sentence-starters on the next page to help you.

The dam and water turbine problem

The plan

The Sudanese government wants to use the flowing water in a river to create electricity by installing a water turbine. Part of the river will be dammed and some of the water redirected through the turbine to create electricity from the energy of the flowing water.

Possible consequences of the decision are:

- *The country will create less greenhouse gas as electricity produced by water turbine is cleaner energy.*
- *Energy may be cheaper as a result of the turbine.*
- *In creating the electricity, part of the river will need to be dammed. This will reduce the water that will reach the fields of the farmers below. The farmers below grow food to feed their own families and have very few resources. This dam is going to have an extremely negative impact on their lives.*
- *Some of the riverside land below the proposed turbine has a diverse set of rare plants, and there are concerns that the reduction in water flow will affect these endangered plants.*

EVIDENCE FORM

Advice from the environmental scientist

Our experiments show that in order to successfully grow crops …

The reduction in water may cause …

Plants are important because …

Saving endangered plants is essential because …

One solution you might consider is …

EVIDENCE FORM

Advice from the theologian

Religious texts from Sikhi say …

This means Sikh people might say we should …

Religious texts from Islam say …

This means Muslim people might say we should …

Religious texts from Christianity say …

This means Christian people might say we should …

One solution you might consider is …

Being experts for a day

Task C: With your class, hold a planning meeting to decide whether or not the dam should be built. Make sure you hear evidence both for and against building the dam.

What is the solution? Write your planning committee decision, the evidence you used and the reasons for your decision.

- If the dam is to go ahead, how will the negative impact be reduced on the people and plants further downstream?

Solution

We think the dam should/should not go ahead.

The evidence we used to support this decision

1.

2.

3.

4.

5.

Our reasons for making the decision

The main reason we made this decision …

Another important factor was …

The work we did as environmental science investigators taught us …

Our theology investigations showed that …

Reducing negative impacts

Being experts for a day- what did you learn?

Step 7: Can we answer the question?

You have been theology investigators, finding out what sacred texts had to say about how to look after the environment, with Dr Simeon, and environmental investigators, conducting experiments to help us understand the consequences of our real-world environmental decisions, with Dr Alex.

What strategies do you think you used when you were investigating?

As theology investigators we have:

- looked at some texts and examined what we think they say
- looked at some background information to help us understand how people through history might have understood these texts
- thought about what impact these texts might have on people's hearts, minds and actions

As environmental science investigators we have:

- made a hypothesis about what impact reducing water may have on plants growing in the land below a dam
- carried out experiments to test our hypothesis
- applied what we have found out to a real-world problem

As your investigation draws to an end, in class discuss:

- How might the discipline of science be helpful when choosing an action that affects the environment?
- How might the discipline of theology be helpful when choosing an action that affects the environment?
- Why might using both theology and environmental science together be helpful to being good stewards when making decisions about actions that affect the natural world?
- Which method did you like, and why?
- Can you see the benefits of having these different ways to think about how to look after the world?

Finally, investigators, write a paragraph explaining your answer to our big question: 'What can we learn from theology and science about how to look after the world?' Make sure you include things you have learnt from your time as a theology investigator and an environmental science investigator, drawing in what you have learnt from your two investigations.

Notes: