

O Focus Questions

Episode 26 10th September 2019

Hurricane Dorian

- 1. Discuss the *Hurricane Dorian* story as a class and record the main points of the discussion.
- 2. Where is the Bahamas? Find using Google Maps.
- 3. How would you describe the Caribbean region before Hurricane Dorian?
- 4. How fast did winds reach when Hurricane Dorian moved through the Bahamas?
- 5. What category did Hurricane Dorian reach when it hit the Bahamas?
- 6. What type of damage can a Category 5 hurricane cause?
- 7. What is the difference between a hurricane and a cyclone?
- 8. Where do hurricanes form?
- 9. Hurricanes get stronger as they move over cold water. True or false?
- 10. What are people who study hurricanes called?

US China Tariffs

- 1. Briefly summarise the BTN US China Tariffs story.
- 2. A tariff is like a tax. True or false?
- 3. What is a tariff?
- 4. What is the purpose of tariffs?
- 5. Who decides if there will be a new tariff?
 - a. The government
 - b. Small businesses
 - c. Tax payers
- 6. What are tariffs put on?
- 7. How can tariffs help local businesses?
- 8. What does a free trade agreement mean?
- 9. Which country has been raising tariffs on goods from China?
- 10. What questions do you have about the BTN story?

Human Evolution

- 1. Before watching the BTN story discuss what you know about human evolution.
- 2. What part of the human body is helping us learn about human evolution?
- 3. What is the scientific name for modern humans?
- 4. Approximately how far back in time do modern humans date?
 - a. 30,000 years
 - b. 300,000 years
 - c. 3 million years
- 5. Where did Homo sapiens originate?6. What did our earliest ancestors look like? Describe.
- 7. How are Homo habilis different to Homo sapiens?
- 8. The most famous Australopithecus afarensis was discovered by scientists in which country?
- 9. What was surprising about the *Human Evolution* story?
- 10. What questions do you have about the BTN story?

Get your class involved in BTN's <u>Ask A Reporter.</u> This week's topic is human evolution.





NASA Fossils

- 1. Briefly summarise the BTN NASA Fossils story.
- 2. Why is there a team of NASA and European Space Agency (ESA) scientists exploring the desert in WA?
- 3. Where is the Pilbara? Find using Google Maps.
- 4. What does NASA and the ESA want to send to Mars next year?
 - a. Humans
 - b. Robotic rovers
 - c. Animals
- 5. What will they do on their mission to Mars?
- 6. Complete the following sentence. Some rocks found in the Pilbara hold the _____ remains of Earth's first living things.
- 7. What is the age of some of the rocks that they're studying?
- 8. What do stromatolites look like?
- 9. What are stromatolites evidence of?
- 10. Illustrate an aspect of the NASA Fossils story.

Check out the NASA Fossils resource on the Teachers page.

Worm Wee

- 1. Before watching the BTN story discuss what you know about worms.
- 2. Describe the habitat of worms.
- 3. How do the tunnels that worms create in the soil help the environment?
- 4. What do worms eat?
- 5. What food shouldn't be given to worms?
- 6. Worms are nature's recyclers. What does this mean?
- 7. Some worm species eat their entire body weight every day. True or false?
- 8. What is worm juice?
- 9. What are the kids in the Worm Wee story doing with the worm juice?
- 10. Find an interesting fact about worms.

Check out the Worm Wee resource on the Teachers page.





Teacher Resource

Episode 26 10th September 2019

NASA Fossils

O Focus Questions

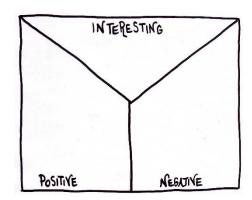
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Activity

Note Taking

Students take notes while watching the BTN story. After watching the story, students reflect on and organise the information into three categories. What information was...?

- Positive
- Negative or
- Interesting



Key Learning

Students will develop a deeper understanding of Mars. They will investigate how Mars compares to Earth and what life would be like on Mars.

@ Curriculum

Science - Year 5

The Earth is part of a system of planets orbiting around a star (the sun).

Scientific knowledge is used to solve problems and inform personal and community decisions.

Science - Years 5 & 6

With guidance, pose clarifying questions and make predictions about scientific investigations.

Science - Year 7

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.



Class Discussion

After watching the BTN NASA Fossils story hold a class discussion. Here are some discussion starters:

- What do you know about Mars?
- Why are space scientists looking for clues about Mars in the Australian outback?
- What did they discover?
- What did you learn watching the BTN story?
- What was surprising?

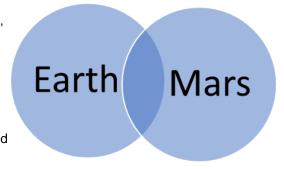




Profile of Mars

Create a profile of Mars using a range of sources of information. The following questions will help guide students' research:

- When and who discovered Mars?
- How was it named?
- How big is Mars?
- Where is Mars in the Solar System?
- What does Mars look like? Describe using words and pictures.
- List 10 interesting facts about Mars.



Use a Venn diagram to compare and contrast Mars with Earth. Compare and contrast the size of the planets, the distance from the Sun and its physical features.

Activity

Mars research

Define: What do I want to know?

Key questions to research

Students can choose one or more of the following questions/statements or come up with their own:

- What are the geological features of Mars?
- Was there ever life on Mars?
- Which features are found on both Earth and Mars?
- Should we be putting humans on Mars? Explore the pros and cons.

Locate: Where do I find the information?

What resources will help answer my questions? (Internet, people, resource centre, organisations, print). Discuss with students what a reliable source is.

Select: What information is important for the investigation?

Students may need support to sort through and select relevant information.

Organise: How do I make sense of the information?

Students can organise their research by creating main headings from their questions. Write each heading on a separate piece of paper. Record the information found for each question.

Present: How do we let others know about this information?

Each group needs to discuss then decide on the best way to present the information. Possibilities could include:

- A `Did You Know' Facts sheet
- Infographic
- Prezi presentation

Evaluate: What have we learnt?

Each group reflects on what they have learnt about Mars during their investigation. Students reflect on:

- What I learned...
- What I found surprising...





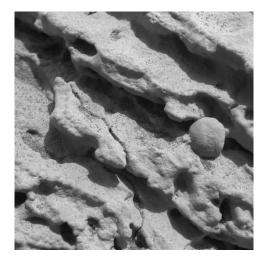
Images of Mars

Students look at the photographs of the surface of Mars and respond to the following questions:

- Describe the image. What can you see?
- What does the image tell you about Mars?
- How is it similar to Earth?
- What was surprising about the image?
- What questions do you have about the image?



Link to image



Link to image



Link to image



Link to image

Activity

Life on Marc

Students will investigate what it would be like to live on Mars and what would be needed to sustain human life. Begin with a class brainstorm using the following questions to guide discussion:

- What do you think it would be like to live on Mars?
- What are the benefits of having a space settlement on Mars?
- When planning for life on Mars what are some important things to think about?

Students will then need to research conditions on Mars, so they can plan and design a settlement on Mars that will sustain human life. The following questions can help guide students' research:

· What are the conditions like on Mars?



- What needs to be considered when planning a colony on Mars? For example:
 - Water supply
 - Atmosphere (air supply)
 - Temperature
 - Food production
 - Gravity
 - Waste management
- What materials could be used to build a space settlement?

☆ Activity

Mars 2020 Mission

The BTN story explained why space scientists were exploring outback Western Australia looking for clues to help them plan the Mars 2020 rover mission. Students can find out more about the NASA mission here. NASA are also running a competition to name the next Mars rover. Find how to enter <a href=here. There are four goals for the mission. Students can choose one of the science goals to explore in more detail.



SCIENCE GOAL 1: Determine Whether Life Ever Arose on Mars



SCIENCE GOAL 2: Characterize the Climate of Mars



SCIENCE GOAL 3: Characterize the Geology of Mars



SCIENCE GOAL 4: Prepare for Human Exploration

Q Useful Websites

The Greatest Treasure Hunt - ABC News

https://www.abc.net.au/news/2019-09-01/nasa-in-western-australia-looking-for-clues-to-mars-mission/11452250

Mars 2020 Mission – NASA

https://mars.nasa.gov/mars2020/

Scientists Explore Outback as Testbed for Mars – NASA https://mars.nasa.gov/news/8505/scientists-explore-outback-as-testbed-for-mars/

Mars Facts - NASA

https://mars.nasa.gov/all-about-mars/facts/





Teacher Resource

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Worm Wee

Q Focus Questions

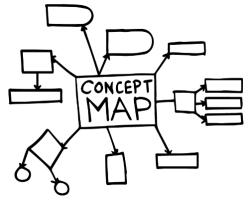
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- 7. Some worm species eat their entire body weight every day. True or false?
- 8. What is worm juice?
- 9. What are the kids in the Worm Wee story doing with the worm juice?
- 10. Find an interesting fact about worms.

Activity

Class Discussion

As a class discuss the BTN *Worm Wee* story using the following questions as a guide. Record the main points of discussion on a mind map with **WORM WEE** at the centre.

- What do you know about worms?
- What is a worm farm?
- How does a worm farm work?
- What is worm wee?
- What things do you need to make a worm farm? Make a list
- Why are worms good for the garden? List the benefits.



Students will then respond to one or more of the following:

- Think of a question you would like to ask the kids featured in the BTN Worm Wee story.
- Leave a message in the comments section on the BTN Worm Wee story page.
- Finish one or more of the following sentences:
 - Worm wee is...
 - o Worms are important because...
 - Worms can convert all sorts of things into compost by...

Key Learning

Students will investigate the role of worms in the ecosystem. Students will explore the process of starting and managing a worm farm at their school.

© Curriculum

Science - Year 3

Science knowledge helps people to understand the effect of their actions.

Science - Year 4

Living things have life cycles.

Living things depend on each other and the environment to survive.

Science knowledge helps people to understand the effect of their actions.

Science - Year 5

Scientific knowledge is used to solve problems and inform personal and community decisions.

Science - Year 6

The growth and survival of living things are affected by physical conditions of their environment.

Science - Year 7

Interactions between organisms, including the effects of human activities can be represented by food chains and food webs.

HASS - Year 5, 6 & 7

Reflect on learning to propose personal and/or collective action in response to an issue or challenge and predict the probable effects.





Glossary

Students will brainstorm a list of key words that relate to the BTN *Worm Wee* story. Students may want to use pictures and diagrams to illustrate the meaning and create their own glossary. Here are some words to get them started.

Fertiliser	Decompose	Waste
Food chain	Sustainability	Gardening
Compost	Organic	Decomposer



Scientific investigation

Provide students with the opportunity to think and behave like scientists. In this activity students will be given the mission to explore a natural habitat in their local area, identify worms in their habitat and document what they find. Students will work individually or in small groups and use the following as a guide.

Plan

Plan a visit to a local nature reserve or your own school yard to explore and identify worms. Write a list of things you may need for the investigation, for example: pen and paper for taking notes, camera and magnifying glass. Predict where you might find worms and what you might see when you find them.

Explore

Visit the habitat and carry out an exploration of the area. Choose a spot in the environment to investigate. Look and listen for evidence that worms live in the area. Remember worms are very fragile – please make sure worms are treated with care and respect during your observations.

Collect

Collect as much data as you can about worms and record what you find. Write notes and sketch what you see to help in your investigation. Record what you see with a stills or video camera.

Share

Return to the classroom and share/compare your findings.

Analyse

Analyse your findings and write a short summary of your investigation. Respond to the following questions:

- Did you find any worms during your investigation? If yes, identify and describe what you found. If you didn't see any worms did you find any evidence that worms live in the area?
- What type of environment do worms like to live in?

Research

Research worms in more detail, and respond to one or more of the following:

- What do worms look like? Describe their physical characteristics. Do a scientific drawing of a worm labelling each part.
- What special features or adaptations do worms have to help them survive in their environment?



- What is its classification?
- What is the life cycle of a worm?
- What role do worms play in the ecosystem?
- Why are worms important?

Reflect

Reflect on the investigation by responding to one or more of the following questions:

- What did you enjoy about this investigation?
- What did you find surprising?
- · What would you do differently next time?



Questions for inquiry

Students will develop their own question/s for inquiry about worms and their role in the ecosystem, collecting and recording information from a wide variety of sources. Students may develop their own question for inquiry or select one of the questions below.

- Worms are decomposers. What does this mean?
- Why do we need decomposers? Give examples of decomposers other than worms.
- Where are worms in the food chain? Draw a diagram showing what animal feeds on what. Use illustrations or photos to demonstrate this food chain. Explore what would happen to the food chain if there were no worms.
- · What are the benefits of worms in the ecosystem?



School project

In this activity students will investigate the following questions to learn more about the process of starting and managing a worm farm at school. Consider dividing the class into small groups and giving each group several questions to answer. Each group will then share their findings with the class.

Students will respond to the following questions to learn more about the process of running a school worm farm:

- What do you need to set up a worm farm?
- How do you set up a worm farm?
- Who is responsible for the worm farm?
- What worms are best suited to worm farms?
- How much will a worm farm cost to set up?
- How much will your school save by having a worm farm?
- What scraps can you feed the worms?
- How will you collect the scraps for the worm farm?
- How will you measure the amount of scraps to go in the worm farm?
- How often do you need to feed the worms?
- What environment do the worms need to survive?
- Where will the worm farm be kept?
- Where will the other materials for the worm farm come from? E.g. newspapers, cardboard, soil, brown matter
- What food shouldn't go in a worm farm?
- How will you collect the worm wee?
- How will you measure the amount of worm wee produced by the worm farm?



Individually or in small groups, students will then choose one of the following projects to work on and then present their findings to the class.

Instruction manual

Write an instruction manual with steps on how to make and care for a worm farm at your school.

Consider using illustrations or photos to demonstrate steps in your instruction manual.

Persuasive writing

Write a letter to your principal explaining why your school should setup a worm farm. Research the environmental benefits of worm farms and include these points in your persuasive writing.

Audit

How much organic waste does your school produce? Conduct a waste audit and calculate how much waste your school would save going to landfill if you had a worm farm and composting system.

Poster

Create a poster to celebrate worms and their importance in the ecosystem or create a poster to send to schools with some handy tips on keeping a worm farm at school.

Useful Websites

Worms – Australian Museum https://australianmuseum.net.au/learn/animals/worms/

Worm Farm 101 – ABC Gardening Australia https://www.abc.net.au/gardening/factsheets/worm-farm-101/11325460

Building a worm farm – Landcare Australia https://landcareaustralia.org.au/wp-content/uploads/2016/05/Building-a-worm-farm-12.9-LR.pdf

Worms 3 Ways - ABC Gardening Australia https://www.abc.net.au/gardening/factsheets/worms-3-ways/10838056

Gardening Guide: Worms - BBC

http://www.bbc.co.uk/gardening/gardening_with_children/didyouknow_worms.shtml



BTN Transcript: Episode 26 – 10/9/19

Hey. I'm Amelia Moseley and you're watching BTN. Here's what's coming up. Matt finds out why experts are excited about a skull, Liv learns why space scientists are exploring the outback and our new reporter Cale investigates the wonders of worm wee.

Hurricane Dorian

Reporter: Amelia Moseley

INTRO: We'll have all that and more soon. But first today to the Bahamas, which has been devastated by the most powerful hurricane ever to hit the region. Hurricane Dorian killed dozens of people and damaged a huge amount of property in the Caribbean islands. Let's find out more.

The Bahamas. They're a group of islands in the Caribbean region, normally known for their pristine beaches and swimming pigs. But last week things looked very different on this island paradise. Hurricane Dorian, a powerful and deadly storm, swept across parts of the Bahamas bringing crazy winds up to nearly 300 kays an hour and devastating floods. While Dorian was moving slowly across these islands, people in the south eastern states of the US were preparing for the hurricane to head their way.

US PRESIDENT DONALD TRUMP: A Category 5 is something that, I don't even know that I've heard the term other than I know it's there. That's the ultimate and that's what we have, unfortunately.

Yep, Dorian was a Category 5 when it hit the Bahamas and if, like the US president, you're a little unsure about what that means, well here's a guide.

Hurricanes are given numbers according to how strong their winds are. In North America, a Category 1 storm has winds of up to 153 kays an hour which won't do too much damage. A Category 2 brings winds up to 177 kays an hour. Category 3 hurricanes get more serious. Winds of up to 208 kays an hour and can cause big damage to buildings. Category 4 is considered catastrophic. And, finally, Category 5 brings winds above 252 kays an hour and that means entire houses could be destroyed.

In Australia we have a very similar system for rating cyclones. You see, cyclones, hurricanes and typhoons are basically all the same thing, just with different names in different parts of the world. They're big spinning super storms that form over warm water in the tropics. They get stronger as they move over that warm water and weaken over cooler water or land.

You've probably noticed that hurricanes have human names. Before the 1950s, tropical storms were tracked by the year and order they happened in during that year which proved to be pretty confusing, and even dangerous, when two or more storms were happening at the same time. So now meteorologists keep track of them by cycling through a long list of names in alphabetical order, but they never re-use the same name if the storm was deadly or damaging; which is why there will never be another Hurricane Dorian.

But it certainly won't be the last tropical storm in this area. In fact, scientists are worried that as the planet warms, storms like this could be be getting more powerful and more frequent. That has huge consequences for people living in coastal areas. When Dorian hit the US states of North and South Carolina it had weakened to a Category 2, but it still whipped up winds, waves and rain before eventually disappearing. Meanwhile people in the Bahamas are now trying to recover from the storm with the help of aid groups. But it won't be easy to move forward after being hit by such a powerful force of nature.

Quiz

What is the area of low pressure at the centre of a hurricane called?

The ear
The midpoint or
The eye?



It's the eye. The weather at the eye of a hurricane is calm, but just around it is where the strongest winds are.

This Week in News

Australia's east is dealing with a different sort of natural disaster. Dozens of bushfires have hit parts of Queensland and New South Wales with strong winds and warm weather making things difficult for emergency services. Many schools were forced to close and lots of people had to evacuate including 8-year-old Toby, whose dad stayed at home to fight the fires.

TOBY: That was all burning and he got a bucket of water and tipped it that all on the hedge so it couldn't burn the house.

His property was badly burnt but they reckon it could have been a lot worse.

TOBY: It was pretty scary yeah we're very, very, very lucky that our house didn't burn down.

Others haven't been as lucky. Dozens of houses and properties have been destroyed by the fires. Experts are worried there'll be more to come as the weather get hotter.

FIRE CHIEF: We've never seen this before in recorded history. Fire weather has never been so severe this early in spring.

And it's been another crazy week of politics in the UK. As you might know, they're having all sorts of problems over there trying to sort out Brexit. That's Britain's plan to "Exit" the European Union. It's something the people there voted for a couple of years ago and it's due to happen next month. But politicians still haven't been able to agree on a deal with the EU on how things like trade and travel will work after Brexit. The new UK PM, Boris Johnson, says he's prepared to go ahead even without a deal. But last week a member of his own party voted against him and helped to pass a law designed to stop a no deal Brexit.

US China Tariffs

Reporter: Matthew Holbrook

INTRO: Now to an ongoing story that you might have heard of involving two of the world's most powerful countries, the US and China. Things are kinda tense between them at the moment, in fact, they're in the middle of something called a trade war. What's that? Let's find out.

TRADE WARS: Episode 1. Turmoil has engulfed the galaxy's two largest economies. Taxation and trade is in dispute. Hoping to resolve the matter, tariffs are brought in as timely and as convoluted a manner as possible. Are you even reading this? It's kind of boring, right? No? No-one ever does. Well, let's cut to the action.

CAPTAIN: We need to do something.

UNDERLING: About what, sir?

CAPTAIN: Our economy. Factories are closing. People and aliens are losing their jobs. It's time to deploy the weapon.

UNDERLING: Are you sure?

CAPTAIN: Yes. They must feel the might of tariffs. Ha ha ha ha.

Yep. Tariffs. A word you might have heard a lot recently. While it might sound complicated, a tariff is simply a tax. An extra cost that governments put on things that come from another country. Tariffs can be on anything. Electronics, handbags, washing machines, cars, even resources like steel and coal. They're not unusual, but when they're used as a weapon they can be really powerful. Tariffs raise money for the government, which collects the extra tax from customers. But their main purpose is usually promoting local growth and businesses. See if you make things from overseas more expensive, you encourage people to buy stuff that's made locally. And that helps local business. But there's a big downside to tariffs.



CAPTAIN: Well?

UNDERLING: Captain. They've hit back with their own tariffs.

CAPTAIN: What do you mean?

UNDERLING: They're not buying our stuff anymore.

Yep, if you put tariffs on stuff from one country, they might just put tariffs on your stuff. And that can hurt everyone. It's why many countries have free trade agreements, which allow them to buy and sell from each other without those extra charges. It's also why, in recent decades, many countries have tried to reduce their tariffs to encourage trade and avoid this.

CAPTAIN: What was that?

UNDERLING: I think we're in a trade war.

A trade war is what experts say is happening right now between the world's biggest economies, the US and China. Since he was elected, the US president has been raising tariffs on all sorts of stuff, from all sorts of countries. And in particular, he's taxed hundreds of millions of dollars' worth of goods from China. It makes a lot of stuff. And the US government reckons the country is buying too much from China, and not selling enough in return. But China has hit back with its own tariffs. It's causing a fair bit of tension between the US and China, and many businesses in both countries say the tariffs are actually hurting them.

UNDERLING: Captain.

CAPTAIN: What now?

UNDERLING: It looks like it's affecting the rest of the galaxy.

The US China trade war has been bad news for stock markets around the world, including in Australia. And experts are worried it could lead to them restricting trade with other countries. Many are still worried about this trade war getting worse, and with new tariffs going into effect at the start of September, a Trade War: Episode 2 doesn't look so far, far away.

CAPTAIN: I think the only answer is more tariffs.

Sport

The Aussies have retained the Ashes, winning the 4th test of the series and Steve Smith was back and up to his old tricks. He scored 211 in the first innings, and 82 in the second, putting the match just out of reach for England. They needed a whopping 383 runs to win and with this start, things didn't look likely. Despite valiant efforts from Joe Denly, Jos Buttler and Craig Overton, the Australian bowling attack proved too much for the English side. There's still one match to go in the series but with two wins and one draw under the belt the Aussies can't lose.

Rafael Nadal is one step closer to equalling Roger Federer's Grand Slam win record. He defeated Russian world number 5 Daniil Medvedev in an epic 5 set final in the US Open, bringing his Grand Slam total to 19. Speaking of records. Serena Williams has been denied of a record-tying 24th Grand Slam singles title. She lost to Canadian teenager Bianca Andreescu in straight sets.

And finally, Aussie aerial ace Matt Hall has won the last ever Chiba Air Race World Championship in China. Matt has been runner up in 2015, 2016, and 2018, and by the sounds of it, people were pretty excited about him finally winning.



Human Evolution

Reporter: Matthew Holbrook

INTRO: Scientists are really excited about a new find in Ethiopia. It's a skull, a 3.8-million-year-old skull that's thought to have belonged to an ancestor of humans and they reckon it could help to give us a better understanding of human evolution. Here's Matt.

MATT HOLBROOK, REPORTER: Good evening. Now, I have a question for you. What looks marvelous on a coffee table, terrifying at children's birthday parties, and holds the secrets to human evolution? That answer and more in this week's Tales of Skulls.

Homo sapiens, that's us. The modern humans. Homo sapiens is our fancy, scientific name. We date back more than 300,000 years or so. We can walk, we can talk, we can juggle. Some of us.

And we have critical thought. We are, in my opinion, the most important species on the planet. I may be a little biased.

Homo sapiens originated in Africa, and there are fossils to prove it. For a long time now, scientists have believed that our species evolved over millions and millions of years. Our earliest ancestors probably looked far more like this. Over time, through the process of natural selection, their descendants started to walk and talk and light fires and do all kinds of humany things. Like eventually, becoming scientists who dig up skulls. Skulls which have given us clues as to how we've changed over time.

MATT HOLBROOK: Take my distant cousin here, Homo habilis. We look kind of similar, same dead eyes, but he has a much smaller brain. And look at those chompers.

Homo habilis lived about 2 million years ago. But we can go back even further.

MATT HOLBROOK: Meet Australopithecus afarensis. This handsome devil is quite different to me. Same dead eyes but look at those cheekbones.

Australopithecus afarensis lived about 3 to 4 million years ago, was about the size of a chimpanzee and had a brain size to match. But unlike chimps, walked upright. The most famous Australopithecus afarensis is Lucy. She was discovered by scientists in Ethiopia in 1974. But we can go back, once again, even further.

This 3.8-million-year-old skull was discovered recently by a goat herder in Ethiopia. It's a male, from a species known as Australopithecus anamensis. It's not the first anamensis discovery, but it is really important. Not just because it's the most complete ever found, but because of how old it is. Scientists think it lived around the same time as Lucy's species, even though Lucy's was a little smarter.

DR. YOHANNES HAILE-SELASSIE, CLEVELAND MUSEUM OF NATURAL HISTORY CURATOR: This is really a game changer in a lot of ways and answers all the questions that we've had lingering around for decades.

It means the evolution of humans is much more complicated than once thought. And just like there are different species of ape, there were probably different species of human ancestors walking around on two legs at the same time.

MATT HOLBROOK: Well, that's all for this week's Tales of Skulls. Tune in next week, when one lucky viewer a very unexpected surprise.

Quiz

Which of these species shared the planet with modern humans, up until about 29 thousand years ago? Was it:

Homo habilis

Homo neanderthalensis or

Homo erectus?

It was Homo neanderthalensis, which you might know as Neanderthals. They're our closest extinct relative. In fact, some scientists think they should be classified as a type of Homo sapiens.



Ask a Reporter

If you want to know more about our extinct ancestors you can ask me live on this week's Ask a Reporter. Check out the website for details.

NASA Fossils

Reporter: Olivia Mason

INTRO: And if you're interested in evolution, you'll be interested in this next story. It's about a bunch of space scientists who are studying ancient fossils in the Western Australian desert. They're learning how to look for clues about the start of life on Earth so that they'll be better at looking for life on Mars. Here's Liv.

What if you could get on a bus and go on a trip to Mars? Yeah, that's not really possible, but these kids are doing the next best thing. They've gone on an excursion into Western Australia's Pilbara desert, a place which scientists say is kinda similar to the red planet. They're meeting some space scientists who are studying the landscape to get ready for an actual trip to Mars.

Next year, both NASA and the European Space Agency are planning to send robotic rovers to the Martian surface. While they're there, they'll be collecting and analysing samples of rock to try to find out more about the red planet and in particular, whether there was ever any life on Mars.

JIM WATSON, NASA MARS EXPLORATION PROGRAM: They'll be on the greatest treasure hunt ever, and their job is to try and search out and interpret the geology of Mars to understand both the evolution of the planet. but also, in our search for evidence of ancient life.

So, this trip to the Pilbara is like a practice run for these scientists, where they're learning how to spot signs of ancient life. See, these rocks are more than 3 billion years old and hold the fossilised remains of Earth's first living things.

MARTIN VAN KRANENDONK, NASA MARS EXPLORATION PROGRAM: The exciting thing about these outcrops is you're looking at your great, great, great, great grandfathers and grandmothers, this is really the start of everything that came afterwards.

Yeah, I know what you're thinking, these rocks really don't look like my ancient ancestors but, hear me out. These patterned bits of rock are called stromatolites: the layers are made up of fossilised micro-organisms and over billions of years, those micro-organisms eventually evolved into everything on the planet including us. Pretty crazy huh. If anything like this was found on Mars that would be huge.

JIM WATSON, NASA MARS EXPLORATION PROGRAM: We hope we can start to have a better understanding for are we alone in the universe where and how did life emerge.

They're some pretty big questions and they've got these guys interested in finding out more.

KIDS: Do you want to be an astronaut? I would want to. Yeah fly around in space. Yeah see if there's life on Mars.

For now, they're learning about the geology of the Pilbara and how it's helping space scientists.

SCIENTIST: How we get the rover to Mars and so these are all the pieces we have to stack together.

They say while they always knew their hot, dry home was pretty special, they didn't realise that it could one day help to unravel some of biggest mysteries out there and it's even got some of them interested in a spacey career.

ZALIYA: Thinking about it now a lot. It seems really cool actually. Yeah thinking of being an astronaut now.

Worm Wee

Reporter: Cale Matthews

INTRO: Finally, today to a school that's found an unusual way to raise money. Forget lemonade stands, they've decided to sell worm wee. And while that might sound well, pretty gross, Cale found out that it's actually super useful.



CALE MATTHEWS, REPORTER: These kids have got worms. Go on, show them.

And these little wrigglers are their squirmy, slimy class pets.

KID: Oh I like seeing the worms and on Wednesdays I like going over there, opening it up and seeing all the worms, and whenever we put new worms in or make a new one we always name the worms when we go in.

You're probably pretty familiar with worms, but what you might not know is that there are more than 6,000 species of worm worldwide, the most common ones are about 10-15cm long but one Aussie species grows up to 3 metres. Yuck.

CALE: Luckily these are your average, garden variety, not terrifyingly huge, earthworms. And it's the job of these guys, to keep them happy.

KID: We give them the food scraps from each class and just look inside before so we wanna make sure there's no meat, there's no citrus, there's no onion, just checking through and making sure there's absolutely no plastic, and with our challenge that we're doing, we would like to do, to make sure that if there's any whole fruit, they will not go in, so we just put it in our compost.

Worms are nature's recyclers. As the worms move through the soil, they like to eat a lot and some species eat their entire body weight every day. Munching through everything from kitchen scraps to dead leaves and branches. And what happens to all of their food?

KID: Once they finish eating the food, they'll make the worm juice.

CALE: Mmm, yeah.

KID: Umm, well worm juice is made out of pee and poo from the worms.

CALE: Errghh.

JORDAN: What the worms do is that they eat it and then when they do their business that's where the compost comes out.

While it might sound disgusting, the worm wee is full of nutrients, something that plants find delicious and for these kids, it is money in the bank.

KID: We sell these to the communities at the school, so like, the parents if they're picking up kids, from the school, or even before school, or after assemblies.

While some of the profits go back into the garden, the rest goes to a worthy cause.

ELLY: I think 51% of our profits go the Australian Conservation Foundation to help save the oceans, because were really passionate about that.

CALE: So the humble worm is more useful than I first thought, and now I know that I can use wee to get rich, I might get worms too. Wee for sale. Who wants wee?

Closer

Well that's it for this week. Make sure you tune in next week for our last BTN episode of the term and in the meantime, you can check out our website and BTN Newsbreak every weekday. See you soon. Bye.

