INFOBYTES
Numbers 1-20

RA 14+ yrs
2nd Edition

LEVEL 9
SCHOOL SITE LICENCE: For use at the school of purchase only
### InfoBytes - Level 9 - RA 14+ yrs

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What are StoryBytes and InfoBytes?
These resources were originally developed to provide teachers with short pieces of text that could be completed in one guided reading session. They are especially formatted for our SharpReading approach to reading instruction but can be used in any way the teacher wishes.
Our SharpReading Guided Reading lessons for Stage 3-6 are aimed at habitualising deep processing skills, so four paragraphs usually take around 25 minutes, an ideal timeframe for a guided reading lesson. Follow-up activities provide independent responses for the students who have processed the text deeply. Visit our website for a more extensive explanation of the way you can use StoryBytes and InfoBytes.

Why no illustrations?
Our understanding of the developmental progression of the reader is that it generally takes about two years of instruction before the beginning reader develops true fluency with decoding strategies. During this time it is important for the text they are reading to include picture prompts which helps to scaffold the constructing of meaning.
However, once decoding strategies have been habitualised, (often at a reading age of around 7-8 yrs) the reader is now free to work on the skills required to construct meaning at a deep level. This is what we aim for in SharpReading Stages 3-6 and our research tells us that this process is aided by the absence of picture prompts.

What do the levels mean?
There is a lot of debate about the validity of ‘Reading Ages’. We maintain that, despite the controversy, they still provide a quick, understandable benchmark for measuring achievement. The levels referred to here coincide with the levels in our Informal Prose Inventory testing procedure and line up with PAT Levels (Progress Achievement Test - NZCER and ACER).
These levels assigned to the text allow for the quick identification of appropriate reading material once an instructional reading age (or level) has been identified.

Why are there only some levels - the odd numbers?
We have resisted the temptation to try and provide variations on these texts at all nine levels. We have found that using the 5 levels listed below provides a meaning progression for readers who are fluent decoders and are now developing the comprehension skills they need to process text deeply.

For more about our SharpReading approach to reading instruction visit our website www.sharpreading.com. We specialise in teacher workshops or you can do the training online.

Characteristics of the Levels
Level 1 (RA 7-8 yrs): Simple sentences with one or two ideas strung together. Concepts are clearly explained without the need for much inference.

Level 3 (RA 8.5-9 yrs): The progression from Level 1 is that the content remains similar but the sentence structure becomes more varied thus slightly more challenging. There are still usually only two ideas in a sentence for the reader to hold onto but some changes in the vocabulary.

Level 5 (RA 10-11 yrs): Text at this level reflects the ability of the reader to hold onto more complex ideas over longer sentences. Vocabulary is more challenging and meaning may be spread over several sentences. This level is the most often used for students with a 10+ reading age as it provides variety and interest in sentence construction while not overwhelming the student who is developing Stage 3 SharpReading skills - constructing meaning at a deep level.

Level 7 (RA 12-13): This level bridges the text difficulty between Level 5 and Level 9. We have purposely extended the vocabulary that the reader is exposed to and the sentence length and complexity increases. This text will provide a challenge for the more able primary aged children without putting them into the cognitive overload that can occur with Level 9.

Level 9 (RA 14+ yrs): Here we have attempted to provide very challenging text to test your most able readers. Text at this level includes complex sentence structures and high end vocabulary. However, just because a student can read text at this level, it doesn't mean they can process and understand it adequately. Guided reading should not be a just a vocabulary lesson so use this level with some caution.
Cats vs Dogs

Toilet habits make cats the superior pet preference. Regardless of the forces of nature that are being unleashed outside or the presence of a serial killer on the loose in your neighbourhood, when its time to go, Fido the dog still requires you to walk him. If you own a cat you will be safe indoors even during a zombie apocalypse. She will simply retreat to her litter-box without inconveniencing you or wait patiently by the door to be let out to do the job unsupervised. On completion she will conscientiously cover up the evidence without you having to poop scoop.

Then there is the smell. You can be obsessive about dog bathing and spray excessively with canine cologne, but that doggy odour will always linger. Outside, your dog delights in cavorting in piles of dirt and garbage with no concern for the impact on his personal grooming. Conversely, cats have immaculate personal hygiene. Cats, both feral and domesticated, spend up to one-third of their day self-grooming. No, your kitty doesn’t have obsessive-compulsive disorder. Being meticulously clean comes naturally and is essential for her health and feeling of well-being … and yours.

Cats have a code of silence. Incessant meowing is beneath a cat's dignity and they have learned to save such utterances for life threatening crises such as the need to be fed. Your cat also understands your need for quiet to practise the violin, write a novel or meditate on world peace. By comparison, Fido is a hysteric who barks mindlessly at everything; innocent children on their way to school, a police siren, a harmless butterfly. Such indiscriminate reflex responses to the slightest stimulus generate enormous stress for both your family and your neighbours.

And here is the clincher; cats are inexpensive, superbly efficient, exterminators. When did Fido ever make a useful contribution to your pest eradication programme? In contrast, mice, rats and even certain insects will evacuate the premises once a hunting feline makes an appearance. These pesky vermin are prolific disease carriers, so your feline companion is potentially a life-saver. Dropping a dead, mangled, bloodied mouse at your feet in the morning may be somewhat disturbing, but you must see it for what it is; a sign of your cat’s affection. Thank her for a job well done and be grateful you didn't get a dog.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down.
   Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Make a poster showing the information about cats and dogs presented in this InfoByte.
4. Write a letter to the author agreeing or disagreeing with his point of view.
5. Design an automatic pooper scooper for dogs that will get rid of the toilet problem mentioned.
   Use diagrams and labels to show your wonderful ideas.
Tattoos

In the last 20 years, the tattoo industry has done a roaring trade. Walk through any shopping mall and invariably you will encounter a sleeve tattoo, an intricately decorated leg, or even a tattooed face. Traditionally, tattoos were the trademark of sailors, bikers, criminals and undesirable members of society. Having a visible tattoo would automatically exclude you from a respectable job. Now tattoos are the height of fashion and the people who indulge in them are as diverse as the styles and designs they choose.

What motivates the decision to tattoo? Hiding an unsightly scar is not unreasonable. Tattooing the name of a boyfriend or girlfriend or a special loved one is a sign of commitment. Identification with a group or culture or the representation of a strongly held belief are popular rationalisations for inking. Some women use tattoos as permanent makeup to emphasise their eyes and lips while many other wearers consider their tattooed bodies to be a work of art. For some a lot of research and careful planning goes into their tattoo design, but conversely, many tattoos are the result of impulsive, spur of the moment decisions.

What is the procedure? Tattooing involves depositing ink, dyes and pigments into the dermis layer of the skin. This used to be a very barbaric, unsanitary ritual. Now days it is usually done using a tattoo machine, a sophisticated piece of equipment that perforates your skin with a needle leaving a minute deposit of ink under the surface. The tattooist creates a design on your body using hundreds of these perforations. The needle punctures heal over leaving the ink trapped beneath the skin. Remember this is a permanent process - you can't wash the ink off.

If the unattractive and painful prospect of being a human pin cushion hasn't dissuaded you, here are some other important considerations to ruminate upon. No matter how ecstatic you are about your nominated tattoo design today, will those sentiments endure permanently? Remember how fickle the winds of fashion are. Will that boyfriend whose name is embossed on your back still feature in your life in 20 years time? While tattoo removal may be your solution if any of the aforementioned circumstances were to prevail, be warned that it is an expensive and excruciatingly painful process. Getting a tattoo is a serious business. Consider carefully the consequences before you ink.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down.
   Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Make a poster encouraging people to get a tattoo OR warning about the problems.
4. Write a poem describing what it is like getting a tattoo.
5. Design your own tattoo; a message or a clever design.
   Use diagrams and labels to show your wonderful ideas.
The Truth about Pirates

Many genres of fiction; books, television and movies, have embedded the world of pirates in the consciousness of today’s public. From the pompous but likeable cartoon character Captain Pugwash, to the menacing villain Captain Hook, to the rascally trickster Captain Jack Sparrow, each of us have our own understanding of what it means to be a pirate. Who hasn’t been to a ‘wear a costume’ party where there were pirates with phoney beards, black eye patches, fake hooks and peg legs, and much waving of cutlasses. But what is the historical validity of these legends from the past? Were they real or just the invention of over stimulated imaginations?

Pirates were most prolific from 1650 to 1720. They were vagabonds; terrifying criminals who roamed the seas in search of adventure and plunder. With a shortage of honest work on land the prospect of easy wealth as a pirate was very tempting. It was also a life filled with violence, drunkenness and the promise of an early grave. Horrific battle wounds usually resulted in death from gangrene. Months at sea and long periods of boredom between attacks were filled with rum drinking. Often the only food available was weevil and maggot infested bread.

As seaborne trade between countries increased there was much money to be made … and stolen. Initially pirates targeted Spanish galleons bringing gold and silver from South America, but high-value luxury goods like silk and calico were also ideal pirate booty. As they approached their prey they would unfurl their pirate flag and fire warning shots. Spoiling for a fight, any signs of resistance would result in the doomed vessel being boarded amidst bloodcurdling cries and the vicious wielding of cutlasses. The fate of the unfortunate crew often depended on the mood of the pirate captain.

By 1720, the negative impact of piracy on trade between countries was so great that governments were forced to act. Heavily armed naval warships were sent to the pirates’ favourite hunting grounds. Horrific sea battles were fought as notorious pirates such as Blackbeard and Bartholomew Roberts were slaughtered with their cutlasses swinging. Others were taken alive, brought back in irons for a speedy trial, and executed by hanging amidst great publicity. Bodies were coated with tar and hung in special iron cages as a deterrent to others contemplating the life of a pirate. The golden era of piracy was over.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.

2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.

3. Draw a picture of a ferocious pirate that would scare anyone into surrendering without a fight.

4. Write a short story, a poem or a rap about a day in the life of a pirate.

5. Design a pirate ship that would overcome two of the main problems of olden day pirating - boredom and terrible food. Use diagrams and labels to show your wonderful ideas.
A Bright Idea

A simplistic invention by a Brazilian mechanic is lighting up underprivileged communities. In 2002 Alfredo Moser, exasperated by the persistent power cuts that plagued his city and interrupted his work, came up with an ingenious alternative to electricity to illuminate his windowless workshop during the day. The only prerequisite was a supply of water filled plastic bottles, a little common laundry bleach and an understanding of the physics of light waves. Now his innovation has spread throughout the world and is estimated to be used in over one million third-world homes and workshops.

Constructing this ingenious device is very straightforward. Locate and fill a clean, recycled two-litre plastic soft drink bottle with water. Add a small amount of common laundry bleach (fill the bottle cap twice) to inhibit the growth of bacteria and algae and seal the bottle with its original cap. Next a circular hole, (the diameter of the hole and the bottle should be equal) is cut in the roof. The bottle is inserted into the hole with half of the bottle protruding out of the roof and the other half inside the room. Apply a sealant to the joint between the roof and the bottle to ensure the roof remains watertight.

The device utilises the scientific principle of refraction. Rays of sunlight get bent or refracted as they strike the exposed surface of the water bottle and pass into the liquid. This process is repeated on exit and the resultant light rays are disseminated in all directions illuminating the interior of the room. Dependant upon the intensity of the sun outside, the quantity of light generated this way can be equivalent to a 40-60 watt electric bulb. Obviously, this lamp is only functional during the day but some creative use of solar technology (a solar panel and a storage battery) could make it operational at night.

Even in its most basic form this simple invention is revolutionising the lives of the 1.5 billion people throughout the world who do not have electricity. They live and work in congested shanty towns, in huts without proper windows and ventilation, dependant on candles and kerosene lamps for light. Kerosene has always been a malevolent light source, the producer of noxious fumes that quickly generate serious health problems. Compounding this effect, kerosene is expensive, the light is inefficient and accidental fires spread quickly with catastrophic effect in these cramped, overcrowded settlements. Moser’s solar light bulb provides a non-polluting, danger free alternative at no cost, a truely impressive ‘light-bulb’ moment.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram with labels showing how the Moser light works.
4. Make an advertisement for the Moser light so that more people will know about it.
5. Design something else that you could do with plastic drink bottles. Use diagrams and labels to show your wonderful ideas.
What to do with all that …

Eliminating unwanted wastes from the body, urine and faeces, is an everyday occurrence that every living creature has to give attention to. As always, the environment (mother nature) has its own perfect solution to the problem. When deposited in the soil, tiny microorganisms break down the wastes and release the all-important nutrients back into the soil as fertiliser. Consequently, when the first nomadic humans urinated and defecated on the ground, here, there and everywhere as they moved around hunting and gathering food, nature recycled the waste back into the soil and no one was inconvenienced.

However, as the world’s population increased and shifted from rural to much denser urban living, disposing of a huge accumulation of human waste became problematic. A popular response was to excavate large pits called cesspools beneath houses and allow the excrement to collect there. As you can imagine, the stench wafting through the floorboards was horrific. Stories are even told of residents falling through rotten floorboards and drowning in their cesspool. Of course these pits needed regular maintenance and when they weren’t emptied an overflow of effluent into the street was a common occurrence.

In London, the first really big metropolitan area, many people lived in grossly overcrowded buildings and basements with appalling sanitation. They were forced to defecate in narrow side streets and alleyways or wherever they could find a suitable place. They also used chamber pots (a small china bowl) emptying the contents out the window into the street below. When it rained the streets were turned into rivers of human excrement. Everything drained away into River Thames, which, unfortunately, was also the main supply of drinking water. The resulting outbreaks of cholera and typhoid caused thousands of deaths.

Today, modern cities have well developed sewage systems running beneath the city. Flushing toilets in every building are connected to a network of pipes. All human waste is pumped away to a wastewater treatment plant where liquids are syphoned off and introduced back into the open water system once they are environmentally safe. Solid waste is collected as sludge, treated, and can then be reintroduced onto farmland as fertiliser or used as landfill. However, it must be remembered that 60% of the world’s cities still do not have these sophisticated treatment facilities.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram with labels showing how the sewage system in modern cities works.
4. Write a poem or a rap about the disgusting smell in old London.
5. Design an alternative method for getting rid of human waste in overcrowded cities. Use diagrams and labels to explain your great ideas.
Stay Away from Me

All living things find a place in the pecking order of the food chain. They are both predator and prey, constantly on the search for food while attempting to avoid being eaten. Most animals have developed defence mechanisms to avoid the attention of their natural enemies. They are hard wired for survival and have adapted sophisticated physical and behavioural responses to protect themselves and their offspring. Here are some examples of the weird abilities and behaviours that three animals have developed to discourage potential threats.

The Texas Horned Lizard has a bizarre defence mechanism. When threatened it can squirt blood from its eyes by rapidly increasing the blood pressure within the thin-walled sinus of its eye sockets. As the pressure builds, the sinus walls break, sending a spray of blood aimed at the mouth or eyes of the predator. The predator will often drop the horned lizard after being squirted and attempt to wipe or shake the blood out of its mouth, suggesting that the fluid has a foul taste.

When talking about clever defence mechanisms, mention has to be made of the opossums’ trick of "playing dead". However, in reality, there is nothing tricky about this strategy and the response is completely involuntary. Under intense stress, opossums fall into a comatose-like state that can last for hours, long enough to convince any predator that the opossum is already dead. Fear also causes these animals to emit a corpse-like smell which adds to their act. The overall effect is unappetising for the predator as many are only interested in a fresh kill.

Finally, talk about taking one for the team! There is one species of termite that will send out older worker termites on suicide missions to defend the termite nest. These older termites are no longer useful as workers but they do have "explosive backpacks". During the termite’s lifetime special pouches on the termite’s back have slowly filled with toxic crystals that the termite produces. As they approach the enemy, the termite mixes another liquid with these crystals which causes an explosion, spraying the enemies with the poison, paralysing and killing them. Unfortunately the worker termite also comes to a sticky end.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw diagrams with labels to show that you understand how these defence systems work.
4. Write a poem or a rap about “Stay away from me”.
5. You are an insect or a mammal. Design new ways of getting rid of predators that want you to be their dinner. Use diagrams and labels to explain your great ideas.
Unsinkable

At the time of her maiden voyage in April, 1912, the Titanic was the largest moving object ever built. This magnificent vessel was a floating luxury hotel the length of three football fields and over twenty-five storeys high, equipped with the ultimate turn-of-the-century technology. This included sixteen watertight compartments in her lower section that could be automatically sealed off in the event of a punctured hull. Because of these latest features the Titanic was widely acknowledged as unsinkable.

Three days into her Atlantic voyage, other vessels in the immediate locality transmitted iceberg alerts. Inexplicably, the captain chose to disregard these warnings and the Titanic forged on through the night at close to maximum speed. At 11:40 p.m. a massive iceberg loomed out of the darkness ahead and evasive action was taken. Difficult to manoeuvre quickly because of its tremendous mass and momentum, the Titanic sideswiped the iceberg, slicing open five of the sixteen supposedly watertight compartments below the waterline on the starboard side. As water rushed in the bow of the ship began to tilt downwards.

By 1:20 a.m. it became apparent to everyone that the ship was doomed. Many hapless third-class passengers were fatally trapped in their small, economy cabins below deck as the ship filled with water. The crew and passengers were hopelessly ill-equipped for such an emergency having never contemplated the need for an evacuation. The 'women and children first' protocol for loading the lifeboats was generally adhered to and most of the male passengers and crew were left stranded on board to fend for themselves. Despite a hopeless shortage of lifeboats, in the mayhem of the moment, many were launched half empty.

At 2:20 a.m., two hours and forty minutes after colliding with the iceberg, the rate of sinking increased dramatically as the Titanic’s forward deck submerged and the sea poured in through open hatches, grates and passageways. The bow, by now totally waterlogged, dragged the ship downwards towards the ocean floor, lifting the stern up out of the water until it was nearly vertical with hundreds of terrified people still desperately clinging to it. It hung there for a moment before suddenly sliding down into the black, icy depths. The loss of more than 1,500 passengers and crew in the icy waters that terrible night made this one of the deadliest commercial peacetime maritime disasters in modern history.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down.
   Write your own sentence using the word to show that you really understand what it means.

2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.

3. Draw a diagram with labels showing how the Titanic sunk.

4. Write a poem or a rap about the sinking of the Titanic.

5. Design a luxury ship that is ABSOLUTELY unsinkable.
   Use diagrams and labels to explain your interesting ideas.
What a Spectacle

“Does anyone know what I have done with my glasses?” If you are remotely dependant on glasses for a focused view of your surroundings, you will be familiar with the anxiety associated with this exasperated utterance. If your vision is flawed, life without your glasses can be a very traumatising experience. What may surprise you is that ‘spectacles’, or eye wear as we know them today, are a relatively recent innovation. How did people with vision deficits survive before they were invented?

Prior to 1700 people with severe vision difficulties would have been treated as if they were blind. A fuzzy, out of focus life must have been almost as frustrating as a life without sight. However, minor eyesight problems may not have been as significant as they are today. Accurate vision, a prerequisite for most modern work, was not always necessary. Books were a rarity and only a few privileged people were educated enough to read. Craftsmen needed excellent eyesight for fine detailed work but there were many other labouring vocations available where this wasn’t a requirement.

It was the advent of the printing press and the spread of literacy that accelerated the invention of reading glasses. Older readers with deteriorating eyesight searched for ways to increase the text size of the books they wanted to read. Curved pieces of glass, placed on the printed pages and magnifying the text, appear to have been the first reading aids. Some enterprising inventor in the 1700s riveted two of these primitive lens together so that they could be worn on the face rather than placed on the page. The concept of personalised spectacles was born.

From the moment they were invented, glasses posed a complex engineering design challenge that wasn’t resolved for almost 350 years. The quandary was how to conveniently attach them to the wearer’s face. Designing a clasp to fix them onto the bridge of the nose was always problematic given the unique size, shape and firmness of that body part. Ribbons tied around the head or carefully applied weights to keep the spectacles steady were all bothersome and ugly solutions. It has taken a surprisingly long time and many innovations, but today glasses are not only comfortable and easy to wear but are also an elegant fashion statement.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram with labels to show you understand how people used pieces of glass to help them read.
4. Write a poem or a rap about the history of spectacles.
5. Design a new way of attaching glasses to a person’s head. Use diagrams and labels to explain your great ideas.
King of the Beasts

General consensus suggests that the lion is the king of the beasts, the alpha male of the animal kingdom. However there is no empirical evidence that can verify this assertion. The reality is that, based on overall dimensions, physical power and raw ferocity, the lion invariably comes second to the tiger in the feline family. We can only assume that this notion of lion dominance is a human perception. If we make a comparison between human kingly behaviour and the lifestyle of the lion it helps us to understand why we view lions the way we do.

Traditionally, we think of a king as being a majestic figurehead, having an aura of authority and power. The male lion possess that same royal persona living out in the open, fearing no other animal, defending and controlling his territory with impunity. His resplendent mane is a regal feature, clearly distinguishing him from the females of the species. Add to that a tumultuous roar that can be heard for miles across the savanna where he lives. He also lounges around for 20 hours a day without the suggestion of any pressing responsibilities...just like a king.

Throughout history, having a king helped maintain the social order. It was his responsibility to make and uphold laws and provide protection for his loyal subjects. In exchange for this he lived a life of luxury and ease derived from taxes paid by his loyal subjects. The male lion appears to have a similar role in a highly sophisticated social organisation. The alpha male keeps order and protects the pride from outsiders while the females do the hunting and care for the pride. This is atypical as all the other big cats live solitary lives.

The human king's hold on his kingdom was always dependant on his physical and political strength. There were always usurpers plotting and scheming, looking for a moment of weakness to overthrow the king and assume leadership. This is also evident in the lion kingdom. Young males who have reached maturity are ostracised from the pride of their birth and forced to become wanderers, looking for opportunities to dethrone the leader of another pride and take over. When the head lion loses his dominance or is defeated in open combat, he retreats from the pride and the new king of the beasts takes the throne.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.

2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.

3. Draw a diagram with labels comparing the life of a human king and the life of a male lion.

4. Write a poem or a rap about the magnificent “King of the Beasts”.

5. Design some adaptations for the leader of the pride so that as he grows older he can still fight off the younger lions and retain his place as king. Use diagrams and labels to explain your great ideas.
Pompeii

Two thousand years ago, the mighty Roman Empire, the greatest empire the world had ever known, was thrown into turmoil by the worst natural disaster to strike the ancient world. In one day, the great city of Pompeii, inhabited by 20,000 people, was destroyed and 5,000 of its residents were wiped from the face of the earth. Their killer was the nearby volcano Mount Vesuvius that towered over the city. Although earthquakes in the area were common, no-one suspected that pressure beneath and surface and inside the mountain had been building for hundreds of years. When the gigantic eruption finally came, it was as devastating as it was unanticipated.

On August 24, 79AD, at 1pm, Mount Vesuvius erupted, spewing out a deadly cloud of volcanic gas, boiling rock and ash. Travelling at super sonic speed this churning column rose 15-20 kilometres into the sky. The population watched in awe at this thunderous display of nature’s power. As the top of the eruption column lost its upward momentum, it began to spread out across the sky directly over Pompeii, blocking out the sun and plunging the city into darkness. Boiling rock cooled in the upper atmosphere, forming pumice stone which then rained down on Pompeii.

Hysteria spread throughout the city. The population had an impossible choice; brave the lethal debris and attempt to flee the city or seek refuge indoors. They couldn’t know that within two hours a hundred million tons of pumice and ash would clog the streets of Pompeii. Roofs would cave in under the unbearable weight and doorways would be blocked trapping those inside in a grizzly tomb. Then came the knockout punch. Heavy with denser rock, part of the erupting column collapsed. At terrifying speed, an incandescent cloud of deathly volcanic gases and ash churned its way down the mountain slopes and enveloped the city of Pompeii.

For the stragglers who had remained there was no escape from this fiery furnace. Death by suffocation was instantaneous as the superheated air ripped through the city. Metres of ash quickly swallowed up bodies as they fell. Pompeii disappeared from sight under an estimated 10 billion tons of pumice and rock, the product of 18 hours of ferocious volcanic activity. The surrounding landscape was unrecognisable. The river and the bustling port had vanished. So complete was the devastation that within a few years the exact location of the city had been forgotten.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram with labels showing how Pompeii was buried.
4. Write a poem or a rap about the destruction of Pompeii.
5. Design a Pompeii volcano shelter which would protect you from the rocks, hot gas and ash. Use diagrams and labels to explain your ideas.
Insects - Future Food

Are you hankering for a plate full of succulent fried field crickets? Could you devour a bowl of crispy toasted weaver ants right now? Hmmm... probably not something that you would normally salivate over when making food choices. But it may well be the dining dilemma of the foreseeable future. More and more of the world's exploding population are clamouring for animal protein. Our ability to generate enough beef, pork and chicken to meet the ever increasing demand is placing our land and water resources under unsustainable pressure. The solution might be right under our noses, wriggling around at our feet... insects.

There would be huge benefits if insects became a major human food source. Firstly, they are chock-full of protein and rich in the nutrients that are essential to maintaining human health. Secondly, they can be grown in much smaller spaces than farm livestock. The high emission of greenhouse gases from livestock is a major environmental concern. Gas emission from insects is much lower. To top it all off insects produce significantly more meat per kilogram of feed so you get more for less and more of their body mass is edible.

But it will require a lot of motivation to get people in western countries to become insect consumers. As a rule most westerners find eating animals nauseating. Even the most enthusiastic meat eaters eat only a narrow selection of the species that roam our planet. The prospect of eating a cockroach is just as unappetising as dining on gorillas, gerbils or iguanas. But over and beyond the yuck factor, the knowledge that insects live and feed in, on and around waste and are thus associated with dirt, decay and disease only exacerbates the negative perception.

Despite these obstacles that have to be overcome, scientists and chefs are still charging ahead. They have realised that if they are ever going to get people interested in eating insects then there has to be a gradual transition. Instead of serving up whole insects they have started working on cricket flour, which can be invisibly incorporated into familiar foods. Maybe it won’t be too long until our taste and perception changes and insects truly do become the food of our future. So watch out, that appetising crunchy looking morsel in your lunchbox may be more than you were bargaining for.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down.
   Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Make a poster explaining why it is important to start eating insects.
4. Write a letter to the owner of an insect restaurant explaining why you won’t (or will) be coming to their restaurant for an insect meal.
5. Design a delicious insect meal. Use diagrams and labels to explain your great ideas.
Time to Go

The natural world abounds with staggering feats of endurance and determination that are just part of everyday life for the protagonists. Take, for example, the long-finned eel, found in freshwater habitats all around the east coast of Australia. It lives in a pond leading a pretty mundane existence preying on crustaceans, insects, fish and (sorry about this kids) ducklings for the vast majority of its existence. But when it hits sexual maturity - which takes about 30 years for females - the final chapter of its life takes a truly remarkable turn.

One dark night In the midst of a heavy, tropical downpour, a primeval urge overtakes the creature. Abandoning the safety of its watery habitat, it embarks on a monumental journey, painstakingly wriggling its way out of the pond, across the grass and through the undergrowth. Undeterred by any obstacle in its way, it unerringly seeks out a natural watercourse or stormwater drain that will take it to its destination, the sea. But how is this possible for a gill breathing fish not a lung breather? It seems that the heavily falling rain and the sodden undergrowth provide the prerequisites for survival.

If that segment of the journey isn’t remarkable enough, tune in to the sequel! Flushed out into the ocean by the river or stream, its body now undergoes profound adaptations so that it can function in a saltwater environment. Its gills will morph and its gut withers away as it no longer requires food. Then comes the extraordinary migratory expedition. It will set out on its final journey, a 2,000 km swim north to the Coral Sea … on an empty stomach! If the fish is a female she will be carrying millions of eggs, and there, she will spawn and die.

Millions of the resulting fish larvae now spend two years at sea, wafting south on the East Australian Ocean Current. A minute fraction arrive back to where the journey started, small translucent elvers, 5 or 6 cm long. One dark night, during a tropical downpour, they discern fresh water pouring out into the sea. Locating and entering the source, stormwater drains or a river outlet, they are drawn upstream, battling against the relentless current. Leaving the water they wriggle through the undergrowth, over and around all obstacles in their way, somehow miraculously arriving at that same pond. They slither in completing the circle of life.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram with labels showing the journey that these eels take - the circle of life.
4. Write a poem or a rap about this eel.
5. Design some new features for the eel that will help it get from the pond to the sea and back again. Use diagrams and labels to explain your ideas.
Blue Jeans

It's difficult to find a garment as widely embraced, worn and loved the world over, as blue jeans. The classic symbol of the American West is now a staple in wardrobes around the world. Cowboys may still wear them but so do supermodels, presidents, housewives and punk teenagers. An anthropologist Danny Miller has even done a study. In every country he has visited - from the Philippines to Turkey, India and Brazil - Miller did a tally on the first 100 people to walk by. Almost without exception, he recorded that more than half the population wore jeans on any given day.

Ask any group of people why they wear jeans and you will get a range of responses. For some they are comfortable, durable and easy to wear. Others consider them to be high fashion. But you may be surprised to hear that they originated as workwear for labourers on the farms and mines of America's western states in the late 19th century. A tailor, Jacob Davis, was the original designer. He used hard wearing denim and reinforced the pockets and the seams with rivets. These first jeans proved to be extremely durable and were soon in high demand.

But the success of jeans has as much to do with their cultural meaning as their physical durability. After World War 2, jeans started to be worn as casual wear and quickly became a symbol of rebellion amongst the youth of the day. Hollywood costume designers put all the movie bad boys, like James Dean, in denim. But jeans freaked out the establishment because people were no longer conforming to the norm. School administrators banned jeans in schools but that only added to the fervour with which teenagers embraced them.

During the 1960s, jeans became an acceptable clothing choice by the American middle class, not just the rebellious youth. Outside America, enthusiasm for jeans was catching on worldwide as these humble trousers now symbolised a more casual, relaxed American way of life that Europeans wanted to emulate. Jeans were very affordable and looked great whether well worn or a recent purchase. Best of all they didn't require frequent washing and were non-iron! Over the decades, their versatility, and their ability to be a fashion statement in any social context has been the secret to their establishment as a clothing icon.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   Look up the meaning of each word and write it down.
   Use each word in a sentence to show you know what it means.
2. For each paragraph decide on a heading which tells you what the paragraph was about.
3. Draw a time line showing the history of Blue Jeans.
4. Write a letter to your school principal explaining why you want to wear Blue Jeans to school.
5. Design a new pair of pants that will replace jeans as the best ever pants for everyone to wear. Use diagrams and labels to explain your great ideas.
Ewe Won’t Believe It!

When sheep reproduce the normal expectation is one or two lambs. On rare occasions there might be triplets. But recently, Thames resident and ex-sheep farmer, Weston Finlay, got much more than he bargained for when his sheep went into labour. For years he has kept a ewe on his small lifestyle property as an assistant lawnmower. When offered an additional ewe to accompany his first he didn’t expect any problems as the sheep, a ram, had been ‘fixed’. But on closer examination, his newly acquired livestock was not what he seemed.

“The ram hadn’t been docked properly and still had one testicle,” said Finlay. “I suspected there was going to be an increase in my sheep population.” Sure enough, one morning in early spring he noticed his original sheep, (called Sheep), staggering around in circles, signalling the onset of labour. An hour later, Sheep gave birth. Finlay relocated the new lamb to his woodshed out of the rain and bitterly cold wind. To his surprise, when he returned to check the mother, he discovered two more lambs.

Lying exhausted in a muddy puddle, these lambs were were in a life threatening condition. Finlay played midwife, giving them a bath in a bucket of hot water to revive them and then rubbing them down with a towel and massaging their tiny bodies to help their blood circulation. He rolled Sheep onto her back and encouraged them to suckle from their mother's teats. But Sheep’s mission was not yet accomplished. She started writhing and grunting and then...number four entered the world. A bit flabbergasted, Finlay moved Sheep and her four new-borns to a better shelter and left them to it. When he revisited his new flock at lunchtime there were FIVE!

A ewe giving birth to four lambs is not beyond the realm of possibility, but quintuplets and all of them healthy? Multiple births of more than three usually result in a number of them being stillborn. Finlay’s conclusion was that Sheep may have been a twin or triplet herself which would increase the probability of multiple offspring. The intention is to keep the two lambs that Sheep is successfully feeding and relocate the other three. Unfortunately the future is bleak for their father, this highly productive ram.

“More breeding is not an option,” said Finlay. “There is a high probability that he will end up as sausages. I’m making some space in my refrigerator.”

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.

2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.

3. Draw a map to show where the action took place in the news item.

4. Write a letter to Weston Finlay telling him why you would be the perfect person to look after one of his lambs.

5. Sheep can’t feed more than two lambs. Design a machine that would help her feed five. Use diagrams and labels to explain your great ideas.
Children of the War

Spare a thought for the children living in Britain’s cities in 1939, who were uprooted from their families and forced to live with total strangers for up to five years! Britain’s declaration of war against Germany in September 1939, triggered an extraordinary evacuation from Britain’s major cities as parents tried to protect their children from Hitler's nightly bomb raids. Families living in the countryside volunteered to take children from the city into their homes. Evacuation was not compulsory and some parents refused to send their children away.

Within just four days, a million children were evacuated to the countryside. Every available railway station was crammed with young children and anxious parents. With identification labels around their necks and one small suitcase filled with precious belongings they waited nervously to be shipped out. Some were excited about this new adventure. Others were bewildered and frightened. They arrived at their destination tired and hungry. Then came the humiliation of lining up and being selected by the host families. The best dressed, healthiest ones were usually chosen first.

Host families were generously reimbursed for their services by the government and inevitably, some were motivated by greed rather than a generous heart. In the most severe cases the money was seen as a ‘windfall’ and was misappropriated instead of being spent on the welfare of the evacuees as was intended. Many hosts were unskilled agricultural labourers with a poor standard of living. A cottage with no electricity or hot water and a long drop toilet down the back of the garden was a shock for these city bred children. Given no option but to work as unpaid farm labourers, many tried to run away.

Conversely, there were many positive experiences. Lifelong relationships were formed, the children gained an appreciation of country life and learnt skills such as bread making and rearing animals. A few fortuitous children were taken in by aristocrats. One East End girl found herself pandered to by servants. For all of its limitations and encumbrances it is generally agreed that Operation Pied Piper, as it was called, achieved its aim. Of the 60,000 British civilians killed during the Second World War, about 5,000 were children. Without the evacuation, the death toll would certainly have escalated.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Make a list of all the things you would have in your bag if you were leaving the city to go and live in the country in 1939.
4. You have been moved out of the city because of the war. Write a letter to your Mum and Dad telling them what it is like with your new family.
5. Design an air raid shelter that would protect you and your family from the bombs. Use diagrams and labels to explain your great ideas.
Global Warming

Every day we hear scientists making dire predictions about global warming. What is the issue? Apparently, the earth is gradually heating up and the scientists have called this process "Global Warming". After much debate, most people now agree that this is a real thing, not just the result of seasonal fluctuations. The problem is that even a small annual increase in the temperature of the planet will eventually have an irreversible effect on our environment and life as we know it. What is even more worrying is that this warming effect is our fault.

What have we done to create this problem? Since the industrial revolution over a hundred years ago, we have invented increasingly sophisticated appliances and machinery to reduce our manual labour and to entertain ourselves. Our roads are clogged with cars and our homes are littered with fancy technology. Unfortunately, it requires an ever increasing amount of energy to produce and run this equipment. The generation of this energy requires us to burn increasing amounts of fossil fuels; coal, gas and oil. Burning these fossil fuels is the source of the problem.

How does that work? Wrapping around the earth like an enormous blanket is a complex mixture of gases called the atmosphere. One of the gases, carbon dioxide, is particularly efficient at trapping heat energy in the atmosphere, stopping it from disappearing off into space. This keeps the planet at the optimal temperature for plants and animals to survive and flourish. Unfortunately, as we burn increasing amounts of fossil fuel, we release more and more of this carbon dioxide into the atmosphere. The outcome… more heat is trapped. The consequence … the land and the sea heats up, upsetting the delicate balance of nature and changing the world’s climate.

What will happen if the temperature continues to escalate? Scientists predict that the polar ice caps will melt and sea levels will rise significantly. Homes, farms and cities close to the sea will be flooded and become uninhabitable. Higher temperatures will result in serious habitat changes and many fish, animals and plants will face extinction. Heat waves and drought will wipe out many essential crops and turn farmland into desert wastelands. Higher temperatures can trigger outbreaks of deadly infectious diseases. Now is the time to act while there is still an opportunity to solve the problem.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down.
   Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram showing how global warming works. Include labels.
4. Make a poster warning people about global warming.
5. Design something to help you survive global warming.
   Use diagrams and labels to explain your great ideas.
Clive Staples Lewis

The world of Narnia with its mythical creatures, talking beasts and the regal lion, Aslan, originated from the powerful imagination of the writer, C S Lewis. Although he wrote over thirty books ranging from science-fiction novels to meaty discussions about literature and theology, ‘The Chronicles of Narnia’ are his most famous works. These stories are even more famous now that several have been made into films. What sort of man was the author of these classics of children’s fantasy literature?

Lewis was born in Ireland in 1898 and displayed his vivid, creative imagination and love for animals from an early age. Together with his older brother, Warnie, he created an imaginary kingdom called Boxen which was inhabited by talking animals that wore clothes. The boys would hide away inside a large wardrobe at home, creating marvellous adventures for these animals. They were also captivated by the Irish fairy stories their nurse told them and were always reading the endless books on the bookshelves of their home.

As a young man who was academically brilliant, Lewis went to Oxford University where he was very successful. Other than a brief stint as a soldier during World War 1, Lewis spent his life working in tertiary education. He worked at Oxford University and later Cambridge University, finally becoming a professor. Apparently, Lewis would start his lectures in a loud booming voice while still approaching the classroom. During those years, he wrote many books, essays and articles and regularly presented thought-provoking radio broadcasts. When he started writing stories for children, some people warned him that it would damage his intellectual reputation. How wrong they were!

Here are some interesting and endearing facts about C S Lewis. He smoked a pipe and he loved going on ‘rambles’ or extended hikes in the countryside with friends. He was injured in World War 1 and carried pieces of shrapnel in his body for the rest of his life. He was a close friend of J R R Tolkien, the creator of ‘The Hobbit’ and ‘The Lord of the Rings’. He was also a dedicated Christian who donated royalties from his book sales to help those who were less fortunate. Lewis once said, ‘You can never get a cup of tea large enough or a book long enough to suit me.’

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down, then write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a timeline of C S Lewis’s life using the information from the report.
4. Make a poster advertising C S Lewis’s children’s books. Show you understand the genre that he was using - fantasy fiction.
5. Create some interesting, weird characters for your own imaginary world. Describe the special conditions that exist in your world. Use diagrams and labels to explain your great ideas.
Your Own Worm Farm

You should become a farm manager, a vermicomposter! Don’t be overwhelmed by the title. It just refers to the art of worm farming, a fun and very environmentally positive thing to do. This is a perfect way to minimise and recycle food waste by capitalising on the totally natural composting ability that worms have been practising forever. Every household produces some organic waste (food off-casts), so why not utilise this unattractive stuff by feeding it to some hungry worms? It will not only be beneficial for your immediate surroundings, but will also be advantageous for the entire planet!

One excellent reason for keeping a worm farm is that you will contribute to the reduction of greenhouse gases. Unfortunately, your waste organic matter that gets sent to a landfill not only stinks but creates methane gas. Even more unfortunately, this gas remains in the atmosphere for 10-12 years and accelerates global warming. If we all were vermicomposters and processed our own food waste, there would be less methane gas and less global warming. Although these humble worms seems so small and insignificant they are the ultimate composters and vital for a healthy planet.

Composting is the best way to manage organic waste and worms can turn many kitchen cast-offs into nutrient-rich fertiliser. It has been said that ‘worm poo is black gold for your garden’. Worms chomp through scraps such as apple cores, potato peelings, juicing pulp and ageing salads. They even consume hair, vacuum cleaner dust, crushed egg shells and coffee grounds. From all this waste comes vermicast, or worm poo, a perfectly balanced, 100% organic fertiliser which does not smell. Reintroduced into the garden, it enriches the soil so that all your trees, plants and lawns are well-nourished.

A worm farm requires only a small space - 28 square centimetres for a bin in a sheltered area of the garden - and minimal maintenance. Apartment and office worm farms can be managed by using a dark cupboard. Once the worm farm is established, add food scraps regularly (avoid onions, citrus, meat and dairy products) and occasionally check the moisture level. Your reward will be zero-cost, chemical-free fertiliser that is so nutritious for your garden or pot plants. Why wouldn’t you want to be a vermicomposter?

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte.
   For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram showing how to make a worm farm. Include labels.
4. Make a poster encouraging people to run a worm farm.
5. Design your own super efficient worm farm.
   Use diagrams and labels to explain your great ideas.
The Island of Pukapuka

Have you ever dreamed of escaping to a beautiful Pacific island where the weather is sunny, the coconut palms sway gently in a tropical breeze and the sea is like a warm bath? Have you imagined strolling on long sandy beaches and gazing at stunning sunrises or glorious sunsets? Haven’t we all - but on the remote atoll of Pukapuka (Pookapooka) in the Cook Islands this is everyday life! The atoll is made up of three small islands connected by huge sandy reefs and is the shape of a rough triangle with each island as one of the corners. In the centre of them is a warm safe lagoon where people can swim and fish.

Only the largest of the three islands, Wale (Wah-lair) meaning ‘home’, is permanently inhabited. The other two islands are used as cultivation areas where foods such as taro, pandanas and bananas are grown. Because Pukapuka is isolated and services are irregular, the islanders provide for themselves, although some food is imported nowadays. Fish and coconuts make up the staple diet which is supplemented by the garden foods. One job that the children enjoy is catching large coconut crabs for a favourite meal.

Although the culture of Pukapuka is distinctly Polynesian, the people have their own unique language and customs. Women weave beautiful pandanus mats and toil daily in the taro gardens, the men are experts canoe builders and skilful fishermen while the children have responsibilities gathering firewood supplies and husking coconuts. All the generations, young and old are avid singers and dancers. They practice hard and send representative teams to Rarotonga to perform in the Cook Islands cultural competitions. They are always popular, usually the crowd’s favourite, because their singing is superb and their dancing style is always innovative, cheeky and great fun to watch.

Life on this tranquil and idyllic island has not been without problems, however. In the 1600s, a huge tsunami swept away many of its inhabitants leaving only 2 women, 17 men and some children. All Pukapukans today are descended from those few fortunate survivors. In 1863, Peruvian slave traders snatched 145 men and women, took them to South America and sold them as slaves. Sadly, only two of them ever returned to their island home. In 2005, a severe storm, Cyclone Percy, devastated the island and many people went to live elsewhere. Today, about 500 people live on Pukapuka and twice as many Pukapukans live in places such as Rarotonga, Australia and New Zealand.

FOLLOW-UP ACTIVITIES

1. Select five tricky words from the InfoByte. For each word look up the meaning, write it down. Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a map of the atoll Pukapuka using the information you have been given.
4. Make an advertising poster encouraging tourists to come to Pukapuka.
5. Design some protection for the atoll from tsunamis and cyclones. Use diagrams and labels to explain your great ideas.
**The Planet Venus**

The mysterious planet Venus, so named in honour of the Roman goddess of love and beauty, is a shining beacon in the night sky. With only the moon being more radiant, it is easily identifiable on a clear night. This planet, ordered second in the solar system from the sun, is Earth’s closest neighbour and has similarities in size, mass and density. In contrast to Earth it has an absence of moons and is blanketed by thick clouds. Its rotation is opposite in direction to Earth’s and is much slower, one day or one rotation on Venus taking 117 Earth days. Its closer proximity to the sun means that an orbit of the sun (a year) is only 225 Earth days.

The dense blanket of cloud which envelopes Venus is many kilometres thick. The reflection of the sun’s rays off these clouds is what makes the planet radiate so brightly. This cloud cover is a concoction of carbon dioxide and nitrogen gases, a deadly combination for humans. The blanketing effect also generates an extreme ‘global warming’ scenario. The air on the planet’s surface, already hot from the proximity of the planet to the sun combined with the heat produced by the planet’s thousands of active volcanoes, is trapped between the cloud cover and the surface, unable to dissipate.

Given these prevailing conditions, the surface of Venus is understandably rocky, dry, barren and ultra-hot with a phenomenal average temperature of 462°C. This would make it hot enough to melt lead! Surprisingly, Venus is even hotter than the planet Mercury which is closer to the sun. This data has been accumulated from unmanned spacecraft expeditions, sent to reconnoitre Venus. Images transmitted back to Earth confirm an inhospitable volcanic desert, low hills and lava plains with a total absence of vegetation.

Beginning in the 1960s, the exploration of Venus has been undertaken by a number of countries. Most of these expeditions did not attempt landings as the intense heat and heavy atmospheric pressure were obvious obstacles. A number of Russian spacecraft did manage successful landings and sent back valuable information about the planet’s surface, before the recording equipment was totally obliterated by the temperature. In 1993, NASA (from the USA) successfully mapped the entire surface of Venus using radar. Now, in the 21st century, USA, Russia, Japan and some European countries continue working together, sharing knowledge and information about Venus.

**FOLLOW-UP ACTIVITIES**

1. Select five tricky words from the InfoByte.
   - For each word look up the meaning, write it down.
   - Write your own sentence using the word to show that you really understand what it means.
2. For each paragraph decide on a heading which summarises the main idea in the paragraph. For each piece of information in the paragraph write down one word that will trigger the information for you.
3. Draw a diagram explaining why the temperate on Venus is so hot.
   - Include labels and captions.
4. Make a poster about the special features of the planet Venus.
5. Design a building that would survive the heat on Venus and allow humans to live on the planet. Use diagrams and labels to explain your ideas.
   - Use diagrams and labels to explain your great ideas.