Video Script 1

Extreme Skydiving

Narrator: N
Mark Calland (Speed Skydiver): MC
Marco Wiederkehr (Speed Skydiver): MW
Interviewer: I
Judge: J

N: The average skydiver jumps from a plane and free falls, reaching speeds exceeding 100 miles per hour in moments. Following the initial drop, the diver reaches a constant speed of about 120 miles per hour, also known as 'terminal velocity'. Terminal velocity occurs when a falling body experiences zero acceleration and can't go faster. It's caused by air resistance, or 'drag', which slows the body down by creating an opposing force to gravity. However, not all skydivers are 'average'. In the highly competitive sport of speed skydiving, participants use scientific approaches- and imagination- to go beyond terminal velocity. Mark Calland is one of these competitors. He's a man who wants one thing: to go faster.

MC: It's the adrenaline rush. You know that you're going faster than most cars. The only thing that's faster than me is possibly a jet engine. You talk to people and they brag about their Ferraris and stuff like that, and you just turn around and say, 'Well, sorry. I go faster than that and I haven't even got an engine on me'.

N: Some people call speed skydiving the fastest sport in the world without an engine. The goal of the sport is simple.

MC: Just get out the plane and try and go as fast as we possibly can in free fall.

N: Because of air resistance, going faster while skydiving is more difficult than it appears - at least for human beings. A normal skydiver in free fall won't go much faster than 120 miles per hour. However, there is one creature in nature that has learned how to reach higher speeds: the peregrine falcon. The peregrine is also known as nature's 'guided missile'. When it's in an attack dive, it's the fasted animal in the world. For some time, nobody knew just how fast the peregrine falcon was, until Ken Franklin decided to find out. Ken took his peregrine up to 15,000 feet, released the bird, and jumped out himself. When Ken reached terminal velocity, he dropped a weighted lure made out of meat. The falcon soon moved its wings back in an attack dive. A tiny computer attached to the falcon recorded its speed during the experiment. Surprisingly, during its fastest dive, the bird reached an amazing 242 miles per hour!

Back among humans, Mark Calland is hoping that a method similar to that of the falcon will help him. Mark's come to the world speed skydiving championship at a drop zone in the north of England. He's one of the fastest skydivers in the world and the holder of the British record. His main competition is going to come from Marco Wiederkehr. He's the national champion of Liechtenstein and a worthy challenger for Mark.

MW: Well, let's go fast!

N: Techniques used by competitors vary, but the secret seems to be relatively uncomplicated. Just jump out of an aeroplane, dive at inhuman speeds towards the ground- sometimes head first- and remain completely relaxed!

MC: Yeah, you have got to be totally… just nothing in your mind at all. You've just got to really feel. You've got to feel how your body is flying and how it's reacting.

N: As Mark steps into space, he moves his head backwards and adjusts his body. By going head first like the peregrine falcon, the effects of air resistance are reduced.

MC: Reasonably fast for my first jump.

N: In the competition, participants use the average speed of their three best jumps. Speeds are measured by speedometers attached to their harnesses. Mark's first jump is 302 miles per hour. That's fast, but now it's Marco's turn. He throws himself from the plane, knowing that he must beat Mark's first dive speed. After ten seconds, Marco reaches 100 miles per hour, by 16, he hits 200! Twelve seconds later, he's done it! He's reached a new world record- 312 miles, or 502 kilometres, per hour!

MC: Marco's got 502?

N: It's now clear to Mark that he has some real competition, but he's confident that Marco can't maintain that high speed on every jump. Mark's focusing on going fast consistently. Besides, he's got something that may allow him to go faster. Speed skydivers use everything they can to improve their speeds, including special helmets and clothing. Using a wind tunnel to test the wind resistance of his body, Mark has developed a special suit with trousers- or what he calls 'pants' that fill with air.

MC: These pants are actually big air scoops. The bottom half of the pants actually inflates and gives you a shuttlecock effect.

N: When using the trousers, Mark's body is almost like a badminton shuttlecock. His strongly built upper body is like the rubber tip of a shuttlecock. His air-filled trousers are like the feathers at the other end. The trousers increase Mark's drag, but they give him much more control. Wearing them makes it easier for him to remain relaxed while he's hanging upside down and flying towards the earth. Gravity does the rest. Marco doesn't have inflatable trousers, just a smooth rubber suit which is tight-fitting to keep air resistance at a minimum. Unfortunately, this jump is a disappointment and he's unable to control his fall. As he works to keep himself pointed straight down during the jump, he loses valuable miles per hour.

I: Marco, how was your jump?

MW: Got into the clouds, then was a bit wobbly. A bit wobbly. Speed's not so high, the maximum speed.

N: On his next and final jump, Mark, however, doesn't wobble. The skydive goes beautifully and Mark is able to maintain control throughout it. His wind-filled clothing gives him the advantage he needs to achieve three very good jumps and his average speed is the highest of all the competitors.

J: Men's event; first place… Mark Calland.

N: Mark's scientific approach to skydiving has paid off. For today at least, it's made him the best speed skydiver in the world!

Video Script 2

Orangutan Language

Narrator: N
Rob Shumaker (Orangutan Language Project Curator): RS
Lisa Stevens (Think Tank Curator): LS

N: Orangutans. These highly developed primates come from Indonesia and Malaysia. They are so much like humans that their name actually means 'person of the forest' in Malay. They can even communicate through language. And at the National Zoo in Washington DC, two orangutans named Inda and Azie are showing the world just how well they can do it. Rob Shumaker is the coordinator of the Orangutan Language Project.

RS: We are really adding to what we understand about orangutan mental ability. I also think that we're doing something very, very good for these individual orangutans.

N: Shumaker believes that orangutans and other apes in captivity need a stimulating, physical and mental environment. The zoo allows its orangutans to move around freely and gives them choices on where to go. Even Shumaker's language program is voluntary for them.

RS: It gives the orangutans some choice and some agency about what they do day to day. And I think that's incredibly important for a species that has this much going on mentally.

She's just naming the object. Good girl!

N: Shumaker works daily with the orangutans in the program to develop their language skills. Today he's working with Inda, a 20 year-old female orangutan. Inda is learning a vocabulary of symbols that she connects with objects, such as bananas, apples and cups. Every day, visitors watch as Shumaker and Inda perform certain exercises on the computer to test what language she knows. But even apes have to wait for slow computers!

RS: Oh, hold on. The computer's not responding quickly enough, but she's doing it correctly. Try again.

N: Inda can identify food and objects using symbols as well as put symbols together to form simple sentences with a verb and an object. Basically, she can use the symbols to get her point across; which is the essential purpose of language.

RS: Each one learns their own way. Each one has their own types of questions which they are better or worse at. And the big emphasis is they are individuals, and their progress is not the same as the other orangutans just because it's an orangutan.

N: For example, Inda's brother Azie is not as social as his sister. At first, Shumaker thought that Azie was not as intelligent, but that's not true at all. In fact, Azie is very intelligent; he just isn't always as interested in communicating as his sister is. The Orangutan Language Project is part of an exhibit at the National Zoo called 'Think Tank'. The exhibit explores the process of thinking, and actually involves visitors to the zoo in the program.

LS: What's really nice about Think Tank is that it brings a lot of the behind-the-scenes activities and research that involve animals right up front where it should be, where people are going to see it.

N: Zoo officials hope that exhibits like Think Tank will educate the public and increase conservation efforts. Orangutans could become extinct in the wild in the next 10 to 12 years.

RS: Give people a chance to know more about what's going on mentally for orangutans. I know that that increases their regard for them.

N: Shumaker personally developed the symbols for the orangutans' vocabulary, but he says that the project has really been successful because of Inda and Azie.

RS: I think of this language project as really a team effort between me and Inda and Azie. And we all work together on this. This is not my project; it's our project. And I want them to voluntarily participate. When they do that, I know that they're doing it because they enjoy it, and they like it, and they want to be involved with it. And that's important.

N: It's easy to see that Shumaker has been successful. The orangutan language team of Inda, Azie, and Shumaker certainly enjoy their work!

Video Script 3

Paraguay Shaman

Narrator: N

N: Somewhere in this forest, maybe in this plant or that herb, there might be a cure for an illness like diabetes, malaria, or even common fevers and colds. But as the plants disappear, so too do the potential cures.

The rainforests of Paraguay have long been a source of medicinal cures. Traditional folk healers often lead the way to the plants that provide the medicines. Paraguay's renowned healers, called 'shamans', have a deep knowledge of local medicinal plants- the equivalent of the knowledge contained in an entire medical library. But Paraguay has one of the highest deforestation rates in the world. That's why researchers believe it's a priority to record the shaman's extensive knowledge before the forest disappears.

The journey begins in Paraguay's isolated Mbaracay Forest Nature Reserve and the nearby native community of Tekoha Ryapu, where shaman Gervasio lives. To reach Gervasio, a group of researchers set out on a long journey through the reserve. Meanwhile, at the village, Gervasio is using chants and prayers, perhaps to establish a spiritual connection, or bond, with the forest. When he feels ready, Gervasio and his wife lead the group on the search. They are looking for a root called Suruvi, also known as Jatropha isabelli, which is used to treat and cure various illnesses. Scientists are very interested in this family of plants for cancer research. Gervasio brings the root back to the village where his wife inserts it in a pot of water to prepare tea.

Scientists have published a book to help record and transmit Gervasio's forest knowledge. The book helps people to easily identify and study local plants. Recording and analysing Paraguayan plants for possible medical cures is urgent business, some may even call it an emergency. Medicinal plants that were once healthy and multiplying are now disappearing- and so too is the possibility of finding new medicinal cures.

Video Script 4

Skin Mask

Mike (Artist): M
Narrator: N
Cassandra (Model): C

M: Hi Cassandra, I'm Mike and this is Rick.

N: In a London special effects studio, a brave model waits to have her face preserved as a life-like mask.

M: This is a silicone material.

N: Silicone is an often rubber-like material that includes silicone and other chemical elements.

M: I'm hoping this is going to do it.

N: First, a cap is placed over Cassandra's hair, next, a thin layer of Vaseline is brushed over her eyebrows and lashes to prevent them from sticking to the mask. Then a crucial step in the process, the gooey stuff. Artists paint her face in quick drying silicone starting with her eyes, nose, and mouth. She has to sit motionless as they devote about an hour to brushing the icy cold silicone onto her face. It takes about 3 or 4 minutes for the silicone to dry. Then the model's face is wrapped in bandages, rather like a living mummy.

M: Nice and solid.

N: The hardened material comes off, followed by the newly created mould, which conforms to the shape of the model's face.

M: Look at that smile!

C: Who said modelling was easy.

N: At the workshop, the artists create a series of positive and negative masks. A master mould is then prepared. The artists mix a soft silicone with a combination of chemicals, to alter the mask's colour, creating a natural, uniform shade that's similar to human skin. The mixture is then injected into the master mould. When it's dry, a face is created. A touch of make-up helps bring the skin to life. Eyebrows and lashes are carefully added. It can take up to 3 hours to do one eyebrow. The completed mask has all the fundamental aspects of real human skin. It has more than just the look, it has the feel. A record of one person's face, preserved in a moment in time.

Video Script 5

The Smelliest Fruit

Narrator: N
Resident: R
Edward (Hotel Manager): E
Audrey (Hotel Staff): A

N: Here in Malaysian Borneo, a battle has just begun. Hotel staff watch nervously for a food that is unwelcome in many places, yet loved by people nationwide. Meet the durian fruit. Its smell is hard to describe.

R 1: It smells like… of rotten fish and custard.

R 2: A rubbish dump.

R 3: Blue cheese.

R 4: Perhaps a dead dog.

N: Other cultures love foods that smell strongly. Cheese, which is actually rotted milk, is popular in the West but not so much in Asia, where many find the smell offensive. Notwithstanding its bad smell, durian is considered precious in Southeast Asia. Some believe it's worth killing for.

Durian trees sometimes take as long as 15 years to bear fruit. Known as the 'King of Fruit', a single durian can cost up to 50 US dollars.

Here in Kuching, the capital of Malaysian Borneo, hotels are on the front lines of the durian war. When the fruit is in season, hotel managers maintain a constant watch to keep it out. For them, durians are bad for business. One smelly fruit can scare off a hotel full of customers.

E: So it goes into the curtains. It sticks into the carpet. It sticks into the bedspreads.

N: But since it's not feasible to check every guest, people manage to smuggle them in. And it's the hotels which have to deal with the consequences. Every hotel has its own method of dealing with a durian alert. One is to use charcoal which absorbs odours naturally, but takes a long time. The other way is to use a machine called an ioniser, which can remove the durian's contaminating smell in less than three hours.

A: Please no durians here. Not in the hotel. Outside… in the fresh air you can do it. But definitely not here.

N: In Borneo, visitors can decide for themselves if this unique fruit is delicious or just plain disgusting, as long as they confine their tasting sessions to the outdoors.

Video Script 6

Holland Water

Narrator: N
J.H Van der Vliet (Regional Water Board Chairman): J.H.V
Ted Sluijter (Waterland Neeltfe Jans): TS
Peir Vellinga (Institute for Environmental Studies): PV

N: We hear a lot about global warming, but an entire country in danger of sinking? That's what they're worried about in the Netherlands. Global warming is expected to cause the sea level to rise between four inches and three feet this century. So it's no wonder the Dutch take climate changes very seriously. The Dutch have long been at war with water. With half of their country below sea level, they've built elaborate dykes and windmill systems to preserve their farmland. But climate change and rising seas are causing the Netherlands to sink even more. And scientists are worried that dykes and gates may not be able to hold the water much longer.

J.H.V: Because what we think that will going to happen is that there will be a climate change, which now starts already a little bit, and this will cause not only the sea to rise, but also give heavy rain in winter, but also drier summers.

TS: Well, imagine that the Dutch people, they already struggling for centuries with the sea, the North Sea, which is our border to the North Sea. And we have experienced many, many floods, taking away the lives of hundred thousands of Dutch people. So, coastal defence, it simply had to become a Dutch discipline, because even nowadays, half of the country is below sea level. And that will become worse if the greenhouse effect really takes place, as forecasted by the scientists.

N: Thirty to forty per cent of the country's land was created by man, pumping water out from marshlands. But as water was pumped out, the land settled lower and lower. Today more than ten million people live below sea level on land that only stays dry because of the constant work of pumps and dykes. One idea has been radical, instead of struggling so hard, why not give some of the country back to the sea?

TS: We always struggled, we always fought the sea. But that might be quite stupid in the future. It might be necessary to give a lot of land back to the sea. Because the sea and the rivers simply need space.

N: The idea is to let water back into hundreds of miles of the lowest-lying farm land. These new flood control lakes could also be used for recreation and wildlife. Dykes would be moved inland, opening large areas of sand dunes to the tides.

J.H.V: We have to be creative. It is possible to build floating houses. We do it now in Ijberg, near Amsterdam there's a new part of the city, and parts of it will be floating. If you see it, you don't see it's a boat. It's a big house, with a roof and everything. People like to live near the water.

N: But after all the work it took to get rid of the water in the first place, there is resistance.

PV: We have an old generation that has suffered flooding and that is convinced that the only way to live in Holland is to really fight the water and build dykes as hard as you can.

N: But Holland also has a younger generation who looks at water as something which brings pleasure and which brings a pretty landscape. Regardless of what is decided, a lot of people believe that a fundamental shift in the way the Dutch approach water is inevitable.

Video Script 7

Lighting the Dark

Narrator: N

N: In the deepest, darkest water of Suruga Bay, just over a hundred kilometres southwest of Tokyo, off the coast of Mount Fuji, scientists encounter a mysterious world that few have seen. One of the bay's somewhat unusual inhabitants, for instance, is the Angler Fish, which can walk across the sand with fins that have 'elbows'.

These depths would impose huge challenges for human camera crews, so scientists use an ROV- a remotely-operated vehicle to send pictures of the ocean floor to the surface. The technology allows us to catch a glimpse of exotic eels and a giant spider crab- the largest crab in the world, found only in Japan. Up to three metres across, they're also known as the 'Dead Man's Crab' because they've been found feeding on the bodies of drowning victims.

This submarine can descend more than two kilometres, charting the sea floor and revealing facets of life never seen before. These are the first known moving images of the Abyssal Cusk Eel, a species of fish that can live deeper in the sea than any other known fish. Also found here are 'Lantern Sharks', the tiniest sharks in existence. They're so small they can fit in the palm of a man's hand. And finally, in a rarely-seen occurrence, a female Chimera is seen in the process of releasing her eggs. With advances in technology, scientists are able to shine light on even the most discrete regions of the sea floor- a mysterious and unseen world far beneath the waves.

Video Script 8

Art of the Deal

Narrator: N
Vincent and Consuela (Dutch Tourists): V&C
Ahmed (Tour Guide): A
Mohcine (Vendor): M
Chakib (Carpet Vendor)
Chris (English Tourist)
Connie (Carpet Shopper)
Bo (Dutch Tourist): B

N: The souk in the city of Fes is Morocco's oldest market. In one of its small stalls, a craftsman is making patterns on a metal table top. But all around him, people are making deals. This is business, Moroccan-style. Sales in the souk happen face-to-face; it's very personal and very busy! The vendors have everything a shopper could want. Sandals are next to fish bowls and nearby, birds in cages watch the scene. One vendor sells kaftans, others sell slippers or jewellery. Across the alley, a man sells dates and apricots to hungry shoppers. In the souk, there really is something for everyone. And in the city of Fes, a certain kind of small, red hat is very easy to find. The fez was created here and named after the city. A visit to the souk is a lesson in Moroccan bargaining culture. For visitors, the question is not 'What should I buy?' but 'How should I buy it?' That's where they get a real education in making a deal.

V&C: You have to start yourself at one-third or something, and then bargain up to 50 per cent, and that's your maximum, and then they go down twice as hard as we go up with the price. So, then you get at half the price they say at first. But it's really a game. The Moroccans are very good at bargaining and they say they are the best in the world.

A: You know, here in Moroccan culture, for everything you should bargain. We don't have really a fixed price.

N: In the souk, shopping is an exercise in bargaining. Here, it's the natural thing to do and just about everyone does it. However, visitors who want to practise making a deal here had better be careful! They ought to know a few things first. Beginners at bargaining pay more. How much more?

A: Sometimes 20 to 30 per cent more… over than the price what the Moroccan people pay. So you should always… for example, if he charges you 1,000 dirham, you give him 600 dirham, then you go up, he goes down, and then you can arrange between you.

N: Vendors aren't trying to cheat customers. It's like a test to find out who's the best bargainer.

M: Some customers pay more than another one. We find customers… more easy… they don't bargain too much.

N: The real test for any bargainer is the carpet shop. This is where the sellers really pressure customers to buy something.

Chakib: Excuse me, you want to buy camel for the price of donkey? Impossible. No, that's too low, believe me, that's too low.

Chris: Once you end up in a shop, you sit there drinking tea, and you say 'I don't want to buy anything'. But then it's like, 'Well, just offer a price, offer a price. You know, 500? What's your best price?' And you're like, 'We don't want to buy it'. And they're like, 'Okay, 300!'

N: But it's all part of the game.

Chakib: Well we ask a little bit high price because everyone comes with an intention to bargain. They know that in Morocco, they bargain a lot… so of course we leave a step to make discounts and haggling the price.

N: Some shoppers enjoy the challenge too.

Connie: The secret is looking very careful at how they do it. And watch them, how they move, and then go step by step, and see where you end.

N: There is one thing that all tourists should watch out for: they shouldn't buy too much!

B: The thing is, they make it so cheap for you! While they start up so high, and at the end it sounds so cheap. It's only one-sixth of the price or one-eighth of the price. 'Well, for this money, I can't leave it!'

N: For some visitors to Fes, it may be difficult to leave without buying more than they planned. One thing here is certain- at the souk, everyone can make a deal!

Video Script 9

Eye Trick Town

Narrator: N
Raffaella Stracca (Trompe l'oeil Painter): RS
Helga Hansen (Art Student): HH
Carlo Pere (Trompe l'oeil Painter): CP

N: Camogli looks just like any other town on the Italian coast. The little coloured houses face the sea and the sun shines on them. But if you look carefully, you'll see something very interesting. In the town of Camogli, there are many things that seem real, but they're not. This fishing village near Genoa is full of trompe l'oeil, a type of art in which nothing is what it seems to be. For example, in this particular village, windows open in solid walls. There seems to be elaborate stonework, but it isn't stonework, it's paint! And while some flowers die, other flowers live for years. Why? Because they're painted on the building!

In the past, Camogli's fishermen used to paint their houses in bright colours and unusual designs. They did this so that they could easily see their homes from the water. Then, in the 1700s, this style of art became a way to make small, simple buildings look grand and seem like they cost a lot of money. Now, there are still thousands of trompe l'oeil houses in this area. But only a few artists still paint them. Raffaella Stracca is one of these artists. She learned this style of painting from her grandmother. Raffaella uses a mixture of old and new methods to create her work.

RS: You find a lot of these painted façades in the area of Liguria, a lot. But for a while, it seemed like no one was doing them anymore.

N: It takes a long time to become a good trompe l'oeil painter. Raffaella has worked for 20 years to be able to paint stone so well that it looks real, even if you're close to it. Like most painters, Raffaella learned trompe l'oeil from other artists, not in a school. But these days, there are fewer artists, fewer teachers, and fewer places to learn the technique. In Florence, The Palazzo Spinelli Art School has one of the few trompe l'oeil programs available. Painters work a full year to learn how to make everything from trompe l'oeil stonework to fake doors. Even though most students aren't from Italy, they understand that the technique is a very Italian tradition.

HH: I haven't seen anywhere else in the world as much trompe l'oeil and mural paintings as much as here in Italy.

N: Carlo Pere is one artist who studied trompe l'oeil and made a business out of it. His customers are often people who live in small houses or city apartments. They want to buy Pere's trompe l'oeil terraces and balconies to improve the appearance of their homes. Carlo feels that trompe l'oeil brings something unexpected to a new place.

CP: Trompe l'oeil means bringing the central city of Milan to the sea, or the sea to the mountains, or even the mountains to the sea.

N: Carlo's style comes from history. He uses an art book from the 1300s to study the technique. He uses only traditional-style paints and mixes them by hand. He does all of this for one reason: to protect the trompe l'oeil traditions.

CP: It's easy to see. If we lose the trompe l'oeil tradition, then very little of Camogli's culture will remain. We'll have museums, but that's not much. Culture should be seen, everyone should enjoy it.

N: Fortunately, in this part of Italy, you can still see the local culture everywhere. It's in the street, in the bay and in the cafes of the town. But remember, in Camogli what you see might not be what you think it is, so don't always believe your eyes!

Video Script 10

Zoo Dentist

Narrator: N
Dr Sarah de Sanz (Zoo Dentist): Dr S
Dr Paul Brown (Zoo Dentist): Dr PB
Dr Dunker (Zoo Dentist): Dr D
Zoo Employee: Z

N: When an animal has toothache, it can't just go to the dentist. Fortunately, there's someone who can help. Dr Sarah de Sanz is a 'people dentist' most of the time. She treats human patients in her dental surgery in the San Francisco area. However, she sometimes treats patients who can't come to her office, or even fit into her chair. What kind of patients are these? Animals! Dr de Sanz is a part-time zoo dentist. She and her father, Dr Paul Brown, work as a team in the San Francisco area. They do check-ups, fillings, and other dental work on anyone or anything that needs them.

Dr S: My dad and I started working on animals together when I was in dental school. He's great to work with, he's very patient and we really enjoy working together.

Dr PB: Oh, I'm thrilled that Sarah's become a dentist, but I didn't have anything to do with it.

Dr S: That's not true…

Dr PB: Yeah, so I'm happy. I think it's a wonderful job.

N: Going to the dentist is frightening for a lot of people, but when a dentist is treating a zoo animal, it's the patients who can be scary. Some of these patients could take a dentist's hand off in one bite! Both Dr de Sanz and Dr Brown are used to working in some of the most dangerous jaws in the animal world. They're happy to do it. These animals need their services. They need their teeth to build homes, catch fish, and defend themselves. In the animal world, bad teeth can ruin a life. Like people, the dental problems of zoo animals can be caused by what they do or don't eat.

Dr D: Animals in captivity, unfortunately they aren't chewing on bones and carcasses as often as they would in the wild, therefore the natural cleaning of the teeth is not there. So dental disease is probably a little higher on the list than it would be in the wild.

N: Animals that are in captivity often live longer, as well. This means that their teeth have to last longer, too. Tooth maintenance is extremely important for both people and animals. Because of this, the dentists regularly do check-ups on zoo animals. Today, they're starting with Artie the sea lion, who's one of the dentists' best patients.

Z: He's an excellent dental patient; he's better than most people. Aren't you, Artie! Aren't you!

Dr S: So far as we know, he is quite an old animal. He's 30 years old, which is twice their normal life expectancy, and he's happy about it. So we're going to just look at his teeth and see if he has any… any particular dental problems.

N: Because of his age, the dentists want to be sure that Artie doesn't have any issues. They decide to take an x-ray to get a better look. However, it's not easy to get a sea lion to stay still! Finally they succeed in getting a clear picture. Sea lions eat their food whole, and can eat as much as 20 pounds of fish in one day. Even though they don't chew their food, their teeth and gums can still get diseased. Artie's check-up goes well and the dentists conclude that his teeth are just fine. Not bad for a 30-year-old who's never brushed his teeth!

Z: Want to hear him say 'ah'?

Dr S: Yeah, could you say 'ah' please? You are an excellent patient!

N: The next to visit is Dr Brown's favourite animal- the elephant. He likes them because they have such interesting teeth.

Dr PB: This is an elephant molar. They don't have any side-to-side movement; they can only go back and forth. Elephants use six sets of teeth in their lifetime. When the last set is gone, they can no longer eat and will die.

Dr PB: This is Sue. She's a ten-year-old little female African elephant.

N: An elephant's tusks are actually teeth. While they perform their examination, the dentists not only check the teeth in Sue's mouth, but also look at her tusks.

Dr PB: Perfect! She's in great shape. Her teeth look wonderful!

N: Sue is the perfect patient and also gets an excellent report. But not all animals behave so well.

Dr PB: No, we've never been bitten, but almost. A couple of times we've had to move pretty quickly to get our fingers out the way!

N: The next patient on the dentists' list isn't as lucky as Artie and Sue. The San Francisco Zoo's rare black jaguar, Sandy, has terrible toothache and may need surgery.

Dr D: Unfortunately, we just can't walk up to her and say 'Can I look in your mouth?' You may lose a few fingers in the process, as well as maybe your head! So therefore this animal has to be anaesthetised in order for us to look at.

N: Putting an animal to sleep is always risky, especially for an older cat like Sandy. She's 21 years old, and the drug used to anaesthetise her can cause major problems. If they use too little, she could wake up and bite the dentists. If they use too much, Sandy could die. The team quickly moves her to the operating theatre. Everybody is worried as they start the surgery. But then suddenly there's a problem.

Dr PB: Hey Ron, why don't you come over here?

N: Sandy has stopped breathing! First the doctors give her oxygen, but it's not enough. Sandy is only taking one breath per minute! Time is running out, and the team has to act quickly. Finally, they decide to give Sandy a special medicine to make her start breathing faster. The question is: will it work? It does! Sandy finally begins breathing on her own again. At last everyone can start the real job: fixing Sandy's teeth before she wakes up. Things go smoothly for a time, but then the dentists make an unfortunate discovery, Sandy's teeth are worse than expected. She needs not one, but two root canals and a filling! Dr de Sanz and Dr Brown must now work carefully and quickly to take out the nerve of each bad tooth and then put fillings in the holes that are left. Finally, after a lot of hard work and risk, the surgery is over.

Dr PB: The root canal is completed; it worked perfectly as expected.

N: And as for Sandy? Well, although she nearly didn't make it through the surgery, she should be fine when she wakes up.

Dr S: It went great; she had two successful root canals and one great filling and a nice cleaning, and she's all set.

Dr D: It's good to see that she's back, and she's going like we want her to.

N: The jaguar's visit to the dentists is finished for this time. Sandy will have a headache for a few days because of the surgery, but soon she'll feel well again. More importantly, from now on, she shouldn't have toothache!

Dr S: I really do believe that it's our responsibility. If we're going to keep animals in captivity for everybody to look at, then we have to keep them healthy.

N: As the zoo dentists finish another day, they can feel satisfied because they're helping these animals to live healthy and happy lives. It's all in a day's work for these zoo dentists!

Video Script 11

Flying Pumpkins

Narrator: N
Mick Davies (Team Acme Catapult Company): MD
Shawn Reed (Team In-Gin-U-Et): SR
John Huber (Team Hypertension): J Huber
John Hayge (Team Standback): J Hayge

N: Every year in the state of Delaware, a group of people have an interesting competition… a pumpkin-throwing contest! The rules are simple. The pumpkins must weigh at least eight pounds, and no explosives! People come from all over the country. Some take it very seriously, some don't; but they all tend to have two things in common: they love the outdoors, and they love contraptions!

MD: We started out with a little contraption with about 14 garage door springs on it. We threw 387 feet the first year and we just progressed from there.

N: It's the yearly Punkin' Chunkin' Contest. The aim of the contest is simple: to make a machine that can throw a pumpkin through the air. The machine that throws- or 'chunks'- a pumpkin the farthest, wins. Some women compete, but not many.

SR: The ladies that don't like to get involved, they know right around September… October… that's about time to become a punkin' chunkin' widow.

N: The contest began with only three teams and a few friends to watch. But now, 20 years later, this strange competition has really grown. Today, it attracts more than 80 teams and 20,000 people who come to watch it! In punkin' chunkin' the actual sport itself is not that difficult. But people do have to think about the design of the machine if they want to win. All of the teams think they've created just the right one.

J Huber: It's probably one of the few machines on this field that's really 'engineered', so that we know what it can take- every bit of it. I know what every weld can hold. There isn't anything that's going to surprise us.

N: Team Hypertension started seven years ago. It used garage door springs to throw its first pumpkin from a bucket. Now punkin' chunkin' machines can be anything from a catapult to a canon. To practise, teams throw many things.

SR: We chunk pumpkins, watermelons, kegs, toilets, refrigerators, microwaves, tyres… we chunk anything we can get our hands on!

N: Unfortunately- even with practise- accidents can happen.

J Hayge: We tossed two backwards last year. We actually took out one of the vendor's tables, there was a coffee table, and just… kind of destroyed it.

N: It's not just the pumpkins that break. This year, Team Hypertension's pumpkin is very big and it breaks part of their machine. Despite this, their contraption still throws a pumpkin over 1,728 feet to win.

J Huber: The King of Spring is still in charge!

N: So if you happen to be in Delaware at the right time, remember to look up to the sky. You just may have a chance to see a real flying pumpkin!

Video Script 12

Space Walk

Narrator: N

N: While in planetary orbit, the view of the earth looks calm, but the vacuum of space is a hostile environment, lacking oxygen and filled with radiation, which can be harmful in large amounts. Although humans can't survive in it, people have been exploring the frontier of space since the manned space flights of the 1960s. A number of astronauts have achieved this with the help of spaceships, space suits, and other scientific inventions to help them endure the challenges. In order for astronauts to survive in space, space suits must provide them with a self-contained environment. The suits' tough material and heating and cooling elements protect astronauts from extreme temperatures, which can range from around 121 degrees Celsius to minus 157. The suits are also pressurised, allowing astronauts to breathe and keeping their blood from boiling in the vacuum of space.

The first daring steps outside a spacecraft were made by Soviet astronaut Aleksei Leonov on the 18th of March, 1965. He was outside the spacecraft for 12 minutes. This achievement was repeated months later by American astronaut Edward White during the Gemini 4 mission, which first launched into space on the 3rd of June, 1965. On that same day, White became the first American to space walk, staying outside of the safety of the spacecraft for a total of 23 minutes. Although these short trips were only intended to test the possibility of humans existing outside of spacecrafts, space walks have become a relatively common part of missions in the space shuttle era.

On space walks, astronauts are able to perform crucial tasks that could not be accomplished from inside the shuttle. They've been able to recover lost satellites and restore them to their proper orbit. They've serviced and repaired orbiting bodies, like replacing the solar panels on the Hubble Space Telescope. And they've become the construction team for the International Space Station, a research facility currently being put together in space.

Conducting space walks is not without challenges. There's the constant danger of floating away due to the lack of gravity, so astronauts work in pairs, tied to the spacecraft for safety. Working in space suits is not as easy as one might think, and the thick, pressurised gloves make holding tools difficult.

To ensure space walk missions are successful, astronauts practise their planned walks. They do so in a large water-filled tank to test the physiological effects of living in a weightless environment such as space. While immersed in the water, the astronauts neither sink nor float, creating a sensation close to weightlessness. For every hour of tasks scheduled on a mission, up to ten hours are spent practising underwater.

As NASA moves forward on the International Space Station, space walks will continue to be essential to the process. The project, which began construction in 1998, is expected to continue until at least 2016. By that time, workers will have completed the station and it will probably be totally operational. It looks like there will be plenty to keep the space walkers busy over the next few years.