**Test2 Part4**

Part 4. You will hear a zoology student giving a presentation about an animal called a tardigrade. First, you have some time to look at questions 31 to 40. Now listen carefully and answer questions 31 to 40.

For my project on invertebrates I chose to study tardigrades. These are microscopic or to be more precise near microscopic animals. There are well over a thousand known species of these tiny animals which belong to the phylum tardigrada.

Most tardigrades range in length from 0 .05 to 1mm, though the largest species can grow to be 1 .2mm in length. They're also sometimes called water bears, water because that's where they thrive best, and bear because of the way they move.

Moss piglet is another name for tardigrades because of the way they look when viewed from the front. They were first discovered in Germany. Germany, in 1773, by Johann Goetzer, who coined the name Tardigrade.

As I say, there are many different species of tardigrade. Too many to describe here, but generally speaking, the different species share similar physical traits. They have a body which is short, and also rounded, a bit like a barrel.

And the body comprises four segments. Each segment has a pair of legs, at the end of which are between four and eight sharp claws. I should also say that some species don't have any claws. What they have are discs.

And these work by means of suction. They enable the tardigrade to cling on to surfaces, or grip its prey. Within the body, there are no lungs or any organs for breathing at all. Instead, oxygen and also blood are transported in a fluid that fills the cavity of the body.

As far as the tardigrade's head is concerned, the best way I can describe this is that it looks rather strange, a bit squashed even, though many of the websites I looked at described its appearance as cute, which isn't exactly very scientific.

The tardigrade's mouth is a kind of tube that can open outwards to reveal teeth -like structures known as stylates. These are sharp enough to pierce plant or animal cells. So where are tardigrades found?

Well, they live in every part of the world, in a variety of habitats, most commonly on the bed of a lake, or on many kinds of plants or in very wet environments. There's been some interesting research which has found that tardigrades are capable of surviving radiation and very high pressure, and they're also able to withstand temperatures as cold as minus 200 degrees centigrade, or highs of more than 148 degrees centigrade, which is incredibly hot.

It has been said that tardigrades could survive long after human beings have been wiped out, even in the event of an asteroid hitting the Earth. If conditions become too extreme and tardigrades are at risk of drying out, they enter a state called cryptobiosis.

They curl into a ball called a tun, that's T -U -N, by retracting their head and legs, and their metabolism drops to less than 1% of normal levels. They can remain like this until they're reintroduced to water, when they will come back to life.

in a matter of a few hours. While in a state of cryptobiosis, tardigrades produce a protein that protects their DNA. In 2016, scientists revived two tardigrades that had been tons for more than 30 years.

There was a report that, in 1948, a 120 -year -old ton was revived. But this experiment has never been repeated. There are currently several tests taking place in space to determine how long tardigrades might be able to survive there.

I believe the record so far is 10 days. So, moving on. In terms of their diet, tardigrades consume liquids in order to survive. Although they have teeth, they don't use these for chewing. They suck the juices from moss or extract fluid from seaweed.

But some species prey on other tardigrades, from other species or within their own. I suppose this isn't surprising given that tardigrades are mainly comprised of liquid and are coated with a type of gel.

Finally, I'd like to mention the conservation status of tardigrades. It is estimated that they have been in existence for approximately half a billion years and, in that time, they have survived five mass extinctions.

So it will probably come as no surprise to you that tardigrades have not been evaluated by the International Union for Conservation of Nature and are not on any endangered list. Some researchers have described them as thriving.

Does anyone have any questions they'd like to ask? That is the end of part four. You now have one minute to check your answers to part four.