**Teacher notes for Land and Litter/Trees and Trash.**

**Slide Number in bold type:**

**1**.What is trash? Invite answers.

**2**. What does the sign say? Osataya Zinyalala. You would think that it means "dump your litter here", but no it means “no litter please”! Wherever human beings live you will find their footprint. Even in the towns, very few places look like this, but there was no good system of managing waste in Malawi. What do the people do with the rubbish in the UK ? What do they do with the rubbish in Malawi? Normally they are either bury it under the ground (landfill) or burn it, both of which are harmful to the environment . Why do you think this is?

But I don’t want you to think that all of Malawi is like this.

**3.** Beautiful Lake Malawi. Many of the Starfish linked schools are near this lake. It is known as the Calendar Lake because it is 365 miles long and 52 miles wide at its widest point. What has this to do with a calendar? Many tourists will spend thousands of pounds to visit Lake Malawi for its beauty, birds and fish. Does anybody have a fish tank? If you have fish that have a “light” (cichlids) inside it probably came from Lake Malawi.

**4.** The sun goes down at about 6 p.m. every day. If you are able to find a lovely country area and see the sun go down, you get the most beautiful reflection on the clouds. It is stunning! Some of the teachers who visited have said that this was the most amazing sight.

**5.** Anywhere there are no humans there is beautiful countryside and many animals. Unfortunately many of the big animals like lions, hippo and elephant have been killed by poachers for meat and ivory. Most of these animals live in special reserves, protected by Game Rangers or Wardens.

MALAWI is a beautiful place.

**6.** In England we keep our litter in bins. Where does our litter go? What types of litter are there? What do we do with our paper, our leftover food, our plastics and cans? We have an organisation called Keep Britain Tidy and Starfish works with these people. What do you think Malawi school children think this sign means? They think it means a place to and ‘get things’ – their different perception.

**7.** What are the animals in this picture protesting about? Do you know the meaning of protest?

It is all to do with loss of habitat - because humans build houses and factories where the animals used to live . Animals therefore have less space to live and can be injured by litter e.g. they could swallow a plastic bag or cut themselves on glass.

They want us to look after our rubbish.

**8**. Did you know that rats love rubbish. If you were to have a lot of rubbish in your school, you would quickly hear a teacher shout and jump on top of a chair saying that they had seen a rat. Rats are a type of vermin, which are “dirty” creatures. What problems do rats cause? Sickness, fleas.

What is the greatest killer in Malawi? Is it the great lion, who roars, or is it the huge elephant with his great big feet. Give the children a chance to give some answers.

The answer is the mosquito, which is very small, but very dangerous. There is an African proverb, which says “if you think you are too small to make a difference, try sleeping with a mosquito for a night”. What is the disease that a mosquito gives? The mosquito gives a disease called Malaria. It is one of the great killers, especially of children. If children do not have a mosquito net they can easily be bitten and die within a few days unless they receive treatment.

**9.** When there is litter around you will find rats and mosquitoes. Children, who are sometimes forced to drink from shallow water wells, will end up drinking very dirty water. Diarrhoea is another big killer in Malawi as well as another disease called Cholera, both caused by infected water. What have we seen earlier which will make the water dirty and bad to drink? Litter and waste, rats and vermin, also animals going everywhere and poohing ( the water wells tend to be unprotected)

Litter is not good! It creates so many problems. So I want you to remember the first problem we looked at- LITTER- and we will return to this shortly.

**10.** The alternative is to drill a borehole into a subterranean [underground] water supply, sometimes 250 metres below the surface. Then on top of the pipe we install a hand powered pump that will bring the water up to ground level. This water has collected over many years and is normally safe for the Malawian children and adults to drink.

**11**. This is a picture from Malawi. Forests are sacred places. This is one reason why trees are important in Malawi. Why are trees important throughout the world? For answers see teaching resources and related videos. Invite the children to offer some answers. One of the most important things in Malawi is the lack of firewood. Only 2% of people in Malawi have electricity so almost everyone has to cook with firewood which is very expensive. It can cost as much, if not more (really), as the food that you put in the pot to cook. It is not just a small thing.

**12.** Where should you be on Monday morning at 9 AM ? Yes, at school. but hundreds of thousands of children are asked by their mums and dads to go and collect firewood, otherwise they will not have a meal. All children should have the opportunity to go to school, it should be a national right, but in Malawi children don't have to go to school and many grow up without being able to read or write. What are the reasons that children stay away from school ? Looking after their younger brothers and sisters, fetch the water (girls), sell things in the market etc.

**13.** Deforestation is a problem all over the world. What does this mean? We asked why trees are important, but now we have to face the consequences of trees being cut down all the time and not being replanted in order to provide firewood, building materials or just to be sold. What you think will happen to the planet if this continues?

**14.** Therefore part of our programme is to plant new trees around schools and villages that can be cut down [or felled] every 3 years without the need to replant them; trees that send their roots deep into the soil searching for water and that will continue to grow after being cut down year after year - we call this coppicing. Some of these trees are only 3 years old and can be cut down soon. The man in this picture is 1.9m tall to give you an idea of scale.

**15.** This slide shows a fascinating plant called Pigeon Peas; part of the legume family. It grows to a height of 2.7 metres and is high in protein and used in 3 different ways. Once mature the plant is cut down, the peas are shelled from their pod and either eaten straight away or dried to be stored. The pod together with the leaves can then be made into Eco Briquettes or laid down to compost. The stalks are then dried and stored to be burnt in this double burner stove [called a Changu Changu Moto –or [Fast Fast Fire] specifically designed only to burn small sticks and branches – the bits normally discarded. So producing food, compost and firewood at the same time. More of this type of fire later.

**16.** This is a kitchen in Malawi. What is different from your kitchen? All the pots and pans are on the floor, no refrigerator (can you imagine life without ice creams?) or cooker, a tree growing in the kitchen (not really, but a piece of wood that holds up the grass roof), it is completely different. What else do you see going up in the air. Yes, smoke. Firewood produces toxic smoke. Do you know what toxic means? Firewood burns at a very low temperature which means it gives off a lot of smoke and the smoke causes big problems. Women do most of the cooking in Malawi and so they are in the kitchen every day and will breathe in the smoke, eventually getting serious problems with their lungs, difficulty in breathing and smoke can also cause memory loss. At the same time the smoke will get into their eyes and many women will go blind or have very poor eyesight due to the smoke.

**17.** What is the connection between the last photograph and this one? Children will often refer to the better quality clothes and the way that children are carried on the back in Malawi this way. The correct answer is that the child will often go into the kitchen on the mother's back and breath in the same smoke as the mother. The child will get sick like the mother. One word that was used recently was that the child's health was “stunted”, which means that the child's development and growth will not be good. Smoke is bad.

**18.** So we have looked at the problems. What are they? First Litter. Second firewood. Now we will begin to look at the solution. Here is Chris Knott, chairman of Starfish Malawi, visiting an eco- briquette workshop in Malawi. The concrete vat is filled with all sorts of litter including paper, rice husks, dried grasses, peanut shells and things like this. It is mixed with water and left to become a papier-mâché mixture.

**19.** The ingredients are then transferred to a bucket, then put into the mould and pressed down by the lady.

**20.** Then sawdust is added to hold it together.

**21.** Then the water is pressed out by this man.

**22**. 1000 eco-briquettes can be made each day and are left outside in the warm air to dry. So why make the eco-bricks? Many children will always think of bricks and building houses, but the correct answer is that they will be burnt, instead of firewood. So by clearing up one problem (litter), it will also help another problem (deforestation and the use of firewood). It is good to do some maths questions here. Each eco-brick costs one penny to make and five people work together. They make 1000 bricks in one day and therefore earn £10 and as there were five people working together, each will earn £2 , which is enough for someone to live on in Malawi, but not in England.

**23**. The eco-bricks are used in an eco-stove, which is made by a Tinsmith. This picture is taken in Salima market, where many of our linked schools are.

**24.** Here is the Tinsmith who is the craftsman who makes the eco-stoves. The eco-stoves allows a woman to cook outdoors, because the flame is not affected by the wind. Also, the eco-bricks burns at a much higher temperature giving off much less smoke and making it much "greener".

**25.** Here are the eco-bricks burning, giving off less smoke, meaning that the women do not get sick. Fewer women have to go to the doctors for bad eyesight; women live longer and, therefore, can look after their families better.

**26.** The eco-bricks are sold in the local marketplace at 1.4p per brick, meaning that there is a small profit. This enables a family to earn an income through selling the bricks, rather than cutting down the trees. Income generation is an important part of life in Malawi. Most of the people are farmers, about 90%, which means they live off the land. If there are no rains and the crops don't grow, they have no other income.

**27.** Here we see four different types of fire in addition to the Eco-Briquette Stove.

Top Left: this stove is made from clay and has to be purchased. However the burning hole is large enough to take big pieces of wood.

Top Right: this stove is made of mud and burns small sticks. However, it is not much use as the pot sits tightly in the hole and without oxygen, the fire goes out.

Bottom Left: the traditional 3 stone fire burning large branches of a tree and is very wasteful as most of the heat is lost round the outside of the pot and is also dangerous as children can fall into the open flames. This fire has to be inside or the wind blows even more of the heat away.

Bottom Right: Changu Changu Moto [Fast Fast Fire] – is made entirely of mud, only burns small wood has pot rests so the fire does not go out and in tests it has proven to cook the food in half the time and use one third of the amount of wood used in a traditional 3 stone fire.

**28.** Here we see two women cooking with the alternative methods. One lady cooks with three bricks, the firewood and the pot on top. The other lady cooks with the eco-stove. In the audience are children and adults looking at the two methods. Having heard everything today, why wouldn't children choose the eco-stove?

Allow the children to give you some answers.

There are a number of reasons:

Cost is a big factor. If a man earns 2 pounds per day for working in the eco-briquette workshop then this is the salary to feed the whole family and pay all the other costs. How much do you think an eco-stove will cost? About 5 pounds. How many day's pay is this? Somewhere between two and three. So the eco-stove is comparatively expensive, but what happens if we said to people that you can have the eco-stove for free, would people use it - most would not. Why not?

The big factor is tradition, education and culture. Most of the parents in the villages never went to school and therefore they do not understand what damage firewood is doing to their health and their country. They continue to do it, because their mothers did it, their grandmothers did it and they see no harm in what they are doing. Without education they cannot understand the issues. So they go on doing the same thing. Do you like change? Nobody likes change!

**29.** This shows the problems of deforestation. Discuss global warming, loss of natural resources, food insecurity and loss of biodiversity.

**30.** Part of the problem is not just cutting down trees, but in the lack of replanting new trees. Who creates more litter or CO2 in the world - Malawi or the UK? It is the UK by a mile! People have to cook in Malawi, but there are greener ways and more efficient ways of doing this. One of the big problems is that if we do not put any more new trees into the ground and grow them, there will be no more wood to burn. The size of two football pitches is being cut down in Africa every 10 minutes. The problem is serious.

**31.** We can think of a world in which the land produces what it was made to do, a land where animals, which are vital to life, live and thrive, where women live to their proper age, where there is food available, where children go to school, and we think of the lion once again roaming Africa as a symbol of this new world.