SOURCE LOCAL, BUY LOCAL

INTRODUCTION

'Source Local, Buy Local' tells the story of Mackies of Scotland and their journey towards becoming the greenest company in the UK

Watching this short film, hopefully you and your pupils will have a sense of the passion that Gerry Stephens, Finance Director at Mackies, has for trying new sustainable methods that ensure Mackies takes responsibility for looking after the environment that allows them to create their produce. It is very important for them to have as little environmental impact or damage as possible. As a small family business, they are innovators and risk takers. The film will serve as an opportunity for group discussions on the social, moral and environmental implications of business models/choices and the importance of ethical and sustainable business practice.

This film is aimed at S1-S6 pupils with a view of opening their minds to a world beyond home and school, where they can reflect on their own behaviours as consumers and make more informed choices about the environmental or ethical risk involved in their buying decisions. This is a flexible resource that can be adapted and used as suits your audiences' needs with suggested inquiries that can be developed immediately after watching the film or at a later date.

- As a business owner, would you invest and take the same financial risks as Mackies in implementing so many sustainable initiatives?
- Do you know where your food products come from and how they are made?
- Did you know about all the farming techniques talked about?
- How can you support other sustainable businesses? How do you know if they are sustainable?

BEFORE THE FILM - LINES OF ENQUIRY

Before watching the film, it presents a great opportunity to have discussions about sustainable business, why it's important and what it means to be a sustainable business.

1. WHAT IS SUSTAINABLE BUSINESS?

Encourage pupils to explore their own experiences, thoughts and ideas about sustainable business as a preparation for active viewing of the film e.g. watch while considering the question, 'How did the business described in the film compare with your discussion?.'

2. ENVIRONMENTAL IMPACTS

Why is it important to be aware of businesses practices and policies? This is a good time to have a look at the environment we live in. What do your pupils think the local and global issues are? What impacts of business activity can you see?

Pupils should take the opportunity to do some research and gather some facts on how business practices are damaging our environment. How do businesses transport their products? What's the carbon impact of that? Do they give back to the land or environment that they are sourcing their products from?

Consider the Global Goals for Sustainable Development – these may deepen understanding about global issues http://worldslargestlesson.globalgoals.org/

3. SUPPORTING SUSTAINABLE BUSINESS

Encourage your pupils to do some research on well-known brands to see just how sustainable they are and what processes they have in place to ensure that they are lowering their carbon footprint. The information your pupils find might surprise them. They can present their findings to the class.

If a company says they have an ethical policy in place to ensure they are operating sustainably, what does that mean? Dig below the surface and find out exactly what they are doing to help reduce their impact on the environment.

Some examples to get you started: https://www.douwe-egberts.co.uk/sustainability
https://corporate.marksandspencer.com/plan-a/our-approach/food-and-household/supplier-management
http://www.mackies.co.uk/our-farm/our-environment.html
http://www.lidl.co.uk/en/13536.htm
https://www.aldi.co.uk/about-aldi/corporate-responsibility

AFTER THE FILM - LINES OF ENQUIRY

Some of these suggested lines of enquiry can be presented for individuals to reflect upon after watching the film and/or used as a basis for group discussions at the end. Some could be ongoing activities or activities that can be done at another time.

1. SUSTAINABLE FARMING

The Mackie's approach to farming is to consider options and initiatives that meet their vision of sustainable farming and being a green company. They claim the carbon produced by the business is beyond offset and referred to as carbon positive – even better than carbon neutral (it removes or offsets more carbon CO^2 from the atmosphere than what is created). Some practices they have implemented revert back to the golden days of farming techniques, some are new and innovative and in most cases they require a heavy financial investment – albeit some are cost benefits, (like a new more efficient freezer or the turbines) will have a positive financial payback over a number of years.

Here is some more detail about their sustainable projects/methods:-

- They milk 300 cows twice daily which is sufficient to supply them with enough milk to create their products. Their policy is to try not to outsource milk. This is to reduce the impact of transporting it back to base. **Fact** - *each cow produces approximately 20 litres/35 pints per day, depending on breed type.*

- The breeds they milk with are Jersey and Holstien which have the perfect combination of butter milk fat required to make their product. This reduces reliance on buying in a lot of additional ingredients, that would normally need to be bought and shipped in (they do still need to add cream). Again, reducing their impact on the climate.

- One area of their sustainable plan that is a challenge, is that the cows producing CO^2 through the natural function of digesting food. Cows CO^2 emissions are more damaging to the planet than CO^2 from cars. **Fact** – *agriculture contributes to 1/3 of greenhouse gases*. They are at the moment exploring different types of grass combinations, with the help and support of relevant experts and scientists to hopefully address and reduce the effects of this issue.

- Slurry (by product excreted from cows) is stored in a massive lagoon at the top of the farm.
They have invested in a network of pipes to reach all fields within the farm, to pump the slurry into these locations. **Fact** - *Slurry is a natural fertiliser*. The compound of Slurry is mainly nitrogen, which is the main nutrient requirement for plants to grow. The normal farming practice to encourage plant growth is the use of chemical fertiliser. The main component of chemical fertiliser is oil and the business is trying to reduce the need to use this application due to the environmental impact. Also, the slurry network of pipes reduces the impact of transporting the slurry by tractor and wagon, up and down the road, multiple times in a day.

- Water is a major requirement when producing milk. **Fact** - *Cows require a lot of water – 135 litres to 225 litres of water consumed in a **DAY.*** The company decided to source and recycle this valuable commodity. They bored for water by digging down to the natural water table. Nothing goes to waste, the water that is wasted in ice cream production or through the milking cycle, is used for things like heating cleaning water, clean water is fed to the cows for drinking and any final residue of waste water would be pumped up to the lagoon, pumped around the fields and then eventually filter through the soil, to start the whole process again.

- Maitland Mackie, the family founder of Mackies wanted to safeguard biodiversity, which is so important to the cycle of farming. He planted hedgerow to run from one side of the farm to the other and created a beetle bank (a term given to a strip of land set aside for biodiversity) around his arable fields. Some of these bugs and insects naturally control diseases and aphid infestation in crops, reducing the use of chemical sprays. Chemical crop sprays are renowned to be detrimental to the environment.

- Four Turbines have been installed over the years to provide renewable energy from a natural resource. The energy is used in the general day to day operation of the business. If there is too much energy created it is sold to the grid. **Fact:** *Scotland is Europe's windiest country – so a plentiful natural resource.*

- The company want to be self-sufficient in renewable energy, it has high energy requirements in order to make and freezer ice cream, make the plastic tubs and chocolate. Solar panels were installed to create an additional renewable energy source to help in processing the milk from the cows. The panels main role is to heat water and produce light. To ensure the milking system is as sterile as possible and free from infections, hot water is essential to flush out pipes and milk tanks from volatile bacteria.

- They also invested in a renewable heating system to heat the staffing areas – Biomass. Biomass works in a very efficient manner to create heat and energy from a natural resource – chipped wood. The farm is fortunate to have their own fuel source of wood on site, so there is no cost and environmental impact of shipping it to the site.

- A new pioneering project that they are working on at the moment is using a heat exchanger to extract the waste heat from the hot refrigeration gasses of the freezers and milk tanks and use it to heat water for cleaning the manufacturing equipment. This saves using fossil fuels (oil) to heat the water.

The above processes have not only had an effect on the reduction of CO^2 produced by the company but they also help in making their products more competitive. We all have a Global challenge and it's important to everyone from world leaders, governments to local businesses, schools and all consumers if businesses can be seen to be working as hard as they can on improving or looking after the environment it should add value or a differentiator for their products. Agriculture is the biggest industry in the UK, so it is important to be knowledgeable and work together to improve and encourage better farming practices.

Discuss:

What do you think the risks are when trying a new sustainable approach? Do you think there would be financial implications? As a small family business, do you think you would have taken the same interest and measures in making sure your impact on the environment was minimal? Are there any other sustainable farming methods you think Mackies could implement?

2. SOURCE LOCAL, BUY LOCAL

Why is it important to source locally produced food?

Everyone knows that we don't need ice cream or coffee or crisps to survive but these have become products that we enjoy and have become used to indulging in now and again. As consumers we don't always put much thought into how sustainable the products are that we eat or use.

When talking about food you may want to encourage pupils to think about their own behaviours as consumers. Sourcing food and produce locally is extremely important. Ask your pupils to consider why they think that is? What do you know about the products that you buy and consume on a day- to-day basis? Do you know which companies produce food locally where you live?

Discussion/Activity:

Ask pupils to think about a product that they eat regularly and carry out some research into where this product comes from and how its produced. How sustainable is this product? Does the company that makes the product have an ethical policy in place? Is the product imported to the UK, if so, what is the real cost of transporting this product to the environment? Are there other brands or alternatives that they can buy that are perhaps more sustainable and produced more locally?

Perhaps your pupils can contact the supplier of their chosen product to find out more about the company, they might want to ask them what their Ethical Policy Statement is? Is it their intention to become a more sustainable business? Are they aware of their own Carbon Footprint?

What about Food Waste?

It is estimated that in the UK, 12 million tonnes of food waste are generated every year from households, hospitality and food service, food manufacture, retail and wholesale sectors. Have the students ever noticed how much food is wasted in their own homes?

Discuss:

In our homes, we tend to buy our food products from large supermarkets but where does the food in supermarkets come from? Ask the pupils to consider, how often do you see empty shelves in a supermarket? What do you think it takes to ensure that products meet consumer demand? How much food waste do you think there is in a supermarket each week? What do you think we can do to help reduce food waste in our homes and in supermarkets? Why is it so important to reduce food waste?

Love Food, Hate Waste:
Check out the Love Food Hate Waste website for lots of information and facts about food waste and also really helpful tips about how to reduce food waste http://www.lovefoodhatewaste.com/node/2472

3. RENEWABLE ENERGY

Non-Renewable Energy vs Renewable Energy

When we think about non-renewable energy, we think of fossil fuels such as coal and gas. We are depleting these non-renewable resources rapidly and have had to come up with alternative renewable options that don't have a negative carbon effect on the environment.

Discuss:

In order to understand different forms of energy better, do some research with your pupils about non-renewable energy. What is the real environmental cost and impact on non-renewable energy? Why is it so important to move forward with renewable energy? What are the different forms of renewable energy available?

Scotland has a Low Carbon Economy strategy in place which you can find here and may help with your research http://www.gov.scot/Publications/2010/11/15085756/0

Other countries such as Denmark are on the road to becoming 100% renewable energy efficient countries, you can watch their short film 'Denmarks Green Transition' https://www.youtube.com/watch?v=-YsKuzByFx4

We suggest that your school should sign up to EDF Energy's, The Pod which has some great resources on energy, science and sustainability http://jointhepod.org/home

The Power of Wind and Sunlight

Mackies got their first wind turbine in 1982 to heat their piggery. At the time this was extremely innovative and a subtantial financial risk for the company. After the success of their first turbine, they decided to invest in commercial turbines, the first one in 2005 and then two more shortly after that.

Their first turbine produced 50kilowatts (kW) of power and the commercial turbines produce 850 kilowatts (kW) **each** of power but what does this mean? How can we make sense of how much power kilowatts actually is?

Fact: *Each year, a typical 850KW turbine (like Mackie's) can provide the amount of power used in 500 homes or to boil 28 million pints of water or run a computer for 7 million hours - that's 810 years.*

Discuss:

With your pupils, discuss how many kilowatts of power they use at home, how can they track their power use? How much power is used in school? Would one of Mackies Turbines be enough to supply all the power in your school?

Do any of your pupils have solar panels at home? What do you think the benefits are of having solar panels at home?

Information from the Energy Saving Trust may help inform your discussions
http://www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels

4. PRODUCT PACKAGING

Who Knew About Cardboard?

How a product is packaged has a massive impact on our environment. Mackies were conscious of their packaging and made the decision to change how their ice-cream was packaged from coated cardboard tubs to plastic tubs as the plastic can be recycled more easily. Your pupils may mind find it interesting to learn that coated cardboard tubs and cups are generally non-recyclable and are having a devastatingimpact on our environment. One of the main issues is the cups that most people get on a day-to-day basis from their go to coffee shop or café. In order for the coated tubs or cups to be recycled, they have to go to a particular recycling centre that can process them but these are limited and unfortunately most end up in landfill waste.

A few articles that can help create some discussion around this:

The waste mountain of coffee cups - http://www.bbc.co.uk/news/magazine-36882799
Think before you drink - https://www.theguardian.com/commentisfree/2016/mar/16/takeaway- coffee-cups-recycle-environment-waste
War on waste - http://www.sciencealert.com/millions-of-people-put-their-coffee-cups-into- recycling-bins-but-they-re-not-being-recycled

But What About Plastic?

What is plastic made from? Is it a sustainable material? Where does it end up when we throw it away? Does it biodegrade? Plastic is a very useful material that we have become accustomed to. Is there an alternative? What do we want/need to use it for?

Fact - *plastic can only be recycled 7-9 times before it also becomes non-recyclable.*

Investigate the impact that plastic is having on our environment. The stats might surprise you. How can we share this information which is so important? Perhaps your pupils can create posters and place them around the school. It would be great if they could raise the issue at an Assembly. The following resources may help.

Watch: Never Refuse to Reuse https://www.youtube.com/watch?v=NOiXdzFfJUs
Watch: Message in a Bottle https://www.youtube.com/watch?v=uF8Zghd5V0M

There are also Lines of Enquiry available to download with these films around low carbon sustainable business practice which can be found here http://www.keepscotlandbeautiful.org/sustainable-development-education/eco-schools/our- schools/low-carbon-skills/fashion-and-textiles/

Reducing Our Plastic Waste

It is astounding just how much plastic we go through each year and the impact it is having on our environment. With your pupils count how many products they use or consume in a day that are contained in plastic. What type of plastic is used? is there a way that they can reduce their own plastic use? E.g. instead of buying water in plastic bottles, can they buy a re-usable water bottle so they are reducing their plastic waste?

AFTER THE FILM – REFLECTION

Here are some questions you can use after watching the film to encourage your audience to reflect on what they have seen and heard and what they might like to do next.

- Did you enjoy watching Source Local, Buy Local?
- Did the activities change the way you think about the film?
- What is the most significant thing you learnt through participating in the activities around the film?
- Did the film raise any questions for you?
- Are there any issues highlighted in the film or from your activities that you would like to explore further?
- Do you think you will share what you have learnt with friends and family?
- Do you feel confident expressing your opinions about sustainable living?

CURRICULUM FOR EXCELLENCE EXPERIENCES & OUTCOMES

SOCIAL SUBJECTS

I can discuss the environmental impact of human activity and suggest ways in which we can live in a more environmentally responsible way.
SOC 2-08a

I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact.
SOC 3-08a

I can discuss the sustainability of key natural resources and analyse the possible implications for human activity.
SOC 4-08a

I have developed an understanding of the importance of local organisations in providing for the needs of my local community.
SOC 1-20a

When participating in an enterprise activity, I can explore ethical issues relating to business practice and gain an understanding of how businesses help to satisfy needs.
SOC 3-20a

I am aware that different types of evidence can help me to find out about the world around me. SOC 0-15a

I can use evidence selectively to research current social, political or economic issues. SOC 2-15a

I can consider ways of looking after my school or community and can encourage others to care for their environment.
SOC 1-08a

SCIENCES

I am aware of different types of energy around me and can show their importance to everyday life and my survival.
SCN 1-04a

The sun as a provider of energy for plants. Simple food chains showing relationships between plants and animals for energy.
SNC 1

Types of energy and their sources; the importance of energy for everyday life and for survival. SCN 1

Non-renewable and sustainable energy sources and their use in Scotland today and in the future. SCN 2

The benefits, risks and impact of a variety of production processes and chemicals in agriculture and their alternatives on global food production.
SCN 3

Renewable energy sources; benefits and potential problems. SCN 3

Benefits and risks of different energy sources in meeting needs for energy. SCN 4

Formation of fossil fuels; use and conservation of finite energy resources. SCN 4

Demonstrate understanding of the relevance of science to their future lives and the role of science in an increasing range of careers and occupations.
SCN 2-4

Demonstrate increased awareness of creativity and inventiveness in science, the use of technologies in the development of sciences and the impact of science on society.
SCN 2-4

HEALTH & WELLBEING

Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community.
HWB 0-13a / HWB 1-13a / HWB 2-13a / HWB 3-13a / HWB 4-13a

I can describe some of the kinds of work that people do and I am finding out about the wider world of work.
HWB 0-20a / HWB 1-20a

I am developing the skills and attributes which I will need for learning, life and work. I am gaining understanding of the relevance of my current learning to future opportunities. This is helping me to make informed choices about my life and learning.
HWB 3-19a

While working and learning with others, I improve my range of skills, demonstrate tactics and achieve identified goals.
HWB 2-23a

LITERACY & ENGLISH

When I engage with others, I can make a relevant contribution, encourage others to contribute and acknowledge that they have the right to hold a different opinion. I can respond in ways appropriate to my role and use contributions to reflect on, clarify or adapt thinking.
LIT 3-02a

As I listen or watch, I can make notes and organise these to develop thinking, help retain and recall information, explore issues and create new texts, using my own words as appropriate.
LIT 3-05a / LIT 4-05a

I can show my understanding of what I listen to or watch by commenting, with evidence, on the content and form of short and extended texts.
LIT 3-07a

To help me develop an informed view, I can distinguish fact from opinion, and I am learning to recognise when my sources try to influence me and how useful these are.
LIT 2-08a

I am developing confidence when engaging with others within and beyond my place of learning. I can communicate in a clear, expressive way and I am learning to select and organise resources independently.
LIT 2-10a / LIT 3-10a

When listening and talking with others for different purposes, I can: • communicate information, ideas or opinions • explain processes, concepts or ideas • identify issues raised, summarise findings or draw conclusions.
LIT 3-09a

To help me develop an informed view, I can identify and explain the difference between fact and opinion, recognise when I am being influenced, and have assessed how useful and believable my sources are. LIT 2-18a

Using what I know about the features of different types of texts, I can find, select and sort information from a variety of sources and use this for different purposes.
LIT 2-14a

I can make notes, organise them under suitable headings and use them to understand information, develop my thinking, explore problems and create new texts, using my own words as appropriate. LIT 2-15a

RELIGIOUS & MORAL EDUCATION

I can share my developing views about values such as fairness and equality and love, caring, sharing and human rights.
RME 2-05b

I can explain why different people think that values such as honesty, respect and compassion are important, and I show respect for others.
RME 2-09c

I can apply my developing understanding of morality to consider a range of moral dilemmas in order to find ways which could promote a more just and compassionate society.
RME 4-02b

I can demonstrate my developing understanding of moral values through participating in events and projects which make a positive difference to others.
RME 3-05b

I can explain how the different beliefs that people have, including beliefs which are independent of religion, relate to their moral viewpoints and how this leads them to respond to moral issues.
RME 3-09c

TECHNOLOGIES

From my studies of sustainable development, I can reflect on the implications and ethical issues arising from technological developments for individuals and societies.
TCH 3-02a

Having analysed how lifestyle can impact on the environment and Earth's resources, I can make suggestions about how to live in a more sustainable way. TCH 2-02a

Throughout all my learning, I take appropriate action to ensure conservation of materials and resources, considering the impact of my actions on the environment.
TCH 1-02a

Throughout my learning, I share my thoughts with others to help further develop ideas and solve problems.
TCH 0-11a

RESOURCES

FILM: Source Local, Buy Local https://www.youtube.com/watch?v=3FZ64sWgfAg

FILM: Message in a Bottle https://www.youtube.com/watch?v=uF8Zghd5V0M

FILM: Never Refuse to Reuse https://www.youtube.com/watch?v=NOiXdzFfJUs

FILM: Denmark's Green Transition https://www.youtube.com/watch?v=-YsKuzByFx4

http://worldslargestlesson.globalgoals.org/

https://www.douwe-egberts.co.uk/sustainability

https://corporate.marksandspencer.com/plan-a/our-approach/food-and-household/supplier-management

http://www.mackies.co.uk/our-farm/our-environment.html

http://www.lidl.co.uk/en/13536.htm

https://www.aldi.co.uk/about-aldi/corporate-responsibility

http://www.lovefoodhatewaste.com/node/2472

http://www.gov.scot/Publications/2010/11/15085756/0

http://jointhepod.org/home

http://www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels

http://www.bbc.co.uk/news/magazine-36882799

https://www.theguardian.com/commentisfree/2016/mar/16/takeaway-coffee-cups-recycle-environment-waste

http://www.sciencealert.com/millions-of-people-put-their-coffee-cups-into-recycling-bins-but-they- re-not-being-recycled

http://www.keepscotlandbeautiful.org/sustainable-development-education/eco-schools/our-schools/low-carbon-skills/fashion-and-textiles/