



A LEVEL ENVIRONMENTAL SCIENCE VISIT

Objectives

- To identify key processes that happen on a dairy farm and understand why they are important.
- Investigate ways in which the farm demonstrates good practices for sustainability
- Identify areas in which the farm can improve their impact on the environment
- Participate in a range of practical activities to develop understanding of soil health

Timetable and planned activities

Time	Activity	Key points	Resources
10.30	Arrival, welcome and introduction	<p>Coach drops off next to marquee. Students to go into marquee whilst coach turns around.</p> <p>Welcome to the farm and objectives for the day – encourage questions and to get fully involved. Busy day.</p> <p>Change into outdoor footwear and leave belongings in marquee.</p> <p>ES, KP and PS to introduce farm and safety information to include key points from conduct policy – also displayed on flip chart at the front. Reminder that it is a working farm.</p>	<p>Flipchart – key safety points displayed.</p> <p>Gloves for anyone with open cuts on hands</p>
10.45	Farm tour	<p>Split students into two groups</p> <p>One group farm tour – outside</p> <p>To include – cows are ruminants, four stomachs, can digest food differently due to digestive system.</p> <p>Food – pick up, smell and look at it – what can you see? What is in it?</p> <p>Contents – grass silage, maize silage, straw, Selco (discuss that this is a waste product), blend.</p> <p>Show close up dry cows, bull and bulling heifers - what is all means and roles on farm</p> <p>Go to silage clamps and feed wagon – this is how we feed the cows.</p> <p>Slurry slats – show and discuss the recycling of slurry to grow grass.</p> <p>Calves – discuss selective breeding briefly, breeds of calf and purpose</p> <p>Optiduo – what does it do and why? Electric not diesel</p> <p>Fans – purpose and efficiency</p> <p>One group robots – inside</p> <p>Enter through back pen</p> <p>Office – importance of computer and what we do – can control from anywhere. Reporting and data are essential.</p> <p>Accountability – passports, red tractor</p> <p>How the robot identifies the cows</p> <p>Milking process</p> <p>Heat of milk when leaving the cow</p> <p>Separation of milk for calves – importance of colostrum from own mum</p> <p>Back through the dairy – milk tank – how much milk does it hold?</p> <p>Touch sides and compare the temperature to the milk leaving the cow. Discuss plate cooler and recycling water to the cows.</p>	

		30 mins per group and then swap	
11.45	Student activity	<p>Meet at marquee Wash hands if students have touched animals Introduce student task 1 clipboard between 2 – explore the farmyard. Reminder of no-go areas – not past the concrete at the top of the yard or in building unsupervised.</p> <p>Using the sheet of paper and pen explore the farmyard and using knowledge already gained identify areas in which the farm promotes sustainability and demonstrates good practice. Also identify areas where improvements could be made. 15 mins</p>	<p>Clipboards</p> <p>Pens</p> <p>Worksheet</p>
12.15	Evaluate student findings and discuss	<p>Bring group together to discuss findings ES highlight anything missed (e.g., solar panels, countryside stewardship, waste in yellow bin is managed and recycled)</p>	<p>Flipchart</p> <p>Examples</p>
12.30	Lunch	All students to wash hands and eat lunch	
12.50	Practical activities	<p>Introduce afternoon session – all about soil – why? ES explain – 10 mins Apple and soil demo</p> <p>30 mins then swap groups Split back into 2 groups as in the morning 1 group – with KP worm investigation Importance of worms How worms indicate biological health of soil Earthworm population and layers within the soil 1 group – with ES – soil analysis (type, pH and compaction) Start pH test – needs to separate – so set this off first Assessment of soil type – examine the soil – what do you think? Why? Compaction – use metal stick – measure in different parts of the field – why is it more compact in some areas than others? Cause of compaction soil nutrients – NPK. What are they? Tested in a lab, but we can test pH. Complete pH test soil – what does it mean</p>	<p>Apple, knife, chopping board</p> <p>Trowels</p> <p>Spades</p> <p>Buckets</p> <p>pH test kit</p> <p>metal compaction testers</p> <p>Water</p> <p>Field maps</p>
2pm	Review Change footwear and handwash	<p>Review what we have learnt and key points</p> <p>Discuss with a friend anything that has surprised you, what have you learnt and how you will use this information moving forwards.</p> <p>Any questions</p> <p>Change of footwear and hand wash before boarding the coach.</p>	