3 lessons in

Countryside Education

Introducing and Enhancing - How to Care for Our Planet

Farm Animals

Horticulture & Aquaponics

Wind & Solar Energy

Learning through fun activities – we are not teachers but we are passionate about introducing and nurturing children and adults in awareness of the countryside and ultimately respecting and taking care of our planet.

General

Excellent facilities

- Bespoke programme
- Parking
- Group Area
- Washroom
- Goody bags
- Risk Assessments, Health & Safety

Detail

- Planned around your arrival & departure times
- Coach, Minibus & Cars
- Class picnic area, close to hand washing/toilets
- 8 toilets & 7 handwashing sinks
- Farm brochure & Worksheet
- Free pre-visit / Farm staff supervised sessions

Farm Animals

- Suitable for Early Years ~ Key Stage 1
- 4 interactive ‘hands on’ sessions
- Adventure play
- Picnic lunch
- Suitable March - November

Farm visits build on classroom learning – they help reduce anxiety in all kinds of other areas

Meet the Chicks

Workshop 1

- Learn to handle young chicks, ducklings, goslings or turkey poults - increase your children's confidence
- Up to 30 minutes/class
- Led by Farmer Gow's staff

Chicks are small, fluffy and gentle to handle

Meet the Animals

Workshop 2

- Hand & bottle feeding lambs and goat kids
- Pat & tickle our pigs
- Watch our ducks, turkeys or geese waddle/strut around the barn
- 45 minutes
- Led by Farmer Gow's staff

Hand feeding is tickly!

Meet the Fowl

Workshop 3

- A short walk takes you to our Chicken houses
- See the different breeds of chicken
- Enjoy collecting freshly laid eggs
- 15 minutes
- Led by Farmer Gow’s staff

Different breeds of Chicken

have different coloured feathers

Tractor Ride

Workshop 4

- Our tractor ride takes you around the farm
- Fantastic views of the surrounding countryside including the White Horse on Uffington Hill
- 30 minutes
- Led by Farmer Gow’s staff

All aboard!

Adventure Play

- Our giant Bale Climb is a favourite with most children
- Pedal Tractors
- King Cole play
- Adventure playground
- 30 minutes
- Supervised by school staff

Natural materials – Safe and Lots of Fun!

Mobile Farm

- We bring our farm to you
- Small, Medium and Large
- ‘Hands on’ workshops
- From 30 minutes
- Suitable for one class or the whole school
- Led by Farmer Gow’s staff

If you can’t come to us, we can come to you













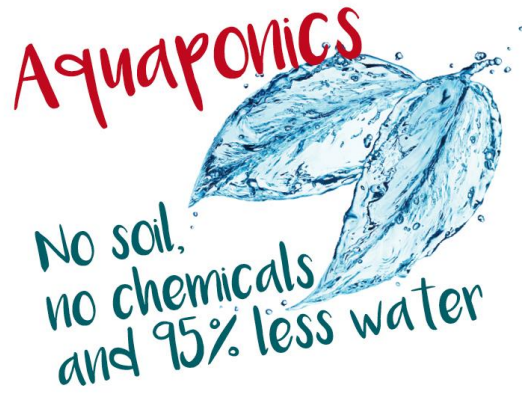


Horticulture & Aquaponics

- Suitable for Key Stage 2
- 5 interactive STEM workshops
- Picnic lunch
- Suitable February - November

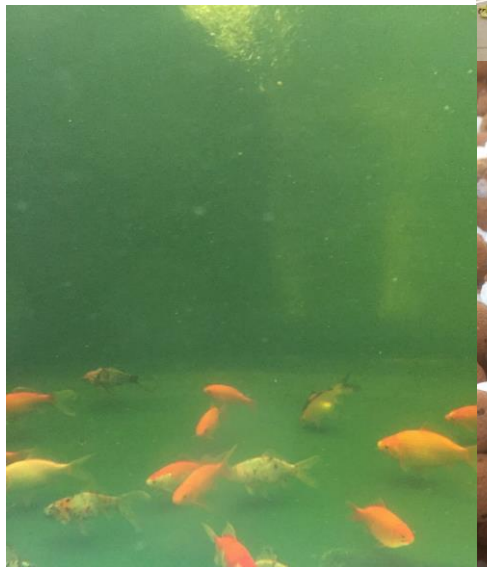
Smart Greens UK

How does Your Garden Grow



Workshop 1

- Four different growing environments ~ Field, Raised Beds (Kitchen Garden), Polytunnels & Aquaponics
- Looking at plants and root systems
- Experiencing ambient temperature comparisons
- Thinking about ‘how to farm’ each area and the challenges this might pose
- 30 minutes/class



Get to know your Vegetables

Workshop 2

- Looking at common and uncommon vegetables
- Finding out how seasons affect availability
- Finding out which environment is the best environment for each vegetable to grow
- Vegetable characteristic - which part do we eat, how does it grow, different varieties, colour
- 30 minutes/class

Vibrant colours, tastes and smells

Plants need Feeding

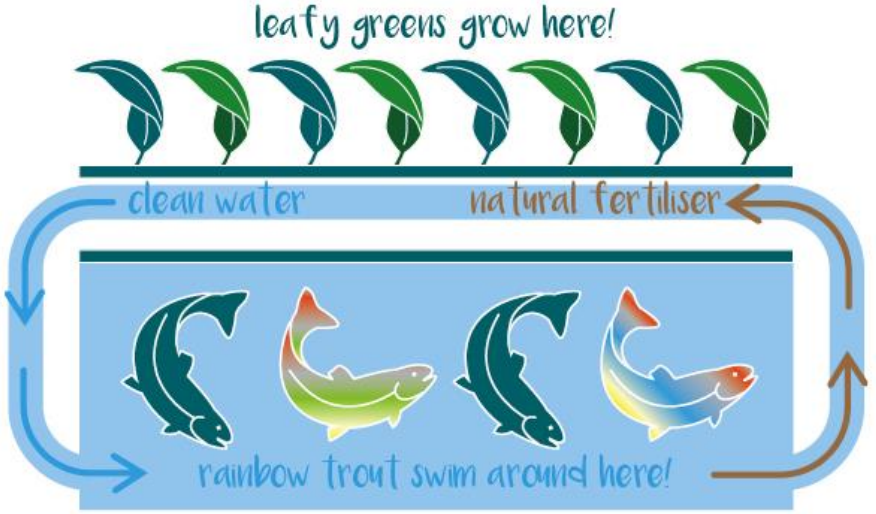
Workshop 3

- Growing in water and growing in soil
- Mushroom compost, soil and fish
- Testing water quality
- Testing soil quality
- Water consumption comparison
- Moving water
- 45 minutes/class

Come and see how we grow food

No soil, no chemicals and 95% less water

Roots!



Vegetable Hunt

Workshop 4

- A fun and interactive game on our giant Bale Climb, reinforcing the learning experiences of ‘How does our Garden Grow’ and ‘Get to Know your Vegetables’ workshops
- 20 minutes/class
- Led by Farmer Gow’s staff

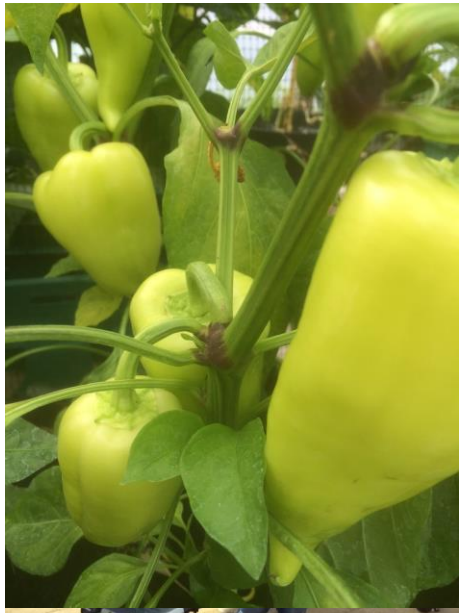
Lots of Adventure Play on the Farm

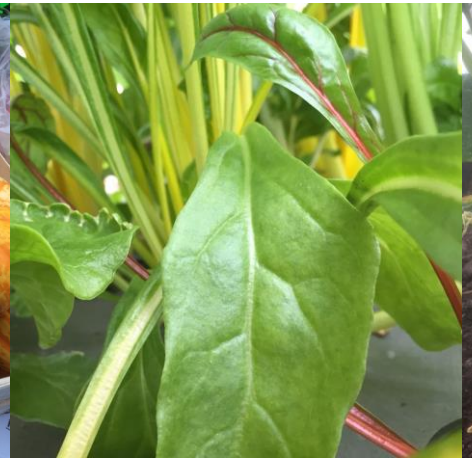
Ask and Taste

Workshop 5

- Q and A session
- Vegetable tasting – trying something for the first time
- Different ways in which we can eat vegetables - cake, smoothie, raw, cooked ...
- 20 minutes/class

Yum, yum!






0.25 ppm
0.25 ppm
5.0 pp
10 ppm
20 ppm
40 ppm
80 ppm

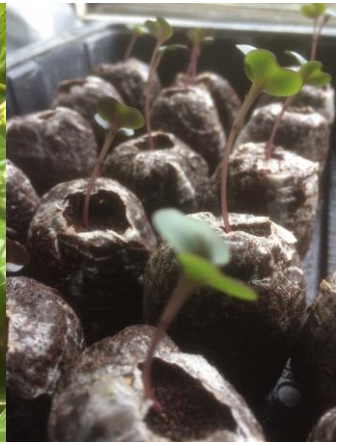


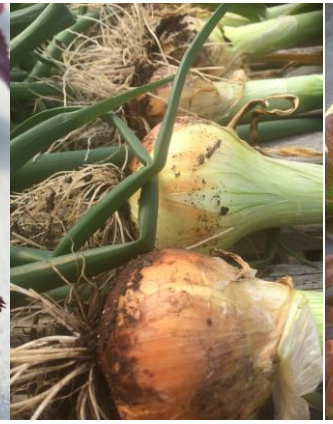






FARMdrop Drawing




Chilli Jam


Green Energy & Electricity

- Suitable for Key Stage 2
- 3 interactive STEM learning sessions
- Picnic lunch
- Transfer to Westmill Wind & Solar Farm
- Suitable January – November

Energy & Electricity

Workshop 1

- What is Energy, what is Electricity?
- Generating electricity?
- Input ‘movement’ energy by hand
- What are the outputs?
- How can we store energy?
- Up to 40 minutes/class
- Led by Farmer Gow’s staff

Westmill Wind & Solar Farm

Natural Energy Sources

Workshop 2

- An interactive learning experience on our giant Bale Climb
- Each child finds different ‘energy’ cards
- Discussion of the different sources of energy
- Up to 30 minutes/class
- Led by Farmer Gow’s staff

Inside a Wind Turbine

Why & where do we use Electricity?

Workshop 3

- Interactive game matching equipment to use – both domestic and commercial
- Which equipments do we use at work, at school, at home?
- Which equipments are specialist to a particular work place?
- What would happen if we had a power cut?

Westmill Solar Farm

Workshop 4

- Look at solar panels
- Facts & Figures
- Count out 13 panels = 1 household
- Who has solar panels on their house?
- Walk through park to hillock – look back over solar farm
- Experiment 1 – Measuring Wind Speed

Westmill Wind Farm

Workshop 5

- Coach drives to bend in road – so children get an idea of the size of the turbines
- Facts and Figures
- Experiment 2 – Measuring Wind Power
- Experiment 3 – How Tall is a Wind Turbine?
- Walk towards turbines/coach.
- Visit inside a turbine.

WESTMILL

WeSET

SUSTAINABLE ENERGY TRUST

WESTMILL WIND FARM CO-OPERATIVE LIMITED

WESTMILL SOLAR CO-OPERATIVE LIMITED

Q & A - Westmill Wind Farm

- Westmill Sustainable Energy Trust: Charity funded by the wind & solar farms to promote renewable energy
- Previously a private airfield
- **1940s - 1972** Military use
- **1976+** largely organic agriculture
- **1992** Adam Twine decides to build a wind farm
- **2008** turbines installed
- **2011** solar farm installed
- *Be aware occasional traffic*
- *Please stay off the steps*

Species on site include:
65 wildflowers, 6 bees & 10 butterflies

Skylarks, corn buntings, red kites, hares & around 65 plant species including Bee Orchid, Ox-eye Daisy, Plantain, Salad Burnet, Knapweed, Scabious and various Thistles, Bedstraw and Vetches

- 11 yrs going through planning with 3 applications
- 8 days to install turbines
- 5 x 1.3MW = 6.5MW
- Saves 5200 tonnes of CO2 pa
- 11 GWh/year production, enough electricity for approx 3550 homes
- 8 months to cancel CO2 from construction
- Approx 25 year lifespan
- Uses 1% of the land on the farm
- Ground to Hub 49 metres
- Ground to Tip 81 metres
- Blade 30 metres
- Rotor diameter 62 metres
- Tower 54 tonnes
- Nacelle & Rotor 76 tonnes
- Total 130 tonnes
- Base 800 tonnes
- Fixed rotation at 13 & 19 r/min
- 13 r/min = 2.5 to 7 m/s wind speed
- 19 r/min = 7 to 25 m/s wind speed
- Blade tip 84 m/s (187mph) at 19 r/min
- 6.3 metres per second= predicted annual wind speed 50m up (14mph)
- Operational between: 2 and 25 m/s (5 and 56mph)
- Anemometer and wind vane measure wind speed and direction to enable turbine control
- Distance between turbines = 190m
- Transformer in each base steps 690v up to 33kv
- Cables run underground to on-site substation
- Cables then run 2km to Longcot grid connection
- Rotor slightly tilted back for better interaction with wind shear

- **Finances**
- £7.7 million installation costs
- £4.6 million invested by shareholders
- £3.6 million borrowed from Co-op Bank
- 2400 shareholders getting up to 8% return over 23 years
- Earns £85 per MWh generated
- Income around £1 million per year
- % of annual revenue contributed to community fund

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- 3 months going through planning
- 2 months to install, completed just days before the highest FIT deadline
- World's largest community owned solar park when built
- 21,620 Panels x 225W = 4.8MW
- Saves 2300 tonnes of CO_2 pa
- 5 GWh/year production, enough electricity for approx 1600 homes
- 2yrs to cancel CO_2 from construction
- Approx 40 year panel life expectancy, current project a 25yr term with FiT
- Uses 12 ha/32 acres, multi-use area
- Polycrystalline panels consisting of 60 cells
- Layer of 'n type' silicon joined to a layer of 'p type' silicon
- Toughened glass frame
- 30◦ angle to the horizontal
- Divided into 235 segments
- Segment = 23 panels across x 4 high
- 1 Panel up to 37V DC, 225W
- Whole string 23 x 30V = 690V DC
- 4 strings in parallel
- Combiner boxes at row ends join strings
- From combiners to one of 7 inverter cabinets
- Inverters convert variable DC voltage to 3 phase 50Hz AC at 315 V
- Then transformed to 33 kV for grid connection
- Monitored in Shepton Mallet at individual panel level
- No cleaning required
- Under grazed with sheep - *caution regarding electric fence if present*

Finances

- £15M installation costs. Close to £3.3M for similar at today's prices
- £5.8M invested by shareholders
- £12 million borrowed
- 1650 shareholders with an estimated 9-11% return over 24 yrs
- Earns approx £400 per MWh generated
- Income around £2 million per year
- % of annual revenue contributed to community fund