



# GOOD ENOUGH TO EAT OR JUST HUNT?

## Edible insects, the Sustainable Development Goals and the primary classroom

### Verity Jones discusses ways in which the United Nations' Sustainable Development Goals can support teaching and learning



Figure 1 The launch of Bug Farm Foods' VEXo meat alternative for school lunch

**M**any scientists are in agreement: we are in a climate and ecological emergency. This has led to a media bombardment of doom-and-gloom stories that pupils are increasingly picking up on and developing what has been termed 'climate anxiety'. Hilary Whitehouse (2018) reminds us that we

should encourage pupils not to dwell on these negative stories but embrace pedagogies that support young people to become scientifically informed, global citizens, who are able to take steps towards creating the future they want. Science and its practical application to combat real-world issues is where I find the most engaging and

enabling learning to be, but framing this can sometimes be a challenge.

#### The Sustainable Development Goals

In 2015, the Sustainable Development Goals (UNDP, 2015) were agreed by all United Nations member states as a framework to achieve a more sustainable

Key words: ■ Sustainable Development Goals ■ Climate change

**Figure 2** VEXo 'bolognese' made with plant and insect meat alternatives



population (Godfray *et al.*, 2010). Add to that the massive amount of energy that the production of red meat uses and the methane (a gas 25% more potent than carbon dioxide as a greenhouse gas) it creates and we quickly see how an alternative, healthy, environmentally sustainable alternative is required. Insects may be one of the answers.

**Identifying choices: what questions need answering?**

I have been working with schools in Wales that have been introducing a new food product from Bug Farm Foods Ltd (see *Weblinks*) called VEXo®, an insect- and plant-based meat alternative. This project has found that pupils are interested in the global implications of what they eat, and many are likely to accept edible insects as a protein alternative in the school canteen once scientific evidence has been shared.

The project has frequently seen pupils ask the two questions below, which are difficult to answer without a little subject knowledge.

**Where do edible insects come from?**

In the science classroom we often look at the 'healthy plate', balancing proteins, carbohydrates and fats. While this is interesting and draws attention to a balanced diet, it does not clarify how the food was produced. Consumers of UK-produced meat are safe in the knowledge that the RSPCA works tirelessly to support high animal welfare conditions and we can look for their logo that ensures this on packaging. However, if we are to eat insects, should they be afforded the same high standards of living and ethical consideration when slaughtered as cattle and poultry in the UK?

There are a growing number of small-scale insect farms in the UK, with larger farms springing up across Europe. Insect farms look very different from the grassy fields that may be the farms in your pupils' imaginations. At an insect farm everything is indoors. The temperature, humidity and feeding are often controlled by computers and entomologists (scientific experts in insects). Edible insects for human consumption breed quickly and require very little space or water: this makes

future (Box 1). World leaders have committed to working towards these 17 shared outcomes until 2030 and many, if not all, of the solutions will be informed by science.

I find using these goals to frame curriculum planning is a useful way of making the learning real, memorable and important to pupils. Drilling down from the 17 goals there are 169 specific targets from which a multitude of learning opportunities can be planned. In this article I reflect on how these goals can frame primary science teaching: how a bug hunt in the school grounds can quickly transform into discussions about ensuring we develop more sustainable food production systems (target 2.4).

**Insects: interesting and delicious?**

Many classes go out on bug hunts, with pupils identifying insects and their habitats. Some teachers may consider the importance of the insects as members of food chains, as agents of decomposition and of pollination, but few will widen this out to think about insects as a potential food source. Insects are eaten every day by millions of people, but in the West such delectable fare is not always encouraged. In fact, we have TV shows such as *I'm a Celebrity...* that encourage repulsion towards eating our six-legged friends. But let's put this into context: it is predicted we will soon need 42% more crop land, 120% more water and 70% more food in order to feed the world's growing

**Box 1 The 17 Sustainable Development Goals**

<b>Goal 1:</b> No poverty	<b>Goal 5:</b> Gender equality	<b>Goal 9:</b> Industry, innovation and infrastructure	<b>Goal 13:</b> Climate action
<b>Goal 2:</b> Zero hunger	<b>Goal 6:</b> Clean water and sanitation	<b>Goal 10:</b> Reduced inequalities	<b>Goal 14:</b> Life below water
<b>Goal 3:</b> Good health and well-being	<b>Goal 7:</b> Affordable and clean energy	<b>Goal 11:</b> Sustainable cities and communities	<b>Goal 15:</b> Life on land
<b>Goal 4:</b> Quality education	<b>Goal 8:</b> Decent work and economic growth	<b>Goal 12:</b> Responsible consumption and production	<b>Goal 16:</b> Peace, justice and strong institutions
<b>Goal 17:</b> Partnerships for achieving the goals			

farming them extremely efficient. For example, while approximately 22,000 litres of water are required to produce 1 kg of beef, it takes only 1–10 litres of water to produce 1 kg of edible insect protein – and insects release 99% fewer greenhouse gases than cattle. Most edible insects are slaughtered by reducing the temperature of their living spaces to put them into a natural state of hibernation before making it so cold they die.

**Will eating insects make me ill?**

Many pupils in the project worried that trying VEXo® would leave them with terrible tummy ache and sickness. However, as shellfish and dust mites have exoskeletons, they have similar allergens to insects, so unless you have an allergy to dust mites or shellfish the chances are eating insects will not affect you negatively. Some insects may also contain traces of their feed, which may include gluten and soya. However, just like other foods, this information is always included on any product label. Insects farmed for human consumption in Europe have to be farmed in accordance with EU food regulations (IPIFF, 2019) and they are most commonly fed on GMO-free, GMP+ certified feed that does not contain hormones, synthetic chemicals or antibiotics. To further prove insects are safe for human consumption microbiology testing is also required. While this can mean very little to our younger pupils, what we can do is normalise eating insects for them. Will they make us ill? If you mention that in every 100 g of chocolate there are 30+ insect parts then eating insects doesn't seem such a disgusting thing to do. They might even eat them every day!

Far from making us ill, research has shown edible insects have been proven to have no health-related trade-offs as food over meat. In fact, some species have been seen to be significantly

nutritionally superior to chicken and beef as they are higher in protein and amino acids and lower in saturated fats.

**What action can be taken?**

Our classrooms can provide a context for pupils to rethink how eating habits can be adapted to make a difference to wider global crises: the humble insects of our bug hunts can be framed in new ways to inform how children think about wider food-production systems and their place in them. While a shift to edible insects may not be a complete answer to combat the climate crisis, working towards more sustainable food production as a single change to everyday practice could go some way towards making a larger positive difference.

Discussing these issues as a way of understanding our world could lead to food technology lessons including insect-based recipes and enterprise projects with edible-insect snack shops. Tasting edible insects is crucial to knowing and possibly accepting what is possible – and you don't have to see a leg or antennae sticking out if you use insect 'flours' (insects ground to a fine powder – available from Bug Farm Foods).

You might take insects as a cross-curricular theme and delve into fictional writing about our six-legged friends, such as M. G. Leonard's *Beetle Boy*. Here the insect's superhero-style powers are based on their real characteristics (and have been checked out by entomologists for

accuracy). You might look at Kafka's *Metamorphosis* and imagine what it might be like to be transformed into an insect, or listen to Rimsky-Korsakov's enigmatic *Flight of the Bumblebee* and be inspired to develop dance and artistic interpretations in response to this. Reflecting on Millie Marotta's line-drawn insects and Marian Hill's inspiring collage of British beetles (see *Weblinks*) may also provide ways in to developing an interest and understanding of entomology.

Opportunities for change are here, but it is up to us as teachers to present these and allow our pupils the time to explore and consider the consequences of our present and future actions.

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**Further information**

For more details about this project see:

Jones, V. (2020) 'Just don't tell them what's in it!' Ethics, edible insects and sustainable food choice in schools. *British Educational Research Journal* 10.1002/berj.3655.

Bug Farm Foods is developing a teaching resource to help schools embed edible insects into their teaching. To request this, or find out how to include VEXo® on your school's lunch menu, e-mail: [info@bugfarmfoods.com](mailto:info@bugfarmfoods.com).

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United Nations Development Programme (2015) *Sustainable Development Goals*. Available at: [www.undp.org/content/undp/en/home/sustainable-development-goals.html](http://www.undp.org/content/undp/en/home/sustainable-development-goals.html)

Whitehouse, H. (2018) A new realism: a rationale for supporting children's climate activism. In *Education in times of environmental crisis: teaching children to be agents of change*, ed. Winograd, K. pp. 161–170. London: Routledge.

**Weblinks**

Bug Farm Foods – recipe ideas, and cooking ingredients: [www.bugfarmfoods.com](http://www.bugfarmfoods.com)

Marian Hill – bug hunts and collage workshops: twitter @hill\_marian

Millie Marotta's line-drawn insects: <https://milliemarotta.co.uk>

World's Largest Lesson – for a host of lesson plans and ideas about how to teach the Sustainable Development Goals: <https://worldslargestlesson.globalgoals.org>

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