DESIGN TECHNOLOGY learning springboards

Biophilic design

Research biomimicry and biomorphism, developing a design idea for garden feature

Aim: Explore the use of plants to develop, model and communicate ideas for a new product and generate creative ideas while avoiding stereotypical responses.

Activity:

The principle of **biomimicry** is that designers and engineers take cues from nature. Abstraction of design from nature is more than just patterns or decoration, this is innovation inspired by nature. Look at how nature has solved problems, and how we can learn from this: for example, lotus plants have been used to make self-cleaning products, fabrics, roofing tiles and paints that stay clean.

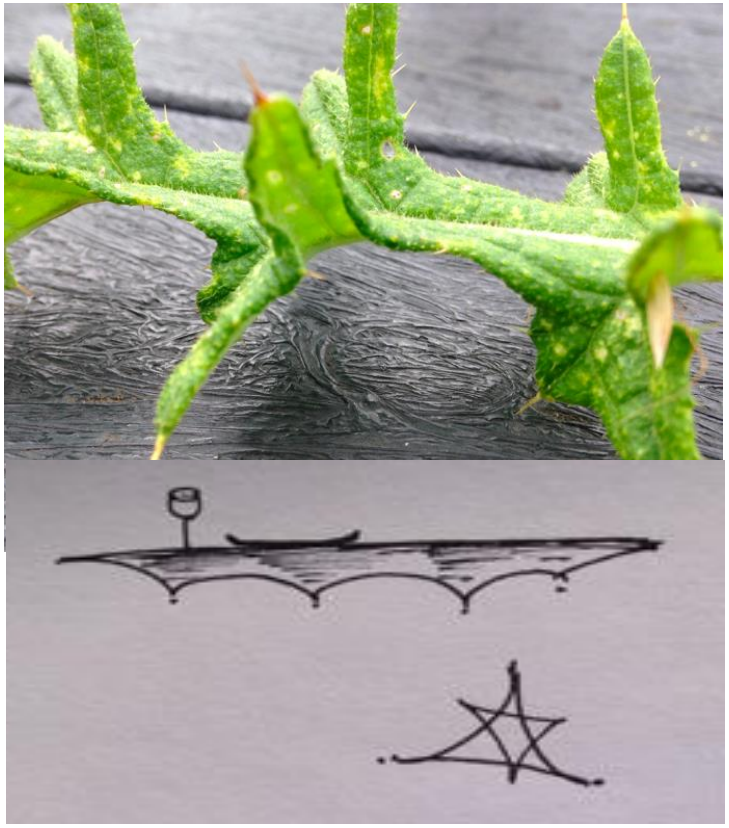
By contrast, **biomorphisim** is used by designers to emulate nature in decorative forms and with symbolic associations. This type of design tends to be superficial with no application of underlying natural systems.

Pupils should research examples of biomimicry on the internet and make an on-line scrap book or PowerPoint presentation showcasing the research.

Sketch a design for a functional garden feature, tool or equipment, specifically looking at structural strength, inspired by the appearance and / or structure of plants.

For example, the spiky plant illustrated inspired a design for a low table. The way this stem stands on leafy spines led to thinking about point loading on the spines and this then developed into an original design for a low patio table.

Pupils might also like to explore how fractals, which are naturally occurring in nature, are used extensively in engineering.



Resources:

- Interesting, quirky, complex plant material
- Sketching equipment
- Internet access

Key vocabulary:
Biophilia, biomimicry, biomorphism, fractals

Success criteria:

✓ I understand and can describe how nature influences Design Technology and STEM subjects.

Notable people in the field

- Janine Benyus (Biologist)
- Michael Pawlyn (Architect)

Biomorphic architecture

Biophilic design

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