

Function Junction

Tools and Material

Student worksheet W1.1 cut up in advance.

Description

This activity introduces students to a range of different functions nature provides, and helps them to start viewing nature as a potential source of solutions to human challenges. In the activity, students identify a range of functions nature delivers.

In biomimicry a function refers to an organism's adaptations which help it survive. For example, the purpose of bear fur is to keep warm, in technical terms its function is to conserve heat (insulation). A leaf is made to biodegrade, so one function of a leaf is to 'break down' after use. Human products also have functions; a kettle has the functions to both contain water and heat water (modify its physical state). In brief, a function is 'what it does.'

This activity takes place outside, ideally in an area where there is some natural vegetation and larger shrubs/trees.

- a) Cut up the function (abilities) in W1.1 ready to distribute to students.
- b) Explain to students that in this activity they will be exploring how nature exhibits provides/delivers different functions (i.e. how nature does certain things; has certain capabilities), and that you will be providing them each with different functions to identify and explore. For example, trees exhibit the function of 'protection' through their bark which prevents attack from insects.
- c) Ask students to work in groups of 2-3. Provide each group with 3-4 different functions and ask them to see if they can find examples of how nature exhibits these functions. Provide 10-20 minutes for this task.
- d) After the allotted time is up, re-convene and walk through your working area asking students to explain the functions they have identified and state their reasons.
- e) As students share their findings you can ask questions to clarify more:
 - How did you identify this function?
 - Can nature provide the same function in different ways?
 - How does the function benefit this species?
 - Do species in nature just provide a single function or many?
 - What value do you think it has for nature?
 - Is this how you are used to seeing nature? How is it different to how you are used to seeing Nature?
 - What can we learn from how nature exhibits functions?

You could choose to carry out this activity as a homework task, asking students to take photographs of the functions they find to share later.

By the end of this activity students will have experienced how nature delivers a range of different functions which enable it to work as a system and sustain itself.

W.1.1 Function Junction Cards

Cut out

Attach	Dynamic design	Move 'fluids' (air, water, etc.)
Balance	Enduring sources of energy	Optimize (e.g. strength and material, information and time)
Bottom-up manufacturing	Flexibility	Orient
Buffer (e.g. from impact)	Grind	Pack into a small space
Collect (e.g. water, sunlight)	Grip	Power without pollution (i.e. clean sources of energy)
Collect raw materials (i.e. without mining)	Heat up	Protect
Communicate	Hold onto	Raw materials without mining (i.e. from the air, from groundwater)
Connect	Insulate	Recycle
Cool down	Information instead of material	Resilience
Cooperate	Life-friendly chemistry (i.e. chemistry that is safe for living tissues)	Restorative
Coordinate	Manage	Stabilize
Create color	Manage interactions	Stabilize soil
Create conditions conducive to life	Manufacture at ambient temperatures	Stick together
Create Flow	Maximize (e.g. resources)	Store
Decompose	Minimize (e.g. weight)	Streamline
Detect	Move	Strength
		Withstand wind