

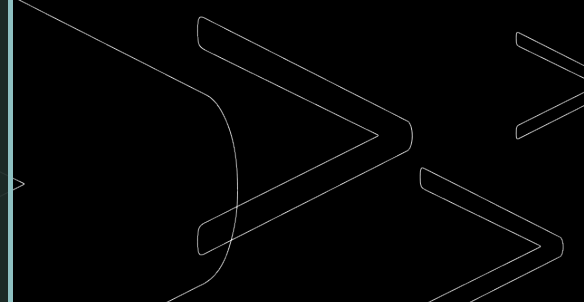


Connection To Nature

Week 3

BMOE5001

Dylan Blain



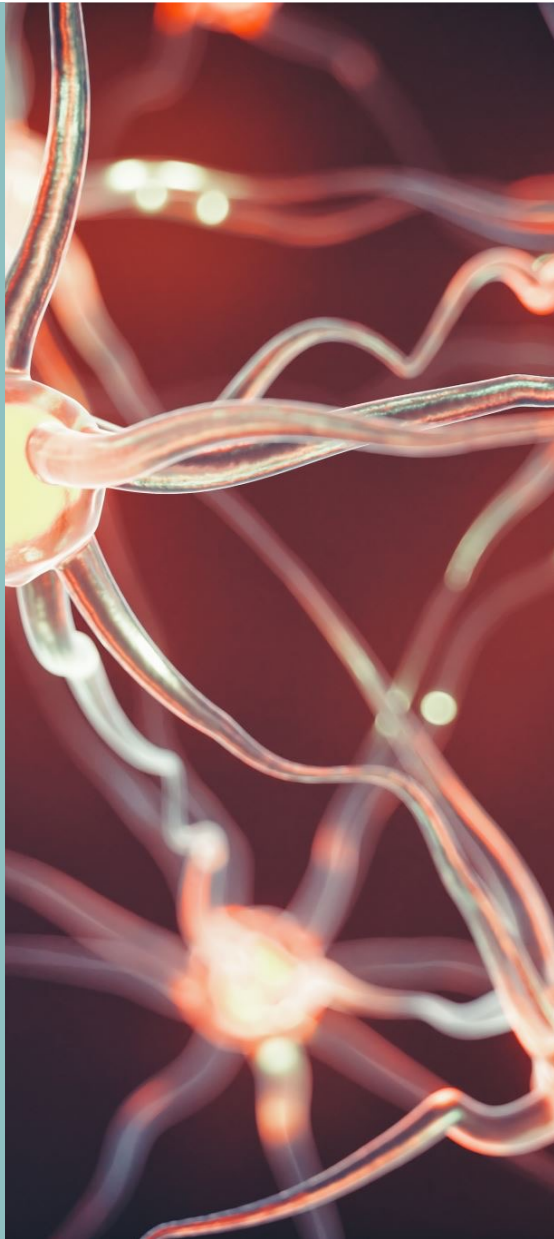
Task



Draw a picture of your favorite place



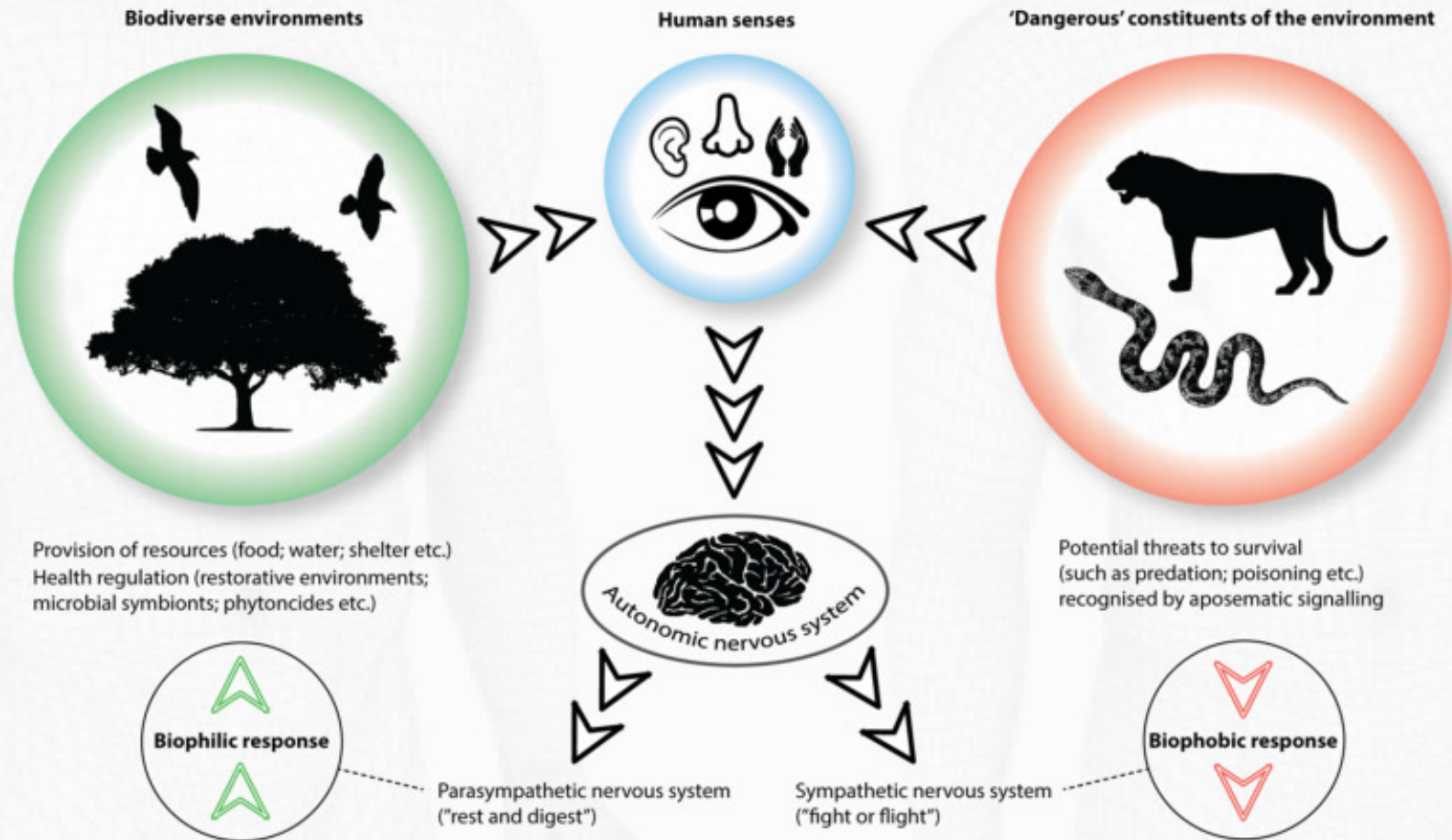
Present it to the group describing how that place impacts on all 3 human domains; how you think (cognitive), feel (affective) and your sense of physical wellbeing.



Human Nervous System

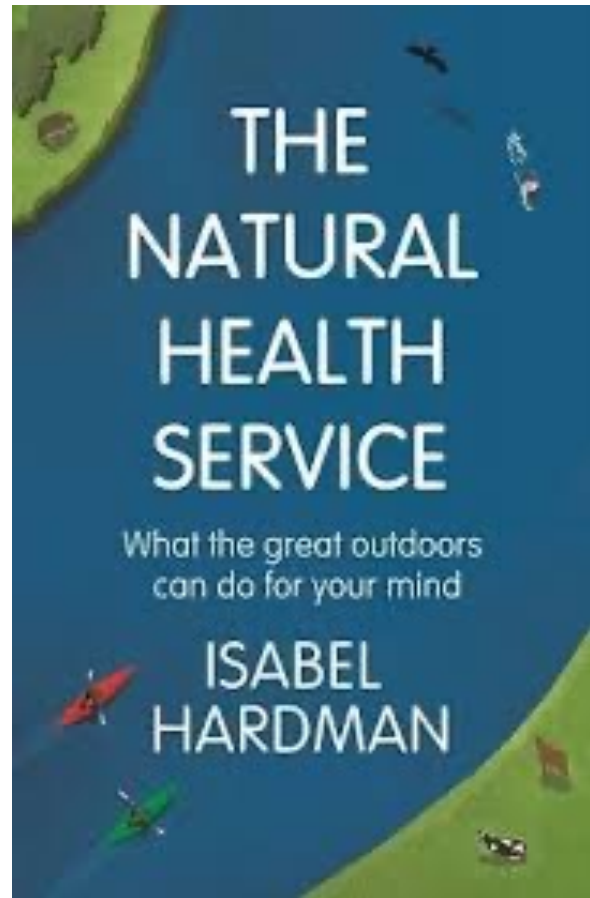
- Central Nervous system and Peripheral Nervous system
- Somatic and Autonomic
- Sympathetic and parasympathetic

The Biophilia/Biophobia Hypotheses



Biophilia Hypothesis

- The biophilia hypothesis (Wilson, E. 1984) proposes that human beings are innately connected to nature and that *experientially* realising this connection is essential for physical, psychological and spiritual health (Martyn and Brymer, 2016)
- Numerous studies have documented that children's preferred environments include a predominance of natural elements. Research by Moula, Walsh and Lee (2021) showed children's drawings in particular illustrated that their perceptions of wellbeing were subject to the affordances of their favourite spaces for emotional, mental physical and material wellbeing. Access to nature and outdoor spaces was interconnected with all these affordances. However, nature was not necessarily as explicit as connection to family and friends, safety love and happiness. Nature however was a dominant backdrop to this
- Biophilic Design: A quantifiable body of evidence exists supporting the value of biophilic design with the particular interest in well-being and health. (Browning, 2016)
- Meta Analysis (Grinde and Patil 2009) Examines 50 empirical studies to identify whether the Biophilia Hypothesis has merit but also to establish whether there is a real link between adding **visual nature** to indoor spaces as a preventative measure to improve health and wellbeing.



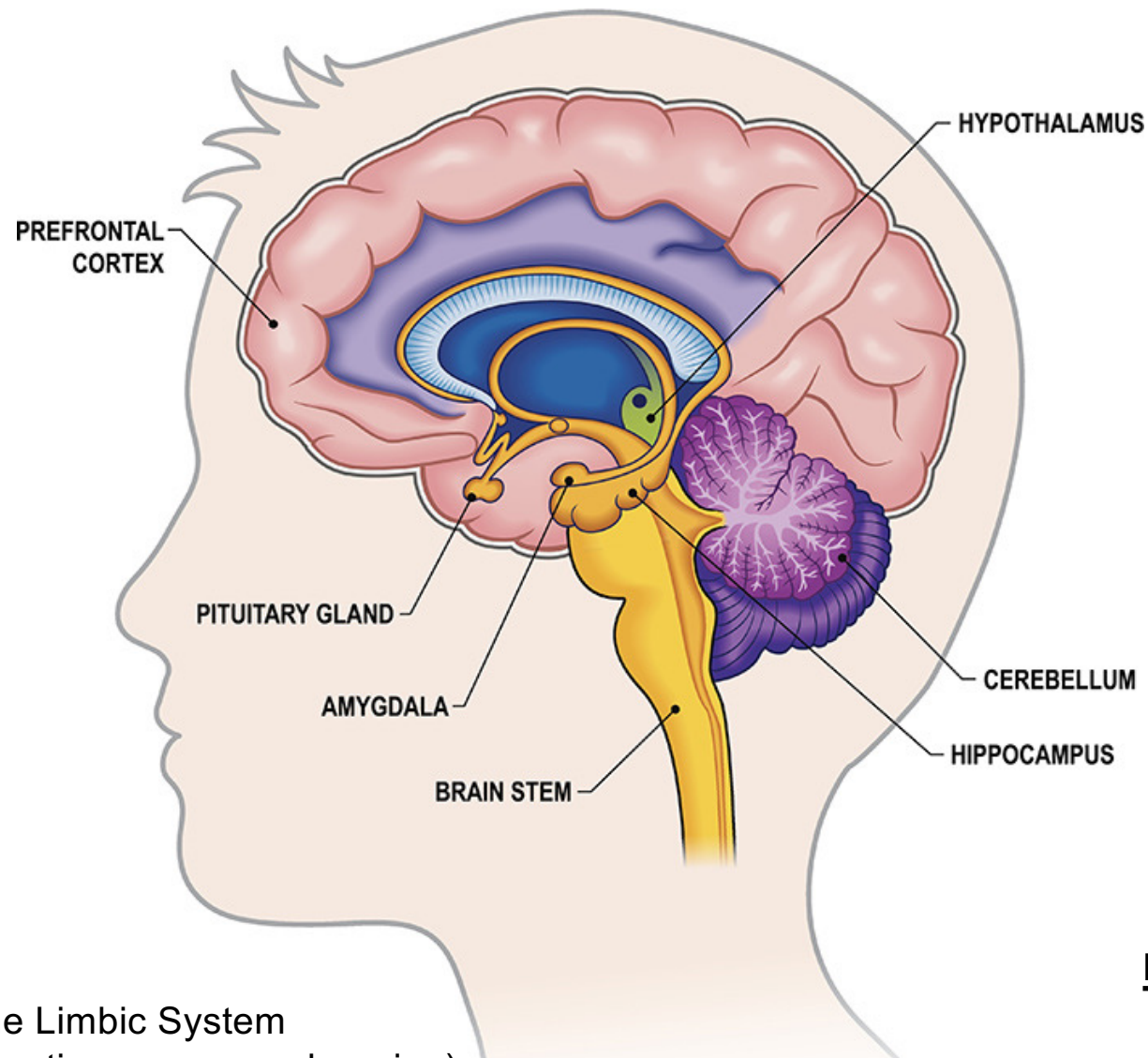
"Biophilia helps us understand why we feel calmer when we look through the window at the trees outside, and even why that phrase 'get back to nature' is so compelling"
(Hardman, 2020)



Connection to Nature with Chris Packham

BBC Winterwatch 2021

This Photo by Unknown Author is licensed under [CC BY-SA](#)



Neurological research links time in nature, exercise and feeling connected to improved brain function and in particular, concerning the Hypothalamus. This is responsible for hormone regulation and general homeostasis.

The Limbic System
(emotions, memory, learning)

Hypothalamus Song!!

Brain Chemistry!

■ Serotonin (Happy Hormone)

- Released in brain and body – mostly the gut!
- Important in mood but also bodily functions
- Light, exercise, diet all effect levels
- Targeted by antidepressants
- *Mycobacterium vaccae* - found in soil (natural prozac!)

• Cortisol

- Bodies main stress hormone
- Made by kidneys so levels in blood indicate to brain what to do. Brain shuts down non-essential function in response to high cortisol levels.
- This includes digestion and the immune system.
- Anti-inflammatory

• Dopamine (reward/pleasure)

- Neurotransmitter
- Motivation, Attention, Mood
- Connected to Parkinsons, Schizophrenia ADHD and Low Mood
- Addiction

- These chemicals are often cited as the cause for mental health conditions such as depression and anxiety
- More recently this theory has been challenged, with a view that although undoubtedly the 'feel good' chemical levels of depressed people are lower, this is not the underlying or sole cause.
- Medication only works for around 50% of those taking it, and although this increases levels of a combination of noradrenaline, serotonin and dopamine by limiting their natural reabsorption by the body, this doesn't provide a permanent solution with a relapse likely.
- Other research suggests that it is the growth of neurons (brain cells) that is limited in those suffering with mental health conditions, MRI scans have shown that the Hippocampus is 12% – 15% smaller in those with depression and that a significant factor in brain cell death and inhibited growth in the hippocampus is stress or more specifically the release of stress hormones (Glucocorticoids). (Pittenger and Dunman; 2008)

What about Endorphins and Oxytocin

- Feel good hormones; pain reliever/natural high and love hormone
- Endorphins released during exercise or other reward giving activities (Eating, sex, working out, helping others). They are the addictive part! Act like Opioids (e.g heroin) but without the risk. A natural high.
- Oxytocin released when we experience physical affection, necessary for some body functions and feelings of empathy, trust, bonding etc.
- Social isolation can result in higher stress levels (loneliness) plus lower feel good hormones; associated with causing mental and physical health conditions.
- All of these chemicals work together in a precarious and fluctuating relationship influenced by many aspects of our lifestyle

Discuss; Come back in 15 minutes to
share your ideas

What is the difference
between Mental
Health and Mental
Health Disorders?



Neurosis or Psychosis

- Most mental health symptoms have traditionally been divided into groups called either 'neurotic' or 'psychotic' symptoms.
- Can you think of some examples or ideas on what these two terms might mean?
- [Link to an article on Neurosis and Psychosis by AUS and NZ Mental Health Association.](#)
- [Gloucestershire Recovery in Psychosis \(GRiP\)](#)

Good mental health is characterised by a person's ability to fulfil a number of key functions and activities, including:



The ability to feel, express and manage a range of positive and negative emotions



The ability to form and maintain good relationships with others



The ability to cope with and manage change and uncertainty



([mentalhealth.org.uk](https://www.mentalhealth.org.uk))

Common Treatments

Medication

- Anti-depressants
- Anti-psychotics
- Mood Stabilizers
- Anti-anxiety

Psychotherapy

- CBT (Internal control)
- Psychodynamic (External Control)
- Dialectical Behaviour Therapy (Both)

Approaches:

- Talking
- Horticulture
- Outdoor Activity
- Art
- Music
- Dance
- Hospital and Residential treatment programmes

Nature Connection: Prevention or Cure?? Homework!

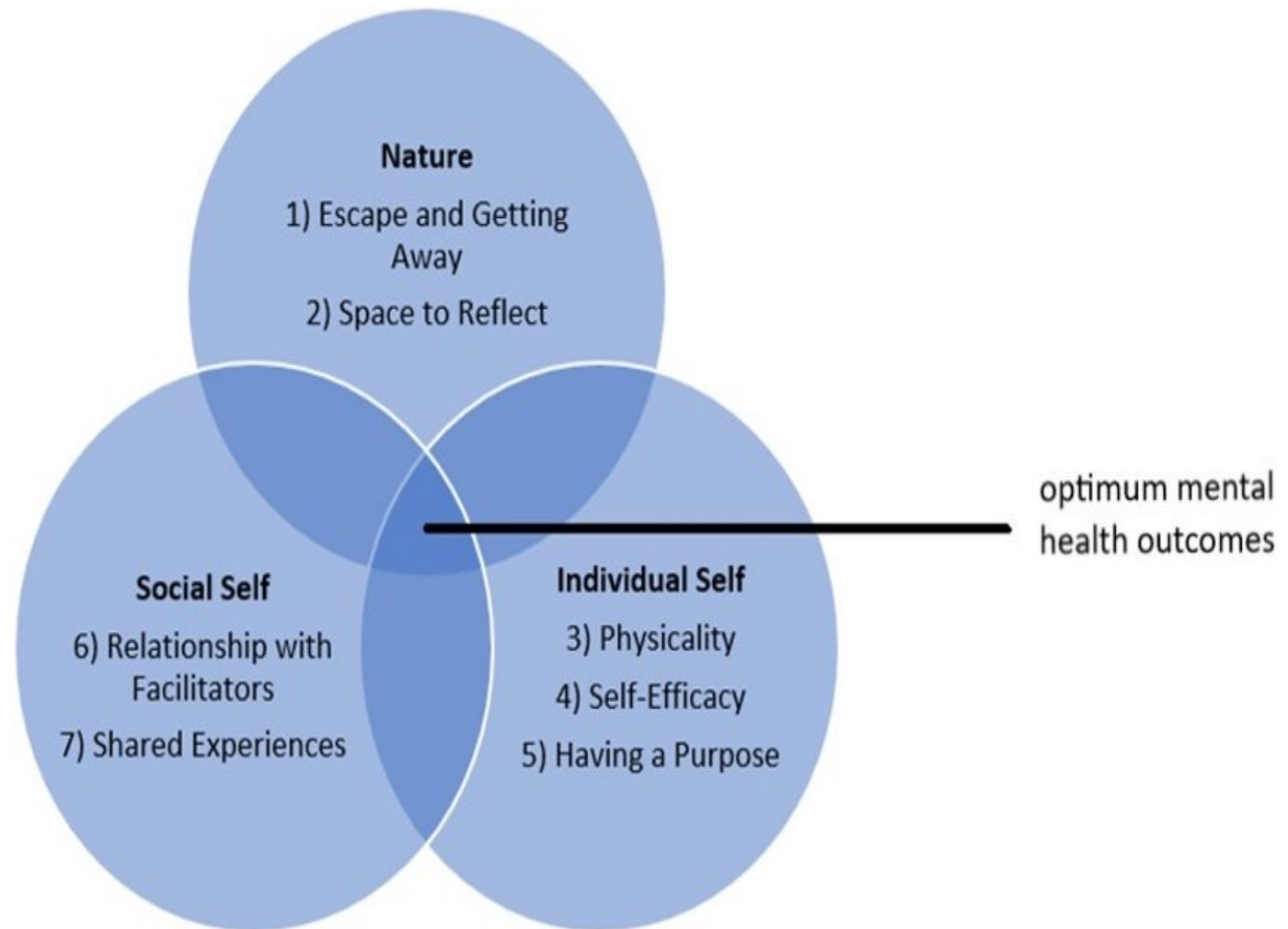
Body of research into how outdoor activity and green/blue space can contribute to each of these approaches to mental health is growing in both qualitative and quantitative data. Is an outdoor lifestyle just prevention or could it be cure?

What evidence is there to suggest connection to nature, spending time outdoors and being active outdoors can make a significant enough difference to support a preventative and treatment approach within our healthcare system.

Explore the reading on Moodle with this question in mind. Research by Masterton et al (2020) and Masterton, Park and Parkes (2021) is particularly useful for this.

OVERARCHING CONCEPTUAL FRAMEWORK FOR HOW GREENSPACE PROGRAMMES ARE EFFECTIVE FOR MENTAL HEALTH.

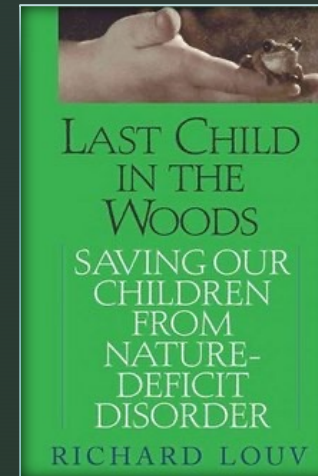
- Wendy Masterton, 2020
PhD Health Sciences,
(specialising in greenspace
research, mental health, and
substance use)



Eudaimonic wellbeing and
Salutogenesis?

Nature Deficit Disorder

- Richard Louv: Last child in the Woods (2005)
- Evidence for a different connection in the younger generation (O'Malley; Horizons 2021)



This Photo by Unknown Author is licensed under [CC BY-SA](#)



Nature Relatedness/Connectedness

- Nature relatedness refers to the subjective sense of connection people have with the natural environment
- Nature connectedness is a measurable psychological construct that moves beyond contact with nature to an individual's sense of their relationship with the natural world (Nature Connectedness Research Group)
- Encompasses emotions, cognitions (e.g., beliefs, attitudes, knowledge), as well as the experiences people have in nature.
- Nature relatedness/connectedness is associated with greater levels of subjective well-being.
- The more connected people are, the more they are likely to be concerned about and protect the environment.

Nisbett and Zelenski (2014)

A global study in 2015 showed that the Hippocampus, part of the brains Limbic system responsible for memory and regulating emotion, shrinks in recurrent depression. However this is not irreversible and hence there is an opportunity for nature to heal. (Guardian 2015)

- Studies that have focused on state and trait anxiety/mood have mostly undertaken experiments using physical activity in natural settings

- Findings: Nature-based activities are more likely linked to lower 'state' anxiety levels than in indoor activities and the environment has a greater impact than the level of activity.

- Theories that explain this effect include Attention Restoration theory (ART) (Kaplan and Kaplan, 1989) and Psycho-evolutionary theory (PET) (Ulrich, 1993) which is the basis of Wilson's Biophilia Hypothesis.

- Connection to nature refers to the extent nature is part of a person's identity or cognitive representation rather than just how we feel about it.

Martyn and Brymer (2016)

THE FREAKY WORLD OF FRACTALS

BBC



Fractals?? Why do we like them and which ones do we like?

- Term coined by Beniot Mandelbrot (1975), on discovering that simple mathematical rules apply to a vast array of things that looked visually complex or chaotic.
- Nature's languages are mathematics and geometry is the specific language for describing, manipulating, and simulating shapes. (Voss, 1988)
- Our brains recognise visual fractals as a kinship or connecting to the natural world, stimulates the emotional centre of the brain (Hippocampus) in the same way as music.



Population Statistics – Urban Living

55.7% of the world population is living in an urban setting (2019)

In 2019 83% of the UK population live in an urban setting, up from 79% in 2000.

By 2023 this had risen to 84.4%





Environment Act 2021

[Natural England's Action
Plan 2022-2023](#)

Italy –
Vertical
Gardens



Singapore – The Jewel



London
Barbican
Centre

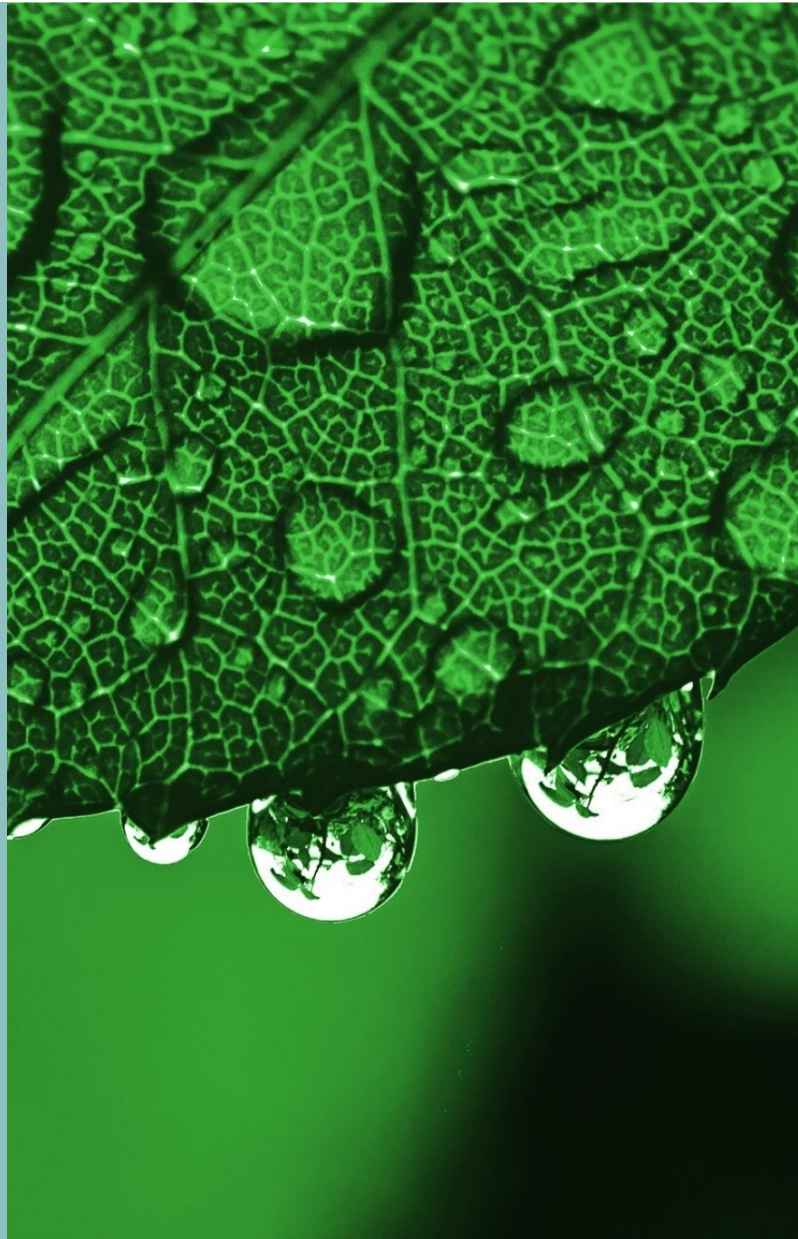


-
- What is this and why is it designed this way?





Biophilic Design: Connecting to Nature



Measuring Connectedness

Nature Connections Indicator

- The Nature Connection Indicator Working Group is developing a national indicator for connection to nature - with Natural England, the RSPB, National Trust, Historic England, the Wildlife Trusts and others. The research has revealed physical contact with nature and nature connectedness provides extra but independent benefits to wellbeing and pro-environmental behaviours. The work has also revealed the level of nature connectedness across people's lifespan, identifying a sharp dip in teenage years. (Nature Connectedness Research Group)

Nature Relatedness Scale (NRS) Nisbett et al.

- The NRS is a 21-item scale that measures the 'affective, cognitive, and physical relationship individuals' have with the natural world' Widely used and recognised as a valid measurement tool.

Lots of other scales have been developed over the last decade or more, however not all have been robustly tested. Summary of scales/measure on Moodle

Task



Explore the resources on the Moodle page and wider if you wish.



Use this information to develop a rationale for creating 1 new habit/action and 1 environmental change to your daily living environment intended to increase your connection to nature



Present your plan to the group before the end of this lecture including a rationale, use evidence if you want to.



Use the NRS to measure impact over the next 6 weeks, taking one measure per week.



Record the results and form some conclusions to present to the group before Easter.