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Marine Jacq, Patricia Marzin-Janvier, Damien Grenier

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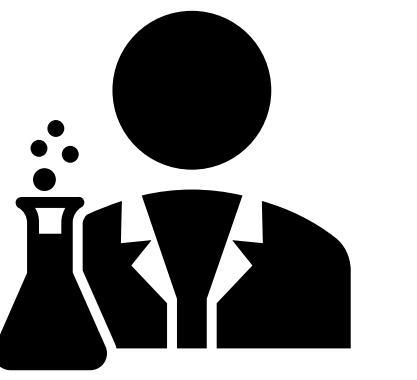
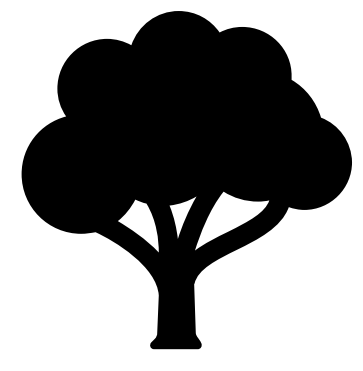
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Forest School: Potential for Scientific Learning and Relationships with Nature



Marine Jacq^a, Patricia Marzin-Janvier^a et Damien Grenier^b

^a Univ Brest, Univ Rennes, CREAD, F-29200 Brest, France ; ^b Univ Rennes, CREAD F-35000 Rennes, France

Why doing research in Science Education in Forest School context?

- Nature-deficit disorder (Louv, 2005)
- Nature enhances learning (Kuo et al., 2019)
- Nature experiences, nature connectedness (Léna, 2021)
- Environmental knowledge and connectedness to nature are related to ecological behaviour (Otto & Pensini, 2017)
- "Éducation par et dans la nature" [Education by and within nature] (Boelen & Nicolas, 2023)

Framework and methods

Praxeology (Chevallard, 1999)

- Learning: what? how?
- Praxis: tasks, types of tasks and techniques (used to perform the task)
- Logos: scientific justification and explanation of praxis
- Praxeology shapes learning in all human activities

Relationships with the living world (Dell'Angelo-Sauvage, 2009)

- Affective criteria: physical contact, rejection, relationships
- Practical criteria
- Cognitive criteria: observing, questioning, using knowledge
- Impassivity or apathy of children
- Other criteria: aesthetics, legal, moral, imaginary, cultural, spiritual...

What kind of scientific knowledge could children use?

What relationships could children build with the living world?

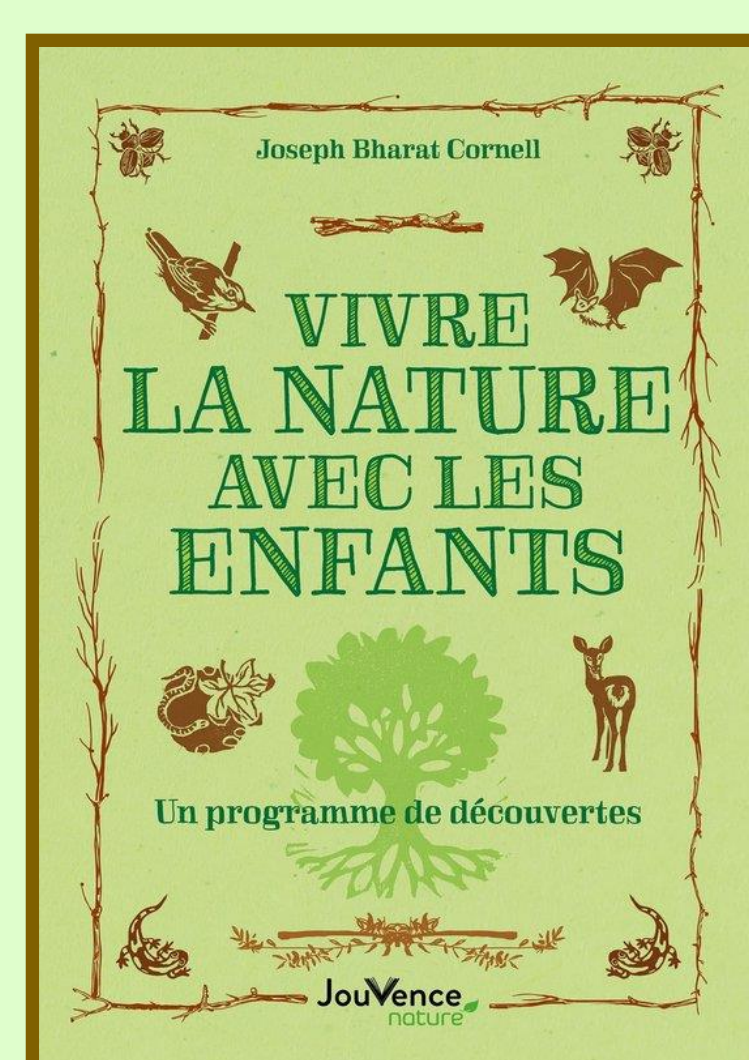
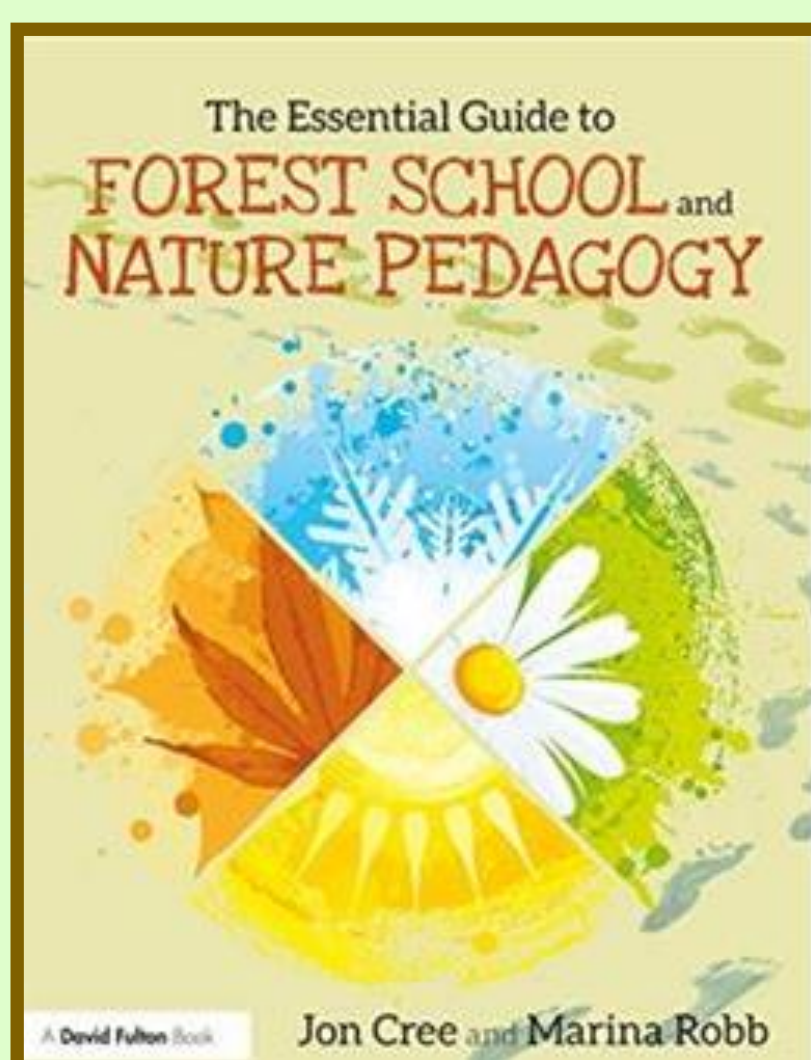


Data

- 5 resource publications => institutional praxeological modelling
- 8 interviews => described praxeological modelling
- 5 forest schools => implemented praxeological modelling

Five countries

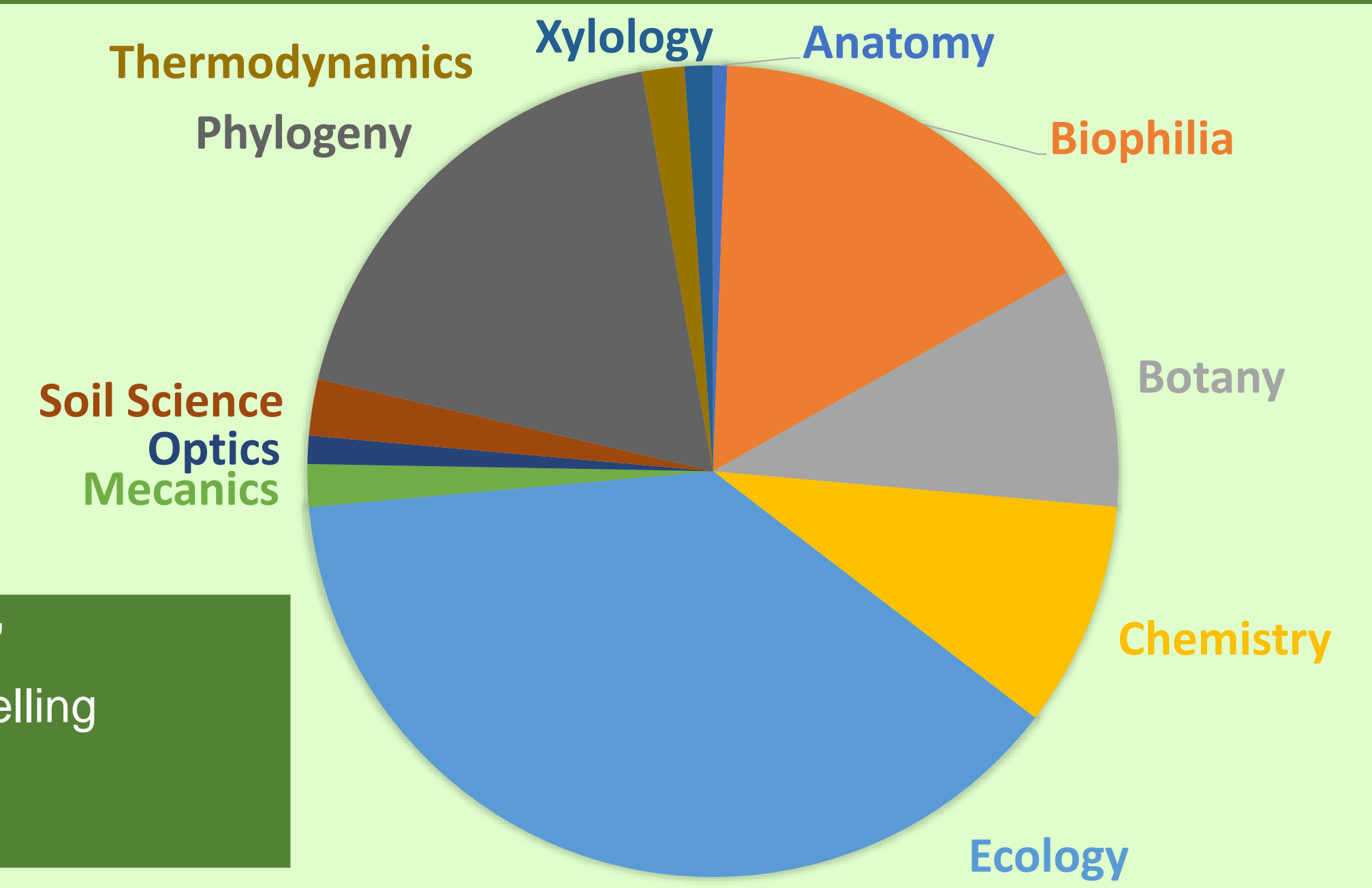
- United Kingdom
- Ireland
- France
- Germany
- Switzerland



Results

Logos
Institutional praxeological modelling (from the resource publications)

Building a "worm hotel"
Implemented praxeological modelling (from the videos)



Collecting mud (film 2)



Choosing a location to build the worm hotel (film 3)



- Shaping the hotel with the mud (films 5 and 7)
- Lining the hotel with a rope (film 9)
- Improving the hotel (films 12, 15, 16 and 20)
- Introducing the worm (film 22)



Emotional response to the destruction and rebuilding (film 23)

Logos

- Biophilia: human beings have an innate affinity with other forms of life
- Botany: plant growth, wood production, photosynthesis
- Ecology: habitats, soil decomposers, river bank
- Soil science: soil and mud compositions
- Phylogeny: identification of species

Relationships with nature and the living world

- Affective criteria: choosing a location, modelling the mud, taking the worm in one's hands, crying
- Practical criteria: building
- Cognitive criteria: using knowledge about worms
- Imaginary criteria: inventing a life for worms

Conclusion

- Children may build scientific knowledge in botany, ecology, soil science and phylogeny
- The affective register is the most commonly used
- Other kinds of relationships: cognitive, practical and imaginary
- Issues for practitioners: recognising situations that are potentially rich in scientific knowledge and knowing how to nurture them
- Issues for schools: providing an encounter with nature before introducing scientific knowledge

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