

Guide to using the Connection to Nature Index¹

What is CNI? Who is it for?

- The Connection to Nature Index (CNI) is a questionnaire developed by Cheng and Monroe (2010) to measure connection to nature in children aged 8-10².
- In the recent RSPB study³, we have found that it works well with children between the ages of 8-12 years, but for older children (14 years +) the NR-6 or INS may be more suitable.
- The CNI is a 'trait' measure⁴ which means it has been designed and tested for use in determining changes over a relatively long period of time rather than as the result of a single intervention or session. For example it could be used to see if children's connection to nature had increased or decreased after taking part in a programme for 6 months but not to see if connection had changed after an afternoon session at a field centre or nature reserve.

How do you use CNI?

- The scale consists of 16 items rated on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree) and is scored by creating a mean of the 16 items, with scores ranging from one to five, with higher scores indicating a stronger connectedness to nature than lower scores.
- A CNI score of 1-2 indicates the lowest connection to nature (i.e. 'disconnected'), scores of 3 indicate neither low nor high connection (i.e. neutral) and scores of 4-5 indicate a higher level of connection (i.e. connected).

Table 1. Subscale score items

Subscale	Questions included within the subscale
Enjoyment of nature (7 items)	I like to hear different sounds in nature I like to see wild flowers in nature When I feel sad, I like to go outside and enjoy nature Being in the natural environment makes me feel peaceful I like to garden Collecting rocks and shells is fun Being outdoors makes me happy*
Empathy for creatures (4 items)	I feel sad when wild animals are hurt I like to see wild animals living in a clean environment I enjoy touching animals and plants Taking care of animals is important to me
Sense of oneness (3 items)	Humans are part of the natural world People cannot live without plants and animals Being outdoors makes me happy*
Sense of responsibility (3 items)	My actions will make the natural world different Picking up trash on the ground can help the environment People do not have the right to change the natural environment

*Although this question appears in 2 subscales, it is only asked once on the questionnaire

¹ This guide to use of CNI has been written as an aid to anyone considering using CNI in a study rather than an extensive 'how to' guide.

² Full reference is: Chen-Hsuan Cheng J & Monroe M. 2010. Connection to nature: Children's affective attitude toward nature. *Environment and Behavior*, 44(1), 31-49.

³ This guide forms Annex F of the recent report - Bragg et al 2013 - Measuring connection to nature in children aged 8 - 12: A robust methodology for the RSPB

⁴ A trait is a stable or relatively unchanging personality characteristic that identifies individual differences in people rather than a state which is a temporary way of being or feeling

- The CNI will give both i) a connection to nature 'score', and ii) a further breakdown of 4 subscale scores for a) enjoyment of nature, b) empathy for creatures, c) sense of oneness and d) sense of responsibility
- In the same way as for the overall CNI score, the four subscales scores are calculated by creating a mean from particular question items – see Table 1.

Ethical considerations when using CNI

- As with any study involving children, before using the CNI to measure connection to nature levels it is necessary to comply with various ethical and data protection requirements. This study complied with the University of Essex ethics procedure - most organisations should have an ethics procedure if they involve children in research.
- Researchers and volunteers administering questionnaires to children should have undergone DBS (formerly CRB) checks.
- Prior informed consent from both the parent and the child is usually required before conducting research with children.
- Any personal information must be stored and handled in line with the Data Protection Act 1998.