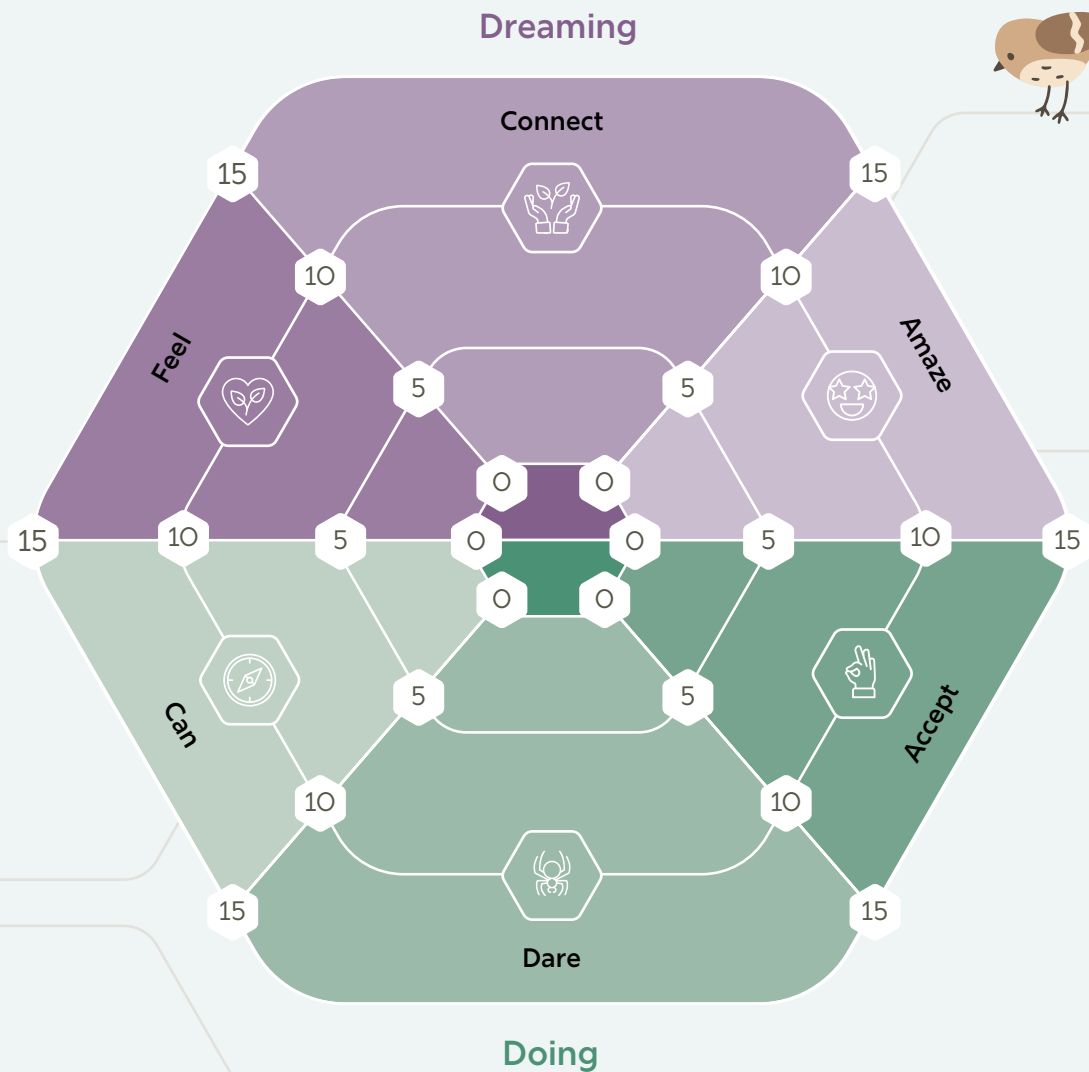


The Dreaming and Doing Competency and Profile Test

for Children's Connection with Nature



Two innovative tests for assessing children's competencies to connect with nature.



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the European Union**

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Further information and additional resources are available from the project website: www.natureintelligence.eu

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What is Nature Intelligence in Schoolchildren?

Nature Intelligence

Nature Intelligence (NQ) is a multidimensional concept that encompasses human competencies to emotionally, cognitively, and spiritually connect with nature. These competencies, beneficial for people of all ages, support mental and social well-being while encouraging actions that promote the health of nature and the planet.

Research shows that a strong child-nature relationship benefits a child's well-being, even into adulthood. However, children often face barriers to forming this bond, such as innate fears, societal norms, and the lure of digital media. To foster nature connectedness, addressing these barriers and developing specific competencies is essential.

In this document we share two tests designed to assess NQ in children: an adult-assessed proxy version for ages 5-7, and a self-assessment for ages 8-12. For both tests we include templates and instructions, based on a validated model with six competencies organized into the dimensions of 'dreaming' and 'doing'¹. The figure beside provides a graphical representation of the model.



NQ child competency model




Feel Connect Amaze Accept Dare Can

¹ See: Van den Berg, A.E., Albers, T., & Beute, F. (2024). *Nature Intelligence in schoolchildren. Theoretical and empirical analysis of a conceptual model to measure children's competencies to connect to nature.* Aalten: Anatta Foundation. Freely available from www.natureintelligence.eu

Dreaming and Doing

Statistical analysis of a large dataset comprising 771 Dutch schoolchildren revealed two dimensions for schoolchildren to connect with nature: 'Dreaming' and 'Doing.' Children who connect by dreaming are emotionally engaged with nature, often through exposure through (social) media, by empathizing and reflecting deeply. In contrast, those who connect by doing engage with nature through direct, hands-on experiences. Each dimension has three competencies.

Dreaming encompasses the competencies **feel**, **connect** and **amaze**, which involve emotional engagement, establishing bonds with nature, and finding wonder in it. Doing includes the competencies **accept**, **dare**, and **can**, which focus on active participation, taking risks, and embracing nature's challenges. The table beside provides a concise description of each competency.

Dreaming	
	Feel Being able to enjoy nature and experiencing its positive effect on your mind and body.
	Connect Having abilities to connect with nature, to live in harmony and balance with nature, and to identify yourself as part of nature.
	Amaze Realizing the greatness of nature with the associated feelings of smallness and insignificance.
Doing	
	Accept Openness to accept less pleasant experiences such as getting wet or having to pee in the bushes.
	Dare Being able to overcome your own fears by doing things that are kind of scary, like letting a spider walk on your hand or looking closely at a dead bird or mouse.
	Can Having skills to cope when you are out in nature, such as finding your way without a phone if you are lost or growing your own vegetables and edible plant.

Description of the competencies in the NQ child model.

Four NQ Profiles



NQ groups

Based on the dreaming and doing model, four groups of children with distinct NQ profiles can be identified, each characterized by different levels of engagement in the two dimensions:



Beginner: These children score low in both dreaming and doing. They neither show significant emotional engagement with nature nor participate in direct experiences, indicating a more passive or detached relationship with the natural world.



Engager: This profile is marked by strong engagement in doing but less emphasis on dreaming. These children are actively involved in nature through practical activities but may not be as emotionally or imaginatively connected to it.







Empathizer: Children in this group are proficient in dreaming about nature but less active in direct engagement. They have a deep emotional connection and empathy towards nature but may not participate as much in hands-on activities.



Embracer: These children are strong in both dreaming and doing. They are deeply emotionally connected to nature and also actively engage with it through hands-on experiences. Their high scores in both areas suggest a well-rounded and robust nature intelligence.

The figure below visually represents these four profiles, highlighting the varying degrees of Nature Intelligence across the two dimensions.

		Dreaming	
		Low	High
Doing	Low	 Beginner	 Empathiser
	High	 Engager	 Embracer

The four NQ child profiles.

Testing Children's NQ

To gain deeper insight into children's Nature Intelligence (NQ) and their NQ profiles, two different tests have been developed: an adult-assessed proxy version and a self-test.

- The Young Child and Nature Test is an adult assessed version designed for younger children (aged 5 to 7). It should be completed by a parent or another adult who knows the child well.
- The Me and Nature Test is a self-test for older children (aged 8 to 12), who can answer the questions themselves.

Both tests include 18 statements (three per competency), which are scored based on how applicable they are to a child. Using the test instructions, the child's NQ score for each dimension, as well as their corresponding NQ profile, can be calculated. These scores offer insight into how the child relates to nature and to what extent specific dimensions and competencies are present. Based on these insights, a learning and development plan or school curriculum for strengthening children's competencies to connect to nature can be developed tailored to the children's unique qualities.

In the next section we provide printable paper-and-pencil versions of the tests, each containing two pages:

- A score form with 18 statements where adults or children can indicate their applicability by checking a box.
- A spider web template to visually represent the outcomes.

For each age group detailed instructions for administration of the test are given.

The Young Child and Nature Test

Next page you see 18 statements that may apply more or less to a child, divided into two dimensions. The dimension of dreaming includes 9 statements that measure the competencies to feel, connect and amaze. The dimension of doing includes 9 statements that measure competencies to can, dare and accept things in nature. Please fill in, for each statement, how much it applies to the child in general. Then calculate and write down the total score for each of the six competencies in the last column.



Find the 18 statements of the Nature Intelligence test for children on pages 9 & 14.

Instructions for the 'Dreaming and Doing Nature Test' for 5 until 7 year olds

Step 1: Preparing

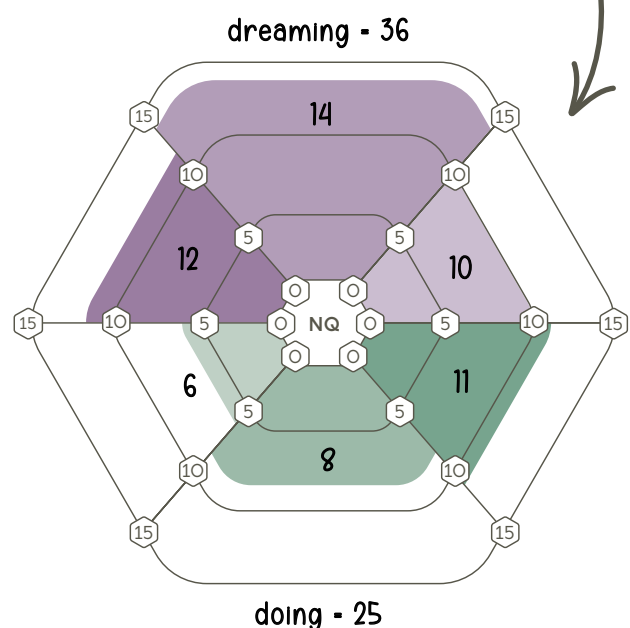
- This test is for children aged 5-7. Since young children may not be able to self-assess, the test is completed by an adult who knows the child well, such as a parent, caregiver, or teacher.
- The test is suitable for measuring at individual or group level (such as pre-schools or day-care centers). These instructions are for administering the test by one adult (e.g., professional working with a group of children).
- Make sure to print copies of the test form on p. 9 and the spiderweb template on p. 11 for each child.

Step 2: Complete the test

- The test form on p. 9 contains 18 statements that cover 9 nature-related competencies divided in the dimensions of dreaming and doing of the NQ-child model.
- Read through the statements and think about a child's general behavior in relation to the natural world.
- Indicate how applicable each statement is by checking the box that best reflects the child's behavior. Remember, the test is based on your observations of how the child typically interacts with nature, rather than a one-time experience.

Step 3: Visualise results in the spider web

- Once the score forms are completed, transfer each child's scores onto their unique spider web using the template provided on p. 11.
- Mark the sum scores for each competency and the total sum scores for the dimensions of dreaming and doing in the spider web and use different colors or shading to colour in the part of the section that matches the score, as shown in the example below.
- This visual representation gives a clear idea of which nature-related competencies are stronger in a child and which may need further development.





Beginner



Empathiser



Engager



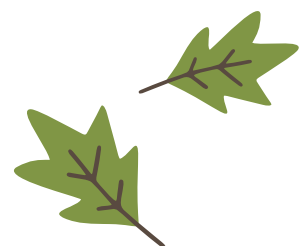
Embracer

Step 4: Assign NQ profiles

- For each dimension, determine if a child scores high or low. These scores range between 9 and 45 for each dimension. There are no strict cut-off scores for all ages and nationalities available. However, you may use the following rule-of-thumb: **Total score \leq 30 = low score**
Total score $>$ 30 = high score
- Based on the high and low scores on the two dimensions and visual inspection of the spiderweb you can assign each child to one of the four NQ profiles as shown on p. 5:
 - Low score dreaming and low score doing > *beginner*
 - Low score dreaming and high score doing > *engager*
 - High score dreaming and low score doing > *empathizer*
 - High score dreaming and high score doing > *embracer*
- It may be challenging to assign a child to a profile when their dreaming and doing are close to the middle, or when their competency scores vary within the dimensions of dreaming and doing. Therefore, we recommend examining the profile closely and using your professional expertise and experience to determine which profile fits best. You may use the descriptions of each profile on p. 5 to do so.
- Write down the profile of each child below their spider web template (p. 11).
- Count the number of children in each profile and put the numbers in the figure below to create an overall group profile.

Step 5: Feedback and activities

- Return the spiderwebs to each child with their profile written on it, encouraging them to take pride in it and share it at home.
- Call out each profile, asking children to raise their hands who are assigned to it, and briefly describing their profile characteristics (from p. 5 or as you see fit).
- The group profile can help you develop (sub) group activities, tailored to children's competencies. For instance:
 - Strengthen competencies children are good at, for example encourage children strong in connecting to nature to find animals and observe them closely.
 - Strengthen competencies children are not so good at, for example, encourage outdoor play, overcoming fears and taking risks in children not so good in doing things.
- These activities can help foster a deeper connection to nature while supporting and strengthening the child's unique competencies.
- See also the teacher manual for more inspiration, on www.natureintelligence.eu



The Dreaming and Doing Test for 5 until 7 year olds



Below there are 18 statements about the child's Nature Intelligence. For each statement, place an 'X' over the hexagon that in general is most true for her or his situation.

1 = totally disagree, 2 = disagree, 3 not disagree, not agree, 4 = agree and 5 = totally agree

Dreaming			
Feel		1. Being in nature makes this child peaceful	① ② ③ ④ ⑤
		2. This child likes to feel the grass, the wind and the water on its skin	① ② ③ ④ ⑤
		3. This child feels happy in nature	① ② ③ ④ ⑤
Connect		4. This child loves nature very much	① ② ③ ④ ⑤
		5. This child feels sad and distressed when animals are hurt or pass away	① ② ③ ④ ⑤
		6. Out in nature this child always looks out for hidden animals like insects, frogs, birds or fishes	① ② ③ ④ ⑤
Amaze		7. This child asks questions about the mysteries of nature	① ② ③ ④ ⑤
		8. This child is aware that humans are part of nature	① ② ③ ④ ⑤
		9. This child would rather not kill a fly or other insect	① ② ③ ④ ⑤

Doing			
Can		10. This child likes to garden and grow plants	① ② ③ ④ ⑤
		11. This child is keen on learning skills like making a fire or building a tree-hut	① ② ③ ④ ⑤
		12. This child is able to do things in nature like digging a deep hole or climbing a tree	① ② ③ ④ ⑤
Dare		13. This child is not afraid to look at a dead bird or mouse from nearby	① ② ③ ④ ⑤
		14. This child dares to let a bug or an ant run across its hand	① ② ③ ④ ⑤
		15. This child finds it interesting to look at the poop of an animal	① ② ③ ④ ⑤
Accept		16. This child considers it no problem to go out in the rain and get all wet	① ② ③ ④ ⑤
		17. This child is the type of kid who enjoys walking barefoot in the mud	① ② ③ ④ ⑤
		18. This child does not feel ashamed to pee behind a tree or bushes	① ② ③ ④ ⑤

Name: _____

Example how to make a coloured spiderweb profile



Dreaming

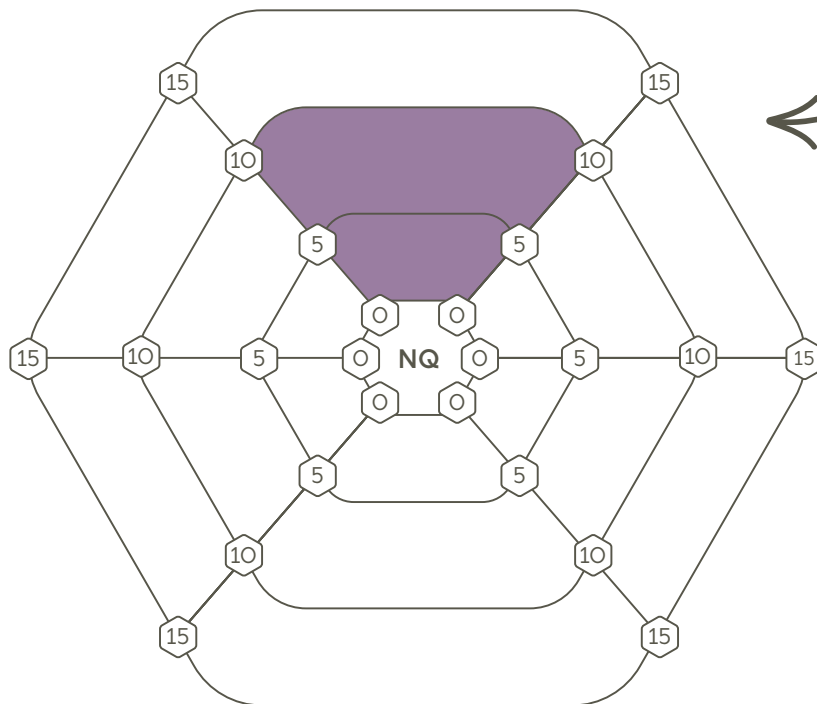
Feel



1. Being in nature makes this child peaceful
2. This child likes to feel the grass, the wind and the water on its skin
3. This child feels happy in nature

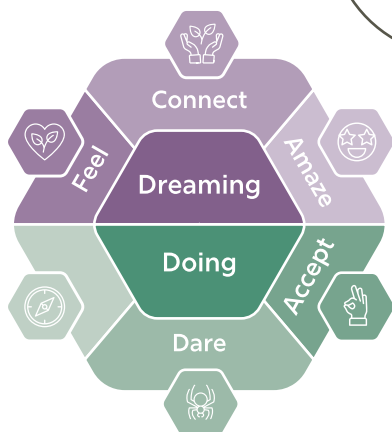
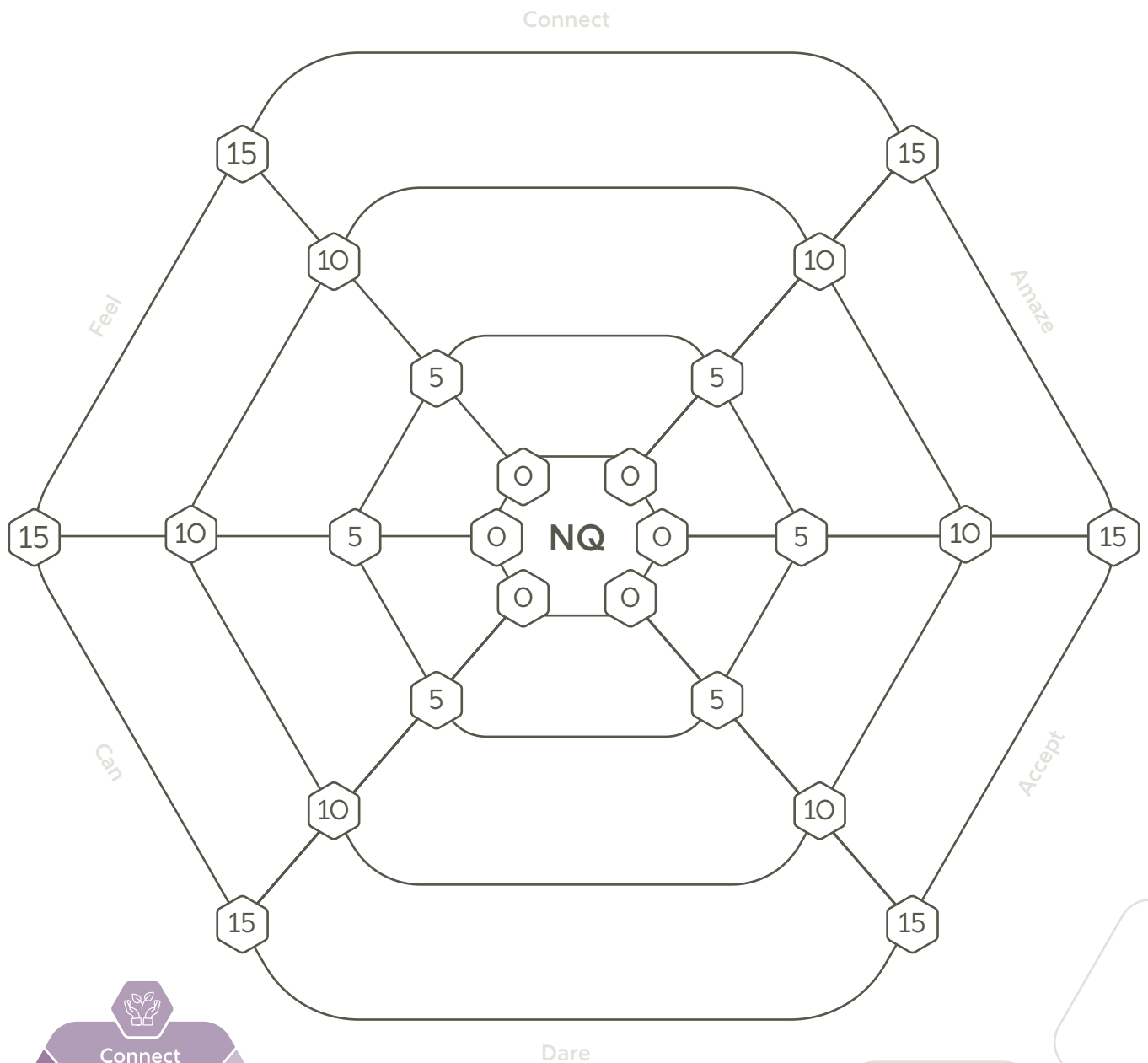
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

score: 10



My Spiderweb Profile

Name: _____



I am a:

Instructions for the 'Dreaming and Doing Nature test' for 8 until 12 year olds



*Nature
connectedness
is key to a child's
development.*

Step 1: Preparing

- This test is made for children 8-12. It can be done with groups of children or with a single child. These instructions are for group administration by (nature) educational professionals, for example in a classroom setting or outdoors in a natural setting.
- Print colour copies of the test on p. 14 and the spiderweb template on p. 11 for each child.
- Make sure that every child has a set of colour pencils, markers or a paint set. If you do the test outdoors, also ensure that children have a clipboard or another surface to write on.



Step 2: Administer the test

- Announce to the children that they will be doing a test to learn more about their relationship with nature.
- Explain that 'nature' refers to all living and non-living things, including animals, plants, water, stones, air, soil, mountains, and even natural phenomena like rain and sunlight
- Optional: you can also have a group discussion with the children before doing the test about what they understand by nature, how they view nature.
- Hand out the tests (not yet the spiderweb template). Let children read the instructions and provide clarification if they have any questions. Do the test.

Step 3: Let the children create their spider web

- Hand out the spider web template and instruct children to write their name on top.
- Tell them to create their own spider web similar to the one printed in the right-hand corner of the template.
- Ask the children to transfer their scores for each competency to the spiderweb, and to colour in the part of the section that matches the score, from the inside out.
- Instruct them to use different colours for each competency for a clear representation. They can use their own colours, as long as they are different for each competency.



Beginner



Empathiser



Engager



Embracer

Step 4: Assign NQ profiles

- Collect the children's tests and spider webs and calculate for each child their total scores for the dimensions of dreaming and doing. These scores range between 9 and 45 for each dimension.
- For each dimension, determine if the child scores high or low. There are no strict cut-off scores for all ages and nationalities available. However, you may use the following rule-of-thumb: **Total score \leq 30 = low score**
Total score $>$ 30 = high score
- Based on the high and low scores on the two dimensions and visual inspection of the spiderweb you can assign each child to one of the four NQ profiles as shown on p. 5:
 - Low score dreaming and low score doing $>$ *beginner*
 - Low score dreaming and high score doing $>$ *engager*
 - High score dreaming and low score doing $>$ *empathizer*
 - High score dreaming and high score doing $>$ *embracer*
- It may be challenging to assign a child to a profile when their dreaming and doing are close to the middle, or when their competency scores vary within the dimensions of dreaming and doing. Therefore, we recommend examining the profile closely and using your professional expertise and experience to determine which profile fits best. You may use the descriptions of each profile on p. 5 to do so.

- Write down the name of each child's profile at the bottom of their spider web. Count the number of children in each profile and put the numbers in the figure below to create an overall group profile.

Step 5: Feedback and activities

- Call out each profile, asking children to raise their hands who are assigned to it, and briefly describe their profile characteristics (from p. 5 or as you see fit). Encouraging them to take pride in their profile and share it at home.
- The group profile can help you develop (sub) group activities, tailored to children's competencies. For instance:
 - Strengthen competencies children are good at, for example encourage children strong in connecting to nature to find animals and observe them closely
 - Strengthen competencies children are not so good at, for example, encourage outdoor play, overcoming fears and taking risks in children not so good in doing things.
- These activities can help foster a deeper connection to nature while supporting and strengthening the child's unique competencies.
- See also the teacher manual for more inspiration, on www.natureintelligence.eu

The Dreaming and Doing Test for 8 until 12 year olds



Below you see 18 statements. The first 9 statements are about how you think and feel about nature. The next 9 statements are about the things you can and dare to do in nature. Please fill in, for each statement, how much it applies to you. When you are ready, add up the scores for each set of three statements and write down the total next them. **There are no right or wrong answers for this test, just give your honest answer!**

1 = totally disagree, 2 = disagree, 3 not disagree, not agree, 4 = agree and 5 = totally agree

Dreaming about nature		
Feel 	1. I feel relaxed and free of stress when I am in nature	① ② ③ ④ ⑤
	2. I enjoy the smells and the sounds of nature and feeling the wind on my face	① ② ③ ④ ⑤
	3. I feel happy when I am in nature	① ② ③ ④ ⑤
Connect 	4. I love nature very much	① ② ③ ④ ⑤
	5. I feel that nature and I belong together	① ② ③ ④ ⑤
	6. I see nature as a friend who is always there when I am in need	① ② ③ ④ ⑤
Amaze 	7. I think nature is one great wonder	① ② ③ ④ ⑤
	8. When I look up at the night sky and see the moon and the stars, I feel very tiny, like a little dot in big space	① ② ③ ④ ⑤
	9. I feel sorry every time I kill a fly or other insect	① ② ③ ④ ⑤
Doing		
Can 	10. I can grow my own vegetables and edible foods	① ② ③ ④ ⑤
	11. I can make a fire with leaves and twigs	① ② ③ ④ ⑤
	12. I am able to do things in nature like digging a deep hole or climbing a tree	① ② ③ ④ ⑤
Dare 	13. I dare to look at a dead bird or mouse from nearby	① ② ③ ④ ⑤
	14. I dare to pick up an insect or a worm with my bare hands	① ② ③ ④ ⑤
	15. I find it interesting to look at the poop of an animal	① ② ③ ④ ⑤
Accept 	16. I consider it no problem to go out in the rain and get all wet	① ② ③ ④ ⑤
	17. I enjoy walking barefoot in the mud	① ② ③ ④ ⑤
	18. I don't mind peeing behind a tree or bush when I'm in nature	① ② ③ ④ ⑤

Name: _____



What does the NQ-child profile mean?

We believe that the six unique NQ child competencies exist within everyone to varying degrees. NQ is a quality that is both innate and shaped by past experiences; it can be developed and evolves throughout life. The NQ profile provides a snapshot of nature intelligence at this point in time, highlighting which competencies are most developed and where there is room for growth.

By exploring the explanations of the competencies, dimensions, and profiles in the introduction, you can gain a better understanding of the specific NQ qualities that make up a child's connection to nature.

We believe that the six unique NQ child competencies exist within everyone to varying degrees.

Nature Intelligence is viewed as an 'emergent property,' meaning it is more than just the sum of individual competencies. Think of it like water, which has properties distinct from its components, oxygen and hydrogen. More poetically, NQ can be compared to a rainbow that shines under the right conditions—when one is in the right time and place. By cultivating their connection with nature, children can deepen this relationship, fostering a sense of presence, empathy, and awe that transcends the boundaries of daily life.

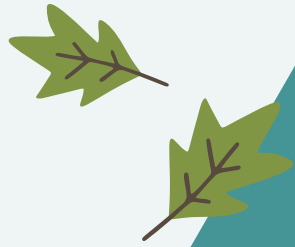


Developing a child's Nature Intelligence

Based on the scores and profile, you can identify which dimensions and competencies a child has developed the most. If you take an individual approach, such as inquiry-based learning, you can collaborate with the child to focus on developing specific competencies through learning activities. It's important that children have agency in deciding the kind of relationship they wish to build with nature and the NQ profile they aspire to achieve. Intrinsic motivation is a powerful driver in nature-based pedagogy.

If you take a group approach, it can be insightful to assess the overall NQ profile of the class before planning learning activities. This can be done as outlined in the previous section. Here too, it's beneficial to involve children in choosing which competencies they wish to develop.

For educators, a manual is available at website www.natureintelligence.eu, offering guidance on designing or enhancing pedagogical strategies aimed at fostering children's nature intelligence. The manual provides design principles, guidelines, best practices, and example activities to support this process.



www.natureintelligence.eu

