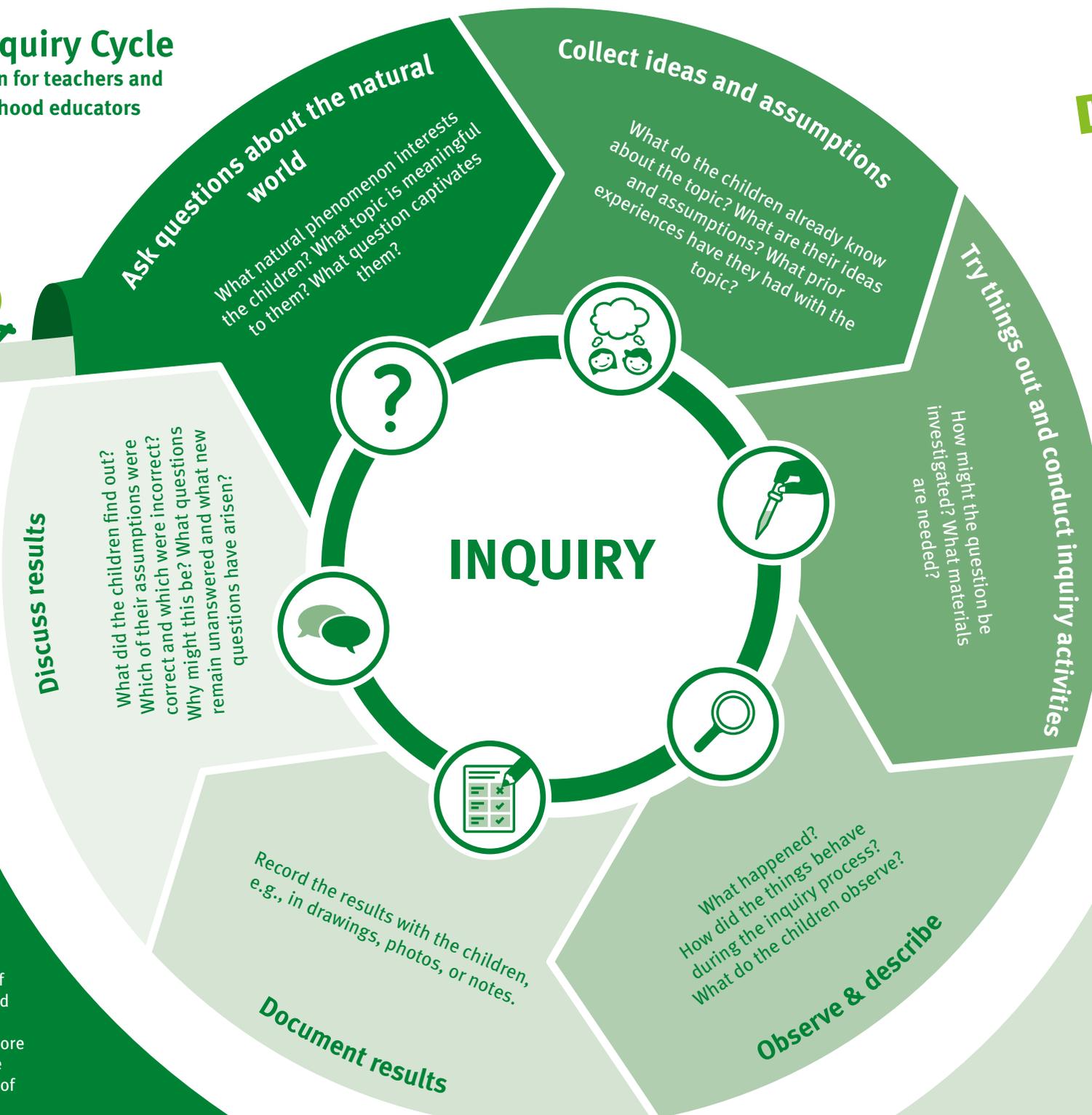




The Inquiry Cycle

Information for teachers and early childhood educators



The inquiry process consists of different phases of thought and action that typically occur in a recurring cycle. You will find more detailed information about the individual phases on the back of this card.

Following Marquardt-Mau, 2011, p. 37
Marquardt-Mau, B.: Der Forschungskreislauf: Was bedeutet forschen im Sachunterricht? [The Inquiry Cycle: What Does Inquiry Mean in Sachunterricht?] In: Deutsche Telekom Stiftung and Deutsche Kinder- und Jugendstiftung (Eds.): *Wie gute naturwissenschaftliche Bildung an Grundschulen gelingt. Ergebnisse und Erfahrungen aus prima(r)forscher* [How Good Science Education Succeeds at Primary Schools. Results and Experiences from the prima(r)forscher Programme]. Berlin: DKJS. Last updated: 09/2018

EXPLORING TOGETHER – INVESTIGATING TOGETHER

Gather foundational experiences



The way in which we access scientific, mathematical, and technical topics is largely determined by our own actions and observations. It starts with almost casual discoveries in everyday life that can fascinate both children and adults. Before children can develop specific questions and assumptions and decide what they want to focus on, they must have extensive foundational experiences with phenomena and materials.

The pedagogical resources provided by the “Haus der kleinen Forscher” programme help you to support the children in their process of exploration and inquiry. The **Exploration Cards** invite children to acquaint themselves with a particular topic. The ideas they provide enable the children to have essential foundational experiences and to initially experience phenomena as closely to everyday life as possible. This constitutes an important basis for more complex questions, which can in turn be investigated using the “Inquiry Cycle” method. The exemplary **Inquiry Cards** present more in-depth learning experiences on a topic, which helps you to embark on the inquiry process with the children.



Ask questions about the natural world

Focused inquiry begins when a child no longer only tries things out randomly but rather comes across a question that he or she wishes to investigate in greater detail. Learning arrangements have formative power only if they trigger or take up questions that really interest children. Consequently, the questions posed by the children themselves should always play a central role in the process of exploration and inquiry. However, you can, of course, bring up phenomena or questions yourself. Ideally, they should originate in the children’s observations.



Collect ideas and assumptions

First of all, the children should consider what ideas and assumptions they already have about the topic. It is not a matter of asking them questions to test their knowledge but rather of mentally preparing them for the inquiry process and helping them to develop an awareness of what they already know. New knowledge must tie in with existing knowledge, otherwise it remains in a contextual void and cannot be properly anchored. Show the children that you take their ideas seriously and appreciate them. Ask clarifying questions that stimulate further reflection on the children’s part.



Try things out and conduct inquiry activities

The ideas and assumptions collected can now be examined. It is a matter of finding suitable methods for testing the children’s own ideas. It is important for the children to be involved also in planning the inquiry activities. What exactly do they wish to investigate, what ideas do they have about it, and what materials may be useful? This phase of trying things out tends to require a lot of time, and the children often feel the need to repeat certain inquiry activities several times. Give them the time to do so!



Observe & describe

For the learning process, it is important to actively heighten awareness of what has been experienced. Ask the children to observe the processes closely and to describe them exactly: What happened? How did the things behave during the inquiry activities? Listen carefully: What the children say gives you an insight into what they are thinking. By asking questions and pointing things out to them, you can also draw the children’s attention to certain distinctive features.



Document results

Documentation helps the children to recall certain experiences afterwards and to reflect on their own learning process. For instance, prepare drawings or photos, tables, written logs, or wall newspapers with the children. When doing so, get the children to recapitulate what took place during the inquiry activities, thereby repeating it in their minds. This will give you an insight into the (different) learning experiences the children have had.



Discuss results

Talk to the children about the results of the inquiry activities. Refer back to the initial question and to the children’s prior knowledge. What did the children think beforehand? What did they want to know? What have they found out from the inquiry activities? Also talk to the children about the way in which they found things out. What did they do and why did they do it? How did they overcome any hurdles that arose? Jointly with the children, search for an interpretation of what they observed. When doing so, try to avoid linguistically or scientifically complex explanations. When the children ask questions, reply by asking: “Well, why do you think it is like that?” This last phase does not usually mark the completion of the inquiry process. Rather, the additional questions that have arisen lead to new ideas and assumptions that need to be pursued in detail. In this way, the inquiry cycle begins anew!

Please note:

The Inquiry Cycle should be understood as a model or a tool that shows you how to conduct inquiry activities together with the children and how to engage in dialogue with them about scientific phenomena. It provides orientation for open-ended inquiry. However, in everyday pedagogic practice, it must not always be meticulously adhered to. Shortcuts and backward steps are permitted – even grown-up researchers sometimes take them!

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