

Productive questions – The art of asking the right questions at the right time

From "Dare to leap - If to educate children in science."
(Wynne Harlen, 1996; ISBN 91-21-14778-7)

Our way of asking children questions control the activity and the degree to which children are likely to bring their own thoughts and draw their own conclusions. It is important to ask the right question at the right time.

Are there "bad" questions?

In this context a bad question is characterized by being purely verbal and that it requires a wordy response, often dressed in phrases straight from the textbook. Often the answer is found in textbooks or from something the adult addressed earlier. The children scan through their memories. The fastest and most verbal is the most successful.

Productive questions

A good question stimulates student's curiosity. It is an invitation to a closer examination or a new experiment. The children are led to where they can find the answer. They can show rather than tell the answer. "Look, this is how it is!" The children have the opportunity to examine by themselves. These questions are called "productive" because they stimulate an activity. There are productive questions of different kinds:

1. Questions that capture the attention

These are the easiest type of productive questions. They often start with:
Have you seen... or Have you noticed...

Have you noticed that the snail's eyes are on the tip of its tentacles? Can you see if the spider has eyes?

2. Questions that encourage the children to measure or count

How many... How long... How often...?

How many legs does the wood-louse have? How often does a corixidae come up to the surface?

3. Questions that make the children compare

The former type of questions can easily lead to comparative type questions; is it longer, stronger, heavier, faster than...

Well thought through comparative questions can help the children to bring order out of chaos and identify similarities in variation.

How do the seeds differ from each other? The children are trained to see and describe various characters; shape, color, surface, size, brand, etc.

4. Questions which create activity

These questions are of great value, especially when you are to investigate the properties of a newly introduced material.

They are "What if..." questions.

What happens if you put a seed on a damp paper? What happens if you let saltwater evaporate?

What happens if you put a willow twig in water? What happens if you throw a small paper ball on a spider's web?

An exciting continuation to the "What if..." - issues is to try to predict the outcome.

The children have to guess and are thereby trained to formulate hypotheses, which are useful when we use problem-oriented questions.

5. Problem-oriented questions

When we use this type of questions it leads to a problem-solving activity. The children formulate hypotheses (guesses), plan how they can conduct an experiment, get busy to see the result and through reasoning eventually reach a conclusion. These are the most sophisticated productive questions and also the kind that most children find most difficult to work with. If a problem oriented question comes too early, before the children have had time to get acquainted with the materials they work with, the result can be disappointing.

If, for example, you ask the question "Can you show which leaves wood-lice like best?" too early, you might get the answer "No, I can't." The children have not had sufficient time to work with them in the past.

6. Questions that make the children reason and speculate

These questions often begin with the words "How..." or "Why..." Therefore, they can easily be confused with "bad" questions; the answer required is purely verbal. The uncertain child can take it as an interrogation question. But there is no right or wrong answer to these questions. The idea is that they should get the child to think and argue freely according to its own experience. They should open a discussion where children feel free to express thoughts from their observations. By adding "do you think..." we can make it easier for the children. *"Why do you think the wood-lice chose these types of leaves?"*