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## Efficiency, an important aspect of the cognitive map

Commentary to the film

“The role of a mediator”

In the instrument **From Unit to Group**, FIE Basic, by manipulating simple geometric shapes, pupils discover the concept of units, groups of units, and units as groups, thus the instrument deals with the pre-requisite concepts and functions for mathematics.

In this video we can see work on page 10, which confronts the students with variables in each frame – color and shape. Students must consider relevant variables in forming the groups, thus careful searching is required.

We can see **the teacher providing very little information**, she rather:

- Facilitates the discussion
- Records ideas
- Ensures that pupils listen to each other
- Encourages the students to be more precise
- Keeps remarks focused on the topic or related to it

Challenges on the page pupils are facing:

- 1) To keep the instruction in mind – with the increasing complexity, with many steps and stimuli to pay attention to, it is very difficult to keep in mind “what I was supposed to do”.
- 2) Planning – if the student does not plan how to proceed the response (as we saw in this video), he or she will be inefficient and inconsistent.
- 3) Classification – the student must classify (shape or/and color) in order to bring the correct units together into the group.

**Efficiency** – one of the aspects of the cognitive map - is a matter of speed, accuracy, and a perceived level of difficulty. We can observe, that the page was rather demanding – children were required to process several sources of information, using multiple modalities, and construct motor responses. The task required precise perception, accuracy, planning, summative behavior, classification, considering alternatives, accurate communication. We could also observe different tempo of work.



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Learning principles pupils experienced during reflective thinking:

- Planning is an essential part of a strategy
- It may be efficient to follow the plan
- We must concentrate when we work on difficult tasks