



This NEPS Handout has been developed by educational psychologists and is based on current knowledge in this area. It is intended as a guide only. Not all the advice here may apply to any one student or situation. Teachers and parents may wish to identify the strategies that will work best for them.

## Thinking Skills and Metacognition

Thinking skills or metacognitive skills (thinking about thinking) are vital for higher-order learning. Teaching a student strategies and rules to aid their thinking is likely to enhance learning in multiple ways by increasing motivation, aiding sophisticated reasoning, building links with prior learning and by enhancing memory.



Metacognitive skills are best taught in the context of other meaningful learning, such as when working on reading comprehension, or understanding a science experiment or solving a maths problem.

**Before attempting any task the student should be trained to follow these steps:**

1. Say what you have to do
2. Say what you have been given [guidance, information, rules]
3. Decide what rules will govern your actions
4. Explain what your strategy will be “What’s my plan?”
5. Explain how you can check that your strategy will work
6. Decide where to start.
7. Give yourself a clap on the back when you complete each part of your plan

**Questions that help a student to reflect and integrate their learning will support and develop their thinking skills. The questions can include:**



**Process Questions ['How?' questions]**

Helps children to focus attention on their own thinking processes and encourages them to engage in similar 'small conversations' with themselves [Haywood 1993].

- How did you find out?
- Can you tell me how you did that?
- What do you think the problem is?
- Yes, but how did you know?
- How else could you do that?
- What else could you have done?
- What must you do first and how can you find out what to do next?

**Questions to challenge and justify correct and incorrect answers**

- Yes..... but....
- You ..... and.....could also look at it another way and find maybe an even better answer
- Why is it better than this one?
- Can you think of a better way to do this?
- What could be wrong with this one?
- When have you done something like this before?
- When is another time you need to....?
- Could you show me how you thought about that and found the right one?
- Yes, that's right but how did you know it was right?
- What do you think will happen if?
- Where is the evidence for that?
- What are your reasons for that?
- Can you pause and look carefully at what you are doing?
- How do you feel if...?

**Questions to teach and/ or review rules**

- Can we make a rule about how to do this kind of problem?
- Would it help us to have a rule here? How?
- How could we make one?
- Who can tell me two different times when we need to have rules in order to know what to do?
- How is \_\_\_\_\_ different from/like \_\_\_\_\_?
- Can you make a plan so we don't miss anything?
- Why did that work so well for you?