







2









4





Lessons which develop abstract thinking directly have the following structure.

Concrete preparation serves a similar purpose to the "bridging" section and links the activity to current knowledge, explains the task and checks vocabulary. **Challenge** must be set just above the current level of secure knowledge - hard enough to be a challenge, but not so hard as to make the learners switch off. In a science lesson this can take the form of a demonstration with an unexpected effect. In English it could be reading a text which has an implied meaning.

Group work The teacher cannot be the mediator/mentor for every child in the class. If pupils work in groups and discuss their ideas: group members act as mediators for each other, suggesting solutions, trying out ideas; ''individuals feel less vulnerable and more able to participate.

Plenary Once the groups have solutions, the class shares ideas. The teacher leads the group towards the answer through questioning.

Meta cognition During group-work and the plenary, the teacher asks questions that reveal the thinking process, meta-cognition, which has been shown to be effective in securing knowledge.

Bridging Knowledge in isolation from the learner's everyday knowledge is usually lost. The learner needs to bridge new learning to existing experiences. CA lessons

ALL LESSONS ARE PLANNED TO CULTIVE ACADEMIC/SCIENTIFIC THINKING

 ...academic thinking skills ARE analyzing, comparing, categorizing, classifying, identifying cause and effect, problem solving, persuading, empathizing, synthesizing, interpreting, evaluating, communicating, applying.

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13.2.2017

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Predictors	Outcom
Family SES	Motivation
Gender	- Expectancies
Attention	- Values
Support	School
needs	achievement











Alkumittauksen pisteet ryhmittäin									
	Intervention (9)		Control 1 (18)		Control 2 (122)				
	М	S.D.	М	S.D.	М	S.D.			
Listening	7.78	2.56	7.80	2.86	10.31	2.56			
Reading	10.89	16.01	12.73	8.02	23.81	18.38			
Math	20.78	8.12	23.29	8.29	25.66	7.09			
Inductive r	12.56	2.13	13.11	2.27	20.70	3.00			
<i>Gain scores comparison</i> : Post test – pre test = (Gain 1) Delayed post test – pre test = (Gain 2)									
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Inductive	Intervention (9)		Control 1 (18)		Control 2 (122)	
	М	S.D.	М	S.D.	М	S.D.
Gain 1	7.22	4.52	4.00	2.72	1.62	3.02
Gain 2	8.78	4.63	5.89	3.57	3.18	3.96
Analyysit vain viivästetystä mittauksesta			24- 22-			Koe_Kontrollit
Krukall-Wallis 17.46 (c 1), p = .000 Mann-Whitney U Koe vs. Kontrolli 1 Z = -2.66, p = .008 ES = - 0.51 Koe vs. Kontrolli 2 Z = -3.42, p = .001 ES = -0.29	df = ieteellir ni	en tiedekunta / Henkilön	20- 10- 16- 14- 12-	Ajattelu	3	





