

SPN1022
Learning Science and Mathematics

Cognitive Theory
Ausubel

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Ausubel's Theory

- Pupils form and organize knowledge by themselves.
- This knowledge is structured as a framework which associates specific structures.
- The importance of verbal learning that be very effective at the age 11 and above.
- What is already known is the main factor that influences learning.

Ausubel's Theory

- Avoid rote memorizing of facts.
- Pupils need to manipulate ideas actively: by comparing and contrasting associating, rearranging, questioning and accommodating of contrasting ideas.
- Teachers duty is to integrate teaching material into a meaningful schema.

Expository learning

- The teacher is responsible to expose learning material meaningfully so that pupils may follow and understand the concepts taught.
- The teacher uses a advance organizer as the first step.

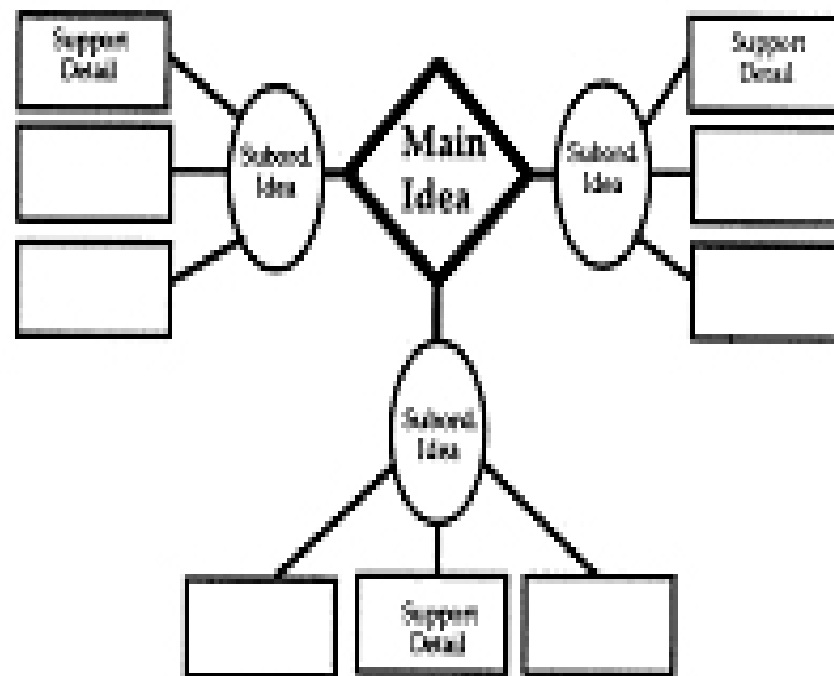
Advance organizer

- The introductory information relevant to the content that is to be presented to pupils.
- This organizer presents an overview of the information to be covered in detail during the exposition that follows.
- An advance organizer can be classified as exposition or comparison type.

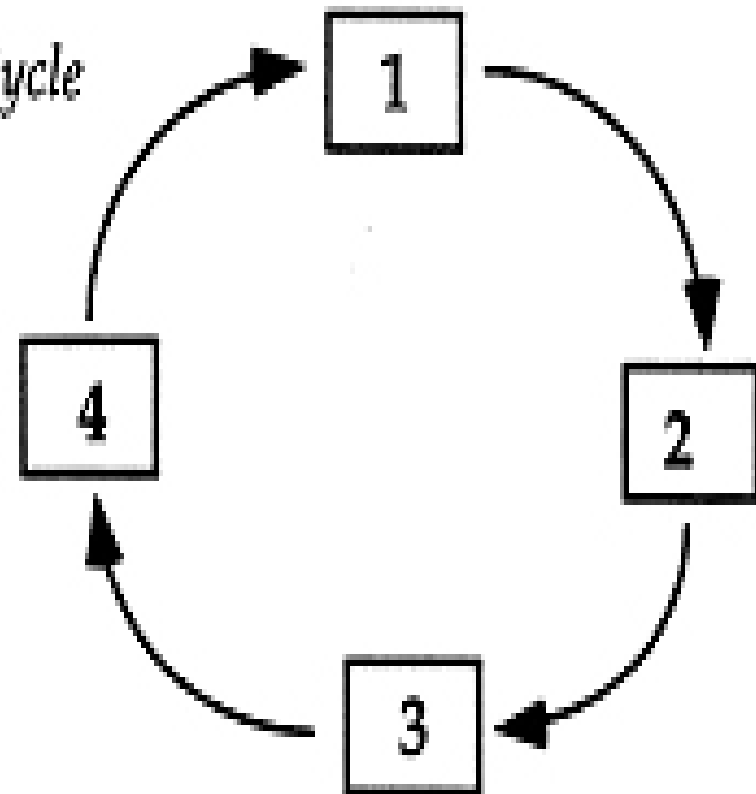
Advance organizer of the Exposition Type

- Presents several encompassing generalizations where detailed contents will be added later.
- The teacher states the matters that will be considered and lists these matters in the sequence that will be presented later.

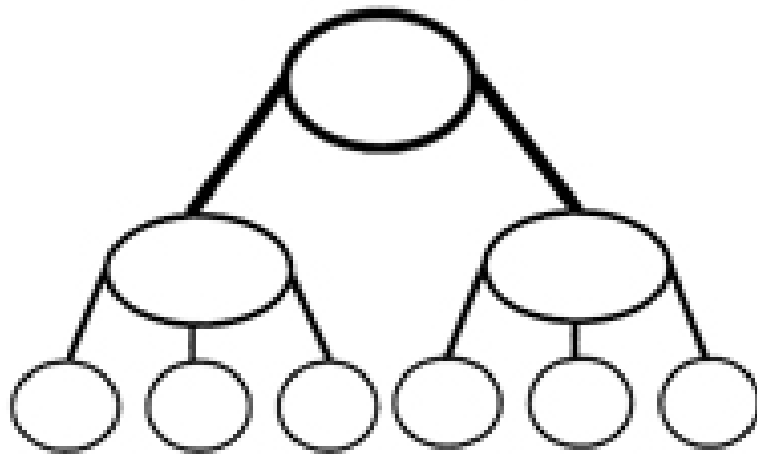
Descriptive or Thematic Map



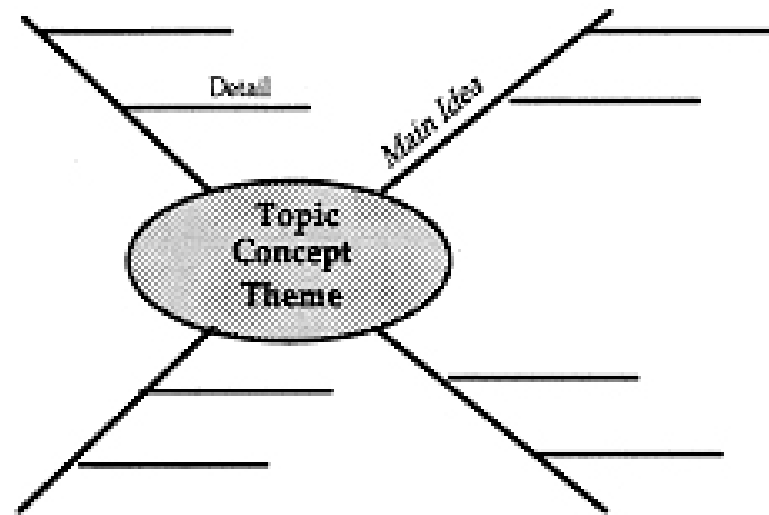
Cycle



Network Tree

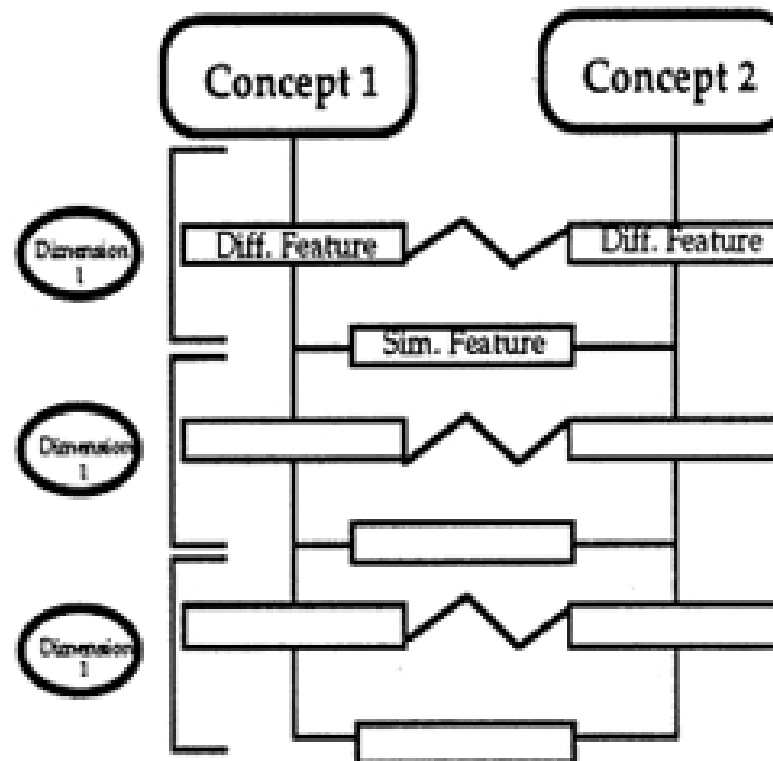


Spider Map



Advance organizer of the Comparison type

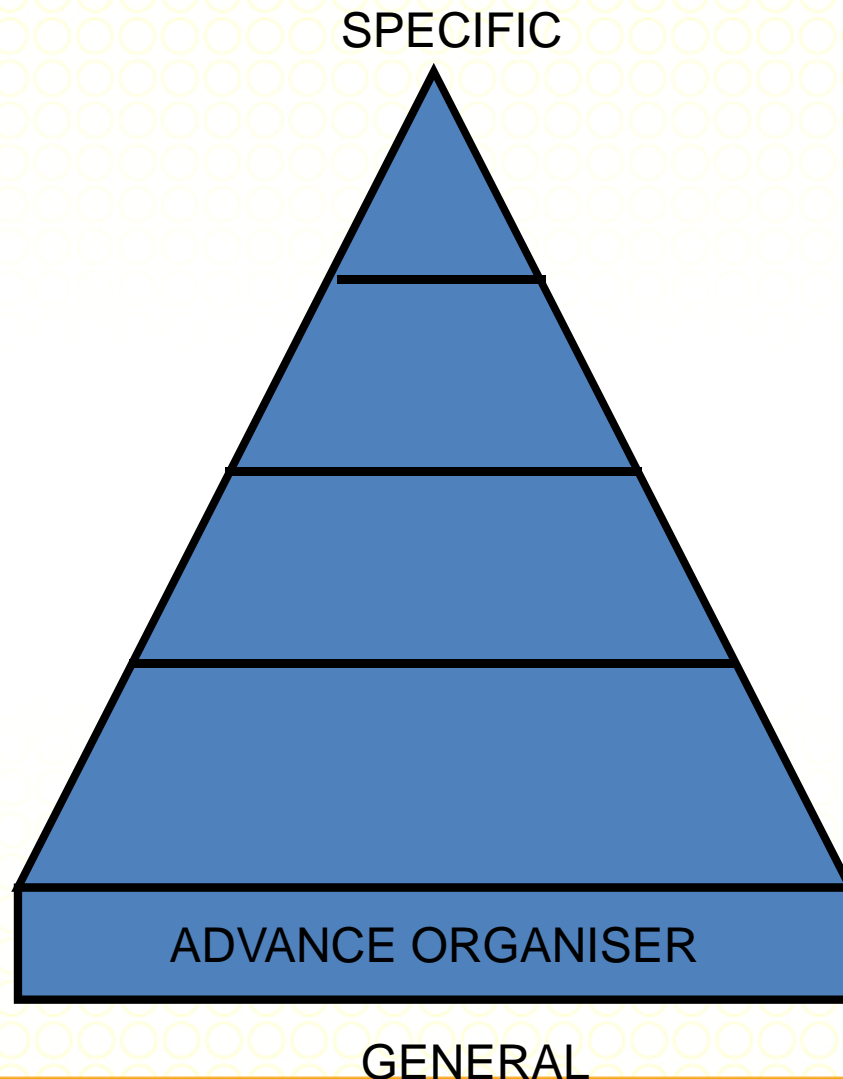
- Useful when the knowledge to be presented is new to pupils.
- Compares new material with knowledge already known by emphasizing the similarities between the two types of material and showing the information that is to be learnt.

Comparative and Contrastive Map

Compare-Contrast Matrix

Attribute 1		
Attribute 2		
Attribute 3		

Deductive Teaching Model



- Step 4: The pupils study specific examples.
- Step 4: The teacher presents examples.
- Step 2: The teacher explain important terms.
- Step 1: The teacher presents general statement or abstraction of lesson.

Meaningful Reception Learning

- Teaching can take place successfully through an expository process that brings about reception learning or meaningful reception.
- Ausubel agreed that the development of problem solving skills is the main objective in primary science.

Meaningful Reception Learning

- However he thought that effective problem solving and discovery would succeed better after children had learnt and understood basic concepts as well as concepts that support science

Meaningful Reception Learning

- Ausubel thought that discovery learning took up excessive time because children need to learn a wide range of science concepts in a short period in primary school.
- For secondary school, teacher should increasing the use of explanation, demonstration, diagram and illustration.