

Concept Mapping: An Innovative Technique for Easy and Ensured Learning Outcomes

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Abstract- Alexandra K. Transfer quoted “The best teachers are those who show you where to look, but don’t tell you what to see”. Pedagogy and enriched content are dependable solutions for effective teaching and learning. Real meaningful learning is the focus of modern teaching which follows a constructivist approach. Bygone are the days when the traditional lecture method was sufficient to teach the pupils. Advanced technologies have been the replacement of monotonous lecture methods. The pupil now constructs their knowledge by engagement, exploration, explanation, elaboration, and evaluation. Different pedagogical practices are involved like the Enquiry approach, reflective strategy, collaborative learning, etc. among which concept mapping is one of the important strategies. It is a graphical organizer which connects links between the two or more concepts in some logical sequential flows. Concept mapping effectively assists in achieving the learning outcome which has been already framed by NCERT for each level. Learning Outcomes are the assessment standard that indicates the expected level of learning that children should achieve for that particular class. These are the checkpoints or the minimum levels of learning among the students according to the grade. In class VII, NCERT Science Text contains 18 chapters, among which most of the chapters can be taught impressively with concept mapping, for example, Soil concept map, Heat Concept map, modes of Nutrition in plants, wastewater story, Wind cyclone, and storm concept maps are shown in this paper, which illustrates that concept mapping makes the clear picture in learners mind and it gives assured learning outcome which is expected according to the Module of learning Outcome of NCERT.

Keywords: Pedagogical Processes, Learning outcome, Concept Mapping

Introduction

The 21st century is the age of information technology where teaching technologies provide several pedagogical approaches and numerous strategies for teaching specific content. Teaching-learning activity has now been directed towards a learner-centric approach where an ample amount of space is given to the learner to learn at his own pace. The teacher as a facilitator has a responsibility to mold his learners most creatively. He has to look upon the effectiveness of conveying ideas to create a long-lasting impression in children’s minds. To tackle these challenges effectively, the teacher should implement innovative ideas which would enrich the classroom experiences. Teaching trends has become now based upon a new approach known as

constructivism, where learner gets a chance to construct their knowledge. Various innovative ideas/strategies foster the creativity of a learner. These innovative strategies are:

- 1) Creative teaching: Playful games, visual exercise, etc. will ignite young minds and generate curiosity and interest. This is a period of examination where every mind's creative abilities are identified. The teacher encourages different ideas, gives them the freedom to explore.
- 2) Audio-Video Tools like Models, Filmstrips, Movies, Pictures, Info-graphics, or other mind mapping and brain mapping tools help their imagination thrive and grow. These methods assist in understanding the concept to the learner. Conducting Online discussions or playback recordings of public lectures etc. also made learning easy. Now a day's numerous smart Apps are available. This integrated approach of technology can also be used. Awesome slideshow or PowerPoint Presentation can be created for effective teachings.
- 3) Real-world learning is also infused with classroom teachings, and students' interest is sparked when content is related and demonstrated through real-life situations. It makes easy, conducive, and everlasting learning.
- 4) Brainstorming is another innovative strategy. These sessions exaggerate the creative juices of the young mind to flow out. Multiple brains focus upon a single conceptual idea and resulting numerous ideas. Students receive words to their thoughts.
- 5) Classes outside the classrooms are also one of the important aspects of innovative teaching. Field visits, field trips relevant to the content help student fresh and excited learning.
- 6) Role-play also develops the interpersonal skills of students. Here students get out of their comfort zone and play an active role in learning
- 7) Storyboard teaching: highly conceptualized ideas can be memorized easily step by step with this teaching practice. Teachers use storyboards, as a form of communication and let the students tell a story in pictures using their imagination.
- 8) Collaborative and cooperative strategy, concept mapping, experiential learning is all other innovative teaching techniques.

Thus, various pedagogical practices involve various teaching technology, leave lasting impressions in minds of learners. These strategies are adopted to ensure learning outcomes.

Concept mapping in the education system

Concept mapping is a powerful tool for students to reach high levels of cognitive performance. It is not merely a learning tool but, also a type of assessment tool where achievement level and learning outcomes of students are being analyzed. When students create concept maps they generate ideas using their own words, and incorrect ideas can be easily identified. Educators easily get the points that students have learned where the loophole in their entire learning is. Thus learning, comprehension, and writing skills are strengthened by the integration of concept

mapping techniques. This paper focuses upon the usage of innovative teaching strategies i.e. concept mapping by teachers in the classroom to ensure learning outcomes for class VII.

Overview of concept map

A concept map is a type of graphic organizer used to organize the content and represents the relevant information of a subject. Here mapping of main ideas is done which is specified further in sub topic subtopics students to build core knowledge and clarification at the grass progress-root also assists brainstorm m and genera ingenerates and encourages students to discover the new the concept and to integrate the older concepts with newer one. It is a representation of relations between different concepts by the use of graphic tools such as diagrams, figs, ures, etc. in the systematic organized sequential flow.

Concept mapping can be done in four ways:

- a) Spider b) Hierarchy c) Flow chart d) system
- b) Spider concept mapping is one in which the main topic is placed at the center of the map and subtopics extend from it as their fine branches.
- c) Hierarchy Concept mapping where the main topic lies at the center and sub-topics beneath it.
- d) Flow chart where information is organized in a linear format.
- e) System which tends to add inputs and outputs

How a concept map can be structured?

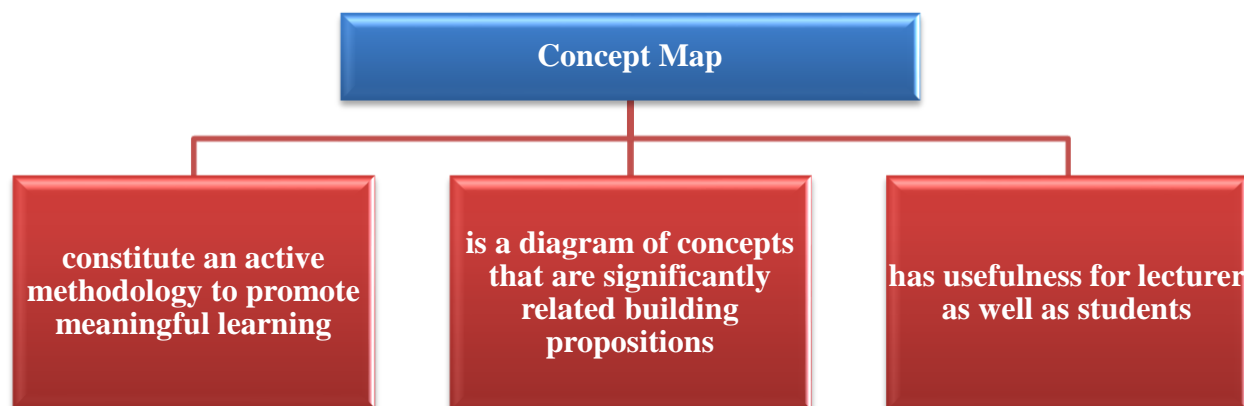
Concept maps are typically hierarchical, with various sub-concepts which shoot out from the main concept or idea. This Graphic organizer has scope for the addition of changes as well the addition of a new concept.

These are three-step procedures

- a) Focus upon the main idea, topic, or issue and frame the hierarchical structure of the concept map.
- b) Connect the main idea to the sub concept. The most general idea will come first which is linked to smaller, and more specific concepts.
- c) Finish it by connecting links between general and specific concepts.

How children are taught for drawing Concept Map?

The first teacher must give theoretical knowledge regarding the Concept maps, how to draw, how to use them, what are their benefits? And how it enriches learning.



Source: Google image

It deeply involves Principles of engagement, elaboration, explanation, and justification of ideas. Teachers assist learners in understanding the meaning, the relationship between concepts, develop a framework for what they already know into which they can integrate new ideas, and establish hierarchical relationships among the concept. Generalized ideas at the top of the hierarchy and specified concepts are the branches that ooze out from the top. It is a tree representation. Concept mapping can be used as Hands-on activity. Children start investigating the concept and linked with prior knowledge. It uses graphic tools such as figures, diagrams, flow-chart to present relationships between concepts.

Concept mapping for meaningful learning at upper primary level.

NCF 2005, has included concept mapping as innovative pedagogical practice for ensuring learning outcomes. Learning is an active process during which children actively and purposefully engage with problems. During concept mapping, they make sense of new information in terms of what they already know. Then they connect these ideas to their prior knowledge.

Concept mapping is effectively incorporated in science classrooms. NCERT Science Textbook analysis for class VII was done thoroughly to find out the suitable pedagogical approach for meaningful learning. This book contains 18 chapters namely:

1. Nutrition in plants, 2. Nutrition in animals, 3. Fiber to fabric 4. Heat 5. Acids, Bases, and salts 6. Physical and chemical changes, 7. Weather, climate, and adaptation of animals to climate. 8. Winds, storms, and cyclones, 9. Soil, 10. Respiration in organism 11. Transportation in Animal and plants, 12. Reproduction in plants 13. Motion and time, 14. Electric current and its effect, 15. Light 16. Water is a precious resource, 17. Forest our lifeline, 18. Wastewater story.

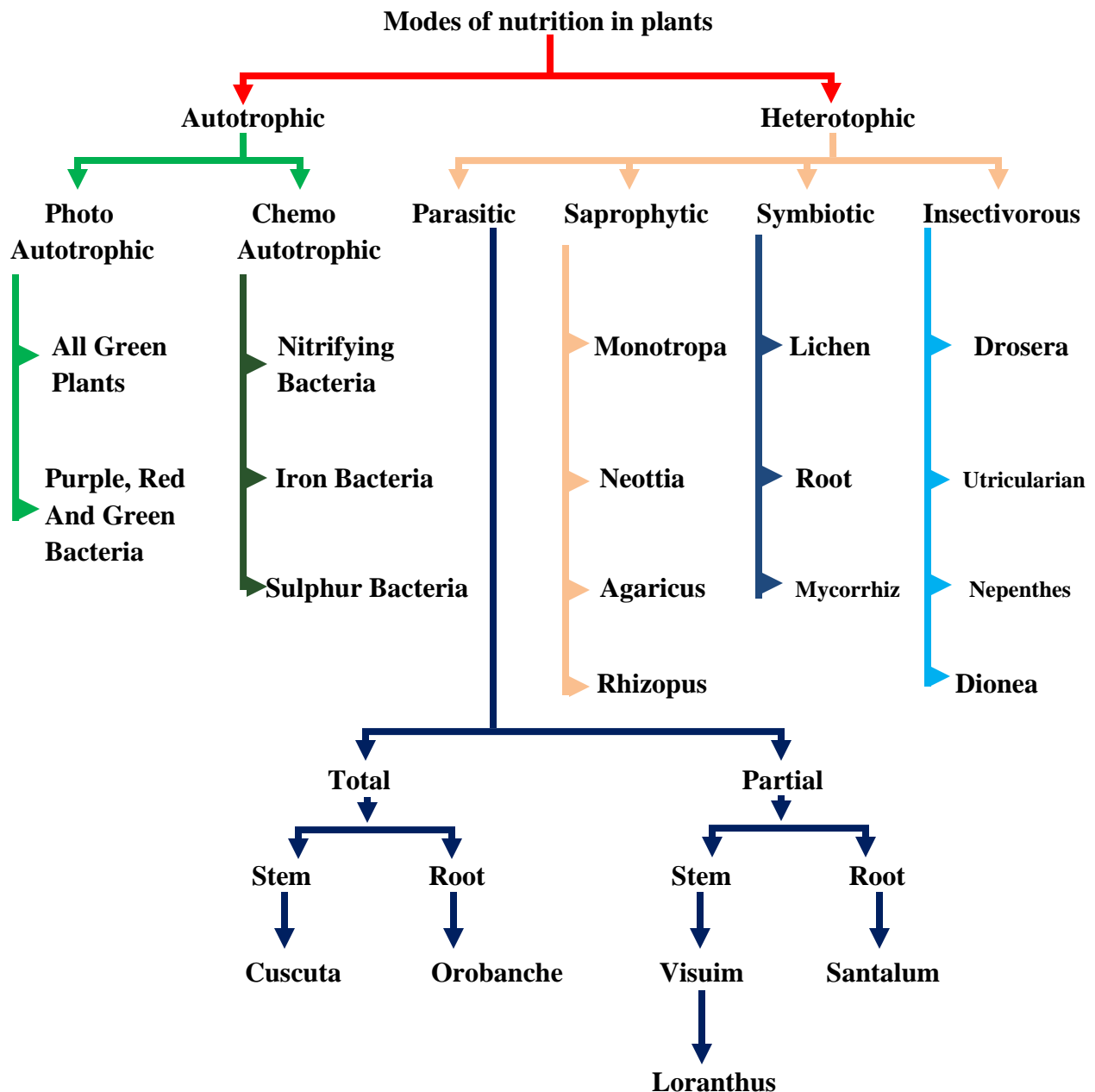
Among these chapters, there is an equal feasibility of drawing a concept map with fine clarity. All these chapters can be better taught by the formation of Concept mapping. For example, if we look deeply into chapters we find that the curriculum of science can be better

explained to the students if the teacher makes use of the Concept Mapping. Also, this learning will result meaningful learning rather than rote learning.

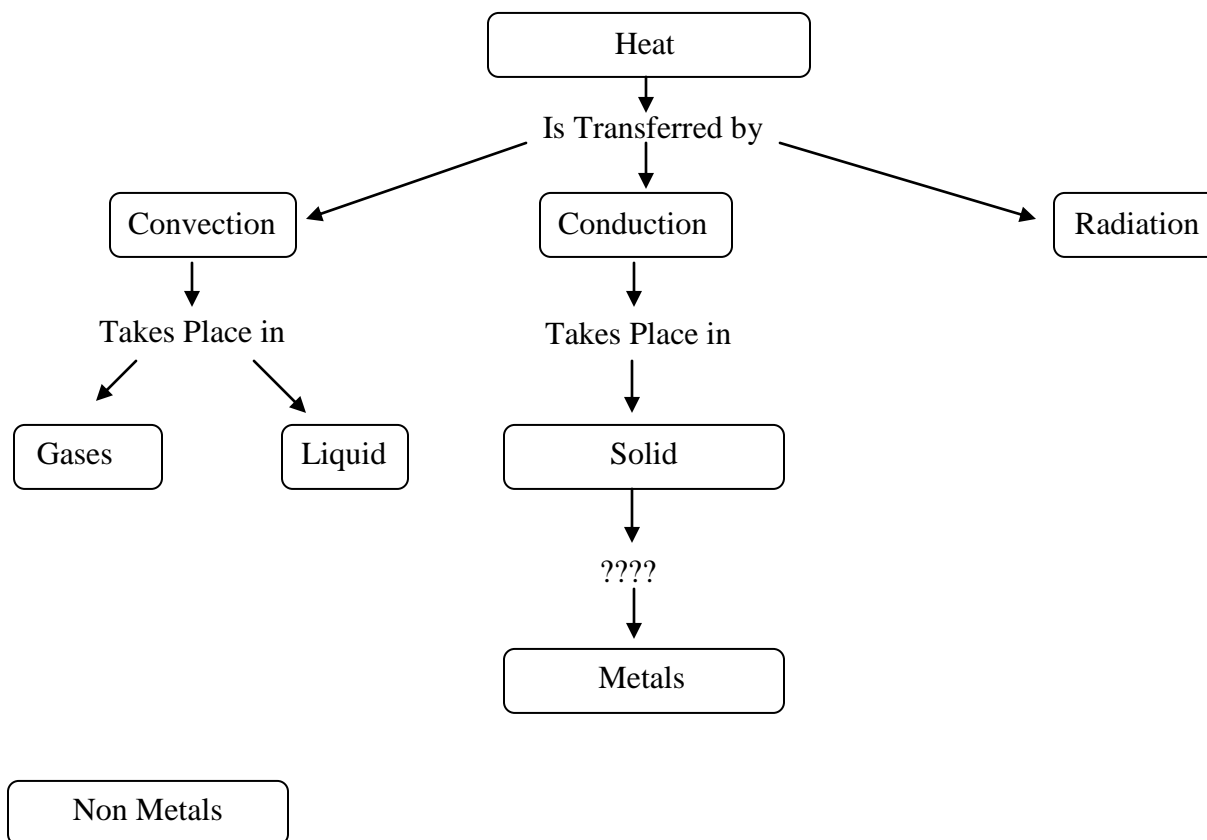
Some Exemplar activities of Concept Mapping among science Textbook of class VII are shown under:

Chapter One: Nutrition in Plant

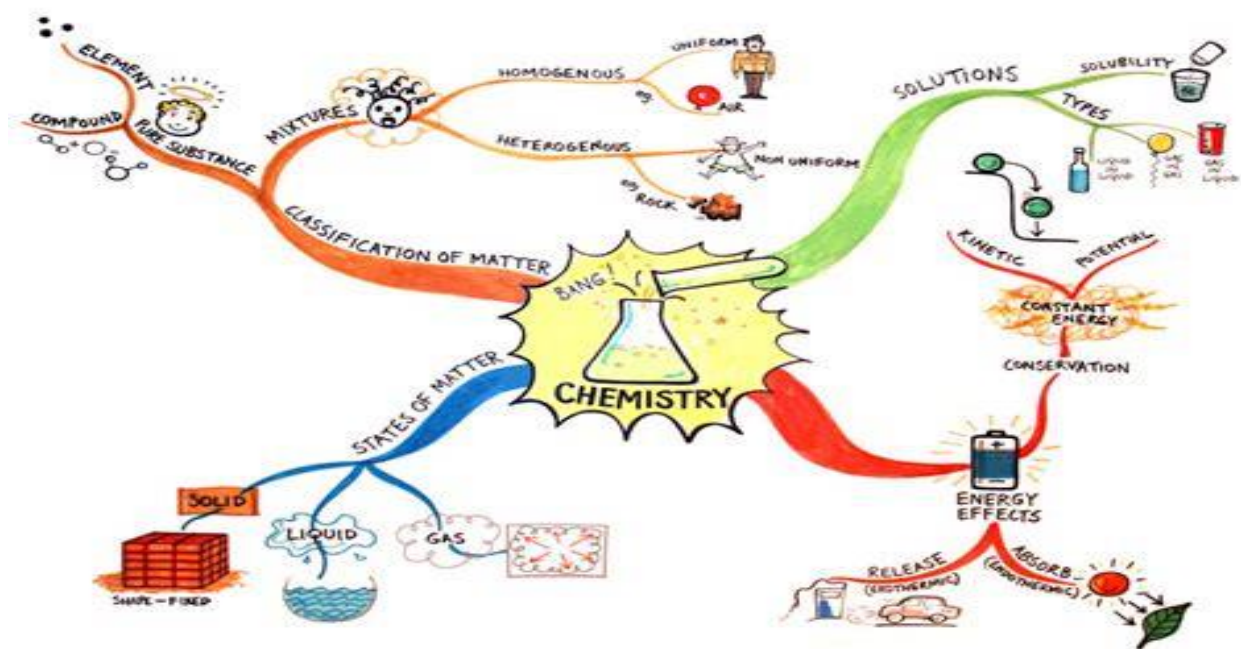
Flow Chart Type of Concept Map

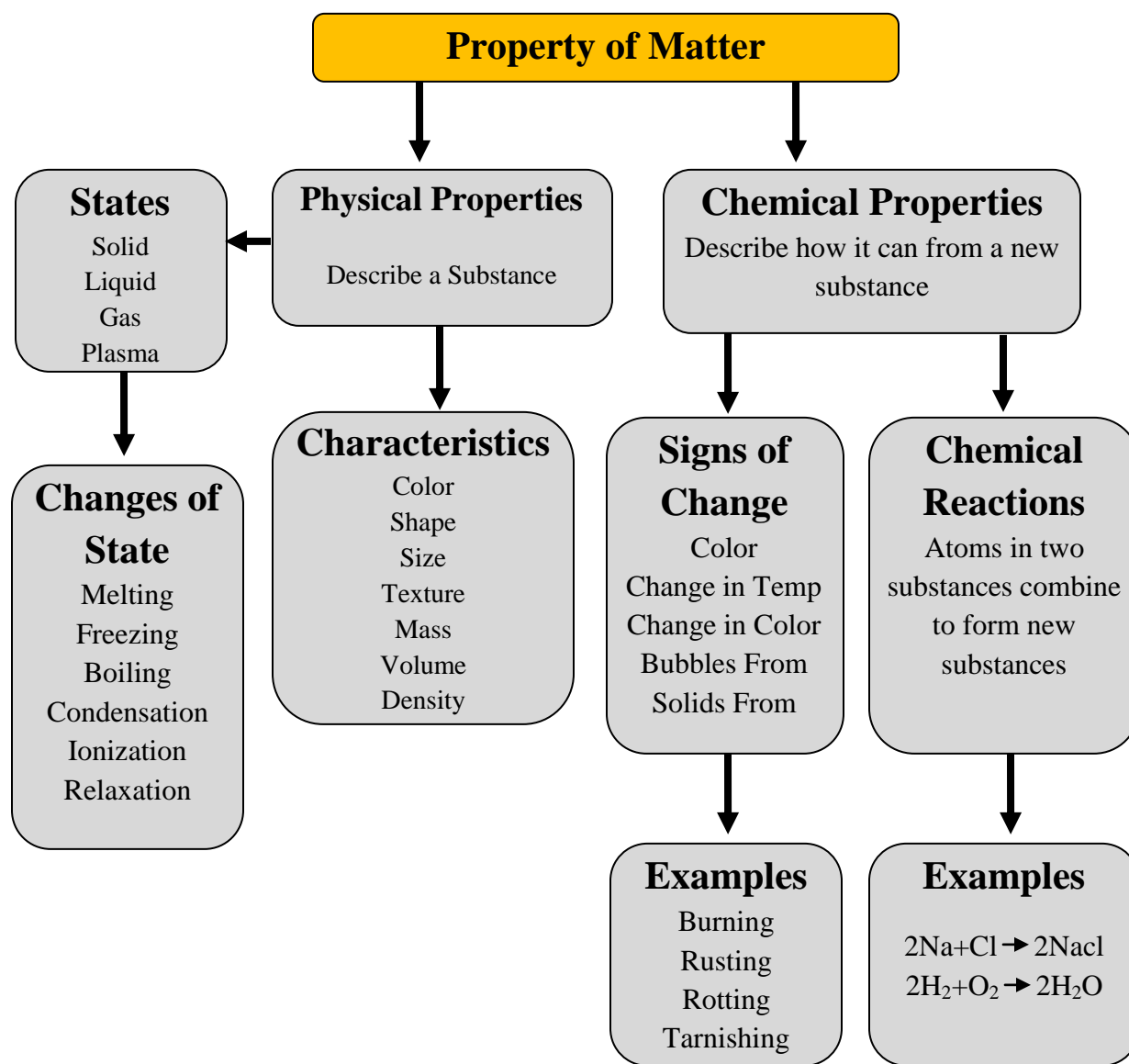


Chapter 4: Heat

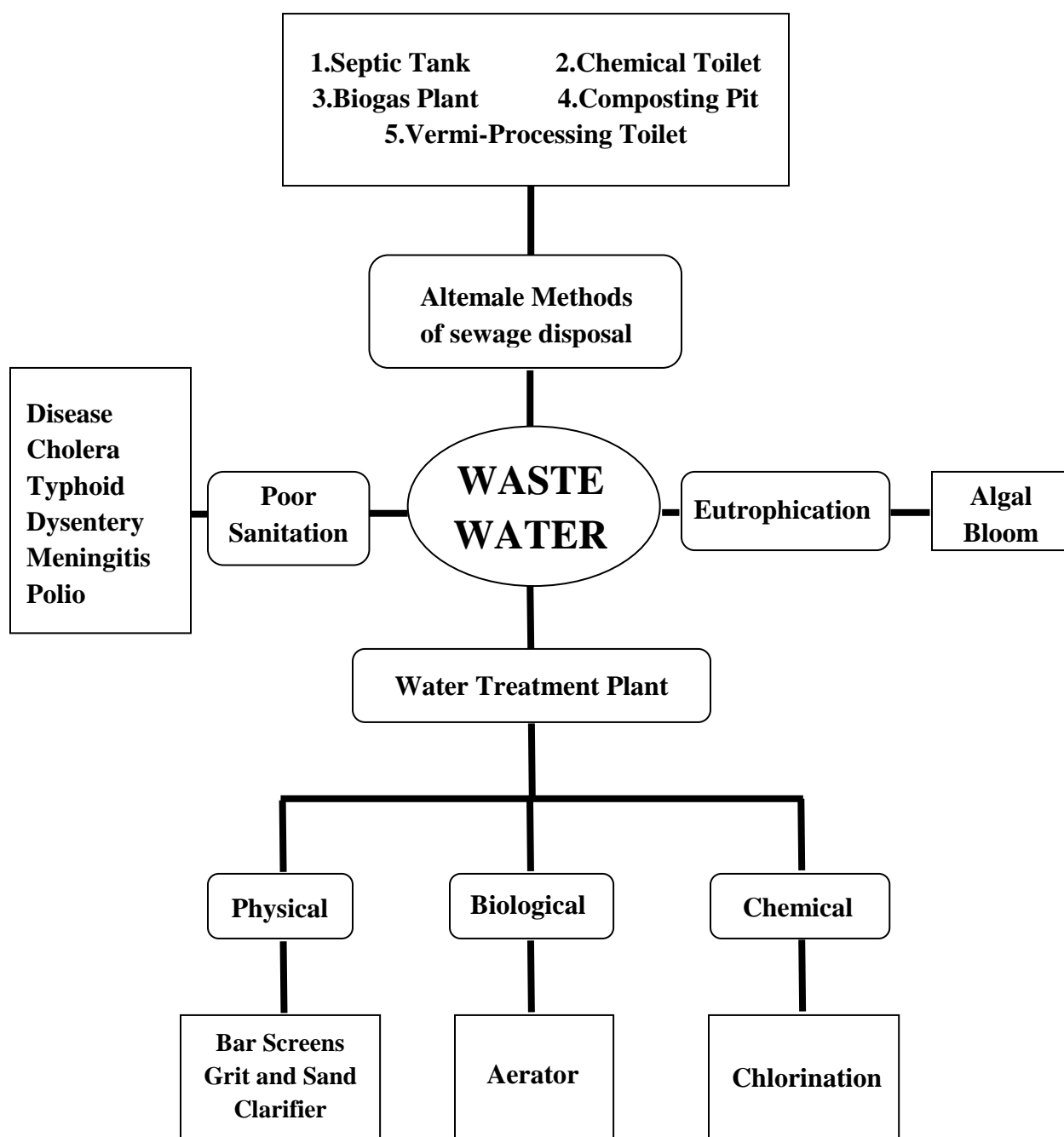


Chapter 6: Physical and Chemical Changes

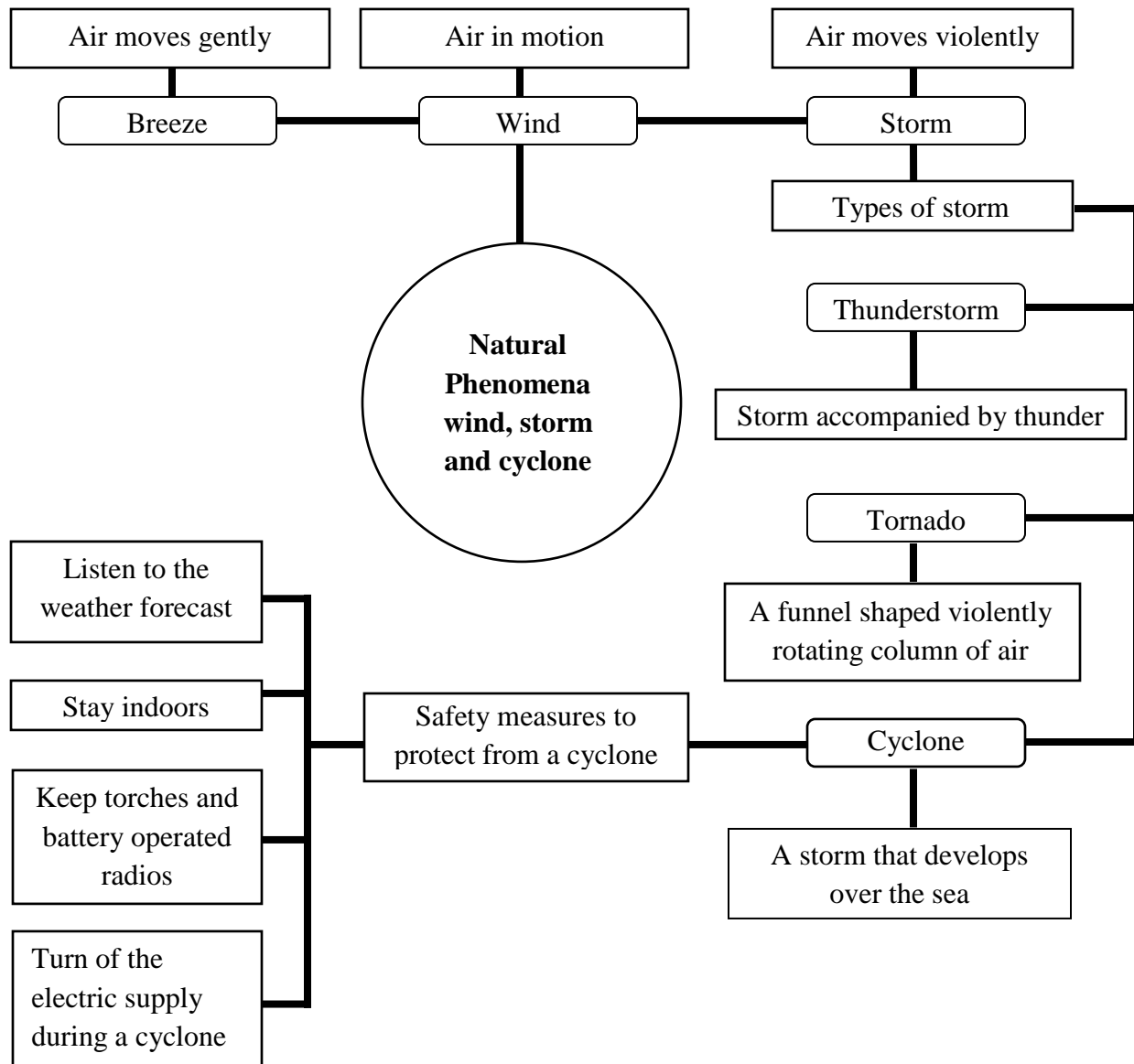




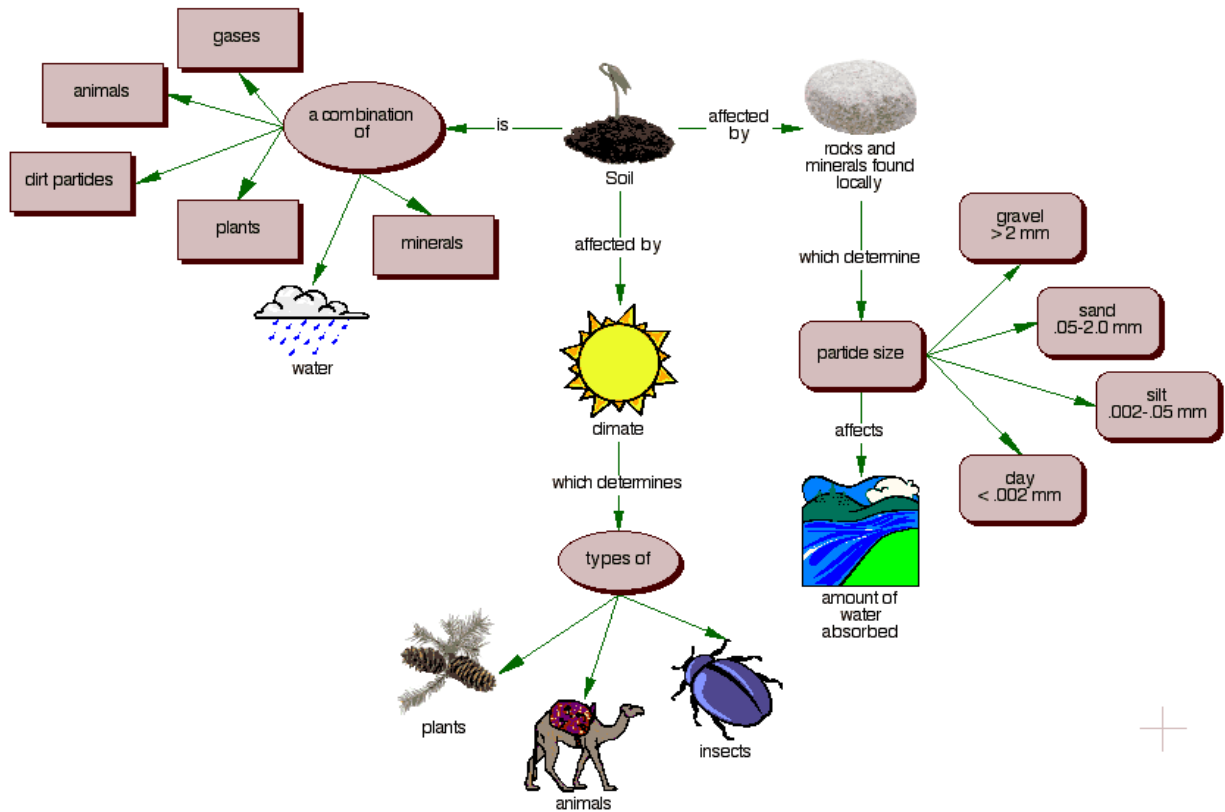
Chapter 18: Wastewater story



Chapter 8: Wind cyclone and storm



Chapter 9: Soil



Conclusion

Learning science by design pedagogy fosters high-order thinking skills and deeper learning. It creates a deep impression in youngster's minds and leads to meaningful learning rather than superficial rote learning. We have many different pedagogical approaches like experiential learning, collaborative learning, problem solving, and so on, among which Concept Mapping is one of the important strategies. By using concept mapping, the teacher can give conceptual ideas to learners for better clarification of concepts with sound bases. Also, it makes learning creative and emphasizes learning by doing, the teacher is as a facilitator only. Students are engaged in constructing their knowledge. This concept mapping strategy also acts as a tool of assessment since during the whole pedagogical process, students are asked to draw the concept maps twice times, once in the beginning to check the level of previous learning, and next at the end, to assess the linkage of old learning and newly learned concepts. Thus, concept mapping explains the relationship between the contents and subtopics and offers space for individual learners to learn at their own pace.

References

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NCERT learning outcomes module

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