

USING THE CLUSTER METHOD FOR CONDUCTING LECTURES ON
THEORETICAL MECHANICS

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Annotation. At the present stage of the country's development, it is important for the teaching staff of higher educational institutions to train future specialists with modern pedagogical methods. The article considers the cluster method as applied to theoretical mechanics.

Keywords. Theoretical mechanics, learning, cluster, bud, decomposition, mechanical movement, trajectory, speed, instantaneous center of velocities, pole, acceleration.

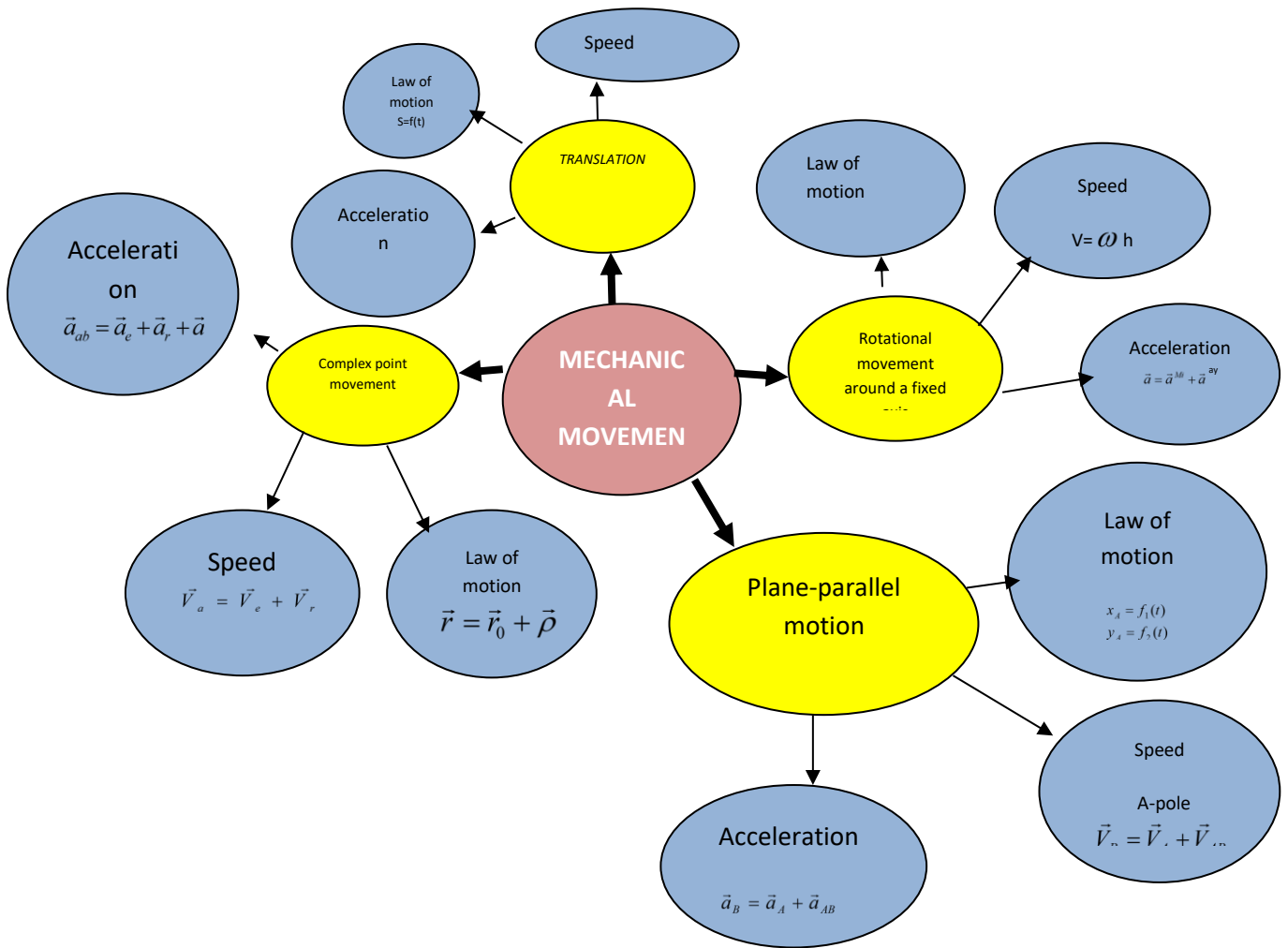
The use of modern pedagogical teaching technologies in the educational process not only improves the qualifications of the teacher, but also allows him to systematically approach the teaching of the topic, taking into account the individual characteristics of students. Through these requirements, a trained person will learn to plan and systematize the acquired knowledge, learn the ability to manage a team. These factors are especially valued in today's labor market.

Consider the interactive pedagogical strategy of the cluster method - "decomposition of information". The application of this method allows students to master the skills of multilateral reasoning, decomposition of the knowledge gained into its constituent parts, finding the relationship between concepts. This method is used to develop skills in students of new ideas, to express their new reasoning on a specific topic.

The interactive cluster method can be applied effectively and with great benefit in all three parts of theoretical mechanics, both during lectures and during practical exercises, when solving specific problems. In the statics section, the method can be applied to topics - equilibrium conditions for solid bodies, the center of gravity of a solid body, various systems of forces, a flat truss. In the kinematics section on topics - mechanical movement, speed, acceleration, plane movement, complex movement of a point. In the dynamics section, it is used for topics - differential equations of motion, rectilinear oscillation of a material point, momentum, kinetic energy, moments of inertia, and so on.

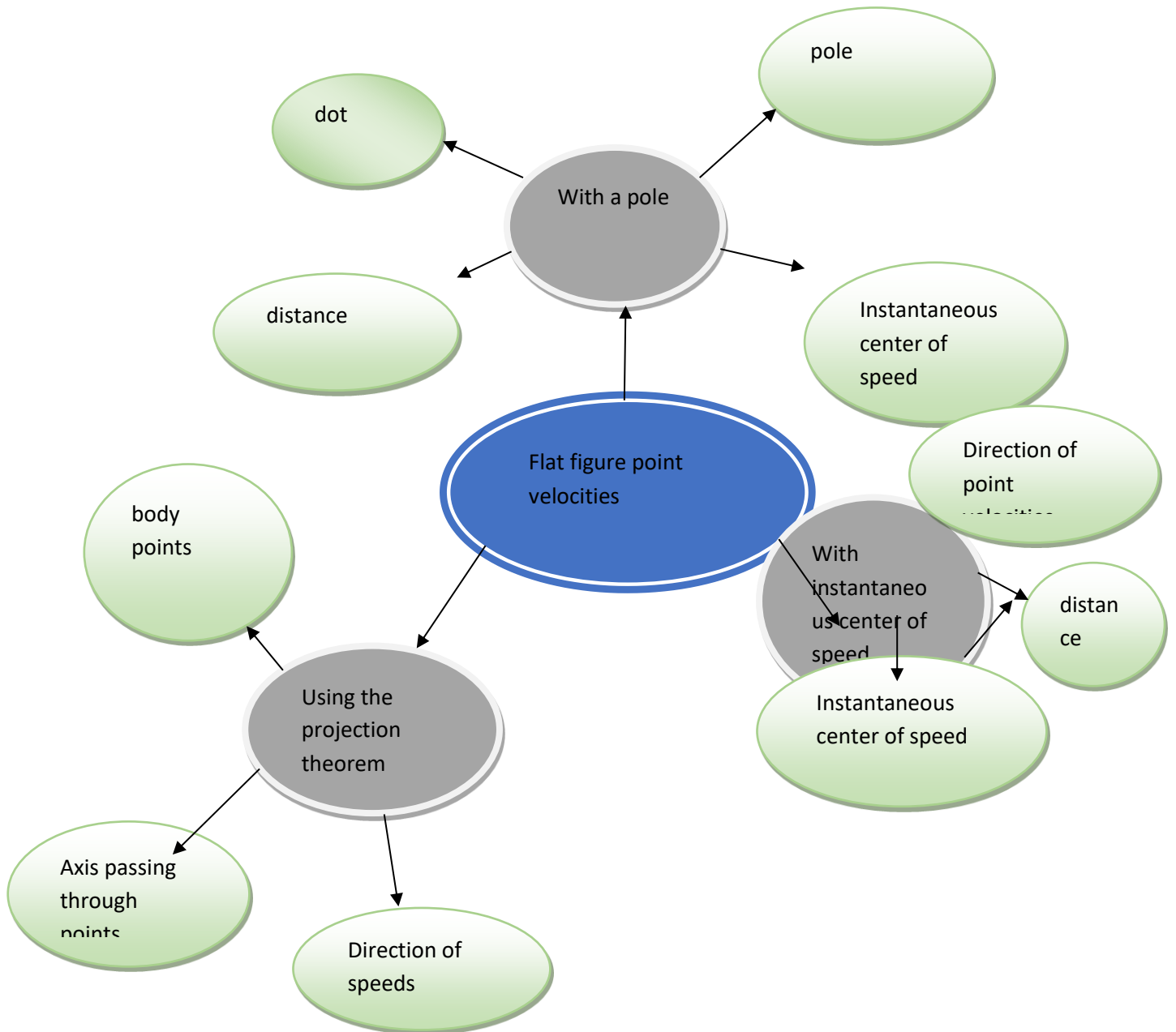
An example of applying the cluster method to the kinematics section is the word mechanical motion. The word is decomposed into components, they, in turn, are also decomposed into components, and so on.

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You can give ways to build an information map of the cluster. The challenge is to gather the ingredients around some key factor in order to centralize and determine the nature of the whole structure.

In the example below, the expression “Velocity of the points of a plane figure” of the subject of a plane parallel motion is decomposed into a cluster. Cognitive thinking expands in the process of students' awareness of the relationship between all the components of this phrase and their parts, acquires connections between basic words and expressions related to the subject.



The cluster method can also be used to determine the intermediate knowledge of students or to determine the knowledge gained in the lesson. To do this, the teacher pre-compiles, multiplies and distributes the material for compiling a cluster on the key word of the conducted topic material. An example is given on the topic of the oscillatory movement of a point.

Thus, the use of the cluster method in the educational process in teaching theoretical mechanics has a positive effect. When the cluster method is used in teaching a subject, students deepen their knowledge by dividing the basic words and phrases, formulas and theorems of the discipline they study into their component parts, distinguishing them from each other, determining

and knowing where a certain component is located. As a result, the level and quality of students' knowledge increases.

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