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## Lesson plan: Expression of unknown from formula

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**School:**

Gymnázium a Jazyková škola s právem státní jazykové zkoušky Zlín, Czech Republic

**Subject:**

Mathematics

**Topic:**

Expression of unknown from formula

**Class:**

O3.A / tercie (third grade of eight-year study)

**Teacher:**

Michal Heczko

**Duration:**

45 minutes

**Educational targets:**

Pupil is able to substitute values to the formula.

Pupil is able to express unknown from formula.

**Requirements:**

Pupil is able to solve basic linear equations.

Pupil is able to simplify basic algebraic expression.

**Teaching aids:**

For teacher: Computer with Internet connection and projector, Whiteboard, schoolbook.

For students: exercise book, schoolbook, pen, tablet, or mobile phone

**Schoolbook:**

J. Herman a kol.: Matematika pro nižší ročníky víceletých gymnázií – Rovnice a nerovnice (tercie), Prometheus

**Relation between subjects:**

Physics, IT

## Plan of the lesson:

Plan of division of class	Time	Contents	Notes
<b>Introduction to the lesson (frontal method of education)</b>	4 minutes	At the beginning teacher reviews the solving of linear equations, which had been explained and practiced in previous lessons. Teacher writes two equations to whiteboard and two students will solve it on whiteboard. In the end of this part, teacher will summarize procedure of solving equations.	Write topic and absence to class book. Write topic "Expression of unknown from formula". <b>Presentation: Slide 1</b>
<b>Revision of formulas (Groupwork in pairs or individual work)</b>	5 minutes	Pupils will discuss in pairs, which formulas they have met in previous lessons of Maths, Physics, and other subjects. They will have time to write these formulas to their exercise book. In next part teacher asks them, which formulas they have. Last activity in this part is WordWall.com activity.	WordWall: <a href="https://www.wordwall.net/resource/21441762">https://www.wordwall.net/resource/21441762</a> <b>Presentation: Slide 2 – 3</b>  Key competences: - Communication competence - Social and personal competence - Working competence  Relations between subjects: Physics – review of formulas, which have been used in Physics.
<b>Exposition of new topic – part 1 (frontal method with discussion about the problem)</b>	12 minutes	In this part we have prepared 3 exercises. In each of them, there is formula with assigned values. We must substitute these values into the formula and by the method of solving linear equation we solve the unknown value.	<b>Presentation: Slide 5 – 9</b>  Key competences: - Problem solving competence - Communication competence - Working competence  Relations between subjects: <b>Physics</b> – solving problems in exercises from Physics.
<b>Exposition of new topic – part 2 (frontal method with discussion about the problem)</b>	12 minutes	In this part we will solve same exercises from previous part. But in this part is the goal to express the unknown value from formula and to have "new formula" for this value. And next we substitute	<b>Presentation: Slide 10 – 14</b>  Key competences: - Problem solving competence - Communication competence - Working competence  Relations between subjects:

		values in the formula and calculate unknown value.	<p><b>Physics</b> – solving problems in exercises from Physics.</p> <p><b>IT</b> – demonstration, that we could use formulas in Excel or other Spreadsheet processor.</p>
<b>Evaluation and feedback (Individual work or work in pairs)</b>	10 minutes	Pupils will do Kahoot quiz with activities related with the topic “Expression of unknown from formula”.	<p>Key competences:</p> <ul style="list-style-type: none"> <li>- Problem solving competence</li> <li>- Working competence</li> </ul> <p>Kahoot quiz:  <a href="https://create.kahoot.it/details/3eb96557-1625-4df9-9cbc-87dfa659711c">https://create.kahoot.it/details/3eb96557-1625-4df9-9cbc-87dfa659711c</a>  <b>Presentation: Slide 15</b></p>
<b>Conclusion of the lesson (frontal method of education)</b>	2 minutes	Teacher summarizes the topic.	Homework from schoolbook: page 108/exercise 53-55