

Reflection Report

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Submitted At: 2025-04-18 16:14

1. CBC, CBE, and CBA as a System

A competency-based curriculum is a learning plan that focuses on mastering specific skills and abilities needed for life and work. Competency-based education is an approach where students learn at their own pace until they master the necessary skills. The main thing is the result, not the time spent with textbooks. Competency-based assessment is a way to check what a student can actually do, rather than just know the theory. These concepts interact as follows: • The program specifies what needs to be learned. • Education is how a person learns these things (flexibly, at their own pace, with an emphasis on practice). • The assessment checks whether he has achieved the result, i.e. whether he has mastered the competence. They work as a single system: the goal is to master competencies, the process is through flexible learning, and verification is through real actions. Math lesson, 6th grade Topic: "Proportions and scale" Competencies: • Apply mathematics to solve real-world problems • Prepare a team presentation using digital tools In practice: 1. The program: The teacher planned the topic as a real task: to design a model of a park (or a room) to scale. This required an understanding of how proportions and relationships work. 2. Education - students worked in groups: • chose an object for the layout, • looked for real sizes, • calculated the proportions, • built a drawing and a model (on paper or in PowerPoint). 3. Evaluation: • correctness of calculations (mathematics), • application of scale (application of knowledge), • project presentations (communicative competence), • participation in a team (personal competence). The integration of competencies was successful: • By solving a real problem, students understood why mathematics is needed.

- Everyone was involved in the process.
- Not only correct answers were assessed, but also thinking, participation and cooperation.

2. Curriculum Development and Learning Goals

In the context of a competency-based curriculum, objectives should focus on developing specific competencies and skills that the learner can apply in real-world situations. They should be specific, measurable, achievable, relevant and time-bound (SMART). However, Bloom's Taxonomy provides a useful framework for planning learning objectives with varying levels of complexity depending on what learners should learn and be able to do. Educational activities in the context of the competency-based approach, it is aimed at the active inclusion of students in the learning process (Project work, Group work, Use of technology). Evaluation includes formative (assessment throughout the learning process through feedback), criterial (use of clear criteria for assessing practical assignments and projects), as well as process and result assessment (it is important to assess not only the final product, but also the process itself, in which a student or group develops certain skills). Let's look at an example of a project on the topic: "Solving problems on percentages in the context of a personal budget"

1. Objective: by the end of the project, students will be able to solve 3 problems on percentages in real situations (calculating discounts and taxes, saving money).
2. Educational activities: Students complete assignments on planning their personal budget. Each group presents their results in the form of diagrams or presentations, justifying their calculations and showing how they arrived at their result.
3. Evaluation: During the work process, students receive feedback from the teacher at each stage; criteria for evaluating assignments were also used. The project was a success., as the students mastered the mathematical material, learned to apply knowledge in practice, worked in groups and developed communication skills. For improvement propose to differentiate tasks, taking into account the different levels of preparation of students.

3. Assessment Quality: Validity, Reliability, and Fairness

Analysis of the test on the topic "Percentages". The test included theoretical and practical tasks. Validity test means that it measures what it is supposed to measure—in this case, the ability to work with percentages in different contexts. What was valid was that the tasks actually reflected the content of the topic and were aimed at testing the ability to apply percentages in real situations. Subsequence assessment concerns the extent to which assessments are the same for all students, regardless of who is marking their work. It is important to ensure consistency in assessment between teachers. This ensures that the assessment is objective. The sequence of this test is contained in clear evaluation criteria. To

improve consistency When checking tasks, it is important to clarify what exactly you should pay attention to: the accuracy of calculations, the logic of execution, the reasoning behind the solution. Fairness and Diversity - one of the most important aspects in assessment, especially in the context of taking into account the individual characteristics of students. The fairness of the test lies in the variety of types of tasks, which allows for the different abilities of students to be taken into account. For example, calculation tasks, which were more difficult for students with strong mathematical skills, and tasks on the practical application of percentages, which could be more accessible to everyone. Also, the time for completing the task was sufficient so that each student could complete the test, regardless of his or her speed. Overall, the test was valid: tested key knowledge on the topic of percentages and the ability to apply them in real life. Subsequence The assessment was ensured by clear criteria and mathematical logic of the problems. To increase objectivity and fairness, differentiated tasks and more flexible forms of testing can be proposed to take into account different levels of preparation.

4. Grading and Standard Setting

Assessment must be transparent, fair and relevant to learning objectives. Transparency implies that the student always knows what exactly is being assessed. In the context of the topic "Percentages" it is important that the student understands that not only the calculations are assessed, but also the logic behind choosing the correct formula. The assessment must be fair, that is, to approach all students equally, regardless of their level of knowledge. It is important to consider that different students can master the topic at different speeds. The assessment should be flexible and take into account not only the final result, but also the process of implementation, allowing for the student's progress to be taken into account. If the assessment is consistent with the learning objectives, then it is aligned with the learning. It is important that exams and tests assess understanding and the ability to apply concepts, and not just the rote memorization of formulas. Setting threshold scores depends on the level of difficulty of the tasks and the criteria adopted in the educational system. For example, in a simple percentage test, the following threshold scores can be set: • 80-100% (high) - understanding, confident use of formulas and methods. • 40-79% (average) - understanding of basic concepts, but there are errors in calculations. • 0-39% (low) - errors in basic concepts or complete lack of understanding. These cutoff scores are usually set based on standardized tests or statistics that analyze how many students get problems right. For example, if a test shows that most students get a certain problem wrong, this may lower the cutoff for passing. For improvement will use absolute methods of setting standards, which use fixed threshold scores to determine the level of passing (Angwa, Ebel, and Nedelsky methods).

5. Use of Rubrics

In a competency-based education system, rubrics and feedback play a key role in supporting learners and ensuring fair and transparent assessment. A rubric is a structured assessment tool that clearly defines criteria and levels of performance. A well-written rubric includes three components: • Criteria (what is being assessed); • Levels of performance (degree of achievement); • Descriptors (descriptions) (characteristics of each level). Example of a task and rubric on the topic “Percentages” Find 25% of 120 and explain how you did it. Then solve the problem: "There are 28 students in a class. 50% of them participate in a club. How many students is that?" An example of a rubric that promotes learning. Criterion - "Correctness of calculation": High - All answers are correct Average - 1 error Low - 2 or more errors. Criterion - Explanation of the solution: High - Clear, logical and complete Average – Yes, but partially Low - No or unclear. The rubric helps students analyze their strengths and weaknesses on a given topic and will be able to better explain their actions in the future. Key factors for successful headings: Clear Language - Students must understand exactly what is expected of them. Link to learning objective - The rubric should assess what is truly important about the topic (in this context: understanding percentages and their application). Transparency and discussion - Students are involved in the process, understand the “rules of the game”. Sequence of application - The rubric must be part of a system, not a random element. Feedback - Based on the rubric, the student receives specific recommendations A well-thought-out section on the topic of percentages helps: • make the assessment objective and understandable; • to direct students to thinking rather than just mechanical actions; • to develop educational independence and self-assessment skills.

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