Lesson plan Scale and plan - math classes

as part of the Erasmus + project

May 28, 2021

Main goal:

The student is able to read the scale, calculate the real distance from a plan or map and put these skills into practice.

Detailed objectives:

- developing the ability to work in a group according to the instructions received;

- developing reading comprehension skills;

- developing mathematical imagination in the context of practical situations,

- improvement of mathematical and natural skills related to scale conversion, taking measurements of the appropriate surface;

- improving the ability to draw a plan of a specific surface;

- stimulating creativity and self-esteem;

- introducing to independence and self-control;

- planning, organizing and evaluating one's own work.

Teaching aids and resources: interactive board, work cards, maps of Cieszyn, measuring tapes.

Forms of work: group work

Working methods: exercise and problem, practical classes.

Participants: 6th grade students of Primary School No. 3 in Cieszyn

The course of the lesson:

1. Welcoming, dividing students into groups.

2. Overview of the principles of today's work.

Students are divided into 4 or 5 groups. Today's classes will be conducted in the form of an inter-class tournament. Points will be allocated accordingly for each event. The team that scores the most points after the last competition is the winner.

3. Lesson topic.

The topic of today's lesson is encrypted with a password that you will get after solving the following crossword. The team that solves the entire crossword correctly first receives 3 points, the next two teams each receive 2 points and 1 point, respectively.

Task 1 Complete the crossword

1. Result of addition.

2. A nutrient with building functions.

3. A rectangle that has all sides of equal length.

4. Picture seen from above eg classroom.

5. One of the organs in the human excretory system.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

5. Scale calculations reminder - educational film.

https://www.youtube.com/watch?v=2rNJHer4tno

6. Teams solve the next problems within the next competition.

Exercise 2

Competitors receive a scatter in envelopes: Small, bigger, biggest ......

The exercise consists in setting the given scales in the correct order. The teams that solve the problem correctly as quickly as possible receive, respectively: 3 points, 2 points, 1 point.

Group 1, 3, 5:

Order the given scales from largest to smallest.

|  |  |  |
| --- | --- | --- |
| **1 : 200** | **1 : 1000** | **1 : 40 000** |
| **1 : 2000** | **1 : 10 000** | **1 : 450** |

Group 2.4:

Order the given scales from smallest to largest. 1: 80,000,000, 1: 15,000,000, 1: 7,500,000, 1: 40,000 1: 100.

|  |  |  |
| --- | --- | --- |
| **1 : 40 000** | **1 : 1000** | **1 : 15 000 000** |
| **1 : 2000** | **1 : 80 000 000** | **1 : 750 000** |

Exercise 3

Each team now has the opportunity to score 1 point. On the interactive board you can see the wheel of fortune. We draw one question. For a good answer bigna can get 1 point, wrong answer is 0 points.

[**https://wordwall.net/pl/resource/11057604/matematyka/skala**](https://wordwall.net/pl/resource/11057604/matematyka/skala)

Task 4

Tables to be completed. The teams that solve the problem correctly as quickly as possible receive, respectively: 3 points, 2 points, 1 point.

Calculate the distance of a given section in the field, if it is 9 cm on the map on a scale of 1: 150,000.

Enter the data in the places marked with dots

|  |  |  |  |
| --- | --- | --- | --- |
| **Numerical scale** | **Appointed scale** | **Distance of the segment on the map** | **Actual distance** |
| ....................... | 1cm - ............... cm  1cm - ............... m  1cm - ............... km | ............................ | ............................. |

Jaka jest rzeczywista odległość pomiędzy Wrocławiem i Krakowem, jeżeli na mapie o skali 1 : 6 000 000 wynosi 4 cm?

Skorzystaj z niektórych danych zawartych w tabelce. Brakujące dane wpisz w miejsca

oznaczone kropkami.

|  |  |  |  |
| --- | --- | --- | --- |
| **Numerical scale** | **Appointed scale** | **Distance of the segment on the map** | **Actual distance** |
| ....................... | 1cm - ............... cm  1cm - ............... m  1cm - ............... km | Wrocław-Kraków  ............................ | ............................. |

Practical tasks:

Task 5

Working with the map of Cieszyn - plan a trip to a selected place in Cieszyn. Calculate the actual distance from the starting point to this place, suggest how to get to this place, which can be admired, visited along the way.

We measure the distance with a ruler in a straight line, you can use a calculator for calculations.

Task 6

Draw a plan of the classroom (corridor) on the appropriate scale. Using a tape measure, measure the appropriate dimensions (length, width). Write down the measurements, plan on what scale you will prepare your plan. Scale the appropriate objects on this plan, e.g. benches.

In practical tasks, we evaluate:

 Accuracy of measurements;

 Accounting correctness;

 Accuracy and diligence of the drawn plan;

 Ingenuity, creativity;

 Collaboration in a group, planning activities.

For each practical task you can get from 0 - 5 points.

\* Number of tasks - the competition will depend on the possibilities of children and the time of classes.

7. Summary of classes - filling in the table - self-evaluation of the group's work.

Self-evaluation of the work of the group performing the tasks (cooperation and commitment)

|  |  |
| --- | --- |
| **EVALUATION CRITERIA** | **NUMBER OF POINTS (0 - 3)** |
| Has the group developed a work plan for the tasks. How helpful was it? |  |
| How is responsibility for each task fairly distributed among the individuals in the group? |  |
| Whether the group's decisions were made efficiently and took into account all members of the group |  |
| Did the group members help each other with the tasks? |  |

8. Gifting of gifts - selecting the winner of the tournament. Farewell.

Sources:

The scenario was developed on the basis of:

1. Scenario by Beata Świątek and Aneta Kępa

[*http://www.ckpidn.home.pl/e-nauczyciel/zasoby/lekcja%20matematyki%20online.pdf*](http://www.ckpidn.home.pl/e-nauczyciel/zasoby/lekcja%20matematyki%20online.pdf)

1. 2. A scenario by Justyna Namirowska and Ewelina Bąk

[*https://sp1.czersk.pl/sp1/pliki/scenariusze/proj-mat-prz.pdf*](https://sp1.czersk.pl/sp1/pliki/scenariusze/proj-mat-prz.pdf)

*The wheel of fortune:* [*https://wordwall.net/pl*](https://wordwall.net/pl)

*Educational film: https://pistacja.tv/film/mat00148-skala-na-planach-i-mapach?playlist=478*