

SCENARIO	
Title	Describing the pyramids.
Summary	The student will learn about the concept of a pyramid, learn to distinguish it from other solids, Will indicate the basic elements of these solids
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Didactic objectives

- distinguishes pyramids from various solids and gives their names;
- gives examples of pyramids, eg in architecture and surroundings;
- indicates the basic elements of the pyramids (eg base edges, side edges, solid height, heights side walls);
- recognizes and draws pyramid grids;
- draws pyramids.

Physics Mathematics Information Technology Robotics Programming

Education Level: 10-12years 12-14years

Problem Statement

What distinguishes pyramids from other solids?
 How many walls do they have, how many edges? How many vertices?
 How does their number depend on the polygon in the base?
 Where is the height of the pyramid?

BOM (Bill Of Materials needed)

Computer workstations, projector, scratch software

Activity description

1. Organizational and organizational activities
2. Introduction to the subject reminder of prisms
3. We introduce the concept of a pyramid.
4. We describe it and teach how to draw pyramids and their grids - you can on the basis of instructions.
5. We organize cooperation in small groups. Students will learn about the pyramid, its elements and types, including about the normal pyramid and regular tetrahedron (in textbooks, the Internet).
6. Students create a crossword puzzle taking into account the concepts appearing in the lesson. They prepare the crossword in two versions: to be solved and solved. After completing this task, each group passes its crossword to the neighboring group with a request to solve it. Verification of the correctness of the crossword solution is based on the solution of the group that arranged the crossword.
7. Solving various tasks regarding the ownership of pyramids.
8. Working with the scratch program, we calculate the number of faces, edges and vertices in selected models. We check the correctness of the calculations.
9. Summary.

Sample script and the appearance of the scene

```
whenClickedFlagClicked
  set n to 0
  set k to 0
  set s to 0
  set w to 0
  set size to 50 %
  go to x: -170 y: -20
  ask "Podaj liczbę boków w podstawie ostrosłupa" and wait
  set n to answer
  repeat until (k = 2 * n)
    ask "Ile krawędzi ma ten ostrosłup?" and wait
    set k to answer
    if (k = 2 * n) then
      say "połącz GOOD! i połącz Ostrosłup ma i połącz k i krawędzi." for 2 seconds
    else
      say "Niestety to jest zła odpowiedź!" for 2 seconds
  repeat until (w = 1 + n)
    ask "Ile wierzchołków ma ten ostrosłup?" and wait
```

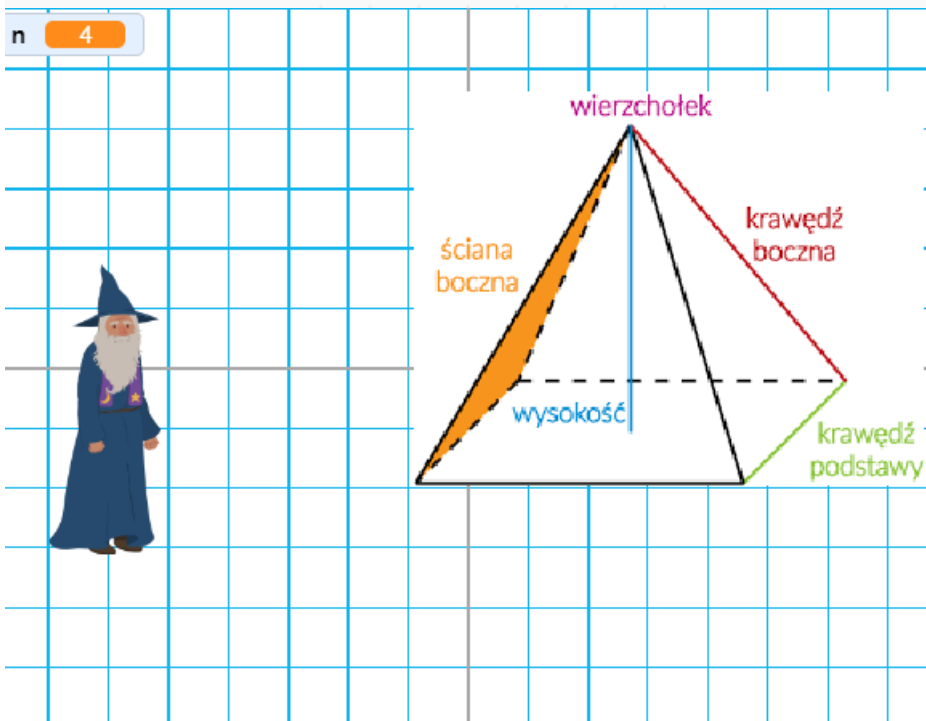
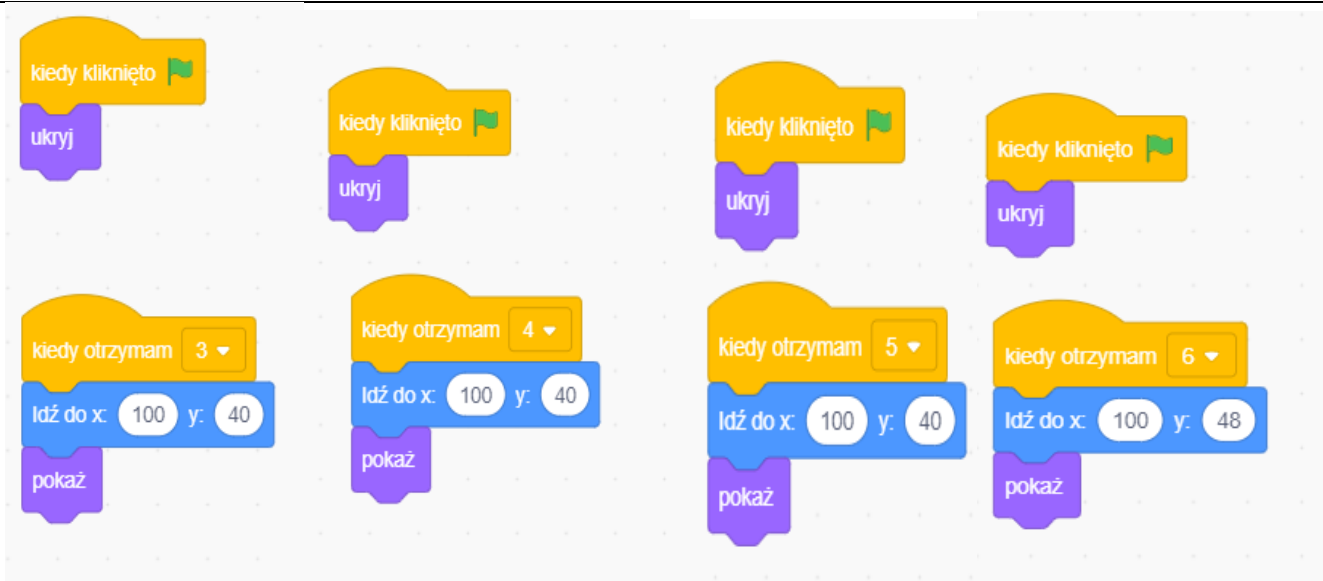
The image shows a Scratch script designed to calculate the number of edges and vertices of a pyramid based on the number of sides of its base. The script starts with a 'when clicked' event, followed by setting variables `n`, `k`, `s`, and `w` to 0, and setting the size to 50%. It then moves to coordinates (-170, -20) and asks the user for the number of sides of the base. The script then enters a loop where it asks for the number of edges, checks if the user's answer is correct (using the formula $k = 2 * n$), and provides feedback. Finally, it enters another loop where it asks for the number of vertices, using the formula $w = 1 + n$.

```

zapytaj "Ile wierzchołków ma ten ostrosłup?" i czekaj
ustaw w na odpowiedź
jeżeli w = 1 + n to
    powiedz "połącz GOOD! i połącz Ostrosłup ma i połącz w i wierzchołków." przez 2 sekund
w przeciwnym razie
    powiedz "Niestety to jest zła odpowiedź!" przez 2 sekund
powtarzaj aż s = n + 1
zapytaj "Ile ścian ma ten ostrosłup?" i czekaj
ustaw s na odpowiedź
jeżeli s = n + 1 to
    powiedz "połącz GOOD! i połącz ostrosłup ma i połącz s i ścian." przez 2 sekund
w przeciwnym razie
    powiedz "Niestety to jest zła odpowiedź!" przez 2 sekund
jeżeli n = 3 to
    nadaj komunikat 3
w przeciwnym razie
    nadaj komunikat 3
w przeciwnym razie
    jeżeli n = 4 to
        nadaj komunikat 4
    w przeciwnym razie
        jeżeli n = 5 to
            nadaj komunikat 5
        w przeciwnym razie
            jeżeli n = 6 to
                nadaj komunikat 6
            w przeciwnym razie
                zatrzymaj wszystko

```

Scripts for $n = 3$, $n = 4$, $n = 5$, etc., where sprites are solids



Resources

Pyramid models, drawings, photos - available on the internet.

Students' Evaluation

Commitment to work, activity, accuracy of work performed.

Bibliography

Available mathematics school textbooks, workbooks, task sets. Just those with whom the class works

Scalability

Depending on the educational level, you can change the polygon in the base of the solid (increase the number of its sides).

More information

You can extend the scratch program by determining the surface area of the solid or counting the volume.