DOBILAS
Panevėžio lopšelis darželis

STEAM „Spiralinės eglutės: Robotukų inžineriniai bandymai“

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ENGLISH SUMMARY

In this STEAM activity, 3–4-year-old children explored basic engineering concepts by constructing spiral-shaped trees using wire and different materials. While testing how to attach decorative elements, children discovered that glue did not hold the structure securely and successfully solved the problem by using plasticine instead. Through hands-on experimentation, children developed early engineering thinking, problem-solving skills, and an understanding of stability and cause-and-effect relationships.

TIKSLAS

Kuriant spiralines eglutes tyrinėti formą, stabilumą ir konstrukcijos laikymąsi, lavinant smulkiąją motoriką ir pirmuosius inžinerinius įgūdžius.

HIPOTEZĖ

Ar spiralė gali stovėti ir išlaikyti formą, jei ją tinkamai pritvirtinsime ir subalansuosime?

EIGA

Veikla vyko per patirtį ir bandymus, leidžiant vaikams patiems stebėti, kaip jų sprendimai veikia konstrukcijos rezultatą.

Robotukų grupės vaikai susipažino su veiklos priemonėmis – vielutėmis, pagrindais ir dekoratyviniais burbuliukais, tyrinėjo jų formą, dydį ir paskirtį. Padedami mokytojo vaikai formavo spiralę iš vielutės ir tvirtino ją prie pagrindo, stebėjo, ar konstrukcija laikosi ir stovi stabiliai. Dekoruodami spiralines eglutes vaikai iš pradžių bandė burbuliukus pritvirtinti klijais, tačiau pastebėjo, kad jie greitai nukrenta ir konstrukcija tampa nestabili. Ieškodami tinkamesnio sprendimo, vaikai pabandė naudoti plastiliną, kuris leido burbuliukus pritvirtinti tvirčiau ir išlaikyti spiralės formą. Kurdami eglutes vaikai bandė, lygino ir koregavo savo sprendimus, stebėjo, kaip kinta konstrukcijos stabilumas. Veiklos pabaigoje vaikai apžiūrėjo sukurtas spiralines eglutes, džiaugėsi rezultatu ir stebėjo, kaip konstrukcijos juda, laikosi ir išlaiko spiralės formą.

STEM Methodology

This activity was implemented using an inquiry-based and project-based STEM approach. Children followed a simplified engineering design cycle: problem identification, testing, solution selection and improvement.The teacher acted as a facilitator, encouraging observation, discussion and experimentation, while children independently explored construction solutions.

Alignment with the School STEM Strategy

This activity reflects the school’s STEM strategy by introducing engineering thinking at an early age through hands-on, child-led experimentation. The focus is placed on problem-solving, decision-making and iterative improvement, supporting the development of foundational STEM competences.

STEM School Elements

Problem-based and project-based learning.

Children encountered a real construction problem (decorative elements falling off when glued) and tested alternative solutions. Through experimentation, they identified plasticine as a more effective method, following a clear problem–solution–improvement process.

Inquiry-based learning.

Children explored stability, balance and material properties through hands-on testing and observation, without predefined answers, learning through direct experience.

Contextualised STEM learning

Engineering concepts such as stability and structure were introduced through a familiar and meaningful context – building spiral trees – making abstract ideas accessible to young children.

Interdisciplinary STEAM approach

The activity integrated engineering, science, mathematics and art through construction, observation, spatial reasoning and creative design.

Assessment

Learning outcomes were assessed through observation and process-based assessment. The teacher observed children’s ability to identify problems, test different solutions, adapt their constructions and demonstrate understanding of stability and cause-and-effect relationships. Assessment focused on the learning process rather than the final product.

Winnie