

Bionic Swift: a bionically inspired robotic bird

Explore the bird's flight in a practical way with the Bionic Swift

Festo Didactic presents a new experimental set within the existing bionics educational concept "Bionics4Education". The Bionic Swift can be used to impart relevant knowledge on the topics of bird flight, bionics and STEAM (Science, Technology, Engineering, Arts and Maths) both in the school education environment and in the private sector.

Inspired by natural models from the bird world

It is one of the oldest dreams of mankind: flying like a bird. The lift and propulsion of birds have been ingeniously achieved by nature. Birds measure, control and regulate their movements continuously and completely autonomously. The inspiration for the development of the Bionic Swift educational kit came from the Bionic Learning Network, a research association with universities, institutes and development companies whose goal is to produce novel technology carriers through the application of bionics. In 2020, the BionicSwift was presented to the public for the first time. Festo Didactic wants to bring the world of bionics together with the education sector in order to promote working in interdisciplinary project teams as well as problem-oriented learning and creativity at schools.

The Bionic Swift is a robotic bird inspired by the bird world. Festo based its development on the natural model of the swallow. With the experimental set, scientific and technical correlations as well as the fascination of bird flight and the topics of lightweight construction, energy efficiency and aerodynamics can be impressively conveyed in STEAM lessons using a project-based approach.

Bionic work didactically prepared

The mechanisms of action of the flap of the wings can be explored in a playful way by students in class. Weighing less than 45 grams, the ultra-light flying object Bionic Swift shows particularly agile flight behaviour. Due to its extreme manoeuvrability, even tight turns can be realised. The Bionic Swift experimental set is recommended for up to three learners and from the age of 15. The references to biology and technology that can be taught in STEAM lessons or at extracurricular learning venues are numerous and reach from the structure of tubular bones to wing take-off and landing to the basics of movements in the air. This allows teachers to teach technical learning content via a new, cross-curricular educational learning path. Accompanying teaching material, as well as the assembly manual, can be downloaded free of charge from our website www.bionics4education.com.

The experimental kit will be available in 2022. We will be happy to inform you in advance. Send us an email at: bionics4education@festo.com

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Bionic Swift experimental kit

Bionic Swift: The experimental kit that lets you experience bird flight and the world of bionics in a hands-on way.



Bionic Swift remote radio control

Playful learning: experience the flight characteristics of the Bionic Swift using remote radio control.



Bionic Swift agile flight behaviour

The ultra-light Bionic Swift shows a particularly agile flight behaviour.



Bionic Swift project-based approach

Project-based approach in class: explore topics such as lightweight construction, energy efficiency and aerodynamics together as a team.

About Festo Didactic

Festo Didactic is a leading provider of technical education and further education. Its portfolio includes digital learning tools, hands-on training systems, workforce development programs, and comprehensive curricula in areas such as industrial automation, electrical engineering,

industrial maintenance, pneumatics and hydraulics, renewable energy, and Industry 4.0. Festo Didactic supports schools, universities, training centers, research institutions, and industrial companies worldwide. Festo Didactic is part of Festo, an independent, globally oriented family-owned company headquartered in Esslingen am Neckar, Germany. In 2025, approximately 800 Festo Didactic employees working across more than 60 Festo national companies generated sales of approximately EUR 155 million.