The thesis deals with origami as a learning environment in mathematics education. The two main aims of the thesis are to show the possibilities of using origami in various areas of mathematics teaching and learning, especially in synthetic geometry and calculations in geometry, and to suggest specific origami-based activities for secondary education.

First, origami is introduced in its historical context and its geometrical axioms are described. Further, advantages and difficulties of using origami in mathematics education are discussed, with respect to the type and level of school. The fundamental part of the thesis consists of description and didactical analysis of tasks based on folding of an equilateral triangle and various polyhedra. Some of these tasks are adapted from other resources, some were designed by the author. Based on direct experience with employing origami-based tasks in different classrooms, methodological recommendations are added to the individual analyses, facilitating the practical usage of the thesis.