Abstract: This work demonstrates the importance of differential equations to develop mathematical model of tumor growth. Since the malignant tumor (cancer) grows voraciously, the scientists and mathematicians have tried to better understand how it grows. In view of mathematics, the modeling for tumour growth can be divided into two different categories: probabilistic and deterministic. Probabilistic model describes a set of measurement to evaluate the behaviour of individual cells, and deterministic model explains the behaviour of large populations of cells and their growth by changing the state in the transition from an active reproducing cell to a cell that is not reproducing. In this survey, we first answer the question: How ordinary and partial differential equations (ODE/PDE) help to provide mathematical models in tumor growth? Secondly, how to use deterministic models and involve the ODE and PDE with some basic aspects of tumor growth to fit any mathematical model. Finally, we provide a relatively comprehensive list of existing models in this area and discuss other representative models in detail together with some possible future developments of mathematical modeling of cancerous cells.