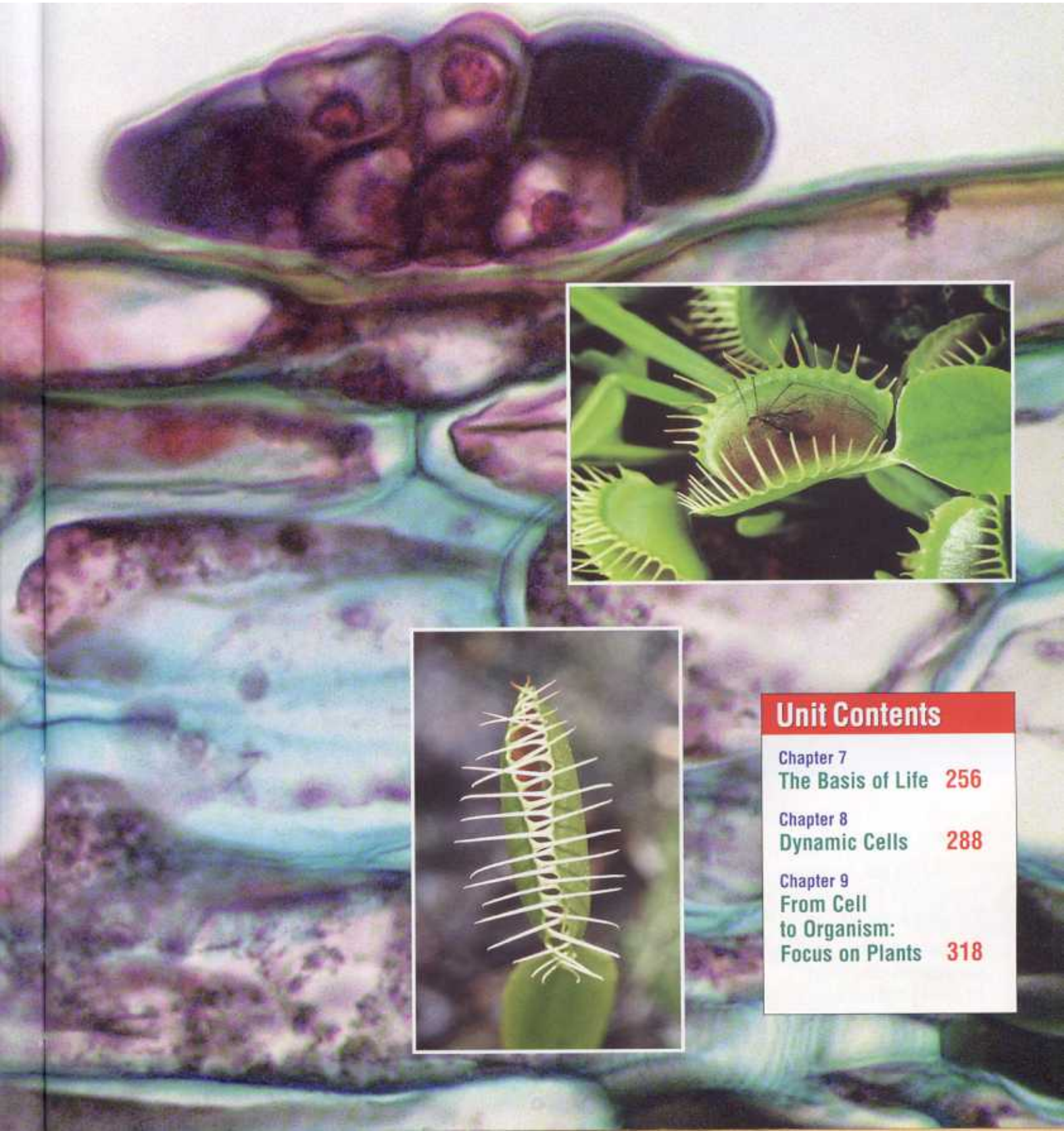
UNIT 3

Cycling of Matter in Living Systems

A fly lands on a Venus's-flytrap. Suddenly the plant's leaf folds, capturing the insect within. The plant then slowly digests and absorbs its prey. A few days later the Venus's-flytrap leaf re-opens, ready for the arrival of its next meal.

How can the response of a Venus's-flytrap be explained? How would you go about investigating this behaviour? What questions might you ask about how the plant captures and digests its prey? For instance, you might have noticed hairs on the inner face of the leaf. What is the function of these hairs? To find the answer, you could start by looking at a Venus's-flytrap leaf under a microscope. You would see that the leaf is made up of cells. What roles might those cells play? Do different groups of cells perform different tasks? Which cells detect landing prey? Which cells help to break down food? Perhaps you can form hypotheses to answer these questions. You could then test your hypotheses by doing experiments. Later, you might tell other investigators about your findings. You could compare your results with theirs to see if the results were the same and to see if you could agree on answers to your questions.

Scientists have long used this approach to build knowledge about living things. Over hundreds of years, they have come to see how cells function in living organisms, from a microscopic bacterium to a towering spruce tree. To reach this understanding, scientists had to learn about the structures and processes of cells, which are the basic units of life. In Unit 3, you will examine the roles of the cell in cycling matter in living systems.



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