TEXT BOOK PRESCRIBED FOR F.

BIOLOGICAL SCIENCE

AN INQUIRY INTO LIFE

BIOLOGICAL SCIENCES CURRICULUM STUDY

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Contents

CHAPTER 4

Basic Functions 54

If nearly all forms of life have a common basic structure – cells – do they also have common functions? Does life as a fish have anything in common with life as a tree? This biological question is closely connected with the history of chemistry – especially with the argument that life can be understood in terms of the same general laws that apply to all matter.

CHAPTER 5

Living Chemistry 80

Even though all forms of life – all living organisms – exist in full conformity with natural patterns that we recognize as the laws of chemistry and physics, the patterns of life involve *complex* chemistry and *complex* physics. Living organisms are composed of atoms that are common in the nonliving world, but these atoms are much more complexly organized than in nonliving matter. Only in living structures are atoms found organized into large molecules of nucleic acids, proteins, carbohydrates, and fats. The cells of all living creatures are composed chiefly of these same classes of chemical substances.

CHAPTER 6

The Physiology of Cells 10

A living cell, with its huge number of complex substances, exhibits ceaseless chemi activity. Substances are entering and leaving the cell at all times, as molecules are be built up and broken down within the cell. Transfers of energy for all the cell's activities occurring constantly. These ceaseless processes of chemical and energy change are

CHAPTER 7

Reproduction – of Cells – of Individuals

The most basic characteristic of life is reproduction; that is, the production of new tures and individuals similar to the existing structures and individuals. Reprod occurs at different levels of organization. Parts of the cell, such as the chromos produce new chromosomes. Cells then produce new cells; and individuals, offspr themselves. In this chapter, reproduction by cells and by individuals is discussed i of a fundamental feature – the replication and distribution of chromosomes in mit meiosis.

CHAPTER 8

The Hereditary Materials

The physical basis of genetic continuity can be traced from cell to nucleus to chr In this chapter you will list the requirements for a hereditary material, then be for molecules that fulfill these requirements. The observations and experimen to the belief that DNA is the hereditary material are used as an inquiry int procedures. Finally, the manner in which the hereditary instructions of DNA specific proteins of the cell is described.

PART 2 DIVERSITY

Diversity among the earth's microorganisms, plants, and animals is more obvious in many ways than the fundamental unity in life. Historically, diversity emerged as modifications upon a common pattern. Unity continues to be shown in the recognition that different organisms are similar chemically, have a common structural basis in cells, reproduce, evolve, respond to stimuli, and constitute parts of an interrelated whole. Yet diversity in life is seen in the millions of different types of living organisms—the three principal groups being microorganisms, plants, and animals. This section of the book will be concerned with the many variations upon the fundamental theme.

PART 2a MICROORGANISMS

PART 2b PLANTS

PART 2C ANIMALS