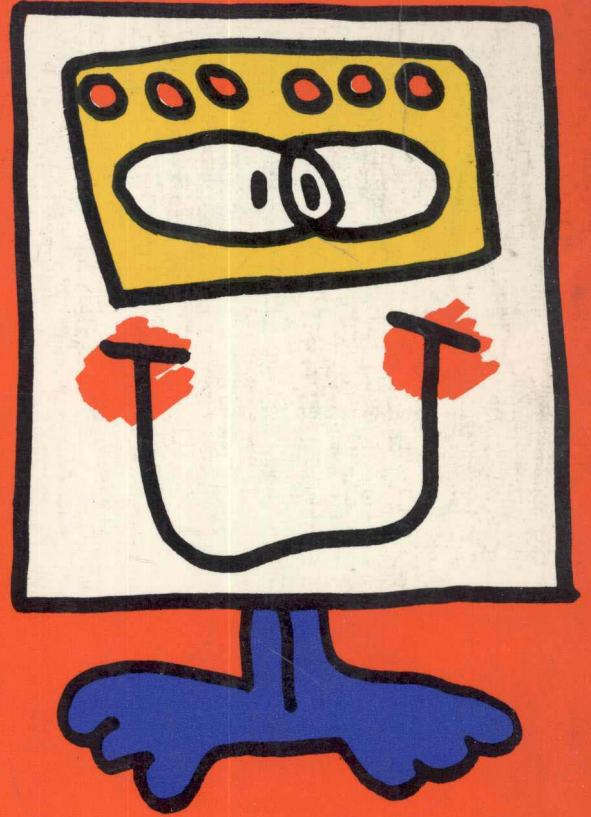
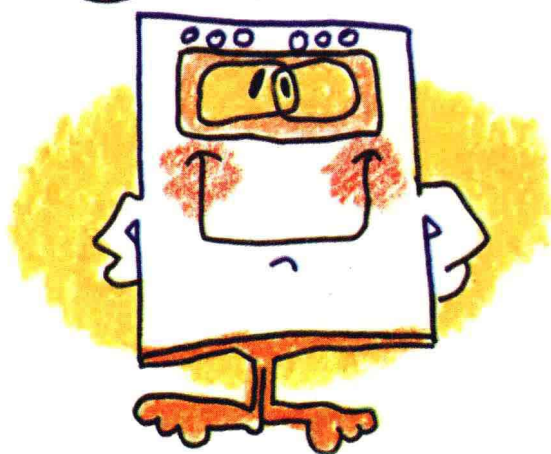


WHAT IS a COMPUTER?



by Marion J. Ball

WHAT IS a COMPUTER?



by Marion J. Ball

with the assistance of Nancy Levy

illustrated by  Barbara A. Heisler

1978 Impression

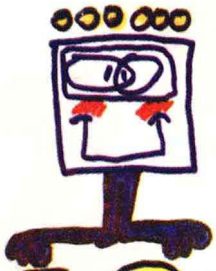
COPYRIGHT © 1972 BY HOUGHTON MIFFLIN COMPANY

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, without permission in writing from the publisher.

Printed in the United States of America.

ISBN: 0-395-13772-1

Library of Congress Catalog Card Number: 79-185791

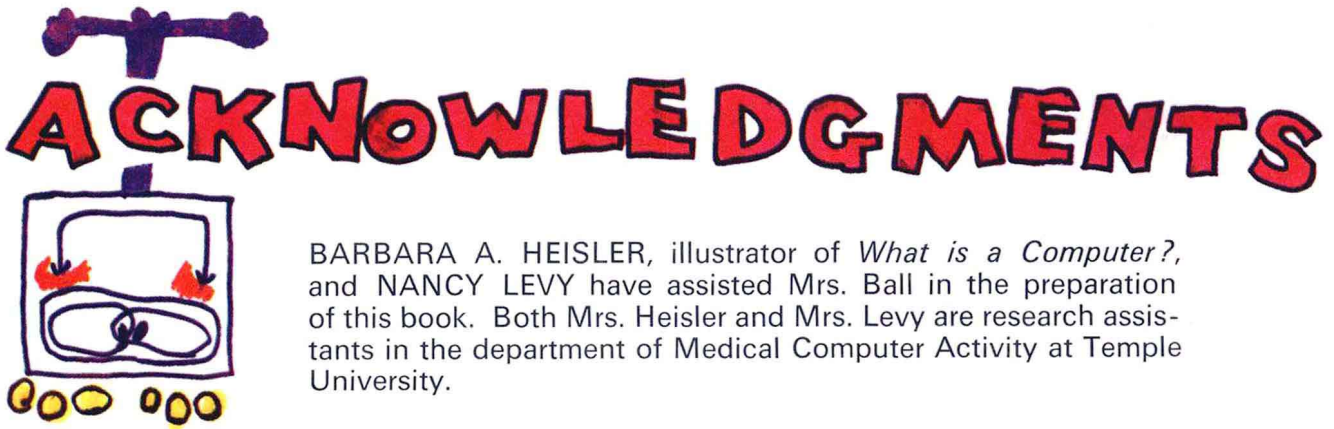


MARION J. BALL is Assistant Professor of Medical Physics and Assistant Director, Medical Computer Activity, Temple University Health Sciences Center. Mrs. Ball has previously taught in the Lexington, Kentucky public school system and at the University of Kentucky. She has also written numerous articles and lectured on computer applications in medicine.

ABOUT THE AUTHOR

CREDITS

Pages 36 and 55 Courtesy of IBM Corporation



ACKNOWLEDGMENTS

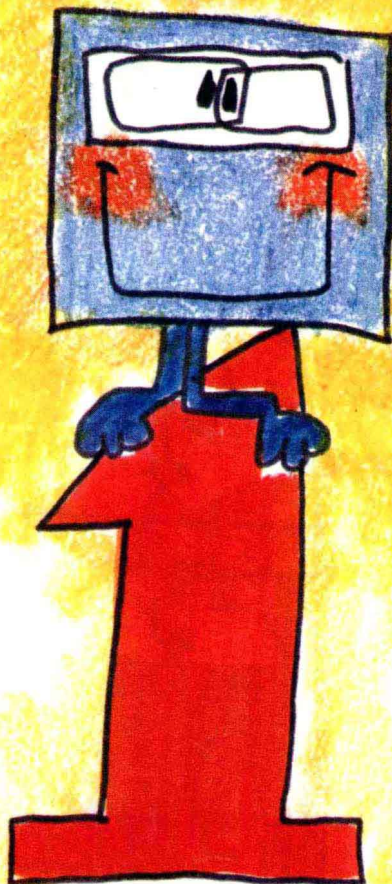
BARBARA A. HEISLER, illustrator of *What is a Computer?*, and NANCY LEVY have assisted Mrs. Ball in the preparation of this book. Both Mrs. Heisler and Mrs. Levy are research assistants in the department of Medical Computer Activity at Temple University.

CONTENTS



	Page
Part 1. What is a Computer?	1
Part 2. The History of Computers	15
Part 3. Parts of a Computer System	25
Part 4. How Software is Made	57
Summary	85
Glossary	87
Index	91

PART



What is a computer?

$$\begin{array}{r} 4 \\ + 2 \\ \hline 2 \times 3 = ? \end{array}$$

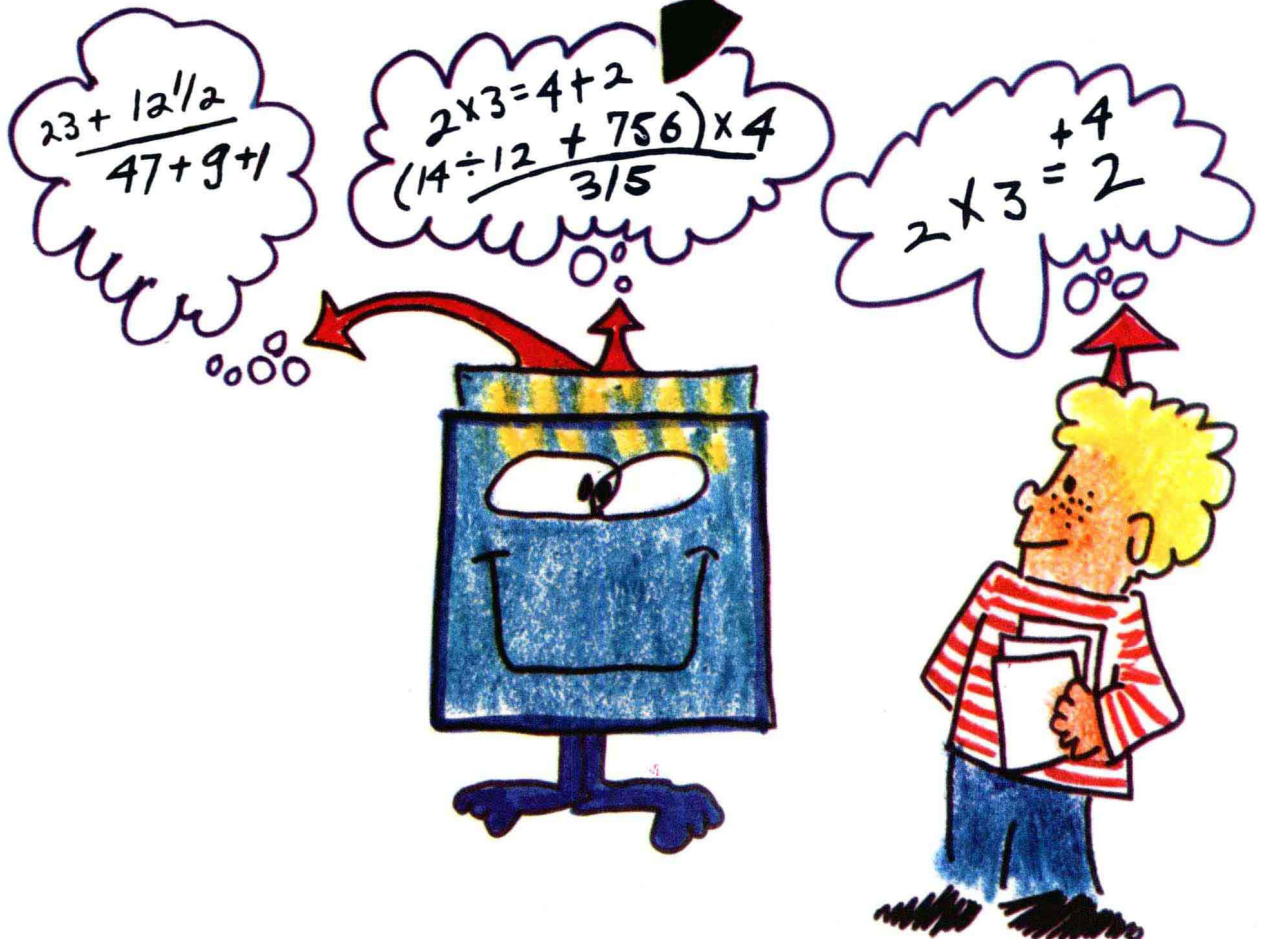
A computer is a machine
that handles lots of information very quickly.

It is a problem solver !

In the time it takes you to do this

$$2 \times 3 = 4 + 2$$

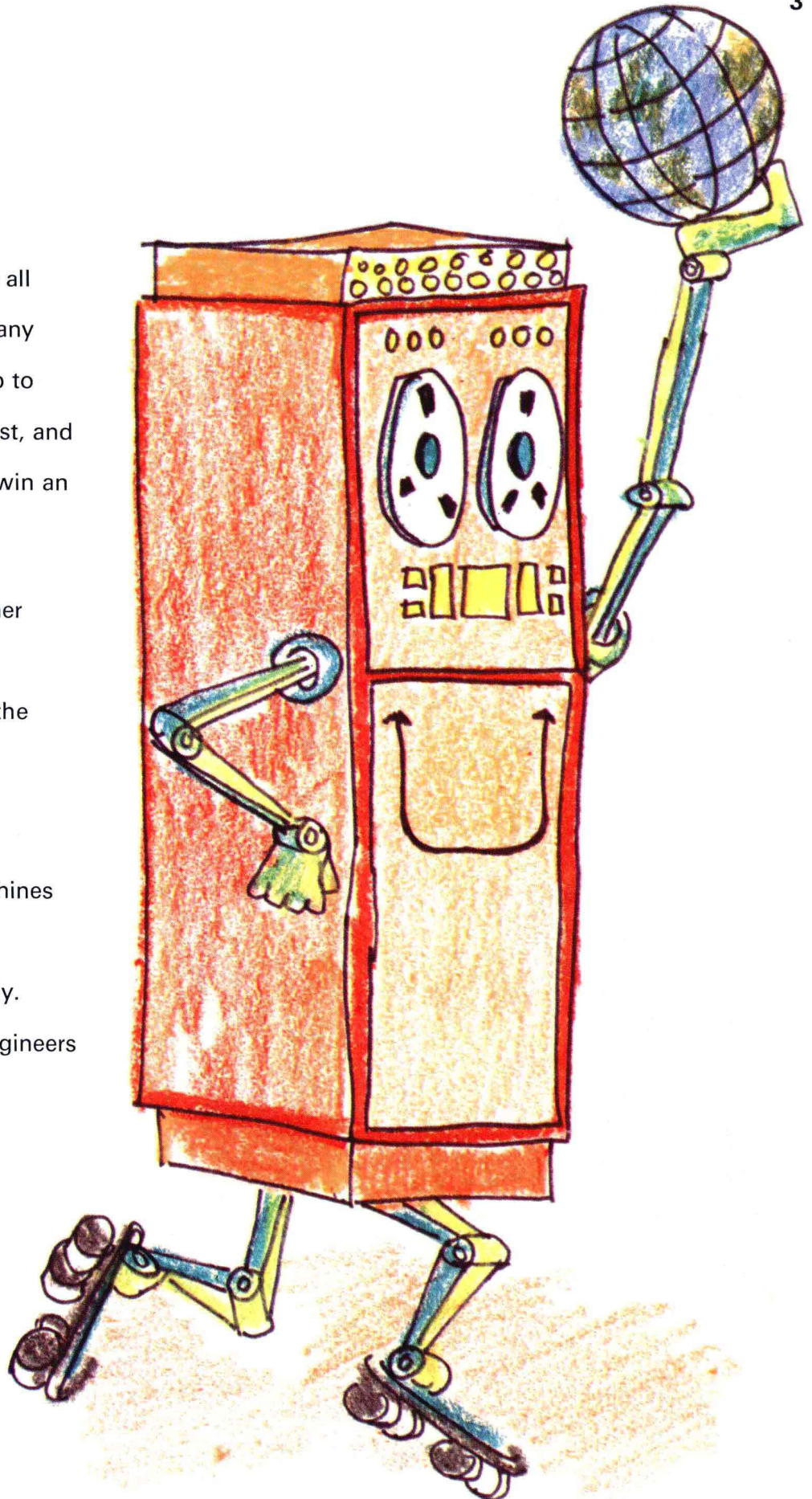
in your head, the computer can do all this

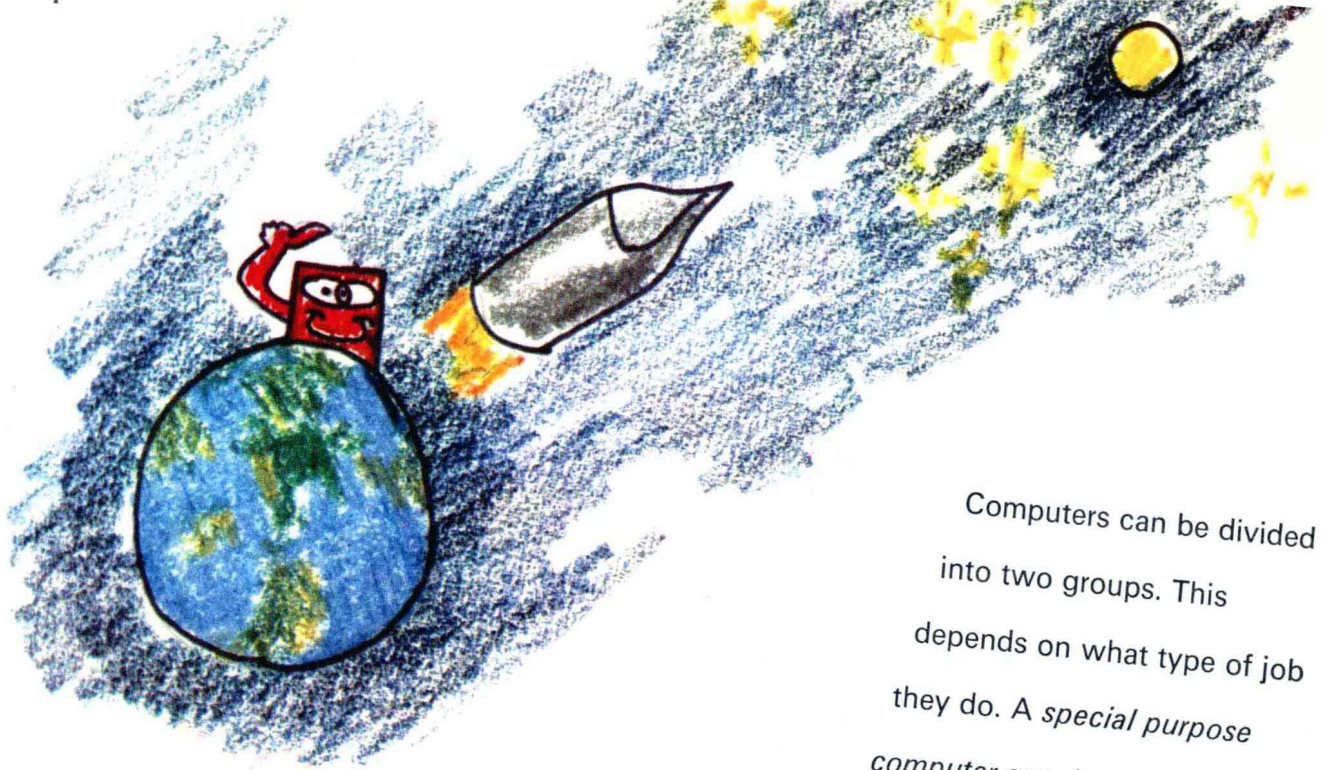


Computers help people all over the world to do many types of jobs. They help to give the weather forecast, and try to predict who will win an election.

Computers can turn other machines on and off in factories. They can set the type for our books and newspapers.

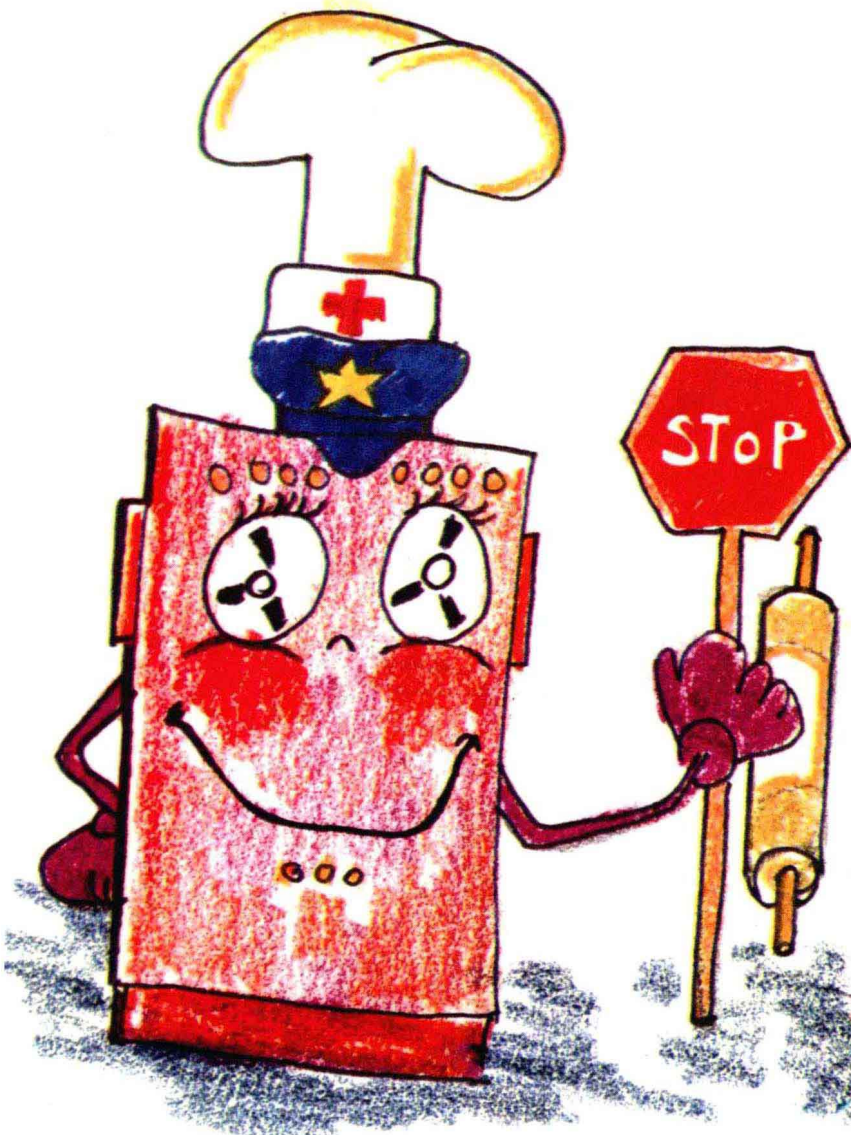
Computers control machines that are used to make clothing, cars, and candy. Computers also help engineers to design buildings and bridges, and even other computers !

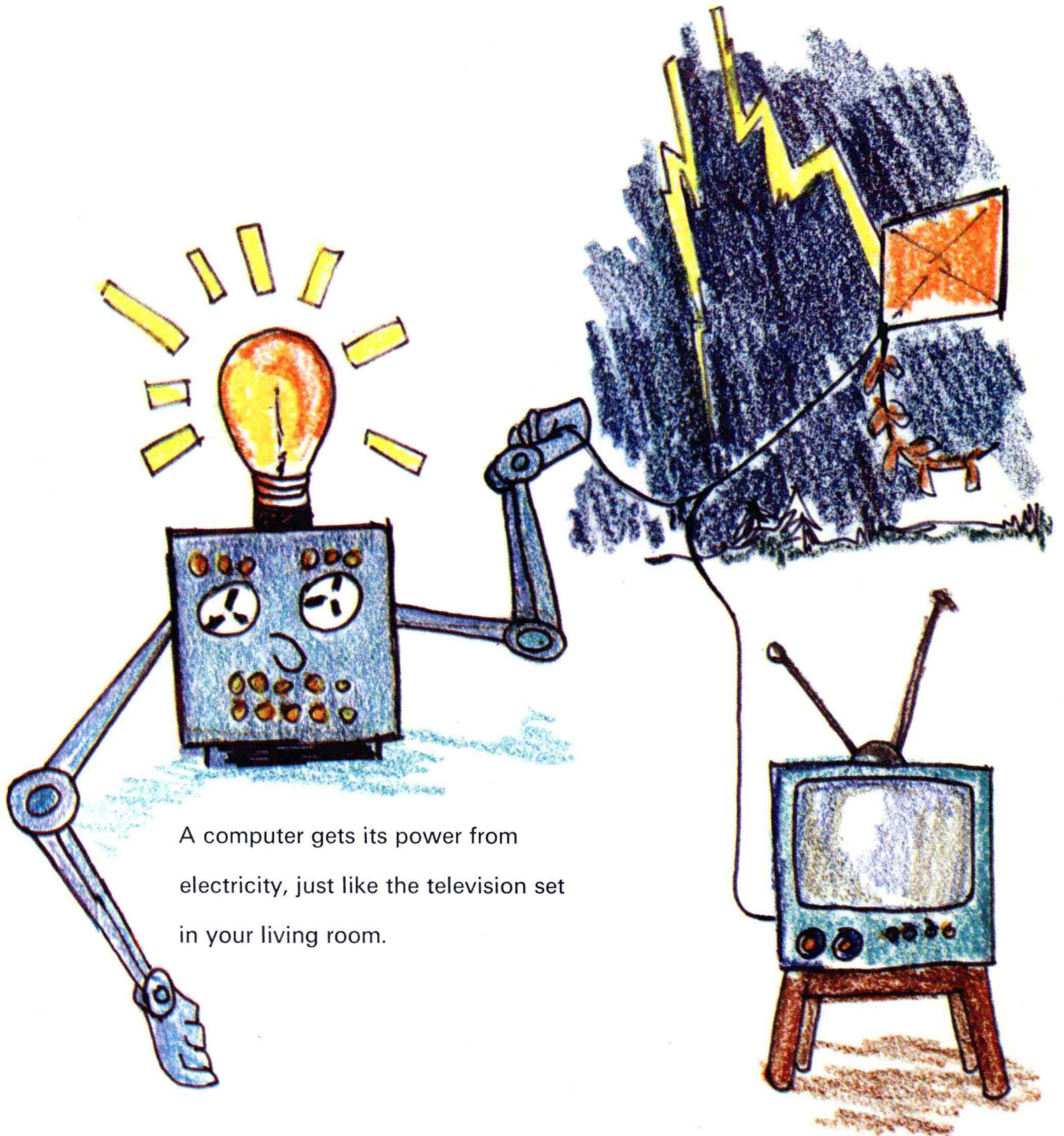




Computers can be divided into two groups. This depends on what type of job they do. A *special purpose computer* can do only *one* special job. For example, a special purpose computer can help steer a rocket ship to the moon.

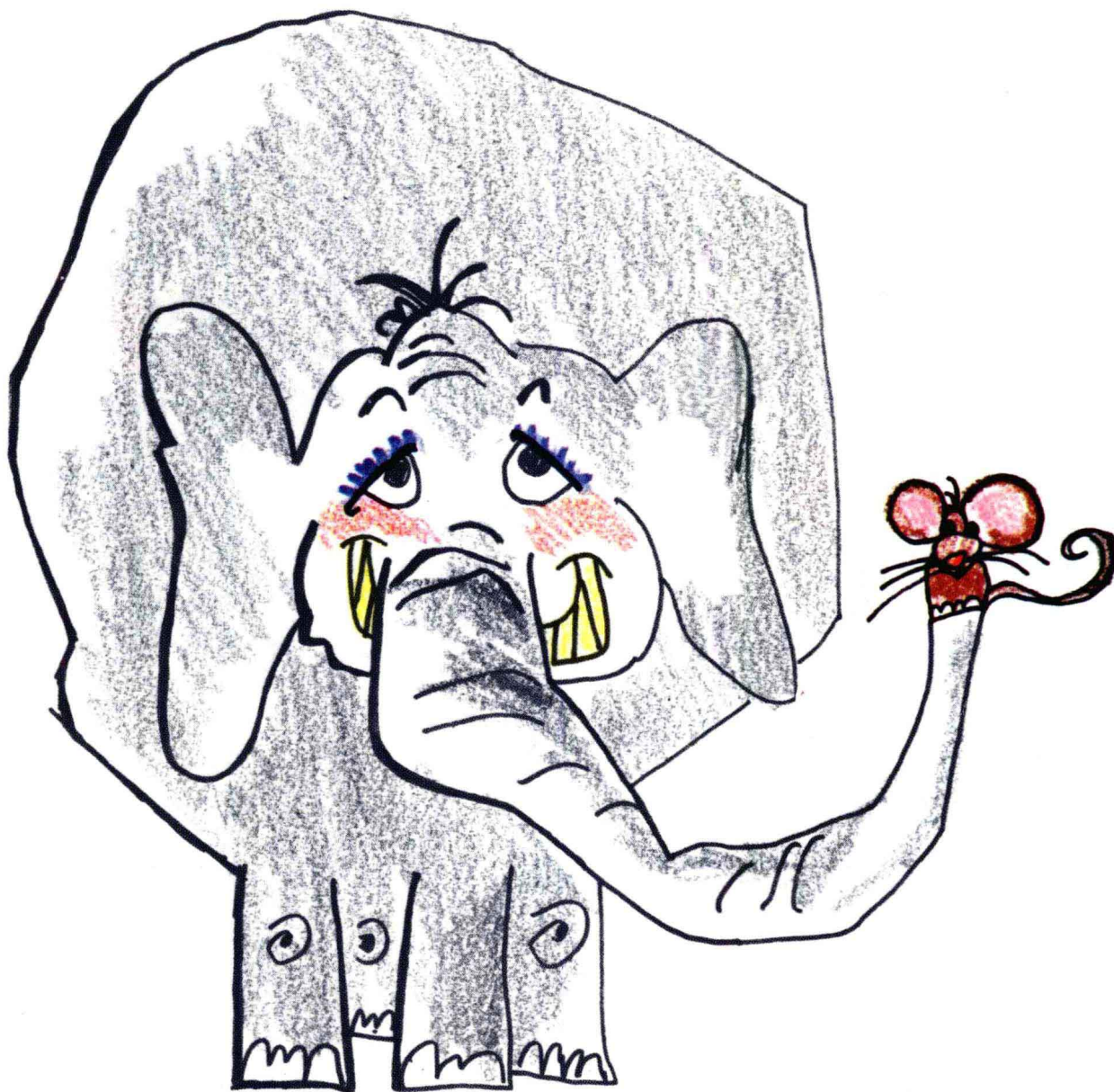
A *general purpose computer* can do *many* kinds of jobs. For example, a single computer can help the police to keep records of licenses, stolen cars, and fingerprints. General purpose computers may be used in libraries, banks, hospitals, and many other places.



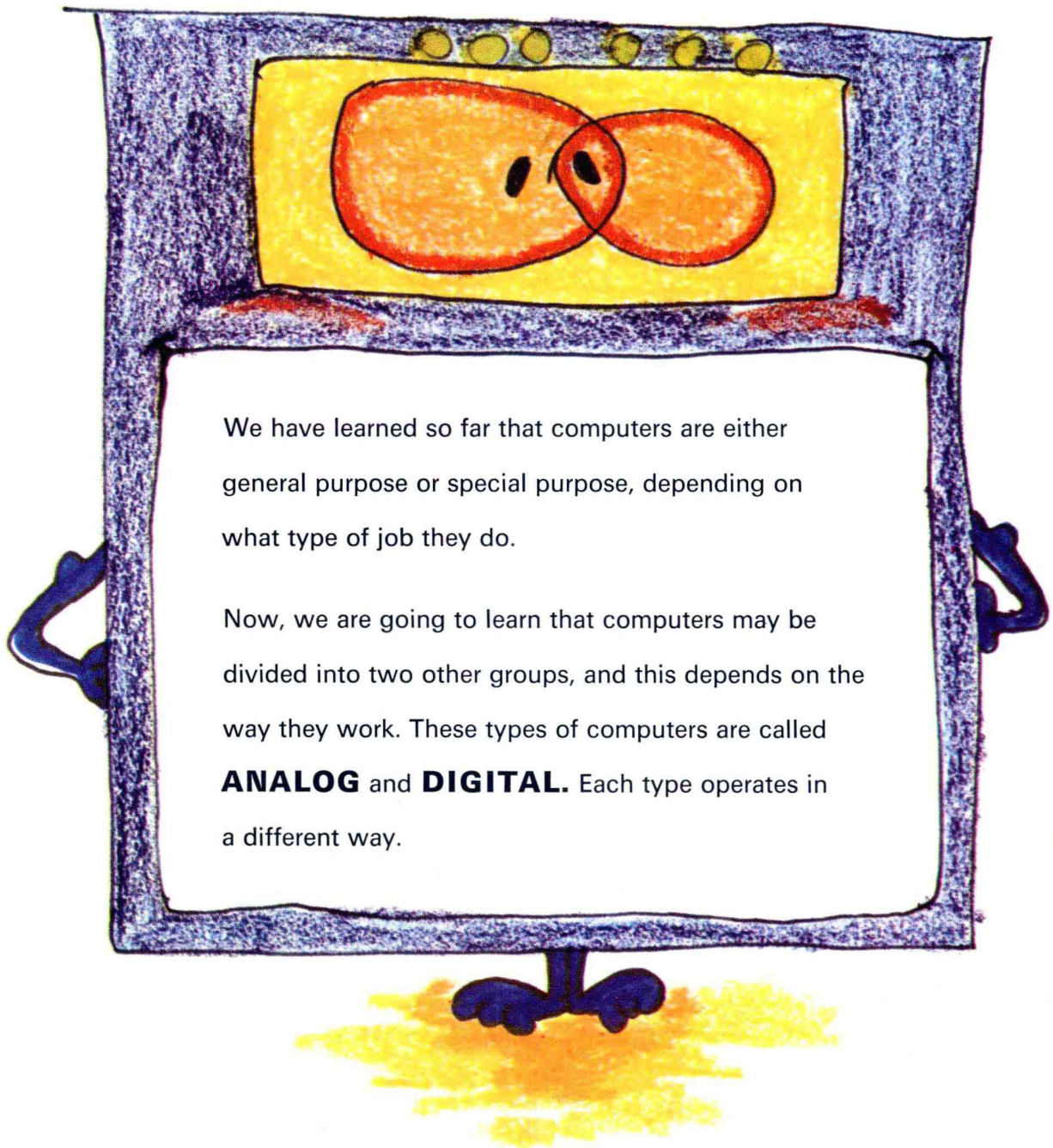


A computer gets its power from electricity, just like the television set in your living room.

Computers come in many different **SizeS.**



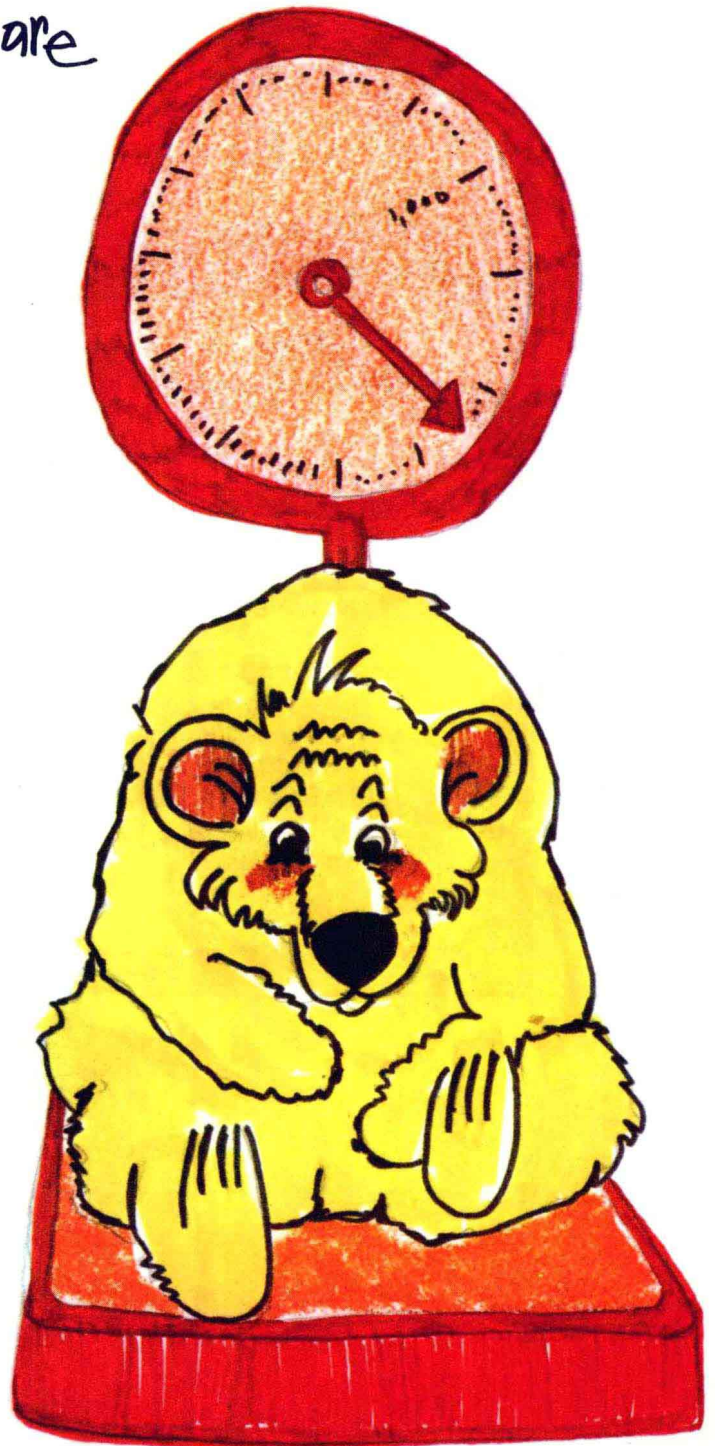
Some special purpose computers can be as small as portable radios because they are used for special jobs. Some general purpose computers can be large enough to fill a room and they may do the work of one million people.



ANALOG COMPUTERS

Analog computers compare one thing with another thing.

For example, a scale is like a simple analog computer. When you step on the scale, it records your weight. The weight of your body will cause the dial to turn to a certain number. This number stands for your weight. The scale compares your weight against a standard weight.



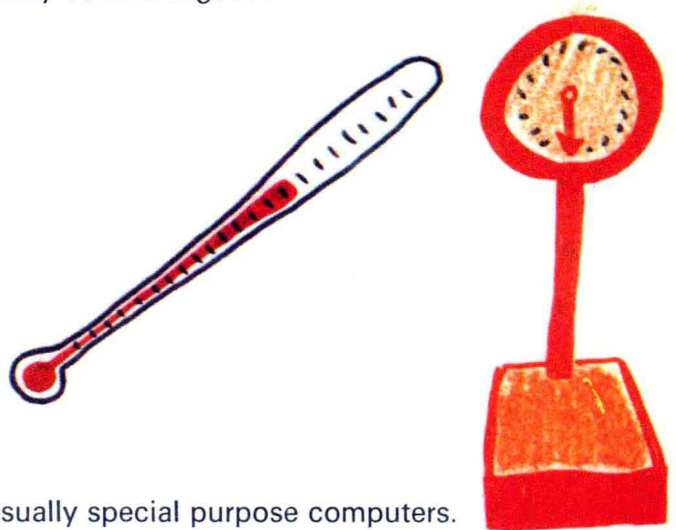


Another example is a thermometer.

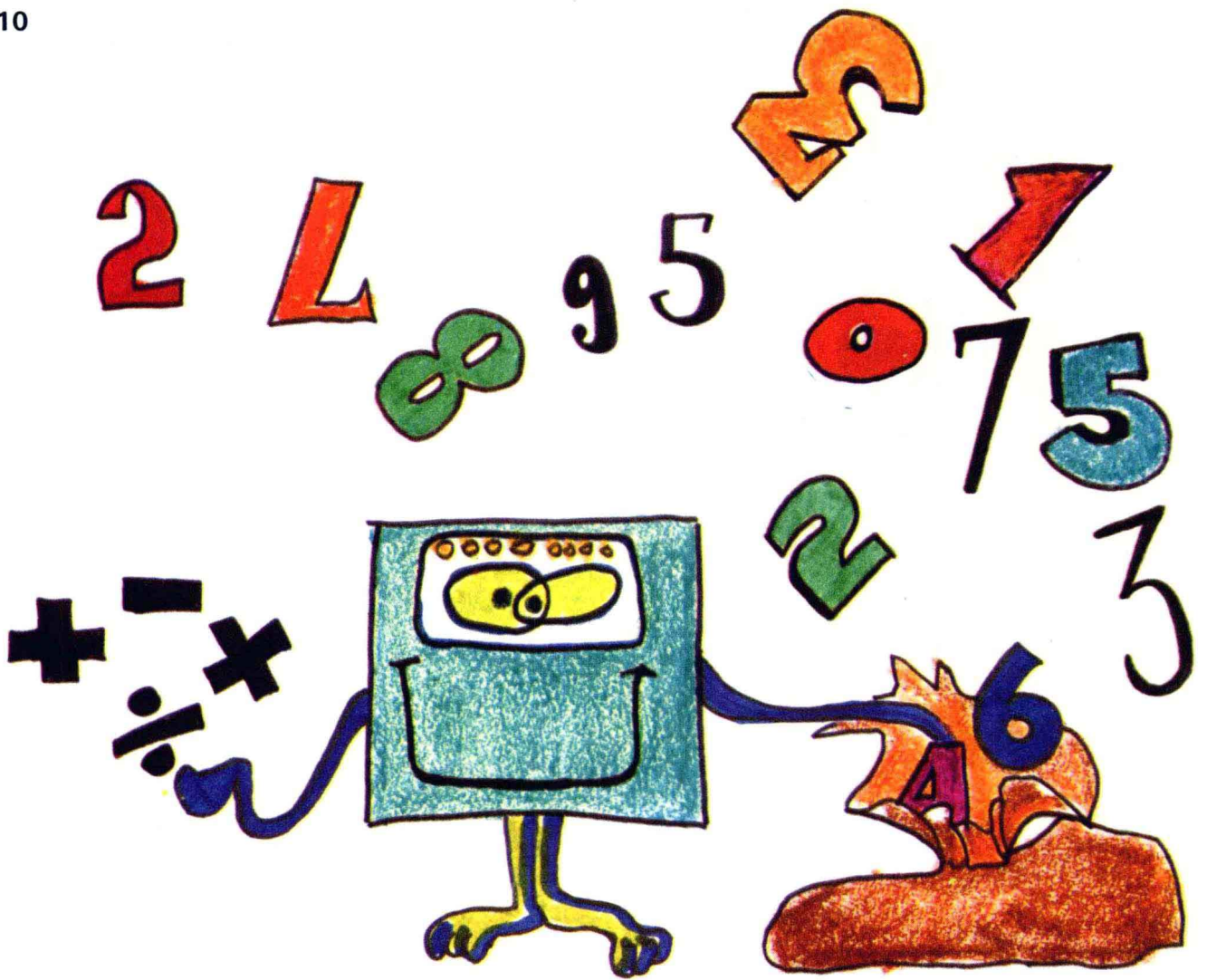
A thermometer is like a simple analog computer. When you are sick and have a fever, your mother has to take your temperature. The heat from the

temperature in your body will cause the mercury inside of the thermometer to climb up the tube. The mercury will climb up the tube to a certain distance. This distance stands for your body temperature.

An analog computer can measure things in the same way a scale measures your weight and a thermometer measures your body temperature. It can also measure things like heat, rate of speed, the level of fluids and many other things!!!

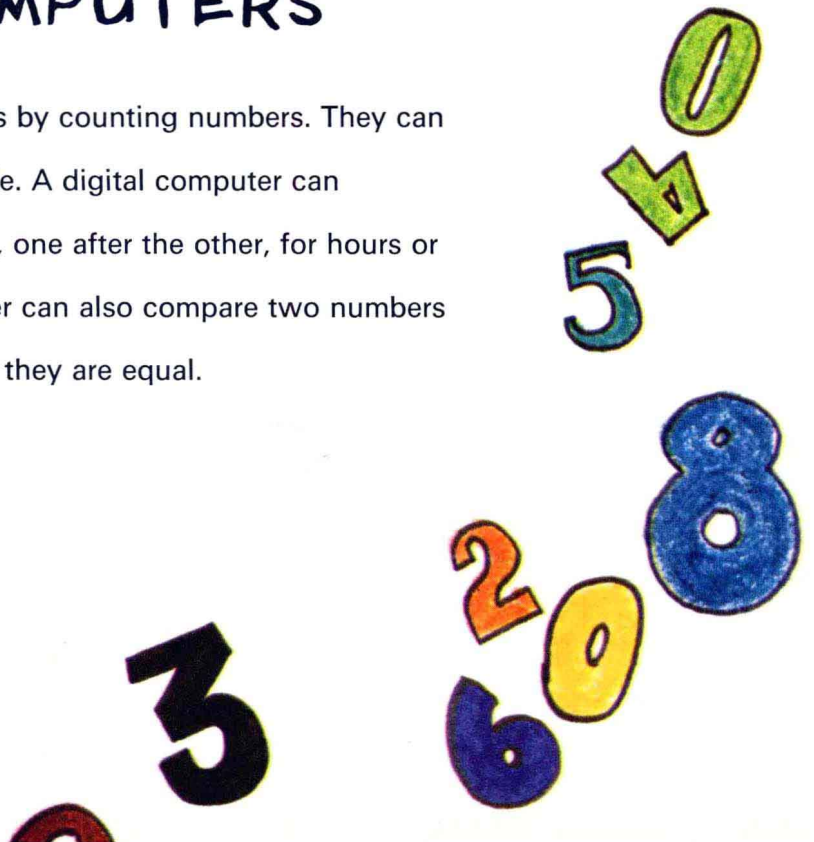


Analog computers are usually special purpose computers.

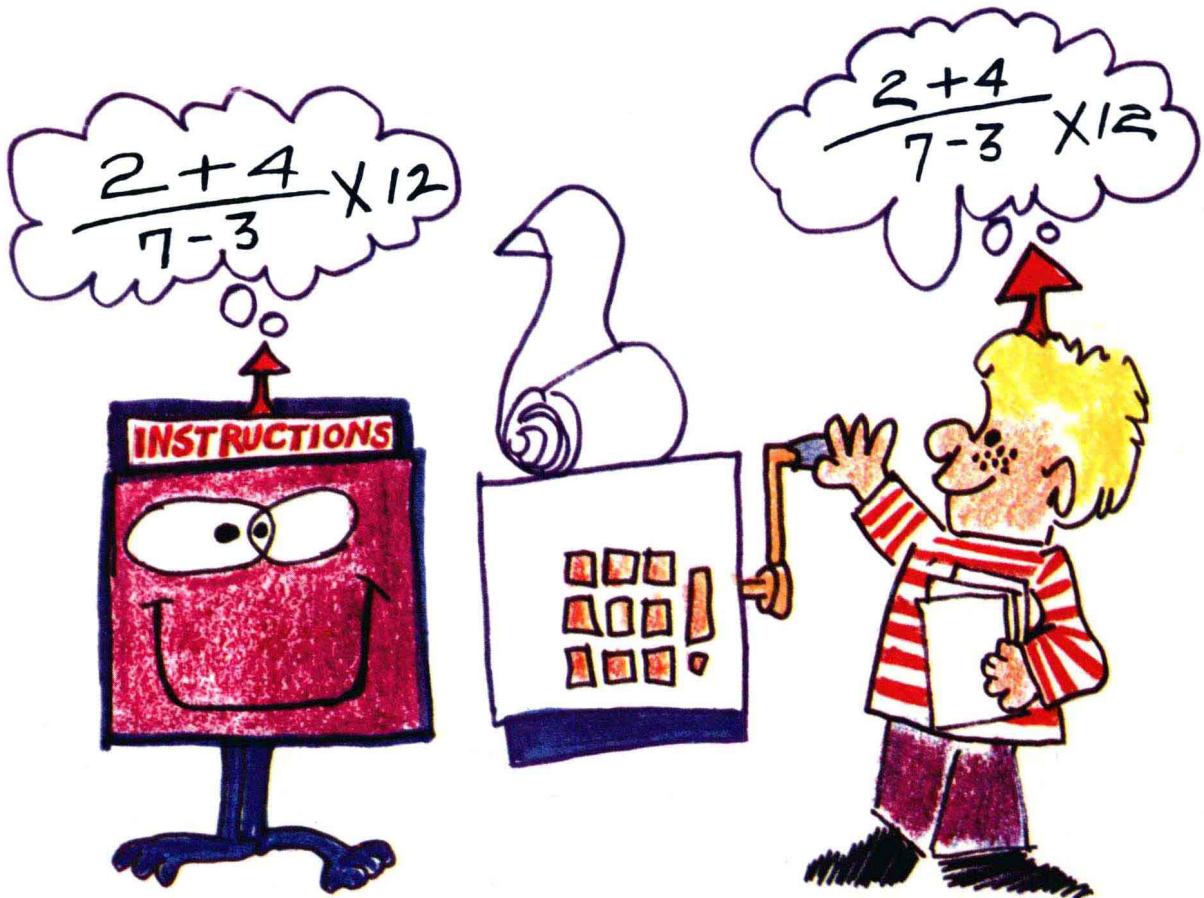


DIGITAL COMPUTERS

Digital computers solve problems by counting numbers. They can add, subtract, multiply, and divide. A digital computer can automatically do many problems, one after the other, for hours or days at a time. A digital computer can also compare two numbers to find out which is greater, or if they are equal.



Adding machines, like digital computers, can add, subtract, multiply, and divide numbers. So then, what is the difference between the two???



The answer is that a digital computer solves the problem by using its memory. With the instructions and the numbers, a digital computer can perform each step in solving a problem by itself. An adding machine needs a person to perform every single step in solving a problem.

Even though a digital computer can do all of this work, it cannot think. A man or woman must give the computer two kinds of information.

First, the computer must be given a special set of instructions, called a **PROGRAM**, to tell it what to do. Then the computer must be supplied with all the numbers it needs to solve the problem. These numbers are called the **DATA**.

