Bill -
Please respond to this
Mike

Told her no approval needed - might send ack. note

Mike -
I thought you might want to take a look at these materials.
-Lori Anderson
X62673

The Science Instruments Company
A Division of The OMG Co.
6122 REISTERSTOWN ROAD, BALTIMORE, MD 21215-3487 U.S.A.

Tel: (410) 358-7810
1-800-229-2114
Fax: (410) 358-0935

http://www.omgsic.com OMGandSIC @aol.com

October 16, 1997

Ms. Laurie Anderson
Press Office
The White House
Pennsylvania Avenue
Washington, DC 20502

Dear Ms. Anderson:

Richard Siegel of our office suggested that I write to you directly.

Our company has developed laboratory equipment and training programs for the educational field since 1960. In 1992, we embarked on the development of an all-new hands-on approach to the teaching of science, technology and health care. We have developed a new curriculum which articulates science education from the first grade through through the twelfth grade. At the high school level, we can offer either a science and technology curriculum or health care preparation for a school-to-work program. We are also developing a unique package for students having special educational needs.

In the *Science Link* newsletter published by the Smithsonian, Dr. Richard Riley, U.S. Secretary of Education indicated that more hands-on learning would unleash creativity in our young people. Dr. Riley has obviously not seen our program. We have produced a very unique curriculum package which enables students (starting at the first grade) to make measurements on their bodies and explores the relationship between science, technology and human physiology. At a higher level, the program can directly relate to health care education. There are over fifty hands-on activities using battery-operated instruments. Each instrument, operating on two "AA" cells, will enable students to use their computers to observe brain waves, electrocardiograms, muscles, eye movements and many more recordings. We are the only company, worldwide, that has developed such a unique educational structure.

We would like to have the opportunity to show President Clinton, Vice President Gore, Dr. Richard Riley and anyone else who may be suggested, to see this program. We are requesting an appointment, and would arrange to bring the equipment along with a computer so as to be able to demonstrate how this program could heavily impact on education in our country.

Without going into many details, let me merely say that I developed this program based on my years of experience in education and science. I taught for over twenty years, have been an educational consultant for at least another twenty years, held the patents on the first solid-state pacemaker (exhibited at the Smithsonian for many years) and was one of the 75 honored graduates from the University of Maryland College of Education. Dr. Charles J. Beatty, assistant dean (301-405-5610) and Dr. Willis D. Hawley, dean, know me quite well. Dr. Beatty has known me for more than 25 years and knows of my work. I was on the faculty of the University of Maryland Medical School and University Hospital for the development of medical instrumentation and to assist in the early stages of developing the Shock-Trauma facility. Based on these various experiences, I was able to create this program, called ***Concepts of Bio-Related Technology.***

After seeing the program, some of you might be interested in visiting a couple of pilot schools that have recently been established. Some excellent things are going on at the fourth grade level in Detroit, at a high school in Texas, and in a new program just started in Washington, DC. We also have programs in the Maryland area. North Carolina has more than forty schools involved in health education and science education programs using our curriculum and materials.

We have developed this extensive curriculum using our own funding and our own abilities. We think it can make a major impact on our children. It is because of this that we think that the President and Vice-President and others would be interested in seeing what can be done for public education without spending government money.

I look forward to hearing from you.

Sincerely yours,

Morris Tischler
President

Enclosures

cc: Mr. Richard Siegel, Director of Public Relations

MT:abk

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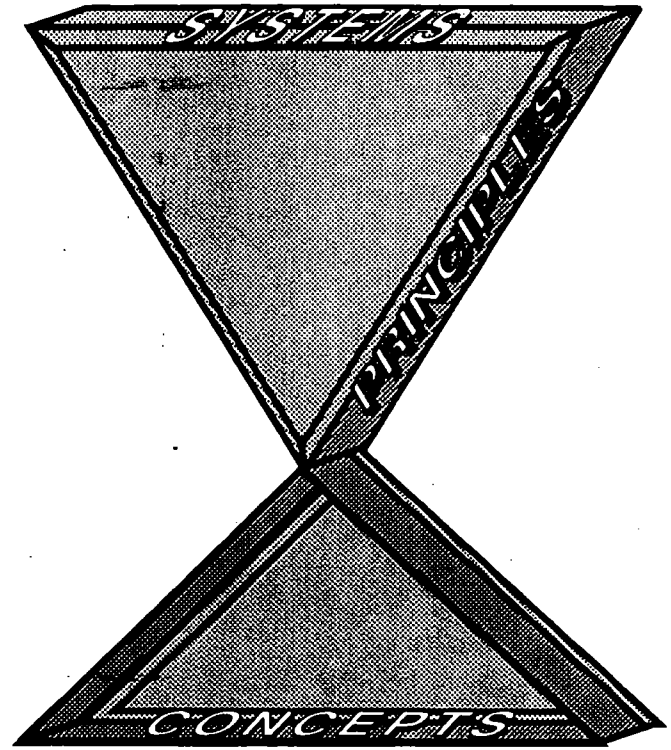
Tischler Triangles Applied to Science and Technology

[booklet]



Tischler Triangles Applied to Science and Technology

A Learning and Teaching Concept

by: Morris Tischler

BENJAMIN L. CARDIN
3D DISTRICT, MARYLAND

COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEE ON HEALTH
SUBCOMMITTEE ON OVERSIGHT

COMMITTEE ON STANDARDS OF
OFFICIAL CONDUCT

Congress of the United States
House of Representatives
Washington, DC 20515–2003

COMMISSIONER
COMMISSION ON SECURITY
AND COOPERATION IN EUROPE

DEMOCRATIC CAUCUS
STEERING COMMITTEE

ASSISTANT DEMOCRATIC WHIP

EXTENSION OF REMARKS
REP. BENJAMIN L. CARDIN
FEB. 13, 1997

Mr. Speaker, it is extremely fitting that in honor of Valentine's Day tomorrow I rise to honor the work and outstanding record of achievement of Morris Tischler. As the inventor of the cardiac pacemaker, Mr. Tischler has done more than any other individual to keep the human heart ticking throughout the world.

Morris Tischler, who we are fortunate to have as a resident of the great city of Baltimore, has made medical history. In addition to his pioneering work in developing the pacemaker, he has been instrumental in designing instrumentation for heart surgery, monitoring systems, a nerve stimulator, a blood analyzing monitor, among other innovations.

As a teacher, consultant innovator, inventor, and businessman, Mr. Tischler has charted new territory in the field of medical electronics. In his desire to save lives, he has been generous in sharing his knowledge and expertise with the medical community around the world through lectures and visits.

Born in Newark, NJ, Mr. Tischler attended the Johns Hopkins University and graduated from the University of Maryland. An outgrowth of his research at Johns Hopkins University and the University of Maryland has been his pioneering work in science education. He has used his talents to develop and design educational materials and training programs that have been used in teaching science and electronics in elementary and secondary schools, colleges, universities and technical schools. He has succeeded in his goal of simplifying very complex systems as an aid to teaching.

I urge my colleagues to join me in congratulating Morris Tischler, a true Renaissance Man, on his outstanding career as inventor, teacher, innovator. His energy and creativity have made medical history and helped save millions of lives around the world. His contribution to the field of medical science has set an example of dedication and caring that is hard to match.

Congress of the United States
House of Representatives
Washington, DC 20515–2003

OFFICIAL BUSINESS

Benjamin L. Cardin
M.C.

The State of Maryland

Governor of the State of Maryland, to

DR. MORRIS TISCHLER , **Greeting:**

Be it Known: That on behalf of the citizens of this State,

in recognition of your vision, research and development work in the field of medical electronics which has made a tremendous impact on medical history... in honor of your distinguished accomplishment as the inventor of the world's first Solid-State Pacemaker; and as an expression of our admiration, gratitude and great respect for your continuing success as a teacher, consultant, inventor and businessmen,

we are pleased to confer upon you this

Governor's Citation

Given Under My Hand and the Great Seal of the State of Maryland,
this 22nd *day of* February
One Thousand Nine Hundred and Ninety-seven

Parris N. Glendening
Governor

John T. Willis
Secretary of State

OSWEGO
STATE UNIVERSITY OF NEW YORK
OSWEGO, NEW YORK 13126

January 27, 1997

Vice President for Selection
The National Inventors Hall of Fame Foundation, Inc.
P.O. Box 1553
Akron, Ohio, 44309-1553

To whom it may concern:

It is a pleasure to nominate Morris Tischler, President of Science Instruments Company, Baltimore, Maryland for the National Inventors Hall of Fame.

Morris Tischler, the inventor, built his first crystal set by age 12. He had an advanced amateur license and first class commercial broadcast license by age 24. His World War II experience in radar circuit design and practical ingenuity were combined with the availability of transistors (1955) in his creation of an electronic device that could stimulate and control the nerve-muscle fibers of the heart. A patent application was filed during the 1950's and was granted in 1962.

This work, conducted at the University of Maryland Medical School / University Hospital (Baltimore, Maryland) preceded the availability of high-tensile wire, lithium (long-life) batteries and integrated circuits. All of these innovations were needed to develop an implantable pacemaker. The first unit (three were fabricated) was used during open-heart surgery in the emergency and recovery rooms involving heart transplants in animals and later was used to maintain the lives of patients having Strokes-Adam Syndrome. Mr. Salvadore Espisito, whose heart stopped almost weekly and later monthly, was maintained for three years. He died at home, with the pacemaker left in the hospital.

One of the later portable external units was made for President Eisenhower. It served as an emergency device and traveled with General (Dr.) McSnyder during the President's travels to the Far East and for some time thereafter. An early pacemaker unit made by Mr. Tischler is in the Smithsonian Museum.

Based on these early accomplishments and with the emergence of solid-state devices, implantable pacemakers were then developed.

Considering the thousands of people who now enjoy life while their hearts are controlled by a pacemaker, this early invention in heart stimulation and its control served as the spark for the innovations that followed.

On a personal note,I have taught Instrumental Analysis at the University level for over 38 years and am extremely impressed with the philosophy and equipment developed by Morris for the teaching of instrumental measurements at so many levels and for so many different audiences.

Sincerely yours,

Raymond T. O'Donnell, Ph.D.
Coordinator, Graduate Study in Chemistry
SUNY Oswego, Oswego, NY 13126

HOWE SCHOOL

10430 CHARLEVOIX • DETROIT, MICHIGAN 48214
(313) 245-3705
CAROLYN McKISSIC, Principal • MARIA C. WEAVER, Assistant Principal

Post-it® Fax Note 7671	Date 3/4/97	# of pages ▶ 1
To Morris Tischler	From Sylvia Ghirardini	
Co./Dept.	Co.	
Phone #	Phone #	
Fax (410) 358-0935	Fax (313) 824-1340	

March 4, 1997
Mr. Morris Tischler
President
OMG Science Instruments Co.
Baltimore, Maryland

Dear Mr. Tischler:

I'll never forget the scene last Feb. 18, when you visited our science lab at Howe Elementary School of Science and Technology in Detroit.

One of my students was stretched out on a lab table, while others attached electrodes to her wrists and ankles; I watched the looks on their faces as her heartbeat appeared on a computer screen, and from there to our big-screen TV for the whole class to marvel at.

That's the kind of hands-on, Twenty-First Century science that could spark a student's lifelong interest. I had already used the Biotech equipment with students, including special-education classes, and now plan to employ it as the core of a group of lessons concerning body systems.

I also plan to use various Biotech components during our very successful Family Math/Science Workshops, in which students and their parents come after school for two and a half hours of hands-on activities.

We took some wonderful photos during your visit. I had a few scanned, and will e-mail them to you. I'm also sending prints under separate cover.

Thank you again, and our students and faculty will welcome you back any time.

Sincerely,

Sylvia Ghirardini

Sylvia Ghirardini
Science Teacher
Howe Elementary

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MORRIS TISCHLER

RÉSUMÉ

UNLOCK THE SECRETS OF THE HUMAN BODY WITH

FEATURES

- **An introduction to science and technology**
- **Science and health courses in a unique format never before available**
- **Awareness of how the body relates to the world of science and technology**
- **Hands-on activities from kindergarten through sixth grade**
- **Learning through discovery**
- **Children record their pulse, temperature, ECG, EMG, EEG and more using portable instruments and their computer**
- **Encourages team work as well as personal investigation**
- **Classroom piloted in elementary schools**
- **Excellent in after school science activities**

This highly motivational curriculum stresses learning by association - the way children learn naturally. Hands-on activities and discovery lead to learning in an atmosphere where students have fun through experimentation. A wide variety of instruments and a PC or MAC computer are used to physically demonstrate the secrets of the human body that relate to biology, chemistry, physics, electronics, ecology and health care.

Wayne Elementary - Detroit, MI

It was indeed a pleasure and privilege to see Morris Tischler, President of Science Instruments at Wayne elementary school. I am one of the elementary teachers that received the biomedical program. My students are very excited and enthused with your program. They embrace the technology and experiment with it.

I have many students that are presently aspiring to be "doctors" because of the biomedical program. They are deciding at age ten to work toward academic success.

Judy C. Mongelluzzo

BODY SECRETS PROGRAM

COURSE HIGHLIGHTS

Level A K-2
Pulse, Respiration, Temperature, Your Senses and making a Food Battery
HIGHLIGHTS
Learn: How you breathe
Learn: How often you breathe
Learn: How many mph a sneeze can be

Level B Third, Fourth or Fifth Grade
Your heart and what it does
HIGHLIGHTS
Learn: What kind of blood cells are there
Learn: About blood pressure
Learn: How long do red blood cells live

Level C Third, Fourth or Fifth Grade
Smell, taste and the foods we eat
HIGHLIGHTS
Learn: How does your tongue work
Learn: How does smell affect taste
Learn: How much of your brain is made of water

Level D Third, Fourth or Fifth Grade
How we speak and how we hear
HIGHLIGHTS
Learn: Voice Prints
Learn: About the speech team
Learn: How many languages there are in the world

Level E Gifted and talented Fifth or Sixth grade
Electricity from the heart, eyes, muscles and the brain.
HIGHLIGHTS
Learn: About circulation: way to go
Learn: Show me your muscles
Learn: How long does a blink last

A student manual is supplied for each level. Equipment utilizes 2 AA cells. No electric power lines. Safe and easy to use. Start now to teach the doctor who is currently six years old and the nurse who is now ten.

STUDENT AND TEACHER REACTIONS

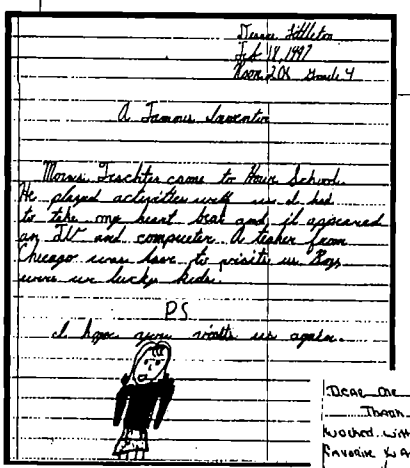
HOWE SCHOOL

Dear Mr. Tischler

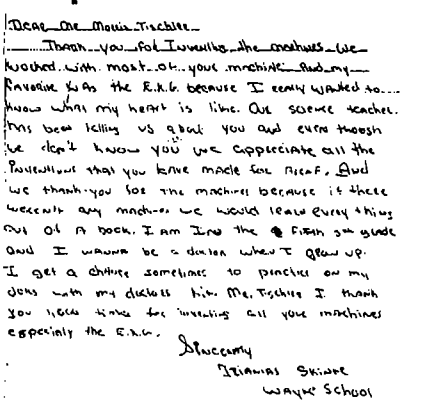
I'll never forget the scene last Feb. 18, when you visited our science lab at Howe Elementary School of Science and Technology in Detroit.

One of my students was stretched out on a lab table, while others attached electrodes to her wrists and ankles; I watched the looks on their faces as her heartbeat appeared on a computer screen, and from there to our big-screen TV for the whole class to marvel at. That's the kind of hands-on, Twenty-First Century science that could spark a student's lifelong interest.

Sylvia Ghirardini
Science Teacher
Howe Elementary



Deanna Littleton
4th Grade
Howe Elementary School
Detroit, MI

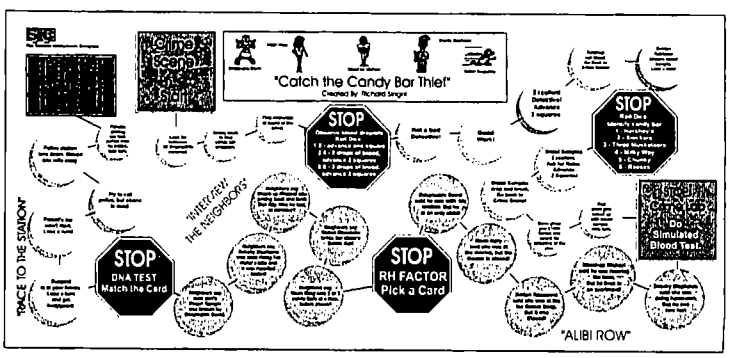


Trianias Skinne
5th Grade
Wayne School
Detroit, MI

CATCH THE CANDY BAR THIEF

Introducing our very own board game.
Collect blood samples (artificial blood), test DNA, do your own detective work and catch the Candy Bar Thief.

Ask for our Middle School, Secondary School and Health Occupations programs.



The Science Instruments Company

6122 Reisterstown Road., Baltimore, Maryland 21215-3487 Tel: (410) 358-7810 Fax: (410) 358-0935 1-800-229-2114
E-Mail: omgandsic@aol.com Web: http://omgsic.com

The Great Lakes COLLABORATIVE

33500 Van Born Road Wayne, Michigan USA 48184-2497
(313) 467-1436 Fax (313) 326-0857

A service of the Wayne County Regional Educational Service Agency

Volume 4, Number 8 **May, 1997**

The following is a reprint of the newsletter published in Michigan

HEALTH OCCUPATIONS EDUCATION (HOPE): A BIOTECHNOLOGY PROGRAM

One of the goals in education today is to provide an environment that gets the students engaged in their own learning. There are many programs that provide that type of opportunity. This article describes a program that not only provides that opportunity, but also integrates technology, mathematics, and science. Read further to find out more.

Health Occupations Preparatory Education (HOPE) is a Biotechnology Program that was designed by Morris Tischler. Mr. Tischler works with engineers, computer analysts, and technical writers to bring the leading edge technological training to schools around the world. The program is designed to introduce elementary and middle school students to the human body and train students in health occupations for either school-to-work or post secondary education. The HOPE series is broken down into the four categories:

- Body Secrets (K-6)
- Signs of Life (Middle School)
- Concepts of Biotechnology (High School)
- Technical/Technologist (School-to-Work Training and Post-Secondary)

It allows students at all levels to participate in activities that are hands-on based where they are able to perform actual human physiological measurements and follow procedures that are required in a doctor's office or hospital. Along with being provided user-friendly interactive computer software and student safe equipment, the program teaches human biology by making a connection between technology, mathematics, and science. In addition, teacher training and back-up support is provided.

To get more information on Morris Tischler and the program click here.

http://www.omgsic.com/sichome.htm

Howe Elementary School Bellevue Elementary School Detroit Public Schools Detroit, Michigan

Howe Elementary School

Howe Elementary School services grades PreK-5 and has approximately 596 students. It is an empowered public school that has a thematic focus: Science and Technology. The school is networked with one room having Internet access and two computer labs. On an annual basis they have a Family Math/Science Night and a Science/Technology Open House. They now have the Biotechnology Program which has become an integral part of their after-school program.

The Biotechnology Program is utilized by Sylvia Ghiradini who has been teaching for approximately 35 years. She is currently using the program with 4th grade students twice a week during Howe's after-school program. The students have been involved in hands-on instrument activities related to their heart rate, eye movement, and breathing ability under various circumstances. The students have found that they have fun learning and learn a lot more when they are involved in the program's hands-on instrument activities. Although it is too early to see what impact the Biotechnology Program will have on student achievement, Mrs. Ghiradini has observed an increase in student motivation and, with that, we can only predict what impact that may have on student achievement in the long-run.

Bellevue Elementary School

Bellevue Elementary School services grades PreK-5 and has approximately 579 students. It is a public school that has a thematic focus: Bellevue Educational/Technology Academy. Bellevue has one 32 station computer lab, one 7 station HOTS lab, and 31 other computers that range from PC to PowerMac to Apple IIE. The 31 computers are used in either an instructional or administrative capacity. They provide parent workshops in communication arts and mathematics during the school year, they also offer and after-school program to their students, and recruit parents to volunteer to work with students. As an addition to their academic services and programs, they now have the Biotechnology Program.

The Biotechnology Program is implemented by Brenda Bowens, a first year teacher who sees the program giving her students a better understanding of how and why the human body functions as it does. She uses the program two days a week in a team teaching setting with thirty 4th grade students. Her students have been involved in hands-on instrument activities that have assisted them in answering questions such as:

- *How does your heart beat?*
- *Why is their a difference in heart rate when you are resting, exercising, or scared?*

The next activities that they will embark upon will involve recording the electrical activity from a simulated heart and finding out how much air they can breathe.

Involvement in this type of instruction has caused some of the students to change their minds on career aspirations. One student who was interested in becoming a professional basketball player has found, as a result of the program, that being a doctor will be just as exciting and interesting. Another student has gone from wanting to be an actor to now wanting to become a nurse. Ms. Bowens has found that the motivation of her students and the level of their thinking skills has increased in just the few weeks that they have been using the program.

STUDENT QUOTES

"I have learned a lot about the heart rate."

"It makes learning fun."

"Get to learn what happens in a hospital."

"I've learned the different places to get a pulse reat."

For more information contact:

The Science Instruments Company
6122 Reisterstown Road. Baltimore, MD 21215-3487
Tel: (410) 358-7810 1-800-229-2114 FAX: (410) 358-0935
E-Mail: omgandsic@aol.com Web: http://omgsic.com

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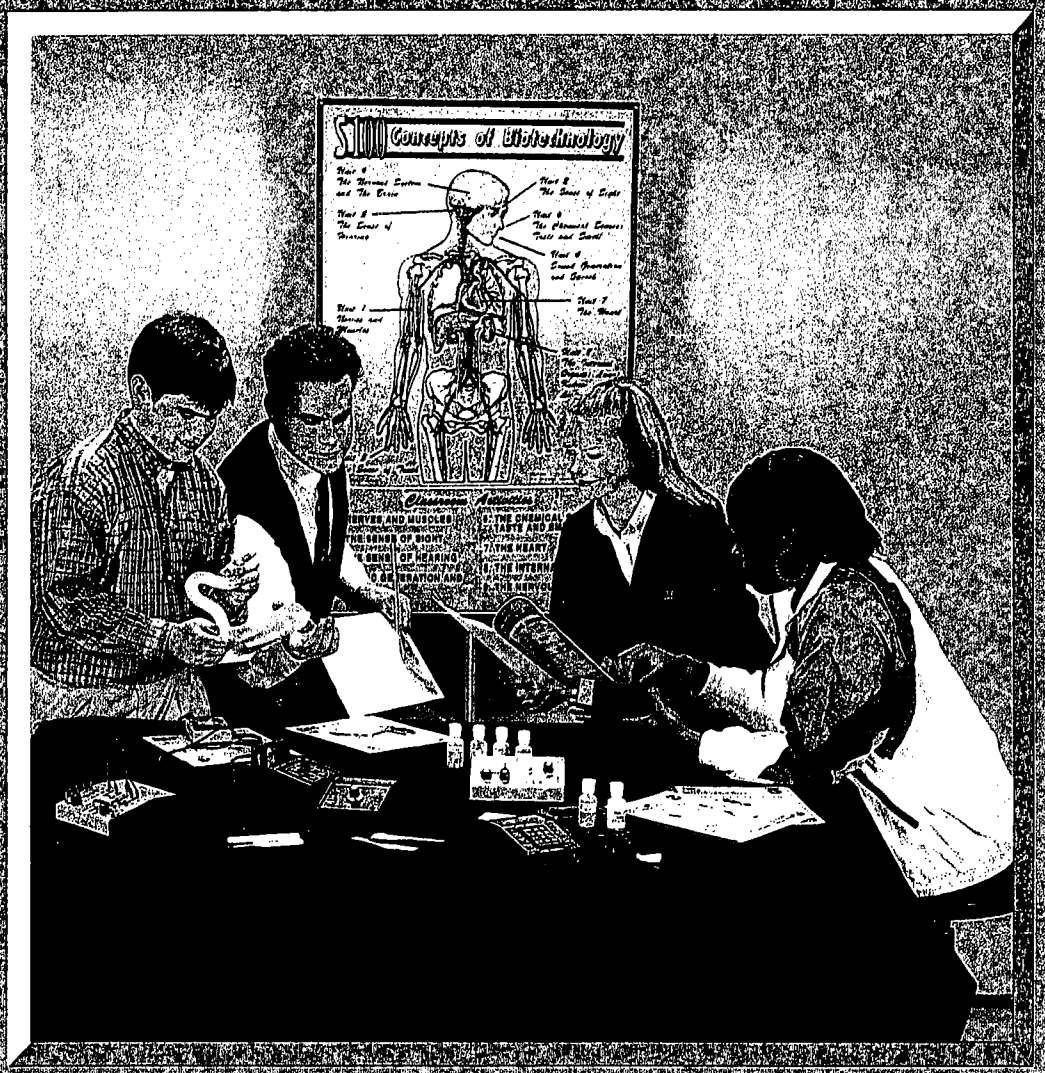
Concepts of Biotechnology

BIOTECHNOLOGY



Course S100

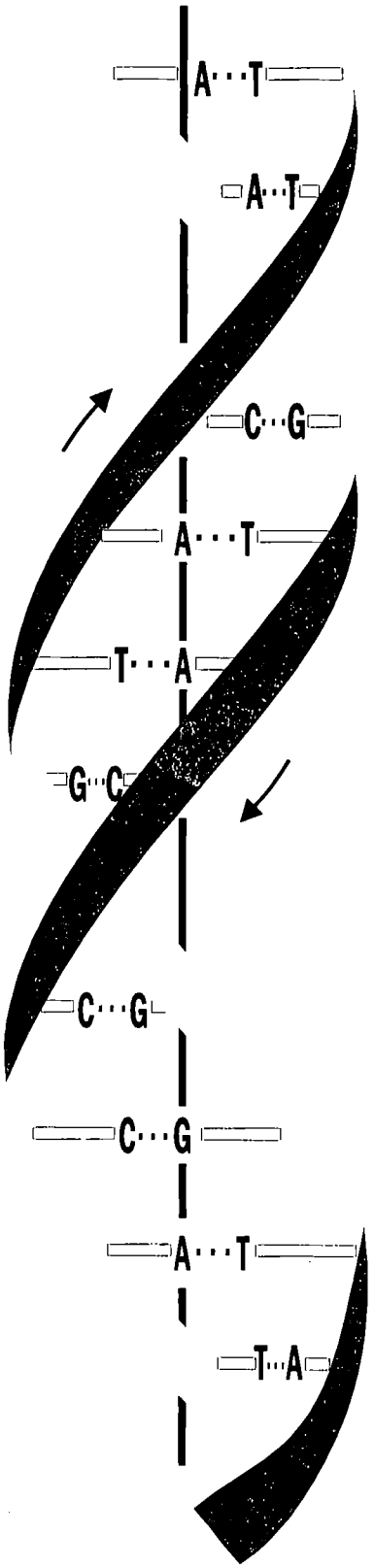
PROGRAM FEATURES

- A Combined Study of Life Science and Applied Technology Principles
- Designed for Secondary Through Post-Secondary Levels
- Tech-Prep Oriented
- Complements Applied Biology/Chemistry Curriculums in the Life Processes
- Foundation Course for Health Occupations
- 44 Hands-On Activities with Modern Clinical-Type Instrumentation
- Modular Learning Units
- Provides Career Orientation in over 100 Occupations and Professions
- Safe, Field-Tested Student Equipment
- Integrates Computer Techniques with Instrumentation
- Contains 9 Units each Providing 10-15 Hours of Instruction

SIC *The Science Instruments Company*

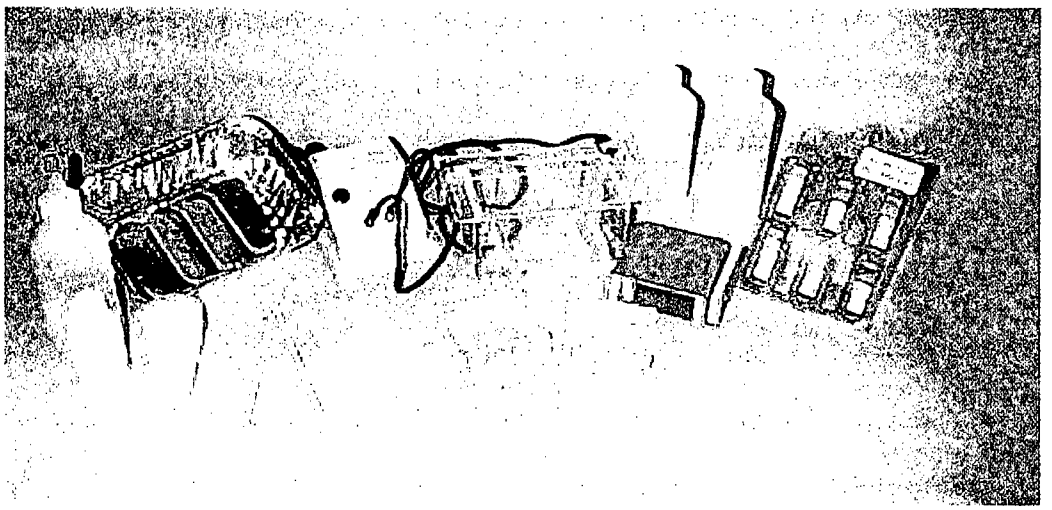
The Science Instruments Company

UNIT 10
DNA and HISTOLOGY



An introductory hands on course in the fields of DNA and Histology. This course touches such subjects as atoms and molecules, bonding, electrophoresis, DNA spooling, DNA fingerprinting, and histology.

This course is designed to give the student a basic understanding of the fields of the DNA geneticist and the histotechnician.



Features

- Experiments on atoms and molecular movement
- An electrophoresis machine and power pack with colorful dyes to demonstrate the movement of the molecules through agar
- Materials to spool DNA and then rehydrate the spooled DNA
- A crime scene DNA kit with a crime to solve using the electrophoretic DNA skills used in laboratories
- A CD-Rom on histology and pathology showing the student healthy tissue as well as diseased tissue.
- Histology CD-Rom covering the body's tissues, such as the tongue, spleen, skin, bone, intestines, etc.

Course Topics:

1. Atoms and Molecules
2. Electrophoresis
3. DNA Structure and Function (DNA Spooling)
4. Identification of DNA Samples (DNA Fingerprinting)
5. Histology

Equipment:

Activity Manual S100 Unit 10
Electrophoresis Machine
DC Power Pack
Beakers 250mL, 500mL, 1000mL
Hot Gloves
Microtipped Transfer Pipettes (30)
Glass Test Tubes for rehydrating spooled DNA
Goggles
Protective gloves

Atoms/Molecules Kit
Balloon - hand size (small)
Paper pieces
Food coloring (Red, Blue, and Green)
Water jar
Small plastic plate
Dishwashing detergent, clear liquid

DNA Electrophoresis Kit
Dyes:
Bromophenol Blue, Crystal Violet, Orange G, Methyl Green, Xylene Cyanol
Dye mixture
Concentrated Buffer
Agarose Gel 2.0%
Microcentrifuge tubes (30)

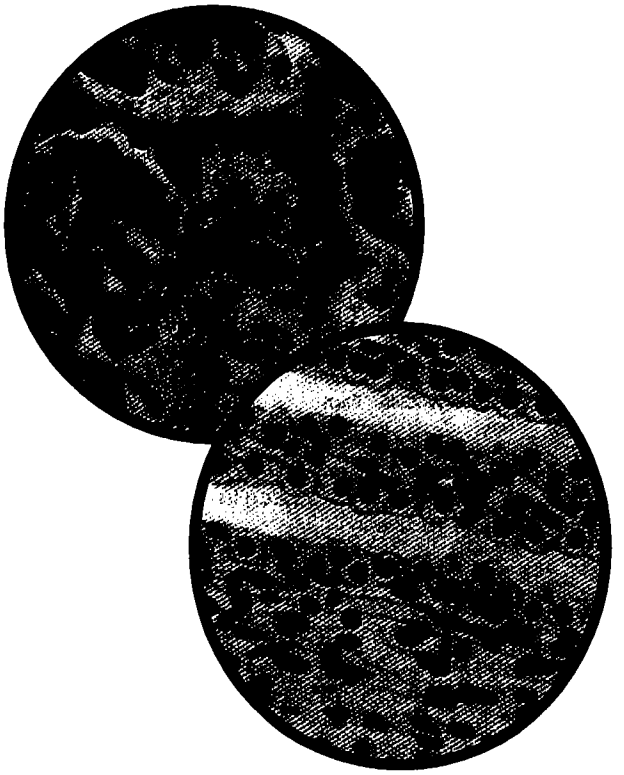
DNA Crime Scene Kit
A. Crime Scene Sample
B. Crime Scene Sample
C. DNA from Suspect 1
D. DNA from Suspect 2
DNA Stain, Concentrated Buffer, Agarose Gel 2.0%, Microcentrifuge tubes (30)
E. Staining Trays, Destaining Trays

DNA Extracting Kit
Disposable loops, test tubes, pipettes, macromolecular solution, alcohol, 5g. Papain

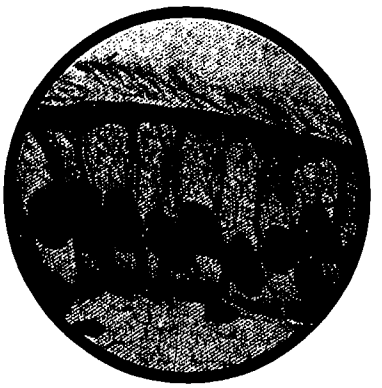
Histology CD-Rom

Cardiovascular System	Nervous System
Endocrine System	Pulmonary System
Gastrointestinal System	Renal System
Immune System	Skin
Musculoskeletal System	Reproductive System

Squamous Epithelium



Columnar Epithelium



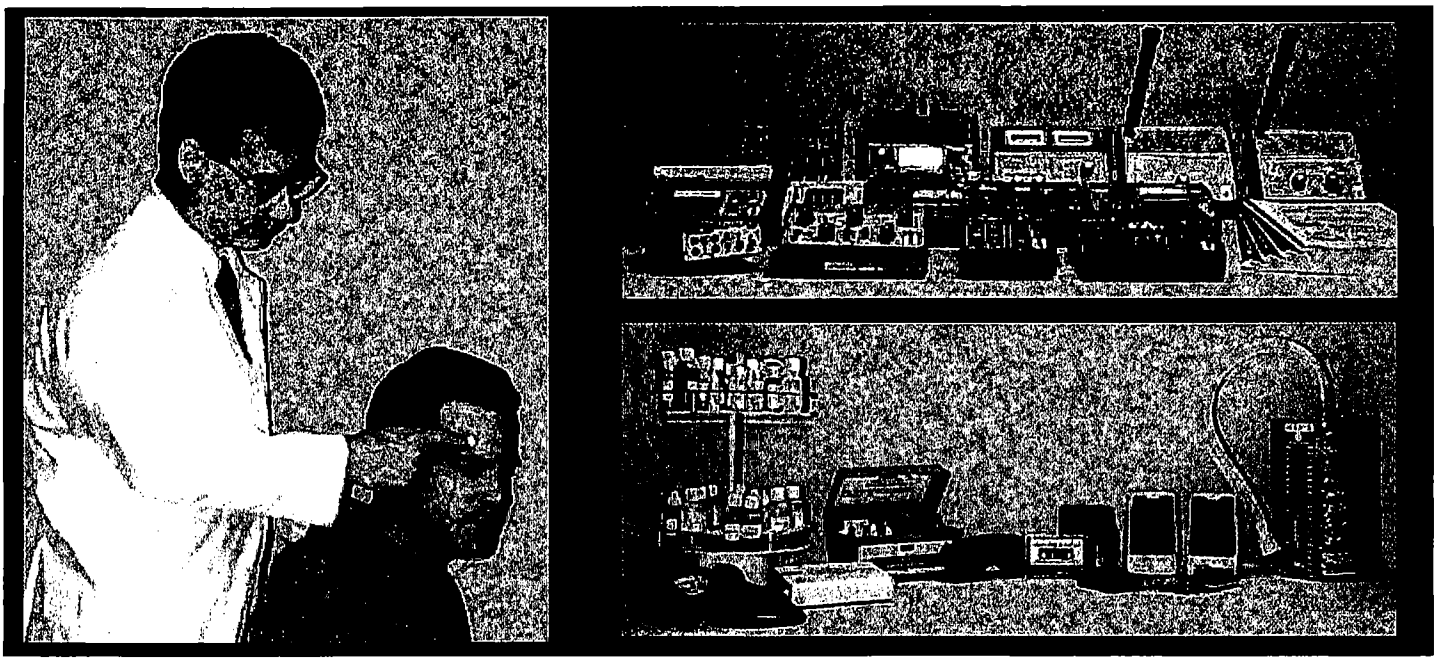
Ciliated Columnar Epithelium

The Science Instruments Company
6122 Reisterstown Road. Baltimore, Maryland 21215-3487
Tel: (410) 358-7810 (800) 229-2114 FAX: (410) 358-0935
E-MAIL: omgandsic@aol.com WWW: http://www.omgsic.com

H100

Health Occupations Preparatory Education

HOPE
HEALTH OCCUPATIONS PREPARATORY EDUCATION



For the Training of :

Lab Technicians, Practical Nurses, Paramedics, EKG and EEG Technologist, Biomedical Electronics Technicians, LPN Etc.

Features

- ***A Comprehensive Hands-On Core Course for Health Care Providers.***
- ***Includes Student Equipment, Computer and Software, Student Manuals, Teacher's Guide and Supplies.***
- ***For Complete Student Safety Battery Operated Equipment with Fiber-Optics Computer Interface.***
- ***37 Hands-On Medical-Type Tests, Expandable to 56***

Description

The course material in the HOPE Program is presented in four modules with eight units of instruction. Contains 37 hands-on activities in human anatomy, human physiology and allied health. The course demonstrates a wide variety of duties often performed by professionals in many healthcare related fields. The theory behind the technology is also included. The course provides an overview of skills required for those students wishing to explore a career in the healthcare professions. Typical careers introduced include nursing, laboratory technician, ECG or EEG technician, cardiopulmonary technician, and many more. The clinical instrumentation is designed for safe student use. Course Time: 90-180 class periods (depends on student tests). The subject content serves as a core program for higher technician or professional learning.

HEALTH OCCUPATIONS PREPARATORY EDUCATION

we offer HOPE

HEALTH OCCUPATIONS PREPARATORY EDUCATION

Does Your Current Health Science Curriculum Allow You To:

- ***Produce in-classroom ECGs, EEGs or EMGs?***
- ***Do voice prints, audiometry or telemetry?***
- ***Perform biofeedback studies?***
- ***Carry out laboratory studies with simulated body fluids and medicines?***
- ***Include a board game to make learning more fun?***
- ***Demonstrate galvanic skin resistance?***

The **HOPE** program does! It contains both a general course and a series of technician/technologist preparatory courses. For those districts wishing to get a head start, a ***Body Secrets*** Elementary Course (K-5) and a Middle School Course (6-8) are available. At the secondary level, the school can offer a general **HOPE** course or specific TPC **(Technician or Technologist Preparatory Courses).** The TPC program can also be incorporated into a two-year post-secondary college curriculum.

In the **HOPE** courses, students conduct human physiological measurements and follow procedures as are required in a doctor's office or hospital. The **HOPE** courses include student-safe equipment which emulates patient procedures. To provide in-school basic experiences and create enthusiasm, offer your students **HOPE!**

All HOPE courses have these features:

- ☒ **Hands-on activities at all levels**
- ☒ **Interactive computer software which is user-friendly**
- ☒ **Separate course materials for all school levels**
- ☒ **Student-safe equipment (no power mains)**
- ☒ **Single or 4-channel recordings of physiological data**
- ☒ **Modular lab facility layout available**
- ☒ **Teacher training available at your site**
- ☒ **Backup support via fax and phone for the life of the bioequipment at your school**

The Science Instruments Company

Secondary/Post-Secondary General Health Occupations

Consists of seven (7) units with a total of 32 hands-on activities

- ***Nerves and Muscles***
- ***Hearing and Speech***
- ***The Heart and Blood Circulation***
- ***Sight and Visual Responses***
- ***Touch, Smell and Taste***
- ***The Brain and Nervous System***
- ***Other Internal Organs (Lungs, Kidneys, Liver)***

Middle School Program

Life Signs Measurements (S101)
Topics Include:

- ***Emotional Stress Management***
- ***Sensations of Touch***
- ***Temperature***
- ***The Sense of Smell***
- ***Respiratory Rate & Lung Volume***
- ***The Nervous System***
- ***The Heart as a Pump***
- ***Biofeedback Techniques***

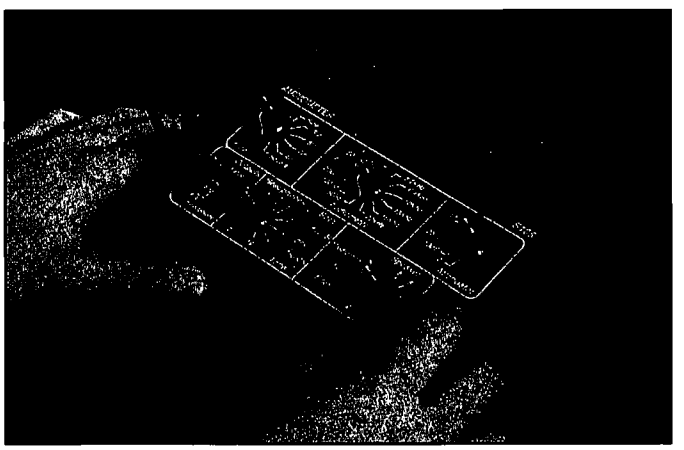
Physiological Measurements (S103)
Topics include:

- ***Human Speech***
- ***Wireless Communications***
- ***Muscle Potential Measurement (EMG)***
- ***Measuring Eye Movements (EOG)***
- ***The Visual System - (EVP)***
  Visual Response Measurement
- ***The Heart's Electrical System (ECG)***
- ***ECG Telemetry***
- ***Blood Typing***

Elementary School Program

Body Secrets

- ***Module A***
  Heart and Breath Rate, Temperature, Food Battery, The Senses
- ***Module B***
  The Heart and Circulation
- ***Module C***
  Water, Pollution and Chemical Senses
- ***Module D***
  Sound, Speech and Hearing
- ***Module E***
  Electricity from the Heart, Brain, Eyes and Muscles



Audiometer S105

TPC Courses

ECG Technician/Technologist	**078.362-018**
EEG Technician	**078.362-022**
Respiratory Therapist	**079.361-010**
Audiometrist/Audiometric Tech.	**079.362-010**
Ophthalmic Technician	**078.361-038**
Paramedic/EMT	**079.374-010**
Medical Lab Technician	**078.381-014**

UNDER DEVELOPMENT
WATCH FOR DETAILS

The Science Instruments Company

6122 Reisterstown Rd. Baltimore, MD 21215-3487 (410) 358-7810 (800) 229-2114 Fax (410) 358-0935
EMail: SICandOMG@aol.com

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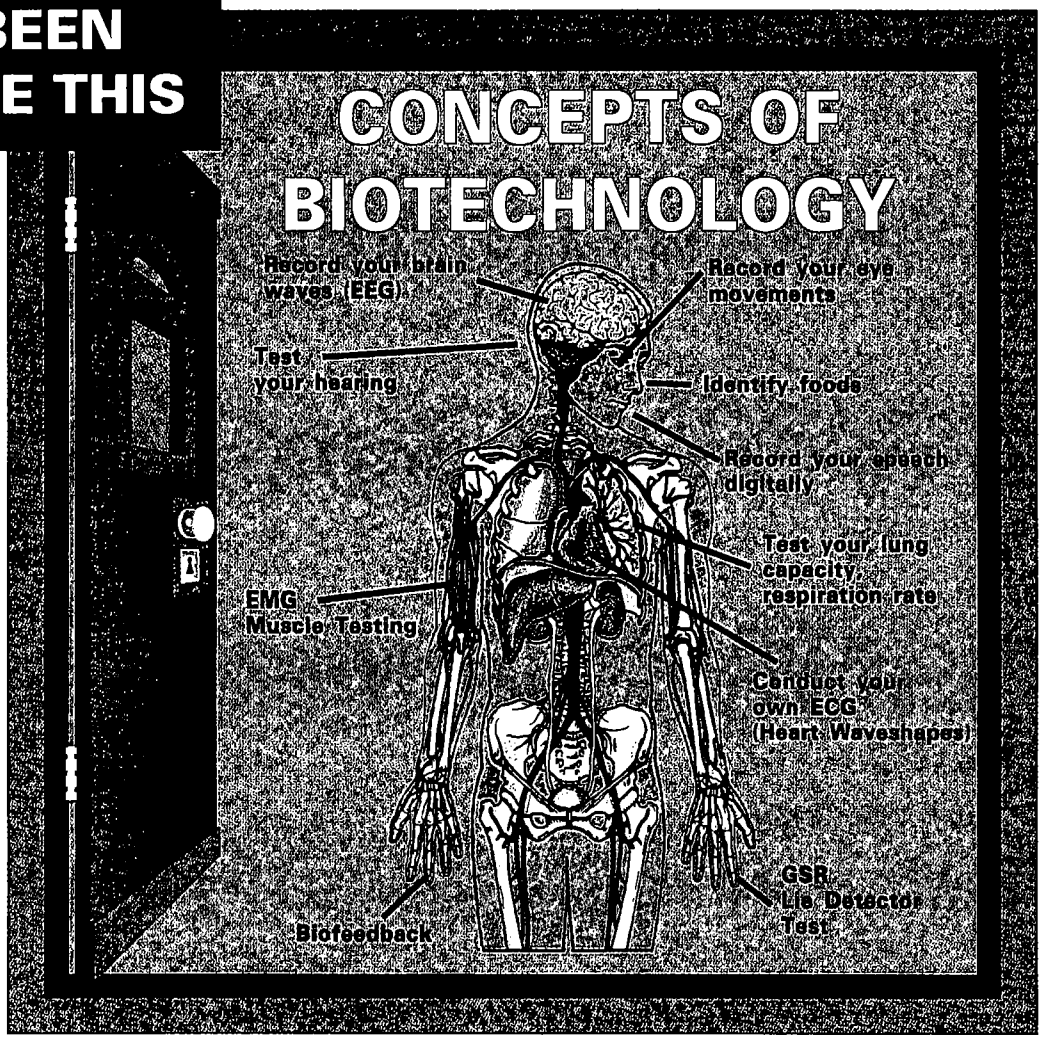
LEARNING HAS NEVER BEEN LIKE THIS

EXPLORE TECHNOLOGY THROUGH THE HUMAN BODY WITH

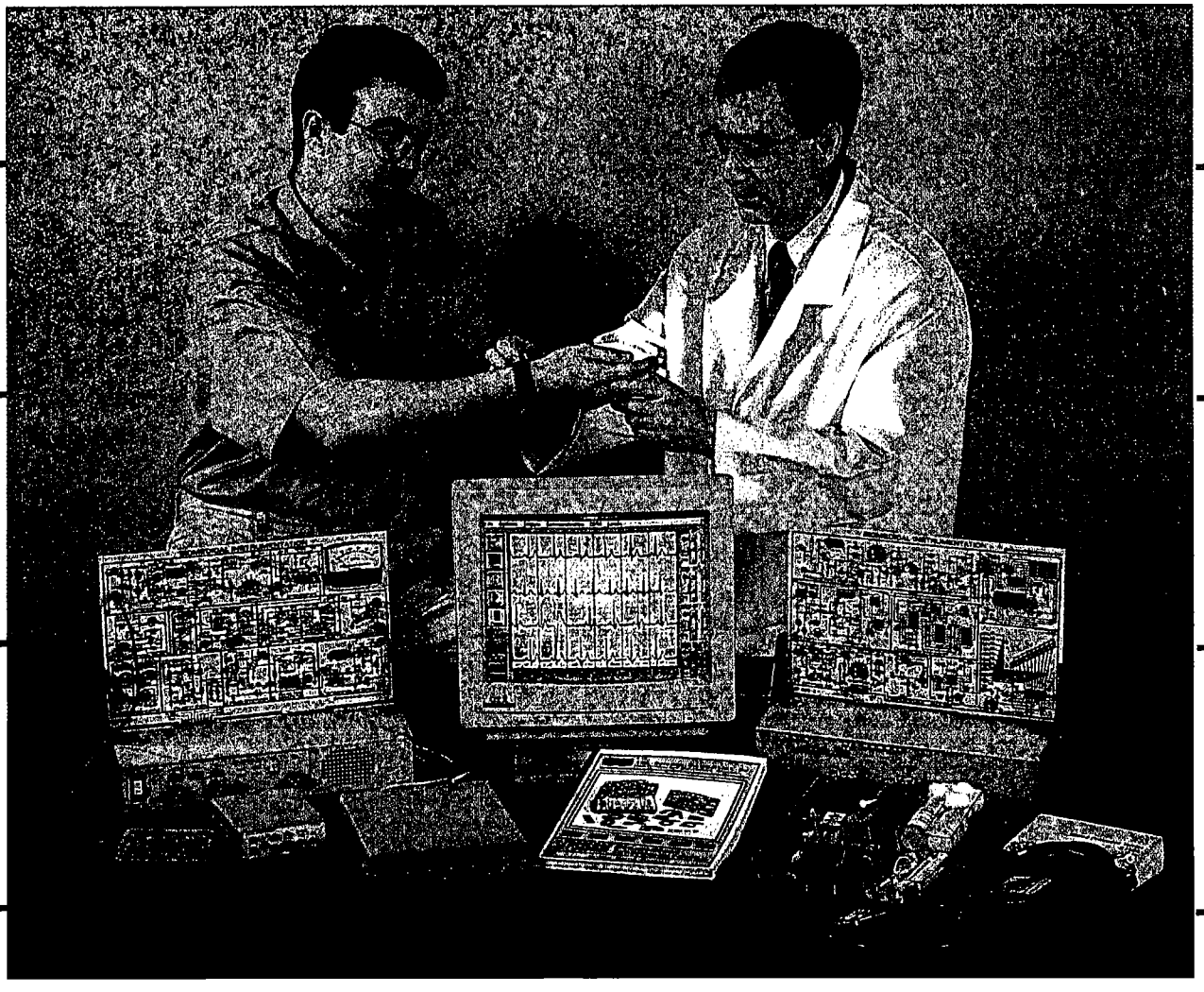


44 HANDS - ON ACTIVITIES

COMPUTER INTERFACE
DESK-TOP INSTRUMENTATION
INTERDISCIPLINARY APPROACH
OPENS THE DOOR TO
SCIENCE / TECH PREP
AND HEALTH EDUCATION

Science Instruments Company
6122 Reisterstown Road. Baltimore, Maryland 21215-3487
Tel: (410) 358-7810 Fax: (410) 358-0935 1-800-229-2114

S P385BC
Biomedical Instrumentation



COURSE DESCRIPTION

A comprehensive course in the operation and repair of clinical electronic equipment used in the field of biomedical technology. This study focuses on the electronic circuits and their repair in systems used to monitor body temperature, blood pressure, pulse rate, ECG, EEG, EOG, and GSR.

The biomedical instrumentation course is designed for use in technical programs where technicians are being trained for positions in hospital equipment maintenance, medical research and equipment sales and service.

FEATURES

- A study of Biomedical Instrumentation Circuits
- Two Panels Containing 19 Basic Instrumentation and Monitoring Circuits
- Circuits are Evaluated Individually and Combined to Form Complete Working Monitors: ECG, EEG, EMG, EOG, GSR, Pulse Rate, and Temperature
- Course Manual Contains 17 Major Experiments, Covering Detailed Circuit Theory and Evaluation
- Complete with Hospital-Type Sensors and Accessories

S P385BC
Biomedical Instrumentation

SCOPE OF STUDY

The Biomedical Instrumentation Course consists of two insertion panels, complete with hospital-type accessories, sensors and a comprehensive laboratory manual. The course manual contains 17 experiments which place emphasis on understanding clinical monitoring equipment. Some of the major instruments studied include ECG, EEG, EMG, EOG, GSR, pulse rate and temperature monitors. The panels for this course may be powered by inserting them into the S300B Master Builder or an S300PSB Power Supply Base. If it is desired to breadboard variations of the selected circuits, or to do general breadboarding, select the S300B. Standard types of test equipment are also required. In addition, an ECG Simulator and Compucorder software, both of which are manufactured by the Science Instruments Company, are recommended.

EXPERIMENTAL TOPICS

1. **Electrocardiograph Recording (ECG)**
2. **Differential Amplifiers**
3. **Optoelectronic Components**
4. **Bandpass and Notch Filters**
5. **Analog to Pulse Shaping**
6. **Visual and Sound Pulse Indicators**
7. **Rate Meters**
8. **Electromyograms (EMG)**
9. **Electroencephalograms (EEG)**
10. **Noise in Biomedical Amplifier Systems**
11. **Pulse Rate by Photoplethysmography**
12. **Pulse Rate Digital Meters**
13. **Galvanic Skin Resistance (GSR)**
14. **Temperature Measurement**
15. **Respiratory Rate**
16. **Hospital Equipment Safety**
17. **Biomedical Transducers**

EQUIPMENT AVAILABLE

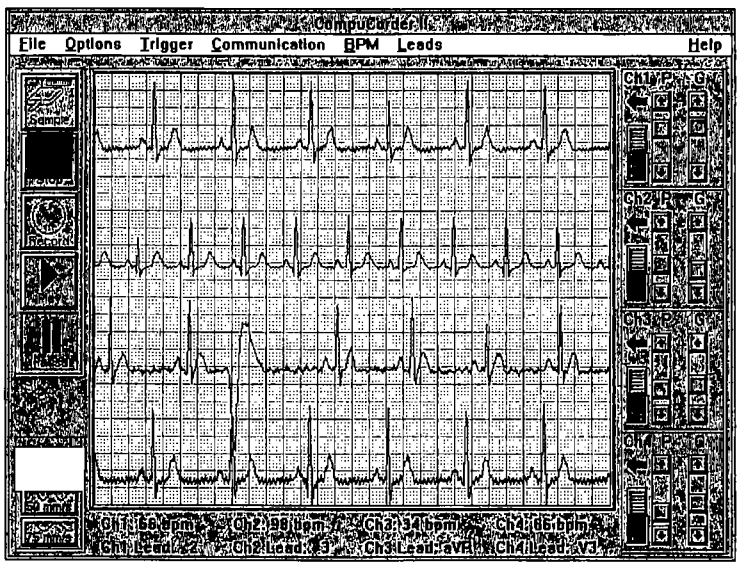
EQUIPMENT (Included) (Total Weight: 9.0 lbs.)

SIP385-1	Experimental Panel	S385-5	Temperature Probe
SIP385-2	Experimental Panel	S385-6	ECG (EKG) Cables
S385-3	Photoplethysmograph Sensor	S385-7	EEG Cables and Electrodes
		S385-9	ECG (EKG) Electrodes
S385-4	Lead Selector Box	S385-11	Gauze Alcohol Pads
SIP385AM	Laboratory Manual	SIP385-13	Biofeedback Audio Cassette Tape

EQUIPMENT REQUIRED (Not Included)

S300B	Master Builder or	2-Stereo Cables, 6 ft.
S300PSB	Power Supply Base &	Function Generator
S300PB	Panel Base and Cable	Oscilloscope
S118.1	Compucorder	Digital Multimeter
S118.10	4 Channel Interface	
S114	ECG Simulator	
S116A	Blood Pressure Unit Tester with Software	

S118.1 Compucorder



The Compucorder is a computer simulation of a strip chart recorder for the display and recording of human electrical signals. The computer is used in many experiments to record muscle potentials, eye movements, brain waves, and electrocardiograms. The student controls the Compucorder using a mouse.

The program operates on a 486 IBM compatible computer, 33 MHz or higher. The software is available on 3-1/2" diskettes. A super VGA monitor (640x480 or better) is required. The computer interfaces with the equipment via a dual lead (stereo) cable, which is included.

The interface box accepts four (4) signal inputs. The Compucorder display has 3 speeds (25,50,75mm/sec) and each channel has a separate gain and positioning controls.

Local Representative

The Science Instruments Company
6122 Reisterstown Road. Baltimore, MD 21215-3487
Tel: (410) 358-7810 (800) 229-2114 FAX: (410) 358-0935
E-mail: OMGandSIC@aol.com http://www.omgsic.com

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SCI+TECH=

BIO-RELATED SCIENCE & TECHNOLOGY

The SCI-TECH Modular Program - S100

Integrating the life sciences with electronics technology

OVERVIEW

The SCI-TECH Program is arranged in ten modular workstations. Each workstation provides the instructional materials required for one unit of instruction. The flow chart shows the arrangement of the modules with the major teaching materials required for each module.

In the modular arrangement, each workstation provides for either two or three students. A two-student workstation is much preferred, since both students would be actively engaged in the various activities. In a three-student workstation, one student is often a part-time observer.

A computer is suggested at each station, with the following: a 166 MHz Pentium or larger; a 1.5 Gigabytes hard disk drive; a 3-1/2 inch floppy disk drive; a 24x CD-ROM drive; and dual loudspeakers. The equipment provides for a full multimedia study station complete with a VCR/TV and a CD Rom on body parts.

Each workstation should be provided with two or three text-lab activity manuals. It is recommended that additional student manuals be available so that students can take the manuals home for more in-depth reading. A Teacher's Guide is included with the student manuals.

INSTRUCTIONAL PROGRAM

The SIC-TECH Program includes 50 student activities. The program provides for approximately 100 periods (of 50 minutes each) or hours of instruction. The difference in time required to complete a module is made up by the supporting videotapes and CD-ROMs at each station.

It is anticipated that each student within a group will have an opportunity to personally perform the activities while their partner(s) makes measurements.

BIOMEDICAL INSTRUMENTATION

The SCI-TECH program can be interfaced with Biomedical Instrumentation to make a career based electronics program. The Science Instruments Company is the only organization providing such a comprehensive package. The program is designed for three years (10th, 11th and 12th grades), with 180 periods per year. The program can be expanded to include more vocational-technical information if teaching time is available. This is a school-to-work program.

For a facility layout and pricing of a complete program contact Carol Marks at the Science Instruments Company.

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HOPE

HEALTH OCCUPATIONS PREPARATORY EDUCATION

HEALTH OCCUPATIONS - H100

MODULAR PROGRAM

The Health Occupations Program is arranged in nine modular workstations. Each workstation provides the instructional materials required for the unit of instruction. The flow chart shows the arrangement of the basic modules and the major teaching materials included in each module.

Seven of the nine workstations require a (PC) computer, complete with the necessary boards and software programs required to conduct all activities. Each workstation also contains a VCR unit along with videotapes and CDs appropriate to the subject matter. Where a computer is supplied, the computer includes a Video/TV reproduction board and VCR player. The computer serves as a multimedia system with TV, CD, videotapes and stereo sound.

Each computer also contains a CD encyclopedia presentation of the various body parts. This will enable students to obtain an in-depth understanding of the activity being performed.

Although a complete classroom layout is available, individual workstations can be ordered as well. A complete installation of the HOPE materials is less costly than purchasing complete sets of equipment. The materials are arranged to minimize the expense of the facility.

In the modular arrangement, each workstation provides for either two or three students. A two-student workstation is much preferred, since both students would be actively engaged in the various activities. In a three-student workstation, one student is often a part-time observer.

A computer is suggested at each station, with the following: a 133 MHz Pentium or larger; a 1.5 Gigabytes hard disk drive; a 3-1/2 inch floppy disk drive; a 24x CD-ROM drive; and dual loudspeakers. The equipment provides for a full multimedia study station complete with VCR.

Each workstation should be provided with two or three text-lab activity manuals. It is recommended that additional student manuals be available so that students can take the manuals home for more in-depth reading.

INSTRUCTIONAL PROGRAM

The complete program includes 37 activities. The program provides for approximately 75-90 periods (of 50 minutes each) or hours of instruction. Most modular workstations contain a minimum of four hands-on subunit activities. In a few cases, five different activities are provided. The difference in time required to complete the module is made up by the supporting related videotapes and CD-ROMs at each station.

It is anticipated that each student within a group will have the opportunity to personally perform the activities while the partner(s) makes measurements.

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Technology and Training Around The World.

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HOPE

HEALTH OCCUPATIONS PREPARATORY EDUCATION

THE SCIENCE INSTRUMENTS COMPANY

PROPOSAL FOR AN

ALLIED HEALTH EDUCATION PROGRAM

FOR PRESENTATION TO:
Health Care Career Centers

PREPARED BY:
Morris Tischler, President and Technical Staff of the
Science Instruments Company