

Hickory PTA

KIDS IN TO SCIENCE (K.I.T.S.) PROGRAM HANDBOOK

This handbook is your resource to use throughout the school year. The explanations will help you and your child decide which kit to select. You can do one or two experiments in each kit or do them all. Most of these are very short and easy.

AIR GAMES

Air is all around us, it takes up space and it moves things. Finds out about air by doing the following experiments:

- Experiment 1: Catching Air
- Experiment 2: Blowing Horns
- Experiment 3: Air Takes Up Space
- Experiment 4: Can You Feel Air?
- Experiment 5: Can Air Move Things?
- Experiment 6: Using Air to Stop a Waterfall
- Experiment 7: Air Dries Things

AVIATION (Choose either Kit #A or Kit #B)

Aviation means “operation of heavier than air aircraft”. **How do airplanes fly? What is it about wings that enable birds and planes to fly?** Find out some of the basic principles in the experiments that follow:

AVIATION #A

- Experiment 1: Balloon Rocket
- Experiment 2: Measuring the Air
- Experiment 3: Air Currents
- Experiment 4: How Does Shape Affect Speed?
- Experiment 5: How Does Weight Affect Speed?

AVIATION #B

- Experiment 1: Why Birds Can Fly
- Experiment 2: A Paper Helicopter

Experiment 3: Fast Air vs Slow Air—The Pressure Is On
Experiment 4: The Big Wind Test

BODY SCIENCE

These experiments help us understand a little about our skin, teeth, heart and eyes. **Why are fingerprints used to identify people? Does brushing our teeth really prevent cavities? What do the sounds of our heartbeat mean?** Find the answers in the following experiments.

Experiment 1: Skin Prints
Experiment 2: Acid Attack
Experiment 3: The Hard Working Heart
Experiment 3A: Your Pumping Heart
Experiment 3B: Listen to the Beat
Experiment 4: Eye Observation

CAN DO! (GAMES TO PLAY)

These games (which come in a can) are packed with fascinating facts and are so fun to play. There are 6 different topics: Matter, Force & Motion, Human Body, Solar System, Animals and Earth.

ELECTRICAL CIRCUITS

Electricity provides power to lights, motors, stoves, etc., when they are connected in a circuit. A **circuit** is a link from a power source (such as a battery) through wires, to a the light or motor and back again through the wires. **With this kit you will have an opportunity to create your own circuits, test them and then describe how they work.** Circuits include a simple circuit, series circuit and parallel circuits.

FLOATING AND SINKING

Why do some items sink and others float? The heaviness of an object for its size is called its *density*. Find out more about density in the following experiments:

Experiment 1: Floaters or Sinkers?
Experiment 2A: Sink the Orange
Experiment 2B: Raise the Raisins
Experiment 3A: Float the Egg

Experiment 3B: Suspend the Egg

KALEIDOSCOPES

The word Kaleidoscope comes from the Greek words Kal (o's) meaning “beautiful”, eido(s) meaning “shape” and scope (skopion) meaning “to look at”. It is an optical instrument, which means you use it with your eyes in order to enjoy different groupings or symmetries of colors. **The objective is to build a kaleidoscope and see how it works.**

KITCHEN CHEMISTRY (Choose either Kit #A or Kit #B)

You can become a scientist in your own kitchen. The kitchen can become your laboratory. Many items on your kitchen shelves can be used to do science experiments. Many cooking tools can be your science experiments. Grab an apron, collect your materials and begin exploring!

Kitchen Chemistry #A

Experiment 1: Oil and Water

Experiment 2: Secret Messages

Experiment 3: Penny Magic

Experiment 4: Mix It Up

Kitchen Chemistry #B

Experiment 1: An Egg Mystery

Experiment 2: Soap Surprise

Experiment 3: Disappearing Powder

Experiment 4: Woolly Wonder

Experiment 5: Floating Eggs

MAGNETS (Choose either Kit #A or Kit #B)

Try the following experiments with the round “doughnut” magnets and observe how magnets attract and repel. All magnets have two poles—north and south. Each side of the round magnets is a pole. Opposite poles attract and like poles repel. Try the next experiment to “feel” the force of the magnets.

Note: These experiments are in order of increasing difficulty and are mostly intended for upper grade students. However, with the help of an adult, lower primary grade students can learn basic information about magnets through a few early experiments.

Magnets #A

- Experiment 1: Magnetic Poles
- Experiment 2: Laws of Magnetic Attraction
- Experiment 3: How Far Does Magnetism Reach?
- Experiment 4: The Earth's Magnetic Field
- Experiment 5: Making a Compass

Magnets #B

- Experiment 1: What Materials Do Magnets Attract?
- Experiment 2: Temporary Magnets
- Experiment 3: How Can You Make a Magnet?
- Experiment 4: Separation of Small Filings in Fluids

OSMOSIS

In osmosis, water passes through a thin membrane. Learn what factors affect osmosis.

- Experiment 1: Osmosis
- Experiment 2: How Does Water Move Up Stems?

ROCKS AND MINERALS

Examine some rock specimens. Discover what kind of rocks and minerals they are and what makes them special.

SCIENCE SLEUTHS

Become a detective and investigate the world around you. Use a magnifying glass, stethoscope, bug boxes and more to find out what surprises Mother Nature brings to us.

SOLAR SYSTEM

The Solar System is an amazing marvel. Learn about the sizes and distances of the sun, moon and the planets.

- Experiment 1: Our Solar System
- Experiment 2: The Earth and the Moon

STATIC ELECTRICITY

Scientists discuss two kinds of electricity: *Static and current*. **Current electricity** travels through wires (household appliances, battery-powered toys, etc.). **Static electricity**, doesn't travel far but can "build up" on objects. **Static electricity** can cause some interesting things to happen.

- Experiment 1: A Hair Raising Experiment
- Experiment 2: The Paper Puzzler
- Experiment 3: Bending Water
- Experiment 4: Static & Balloons
- Experiment 5: Balloons on the Wall
- Experiment 6: Follow the Leader
- Experiment 7: Salt and Pepper?

SOUND AND MUSIC

Everything is made up of tiny, invisible particles called atoms and molecules (groups of atoms). Even though these particles are too small for us to see, they are big enough to trigger our senses.

Your ear is an amazing sound receiver. **A "sound" is really waves of air molecules**. The speed at which these molecules vibrate determine what sound you hear.

- Experiment 1: Where Is It?
- Experiment 2: Feeling Sound
- Experiment 3: Singing Glasses
- Experiment 4: Spoon Song
- Experiment 5: Telephone
- Experiment 6: Stringed Instrument
- Experiment 7: Straw Pipes

Watch "Em Grow

Learn how plants develop and grow. Have fun watching different types of seeds germinate; how they grow in different environments, etc.

- Experiment 1: A Seed
- Experiment 2: Seed Germination
- Experiment 3: Geotropism
- Experiment 4: Hydroponics
- Experiment 5: Growing Plants from Bulbs

WATERWORKS (Choose either Kit #A or Kit #B)

In the following experiments you can learn all about water: **the different forms of water, what properties it has in the different forms, how hot water is different from cold water, and how a siphon works.**

Waterworks #A:

- Experiment 1: Disappearing Water
- Experiment 2: Things that Float and Sink
- Experiment 3: Shapes in Water
- Experiment 4: A Floating Raft

Waterworks #B:

- Experiment 1: The Magic Straw
- Experiment 2: Upside Down Magic
- Experiment 3: Mystery Ice Cubes
- Experiment 4: Water Pressure and Depth
- Experiment 5: Hot Water, Cold Water

WEATHER

What causes rain, hail and the wind the blow? Why is the sky blue and the sun yellow? Find out the answers to these important questions.

- Experiment 1: Blue Sky and Yellow Sun
- Experiment 2: What Causes Wind?
- Experiment 3: Wind Speed and Direction
- Experiment 4: Dew Drops
- Experiment 5: Frost
- Experiment 6: Hail

MICROSLIDE VIEWERS

These microslide viewers are hard plastic viewers that magnify plastic slides (slides are like film negatives). Students slide the “negatives” through the viewer to see the objects. There is a booklet that explains what each picture is. This is a great beginning tool before using the more advanced microscope.

Although these are geared more toward Grades 3 to 5, younger students might enjoy looking at the slides too.

See Below for a List of the Slides:

Exploring the Planets	Your Teeth and Gums	Your Body
Intro. To Microscope	Marine Biology	Our Moon
Plants that are Not Green	Probing the Sun's Secret	Fossils
Smoking & Your Health	Egg to Tadpole to Frog	Intro. To Space
From Egg to Chick	The Honey Bee	Minerals
Life in the Tide Pool	Life in the Soil	Human Disease
Microscope Mysteries	From Fruit to Flower	Helpful Bacteria
Drugs and Nutrition	Cells of Your Body	Harmful Bacteria
Your Circulatory System	How Living Things Breathe	Your Skeleton

Revised: 10/07