



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. Most of the KITS are very easy to do.

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 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

HOVERCRAFT

Do you love to play air hockey at an arcade? Learn how an air hockey table works as you learn about friction by creating and playing with your own “hovercraft”.

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

MAKING “SNOW”

You won’t believe your eyes. Just add water to the mysterious white powder and in seconds the transformation begins - you will see “snow” erupt before your eyes! . In this kit, you will have lots of fun learning about physical reactions versus chemical reactions, as well as evaporation.

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?

PULLEYS AND LEGOS

Use Legos, one of kid’s most popular toys, to build and work with models to investigate fixed and movable pulleys and belt drives.

ROCKS AND MINERALS

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

SCIENCE OF MARKERS

Learn about color using something you and your teachers use every day at school! You will discover scientific concepts such as chromatography, solubility and more with this kit.

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.

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?

SOLAR ENERGY

Is the sun a source of energy for us? Check out this science kit and find out.

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

SUPERBALLS!

All kids love superballs....Have you ever wondered how to make one? In this kit, you will make your own superballs and then have fun with balls of all types! You will learn what makes a ball more “bouncy” than others.

“TOYING” WITH SCIENCE

Have you ever used a 3D Viewer or played with an Etch a Sketch? Combine science with entertaining toys and learn how these toys work. You will also learn scientific concepts with other toys!

UV LIGHT BEADS

Have you ever gone out in the sun with sunscreen on and still received a sunburn? What causes that sunburn? In this kit, you will learn about ultra-violet light (UV), and instead of using your skin as a UV light detector you will be able to experiment with UV Beads. These indicator beads change color when exposed to UV light. It's a great way to test the effectiveness of sun screen or to see if UV light is really blocked out by filters in sun glasses

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

WAVE TUBE/LAVA LAMP

In this kit, you will learn to make a great science toy that you can play with!

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 K - 2nd, older students might enjoy looking at the slides too.

See Below for a List of the Slides:

Microscope Mysteries
Marine Biology
Bacteria

Plants
Space
Investigator

Human Body
Minerals
Frogs and More Fun

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