





BALLS & TRACKS

Using flexible pipe insulation, marbles, and a few other simple materials, students take on the challenges of recreating small-scale models of amusement park rides and sporting events, such as the ski jump. 66 pages. 651666 Instructional Material\$9.95 or \$8.95 ea./10+



PINBALL

Build pinball games complete with bumpers, traps, flippers and plungers. Students assign their own numbers to their traps and decide where they should be, and test different methods of launching the ball. 61 pages.

651660 Instructional Material\$9.95 or \$8.95 ea./10+



TREBUCHETS

Start with a working design of an ancient throwing machine similar to catapults & slingshots. The challenge is to improve on the design by testing and adjusting the different parts of this device. 58 pages.

651667 Instructional Material \$9.95 or \$8.95 ea./10+

GLIDERS

Construct simple airplanes from paper. After testing designs for tails, bodies and wings, construct a rubber band launcher. This allows for a more consistent way of evaluating all of the variables. 64 pages.

651661 Instructional Material\$9.95 or \$8.95 ea./10+

PAPER BRIDGES

Make strong structures with limited materials. Students perform more & more difficult challenges to uncover many simple principles of bridge building. 67 pages. 651668 Instructional Material\$9.95 or \$8.95 ea./10+

RUBBER BAND-POWERED CARS

Using cardboard, dowels, plastic plates, and rubber bands, students can build their own cars, and learn in a direct way the engineering concept of optimization by testing different sized rubber bands and different diameter plates as wheels. 55 pages.

651663 Instructional Material\$9.95 or \$8.95 ea./10+

BALLOON-POWERED CARS

There is more to this project than just making an inflated balloon move a car. Engineering involves designing a way to support the balloon & get it to work consistently. Match the power requirements of the car with the right kind of balloon. Nozzles can be designed and tested. 651659 Instructional Material\$9.95 or \$8.95 ea./10+



CRANES



Using a cardboard box as the body, yardstick as a boom, and small electric motor as the power source, students make a working model of a crane. Use different ways of attaching string to the shaft of the motor so that it can lift varying amounts of nails in a cup.

651813 Instructional Material\$9.95 or \$8.95 ea./10+

STRING TELEPHONES

Using paper cups & string, discover principles that govern the simplest form of a string telephone. Refine this model with other materials & get messages to go around corners. 651817 Instructional Material\$9.95 or \$8.95 ea./10+

CARDBOARD CONSTRUCTIONS

How strong a stool can students construct from a small cardboard box? Will it support an adult? Building on this experience, students build a bed using a large piece of cardboard supported by small boxes. In the final activities, large modular houses are constructed from pieces of refrigerator boxes.

651814 Instructional Material\$9.95 or \$8.95 ea./10+

BLINKING LIGHTS

Your students are challenged to design a flashlight from a soda can, cardboard, battery and wires. A rotary switch can also be designed, which is used to control a model traffic light system.

651658 Instructional Material\$9.95 or \$8.95 ea./10+

STRAW ROCKETS

Launch the outer straw like a toy rocket by blowing. By using a sandwich bag propulsion system, students test different kinds of fins while trying to refine their toy rockets so that they will hit targets consistently.

651816 Instructional Material\$9.95 or \$8.95 ea./10+

SPINNING TOYS

Plates, dowels, rubber washers, and tuna fish cans become homemade tops and yo-yos. Uncover the principles of balance and spin to make long spinning tops and regular or "sleeper" yo-yos.

651815 Instructional Material\$9.95 or \$8.95 ea./10+

SAND & WATER CLOCKS

Students use flowing sand and water in connected soda bottles to try to make accurate and consistent sand and water clocks that measure out 30-second, 60-second, or even longer time intervals.

651669 Instructional Material\$9.95 or \$8.95 ea./10+



All 14 projects (Balls and Tracks, Pinball, Trebuchets, Gliders, Paper Bridges, Rubberband-Powered Cars, Balloon Powered-Cars, Cardboard Constructions, Cranes, Blinking Lights, String Telephones, Straw Rockets, Spinning Toys, Sand and Water Clocks) plus a FREE Implementation Guide. 651916 Complete Set of 14 Projects + Guide\$139.95

"DESIGN IT!" IMPLEMENTATION GUIDE

An introduction to the **Design It!** series and a resource for teachers using the program for the first time. The guide covers managing and structuring an effective classroom environment and gives a sense of context and procedures needed to effectively engage students.

651665 Implementation Guide, 32 pages\$6.95



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A series of exploratory science experiences for out-of-school programs and elementary school students (ages 8–12), funded by the National Science Foundation and developed by Education Development Center, Inc. Explore It! includes a guide for each project and a special guide for implementing the program. These extended explorations provide an experiential foundation for science concepts associated with basic phenomena and helps develops essential skills for inquiry in the formal context.

BUBBLES

Floating giant bubbles (3 feet in diameter), small bubble domes on a table top, and soap film in frames are the means for children to observe some of the more obvious properties of soap bubbles (such as their round shapes) as well as subtle properties (such as surface tension). 652278 Instructional Material**\$9.95** or **\$8.95** ea./20+

SODA SCIENCE

Children can make up their own soda recipes in a systematic way while practicing in a concrete manner the mathematical operations of ratio and proportion. Then, they analyze a real soda to compare how the relative proportions of ingredients in the commercial version compare with theirs.

652285 Instructional Material\$9.95 or \$8.95 ea./20+

CAKE CHEMISTRY

What are the ingredients in a recipe that cause a cake to rise? Is the same gas produced when using baking powder, baking soda, or yeast? These are questions children pursue in this exploration while, at the same time, they get to eat their experiments and gain some sense of the chemical properties of materials.

652279 Instructional Material\$9.95 or \$8.95 ea./20+

BALANCING TOYS

Children transform a piece of a pool noodle into a model of a person, an airplane, and a boat, and then manipulate these models to see how they balance in different ways. They also build simple mobiles to explore other kinds of balancing arrangements to develop some understanding about equilibrium.

652275 Instructional Material\$9.95 or \$8.95 ea./20+

SIPHON SYSTEMS

Using an arrangement of plastic tubing and a special connector, children transform a soda bottle into an interesting device for exploring how water flows through a closed or open system. Connecting multiples of these special bottles adds to the challenge of analyzing what happens with the air and water pressure in these systems. 652284 Instructional Material**\$9.95** or **\$8.95** ea./20+

BALLOONS

Different sizes and shapes of inflated balloons can be launched in a variety of ways with the result being different trajectories and different distances traveled. Children learn about the phenomena of action-reaction and the properties of air pressure.

652276 Instructional Material\$9.95 or \$8.95 ea./20+

COLLIDING BALLS

Using a piece of molding as a track and a set of different kinds of balls, children experiment to see what happens when the balls collide with each other, through which children gain some sense of how objects exchange energy. 652277 Instructional Material**\$9.95** or **\$8.95** ea./20+

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PERMANENT MAGNETS AND ELECTROMAGNETS

Children explore the properties of permanent magnets, such as how to make their magnetic fields visible. Then, they determine the properties of electromagnets by making fun gadgets.

652281 Instructional Material\$9.95 or \$8.95 ea./20+

HEATING A HOUSE AND AN OVEN

By finding different ways to insulate a cardboard "house" warmed by just one 40W light bulb, children explore the difference between the ideas of heat and temperature. Then, using a 100W bulb, they turn the house into an "oven" that can bake cookies at 300° F.

652282 Instructional Material\$9.95 or \$8.95 ea./20+

WIRING A HOUSE

Children discover some of the principles of practical wiring and electrical circuitry by installing lights and switches in the rooms of a cardboard house. They follow electrical "pathways" within their circuits to explain why some light bulbs shine brightly while others are dim. 652286 Instructional Material**\$9.95** or **\$8.95** ea./20+

EXPLORING FOOD

Marooned on a desert island with a limited food supply, children investigate the properties and make-up of common foods. Investigations of water content, fat content and the roles of starch and gluten in flour all contribute to the overall question of what constitutes a "balanced" diet.

652280 Instructional Material\$9.95 or \$8.95 ea./20+

MEASURING OURSELVES

Children measure their own bodies in a variety of ways to learn more about their basic physical make-up and to observe both the consistency and variation of body shape, size, and strength among their peers.

652287 Instructional Material\$9.95 or \$8.95 ea./20+

SINKING & FLOATING

Children explore the buoyancy of common objects and make boats from a variety of materials, gaining a sense of the relative contribution of the material and its shape in determining whether it will sink or float. They repeat their experiments with salt water and other solutions to see how the type of liquid makes a difference in how things float.

652283 Instructional Material\$9.95 or \$8.95 ea./20+

IMPLEMENTATION GUIDE TO EXPLORE IT! PROJECTS

Designed to serve as an introduction to the Explore It! series, this guide covers aspects of managing and structuring each exploration by providing suggestions for effective practices that engage the children in a productive and satisfying experience.

652345 Instructional Material\$9.95 or \$8.95 ea./20+

















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Siphon Systems

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Colliding Balls

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