



SCIENCE LABORATORY



THAMES & KOSMOS



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How do children learn best? How do they develop an independent personality? How can you best support your child in his or her natural way of learning?

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This section provides a quick explanation of all the parts in the kit. You will find ideas for using the kit, inspiration for games and more in-depth projects, and suggestions for how to be creative in shaping an optimal learning environment for your child.



Important Information

All the materials in this kit are safe for children. Still, there is always the possibility for injury. So please do not let your child experiment alone. Take the opportunity to teach your child that nothing from the experiment kit should be eaten and that there should be no eating or drinking while experimenting.

Never leave the magnifying glass in the sun — it could cause a fire! Make sure that your child never looks directly into the sun, either with the naked eye or with the magnifying glass. He or she could blind himself or herself!

To clean and care for the parts, it is best to rinse them by hand under running water. Handle the magnifying glass carefully so it does not get scratched. This way, your child can continue to have fun with it for a long time. Keep the packaging and instructions, as they contain important information.





Magnetic Rings and Stand

WHAT ARE THEY AND WHAT ARE THEY FOR?

The natural scientific phenomenon of magnetism is very exciting to preschoolers. The four magnetic rings on the stand will enable your child to learn about the properties of magnets in a fun way.

First, the four magnetic rings will allow him or her to perform experiments investigating the attracting and repelling forces of magnets. The rings look the same on both sides, but they have different poles. Which sides attract and which ones repel each other?

SUGGESTIONS AND EXAMPLES

Accompany your child on an expedition through the house to see where magnets are used in everyday life (for example, to attach notes to the refrigerator). Encourage your child to experiment with a variety of objects.



The questions below can form the basis for various guessing games. For example, you could pick out three test objects and have all of the players offer suggestions. Then check your results together:

- Which things are attracted?
- For things that are attracted, what kinds of materials are they made of?
- What happens to the same kinds of things made of different materials (for example, plastic spoons and metal spoons)?
- From how great a distance are objects attracted to the magnet?
- A magnet can attract objects through materials. How many layers of paper (for example) can the magnet penetrate?
- Can an obstacle stop the magnet's force of attraction?
- How close can the stand get to a magnetic ring before it is attracted or repelled?

Come up with your own games with magnets. Here's an example:

Take a kitchen tray, a table, or other flat, smooth surface and check whether the magnetic rings can penetrate through the surface to move the stand. Then construct a maze made of building blocks or other objects on the surface together with your child. Let your child's creativity run free while constructing it. Now, who can manage to guide the stand through the maze using only the magnet from the underside and without hitting anything or knocking anything over?



Be careful when using magnets near data storage media, credit and debit cards, and the like. The data stored in them might get damaged and lost.



Measuring Spoons and Test Tubes with Stand

WHAT ARE THEY AND WHAT ARE THEY FOR?

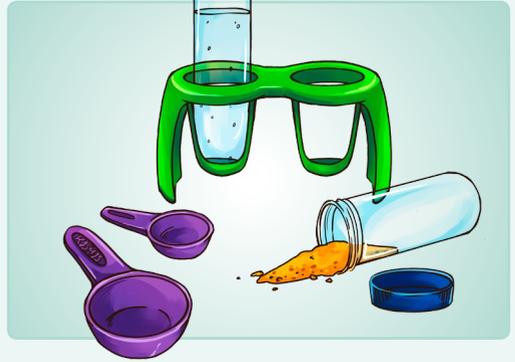
Handling containers is an important field of activity. Filling them, pouring things out of them and from one container to another are things that children enjoy and that help to teach important skills.

Filling and pouring are important things to practice for everyday activities. This is an activity that we perform on a daily basis in many different contexts, such as watering plants, pouring drinks, or measuring ingredients in the kitchen.

This fosters skills in the following areas:

- **Learning about** various materials (such as water, rice, beans, sand, or fine grit for bird cages) and their different flow properties
- **Sensing** the materials with your hands
- **Recognizing** physical laws (such as gravity)
- **Dealing with quantities** and comparing different quantities by handling containers of different types and sizes (such as pitchers, watering cans, or funnels)
- **Concentration and reaction** is required to stop pouring at the right time to avoid spilling anything

Older children can have fun with these experiments too. Activities such as these often aid learning and relaxation in equal portions.



SUGGESTIONS AND EXAMPLES

Expand the possibilities by providing containers from around the house and by making various materials available for pouring and filling.



Suggest some comparative tasks:

- How many large or small measuring spoonfuls will fit into the large or small test tube?
- How many test tubes will fit into other bowls or cups?
- What results do you get when you perform the experiments with different materials?

TIP!

These experiments can make quite a mess. Integrate sweeping-up activities into the game, which also promotes manual skills.





Pipette

WHAT IS IT AND WHAT'S IT FOR?

Experimenting with the pipette provides an initial approach to thinking about and working with real laboratory equipment.

Handling the pipette promotes fine motor skills and offers training in visual perception because it requires precise observation. Concentration and reasoning skills are promoted too. It also provides an opportunity to learn about counting and dealing with numbers.

SUGGESTIONS AND EXAMPLES

The pipette is an invitation for experimenting with liquids. How do you get water into it and back out again? Provide some water for your child to find out. What other kinds of things might be drawn up into the pipette?



One option is to use colored water, which can easily be made by mixing food coloring or watercolor paints with water. It's fun to mix colors or create water drops. This will also elicit your child's creative impulses.

You can also set up a few little tasks:

- Mix one color with another. What new colors does this produce?
- Try making purple from other colors. What colors do you need for that?
- How many drops of water will fit into the small measuring spoon or test tube lid?

Under your supervision, you can also have your child experiment with soap or bubble bath liquid. Just make sure that they do not drink any of these substances.



CLEVER COMBINATION!

