

Dear Parents and Supervising Adults,

Before starting the experiments, please read the manual together with your child and discuss the safety instructions.

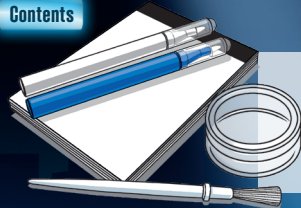
Support your child with advice and a helping hand when performing the experiments outlined in the manual.

Make sure to keep the packaging and instructions as they contain important information.

Store the kit and its contents out of reach of small children.

WARNING! Not suitable for children under 3 years. Choking hazard – small parts may be swallowed or inhaled.

Contents



2 secret pens
(Item no.: 725169)
Brush
(Item No.: 724970)
Petri dish
(Item no.: 725170)
Notepad
(Item no.: 725192)

2

The Experiments

Magic Pens

You can start creating confidential messages using the two secret pens. Using the white pen, write something on the notepad – classified instructions, notes from your investigation, or maybe a list of suspects! Within a few seconds, everything you wrote will have disappeared. The only way to read the message now is to swipe over the notepad with the blue pen. Now try it the other way around. Have your partner respond using the blue pen, and reveal the secret information with the white pen!



Tip: Be “inconspicuous”

Inconspicuous means not attracting attention. Sending someone a blank piece of paper might be a little suspicious, so take a normal pen or pencil and write or draw something non-confidential in an area where there isn't a secret message waiting to be revealed. This is why the included notepad has the bogus message preprinted on it.

3

Centuries of Secret Messages

Disappearing inks have been used to send secret messages for centuries, but not just by spies. In 2 AD, Ovid, the Roman poet, wrote instructions on how secret lovers could use milk and charcoal to exchange messages in his *Ars Amatoria* (Art of Love). Prisoners would also use this technique to communicate with the outside, like Mary, Queen of Scots, who wrote to her supporters using alum, which could then be dipped in water to reveal her message.



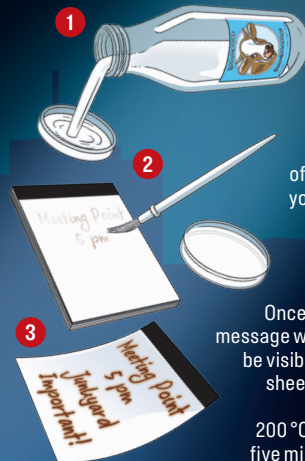
Different secret inks

WARNING: Do not try this experiment without an adult present. Children should NEVER use the stove or oven without adult supervision.

With the help of an adult, try using the heat from the oven to reveal a secret message written in one of these household items: milk or juice from a lemon, apple, or onion.

4

Reappearing Ink



Pour one of the liquids into the petri dish and use the brush to write a short message on a piece of paper from your notepad.

Once it dries, the message will no longer be visible. Place the sheet of paper in the oven at 200 °C / 400 °F for five minutes. What do you observe? The writing turns brown!

5

Milk and the other household liquids contain carbon compounds, which are colorless (or almost colorless) at room temperature. The heat from the oven breaks down these compounds and releases carbon. When carbon comes in contact with oxygen, a chemical reaction called oxidation occurs, turning the substance brown.

Disappearing / Reappearing Ink

Most modern erasable pens use Thermochromic ink so that you can correct your mistakes, but it isn't truly "erased." Thermochromism is the property of substances to change color due to a change in temperature. The ink in an erasable pen turns clear at 60 °C/140 °F. When you rub it with an eraser, you create friction, which causes the molecules on the surface to move faster. This causes heat (just like rubbing your hands together when you're chilly). However, it's just a color change, so you can make the color reappear by cooling the ink to 4 °C/40 °F. You can do this by putting it somewhere cold, like the freezer. Send someone a secret message this way, and don't forget to think of a sneaky way of telling the recipient to put the paper somewhere frosty.

© 2022 Franckh-Kosmos Verlags-GmbH & Co. KG, Pfizerstrasse 5-7, D-70184 Stuttgart, Germany.

This work, including all its parts, is copyright protected. Any use outside the specific limits of the copyright law without the consent of the publisher is prohibited and punishable by law. This applies specifically to reproductions, translations, microfilming, and storage and processing in electronic systems and networks. We do not guarantee that all material in this work is free from copyright or other protection.

Layout, Instructions, Packaging, and Die-cuts: Michael Schlegel
Cover Illustration: Wolfgang Peschke
All other illustrations: Friedrich Werth

© 2022 Thames & Kosmos, LLC, Providence, RI, USA
Thames & Kosmos® is a registered trademark of Thames & Kosmos, LLC.
Editing: Ted McGuire and Peter Bowen
Additional illustrations: Dan Freitas and Ted McGuire
Packaging artwork: Dan Freitas

Distributed in North America by Thames & Kosmos, LLC.
Providence, RI 02903
Phone: 800-587-2872; Web: www.thamesandkosmos.com

We reserve the right to make technical changes.

Printed in China / Imprimé en Chine

548013-02-111022

SPY LABS INCORPORATED



Ages 8
and up

Our Master Detective Toolkit has everything you need to conduct your own forensic investigations. The team at Spy Labs Inc. will explain how to use your investigative equipment correctly as you help them solve some tricky cases along the way. You'll be collecting and analyzing evidence like a pro in no time!

SPY LABS INCORPORATED

Secret Message Tools



Exchange confidential messages with your fellow agent using disappearing and reappearing ink that only the two of you can read! Using either of the two secret pens, you can write a message that, once dry, becomes invisible. The other pen will not only reveal the information, but you can also use it to send your reply.