



READING THROUGH
THE LENS OF STEAM



Erasmus+



Sofinancira program
Evropske unije
Erasmus+

THE SECRET OF COLOURS IN FORENSIC SCIENCE

Detective stories and movies are certainly very popular since the solving process and research attracts all of us. The analyses results in laboratories provide key information that help to decipher even the most complex cases.

Would you like to try it out for yourself?

You're going to be a detective today.

Like a detective, you will be investigating forged document signatures. By analysing, you will determine what kind of felt-tip pen the signatory had, and this will help you discover if the signature belongs to the suspect.

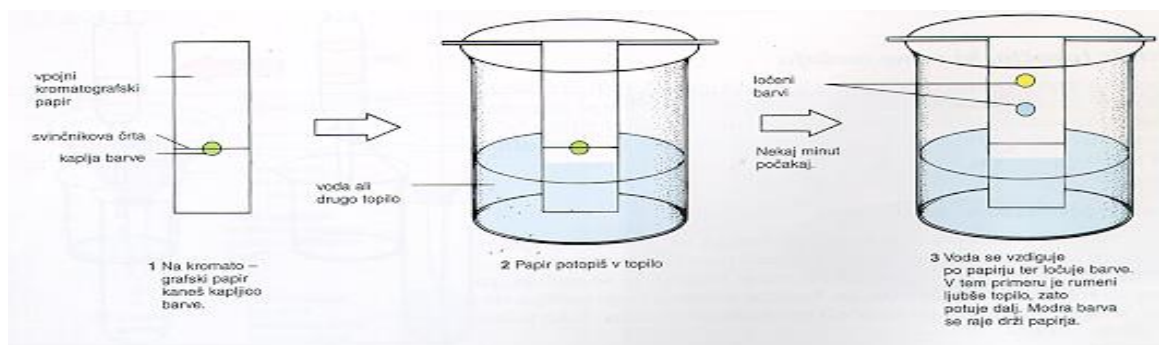
1 TASK: Determine the composition of the felt-tip pen colour. The purpose of this experiment is to determine whether black felt-tip pens from different manufacturers contain different dyes. All black felt-tip pens look the same, but when we perform chromatography, we find out what is really hiding in their black colour.

2 EQUIPMENT:

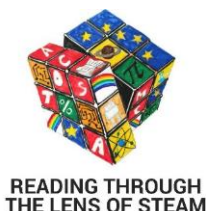
Laboratory Equipment	Reagents
beakers paper for chromatography (2 x 12 cm) wooden sticks, clips, scissors graphite pencil the chromatogram of the felt-tip pen with which the suspect wrote	coloured felt-tip pens solvent (water) solvent (mixture ethanol, acetone)

3 PROCEDURE:

1. Draw a straight line of 2 cm from the bottom edge with a pencil on a strip of chromatographic paper (see the picture below). Then cover the drawn line with the selected felt-tip pen. Write the mark of the selected felt-tip pen on the top edge of the paper with a pencil.
2. Attach the strip of chromatographic paper to the stick (use a clip).
3. Place the chromatographic paper in the beaker so that its lower edge sinks to 5 mm below the surface of the solvent.
4. Observe the formation of the chromatogram until the solvent rises almost to the top of the paper strip.
5. Repeat the experiment with other felt-tip pens.



KA229 - ERASMUS+: READING BOOKS THROUGH THE LENS OF STEAM



SEPARATION OF DYE MIXTURES IN COLOURED HARD CANDY

1 TASK: Determine the composition of the dye in a coloured hard candy.

2 EQUIPMENT:

Laboratory Equipment	Reagents
beaker dropper filter paper in a circle petri dish	coloured hard candy water

3 PROCEDURE:

1. Place the filter paper on the petri dish.
2. Place the hard candy in the centre of the filter paper.
3. With a dropper, add water to it, drop by drop. Observe what happens.
4. When the liquid stops spreading on the paper, add another drop of water.
5. Repeat the process several times.