



EURO4SCIENCE

Exploring science and transdisciplinary learning through forensics

Euro4Science Forensic Sciences Educational Toolbox



Toolbox

- ✓ The Toolbox was created with several attractive experimental activities, which explore the Human Individual Identification and Chemistry topics.
- ✓ Based on a Guide that explores forensic cases, students are given different materials that can be used to develop several activities while applying forensic methods.



The Toolbox includes:

- Bluestar® Forensic Kit
- Kastle-Meyer Solution
- Hydrogen Peroxide 3%
- Ethanol 96%
- Cotton Swabs
- Simulated blood of victim
- Simulated blood of Suspect 1,2,3
- Simulated blood of Evidence #4,5
- Blood trays
- Toothpicks
- Piece of cloth(100% cotton)
- Simulated Anti-A Serum
- Simulated Anti-B Serum
- Simulated Anti-Rh Serum
- Simulated Blood
- Magnifying glass
- Clear adhesive tape
- Ink pad
- Identification card
- Collection card
- Fingerprint brush
- Black dusting powder
- Iodine Crystals
- Alligator clips
- Corn Starch
- Sodium Bicarbonate
- Paper squares
- Plastic container
- Comb
- Metal clips
- Butter container
- DNA samples (Evidence#4, Suspect 1,3, Victim)
- Known fibre samples (cotton, linen, nylon, polyester, rayon, wool)
- UV light
- Cotton swabs
- Invisible ink
- Chromatography paper
- Evidence#1,2,3,4,5,6,7,8,9, 10-A,10-B,10-C

Activities included in the Toolbox

The Toolbox includes 11 activities divided in two main areas:

- **Human Individual Identification**

- ✓ Activity II-A: Is this really blood?
- ✓ Activity II-B: Blood typing analysis
- ✓ Activity II-C: Blood patterns
- ✓ Activity II-D: Study your fingerprints
- ✓ Activity II-E: Dusting and lifting latent fingerprints
- ✓ Activity II-F: Revealing latent fingerprints using iodine fuming
- ✓ Activity II-G: DNA fingerprinting – Electrophoresis

Activities included in the Toolbox

– Chemical Science

- ✓ Activity III-A: Physical and chemical tests of fibres
- ✓ Activity III-B: Invisible ink
- ✓ Activity III-C: The colour of guilt – Chromatography
- ✓ Activity III-D: Blood doping

Activity II-A: Is this really blood?

The materials included in the Toolbox for this activity are:

Bluestar® Forensic Kit

Evidence#1

Evidence#2

Evidence#5

Kastle-Meyer Solution

Hydrogen Peroxide 3%

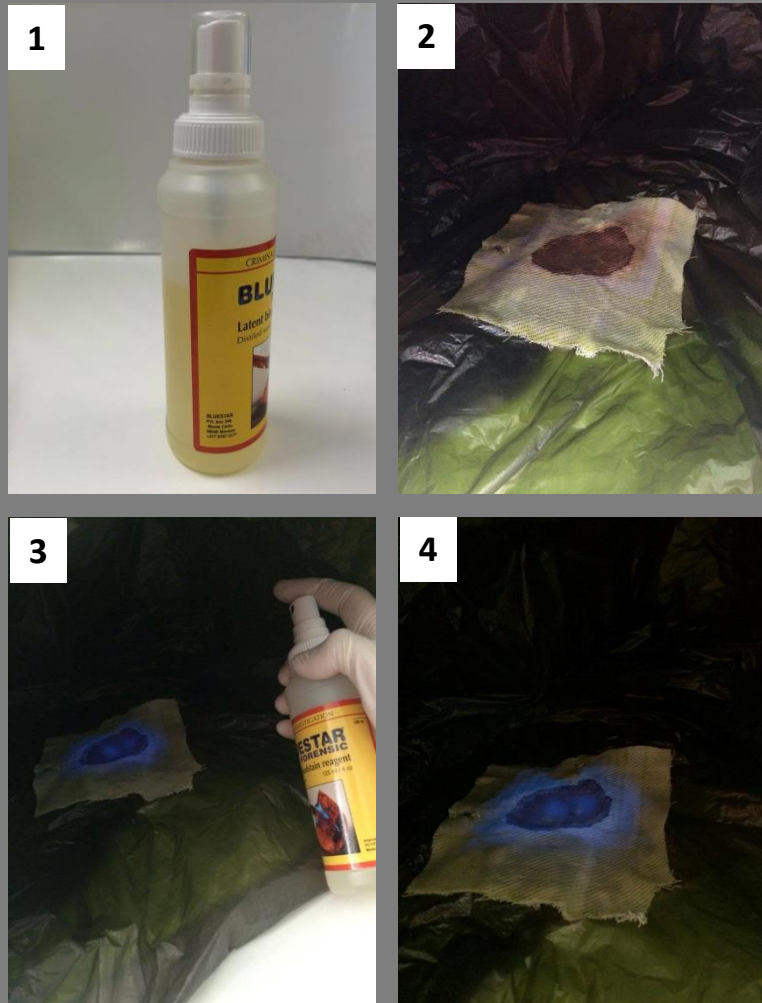
Ethanol 96%

Cotton Swabs

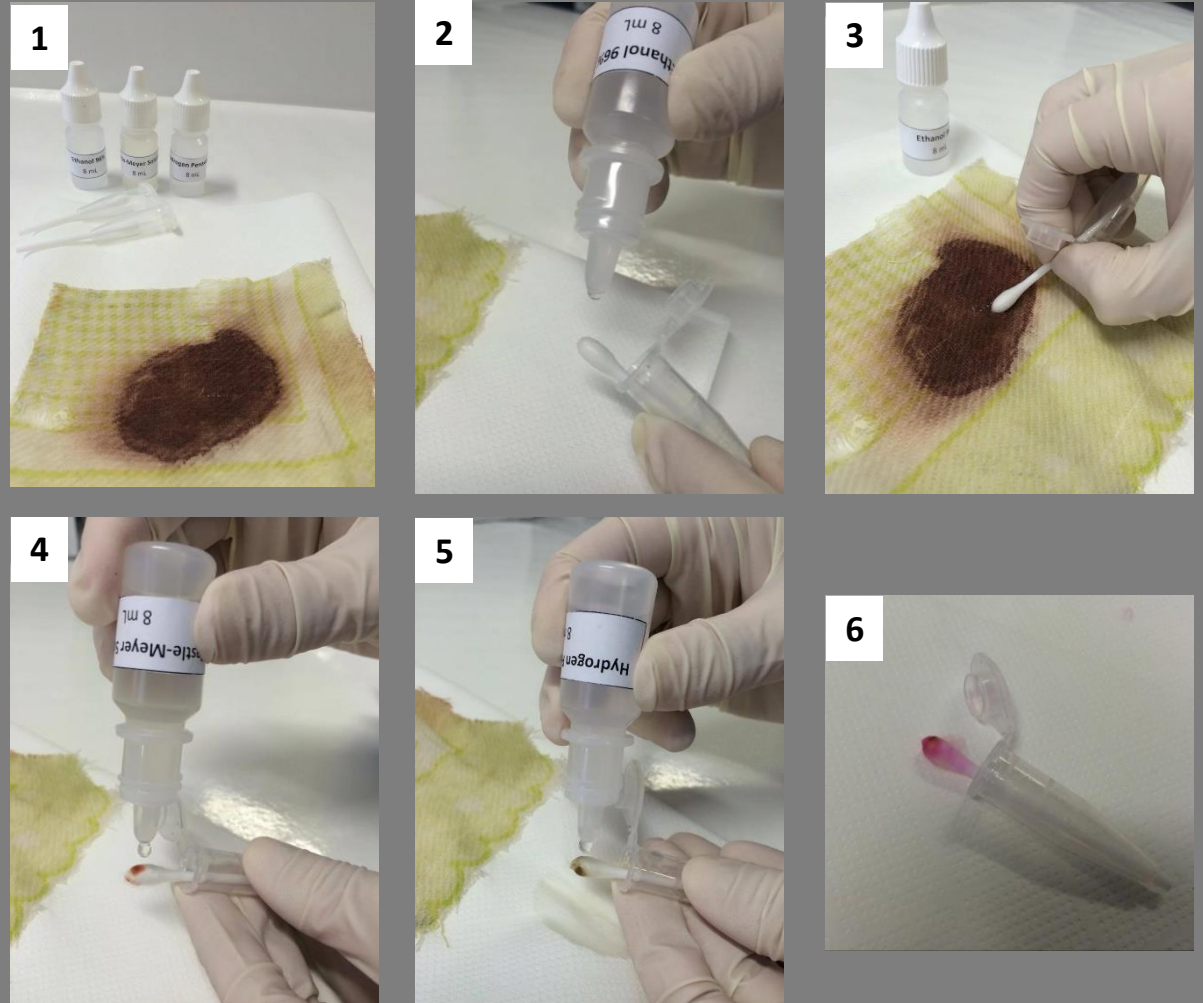


Activity II-A: Is this really blood?

Luminol Test



Kastle-Meyer Test



Activity II-B: Blood typing analysis

The materials included in the Toolbox for this activity are:

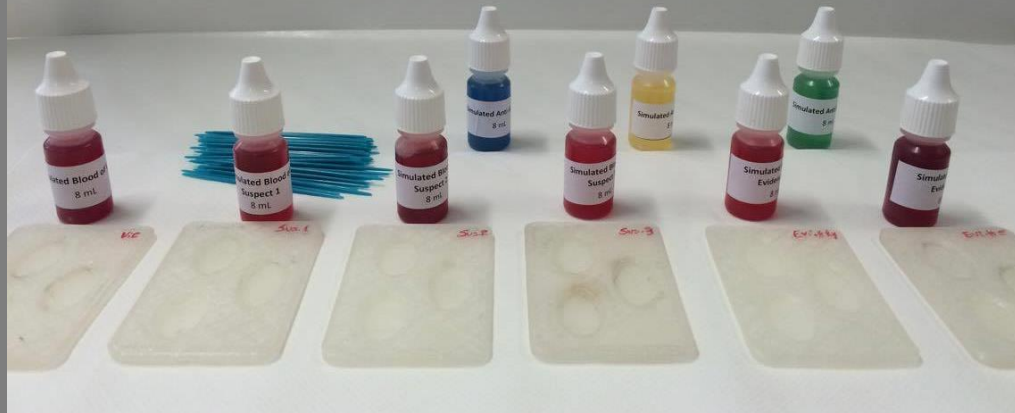
- Simulated blood of victim
- Simulated blood of Suspect 1
- Simulated blood of Suspect 2
- Simulated blood of Suspect 3
- Simulated blood of Evidence#4
- Simulated blood of Evidence#5

- Simulated Anti-A Serum
- Simulated Anti-B Serum
- Simulated Anti-Rh Serum

- Blood trays
- Toothpicks
- Piece of cloth (100% cotton)



1



2



3



4



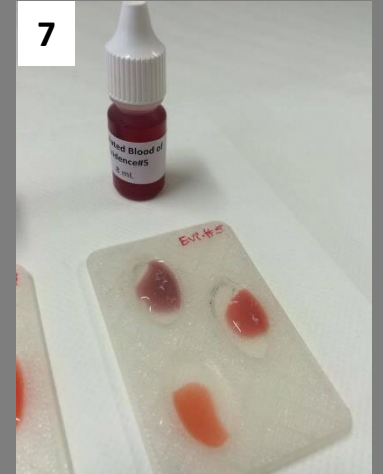
5



6



7



Activity II-C: Blood patterns

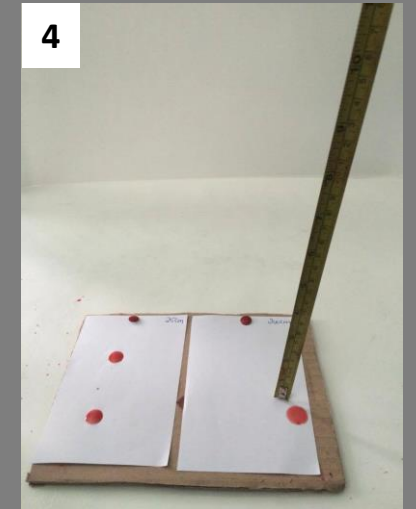
The material included in the Toolbox for this activity is:

Simulated Blood



Activity II-C: Blood patterns

Relating blood drop diameter to drop distance



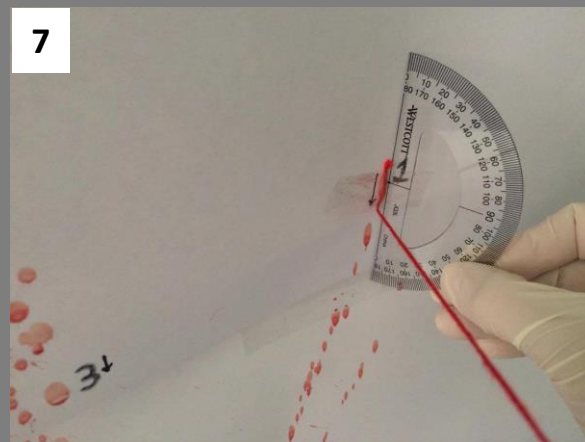
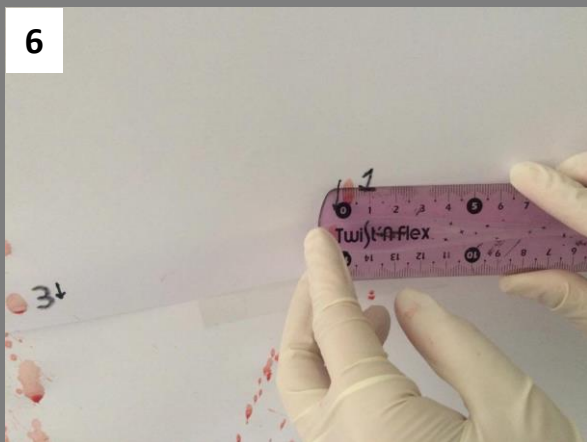
Activity II-C: Blood patterns

Creating blood spatter from different angles of impact



Activity II-C: Blood patterns

Crime Scene Investigation



Activity II-D: Study your fingerprints

The materials included in the Toolbox for this activity are:

Magnifying glass
Clear adhesive tape
Ink pad

Identification card
Collection card

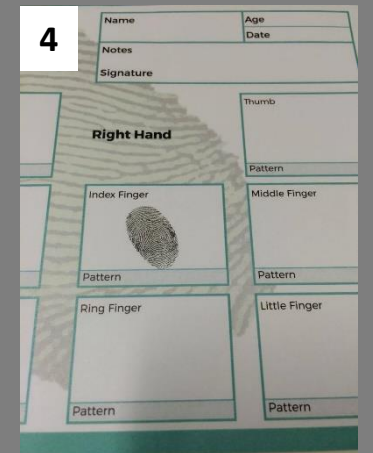
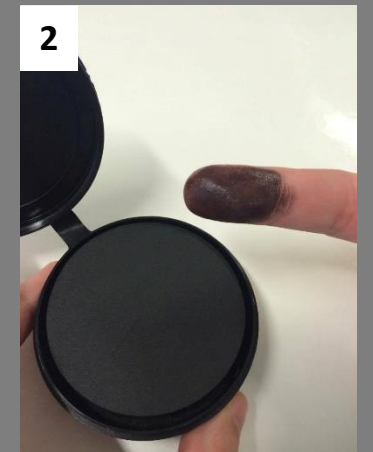


Activity II-D: Study your fingerprints

Pencil to create a grafite pad



Real ink pad



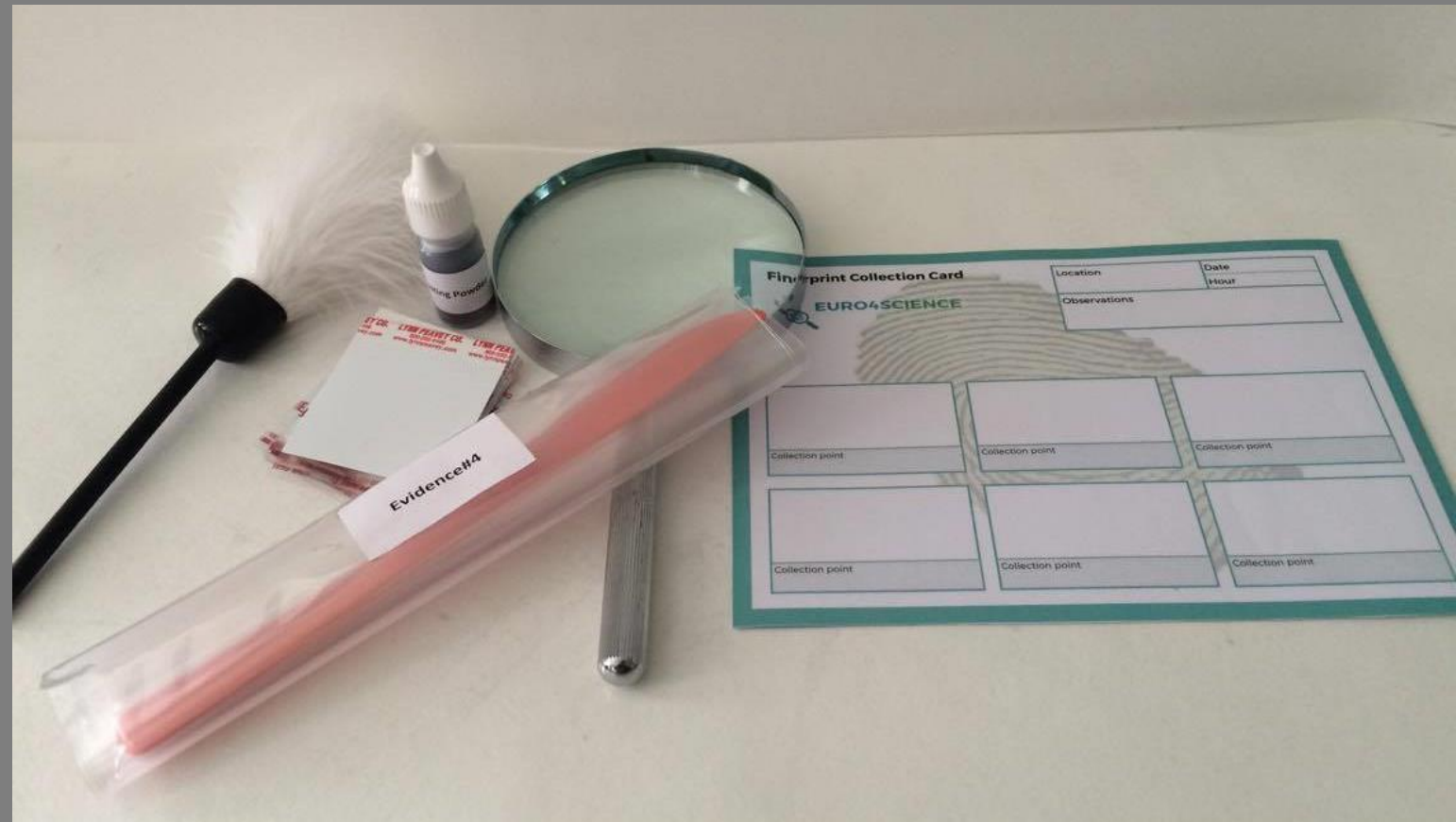
Activity II-E: Dusting and lifting latent fingerprints

The materials included in the Toolbox for this activity are:

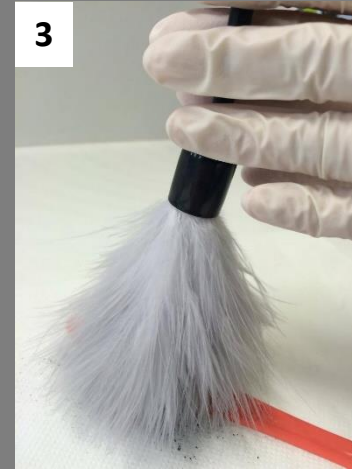
Magnifying glass
Clear adhesive tape
Fingerprint brush
Black dusting powder

Collection card

Evidence#3



Activity II-E: Dusting and lifting latent fingerprints

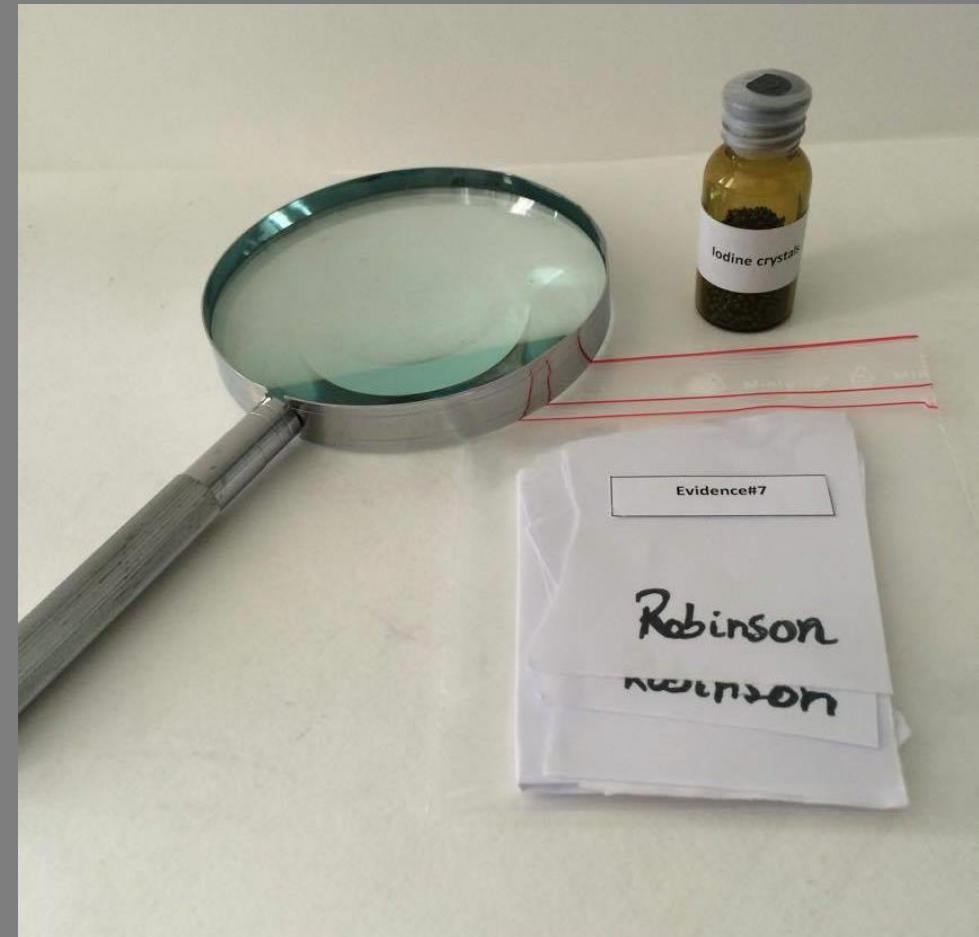


Activity II-F: Revealing latent fingerprints using iodine fuming

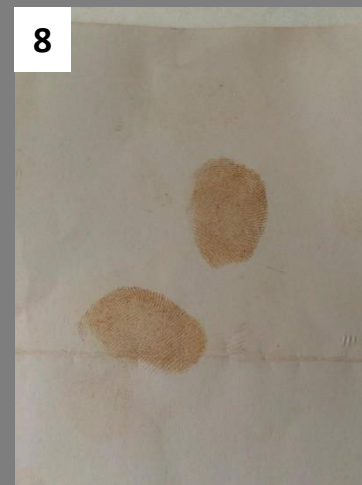
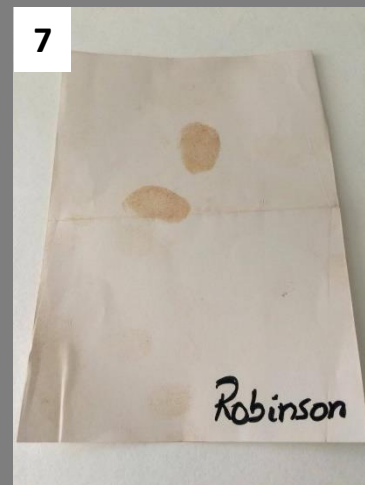
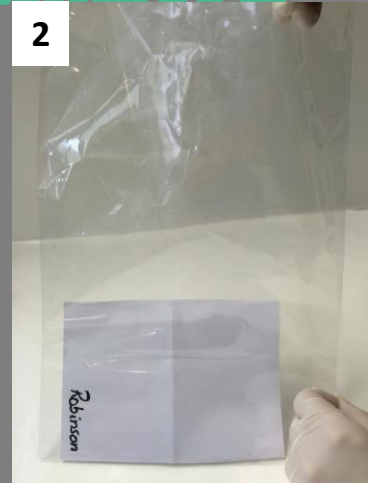
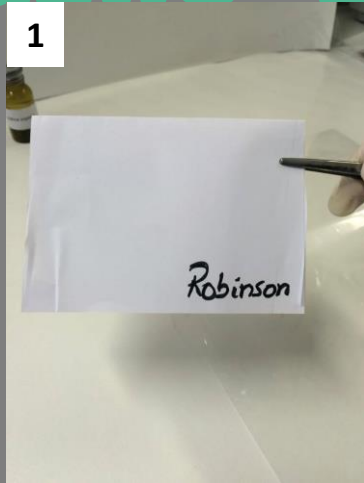
The materials included in the Toolbox for this activity are:

Magnifying glass
Iodine Crystals

Evidence#7



Activity II-F: Revealing latent fingerprints using iodine fuming



Activity II-G: DNA fingerprinting – Electrophoresis

The materials included in the Toolbox for this activity are:

Alligator clips

Corn Starch

Sodium Bicarbonate

Paper squares

Plastic container

Comb

Metal clips

Butter container

DNA samples

(Evidence#4,

Suspect 1,

Suspect 3,

Victim)

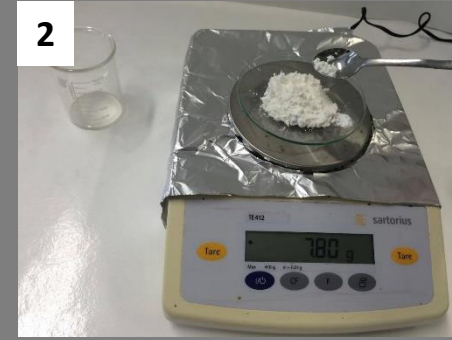


Activity II-G: DNA fingerprinting – Electrophoresis

Preparation of the buffer

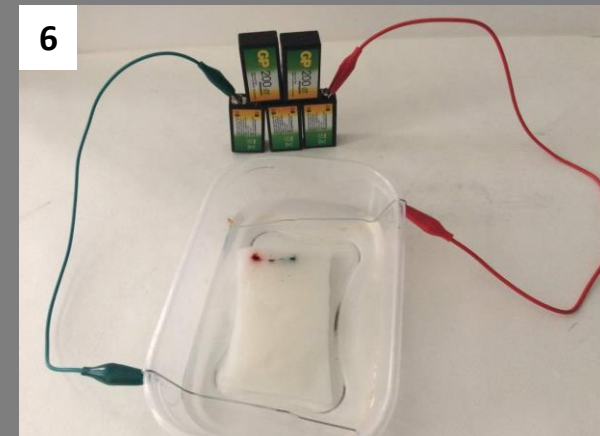
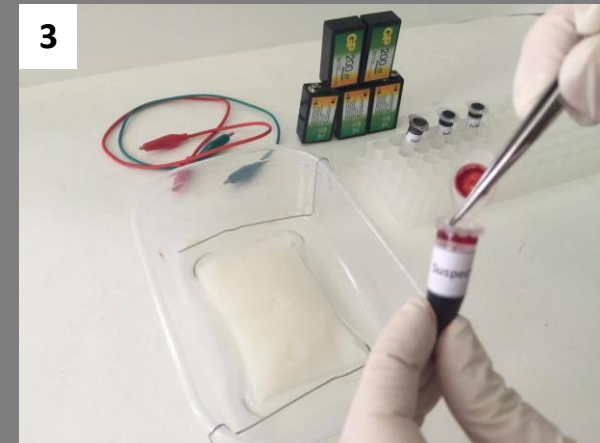


Preparation of the gel



Activity II-G: DNA fingerprinting – Electrophoresis

Load and run the DNA specimens



Activity III-A: Physical and chemical tests of fibres

The materials included in the Toolbox for this activity are:

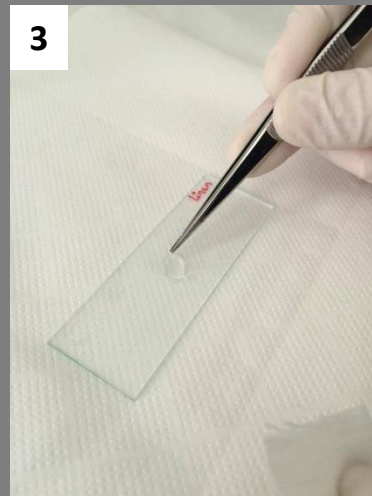
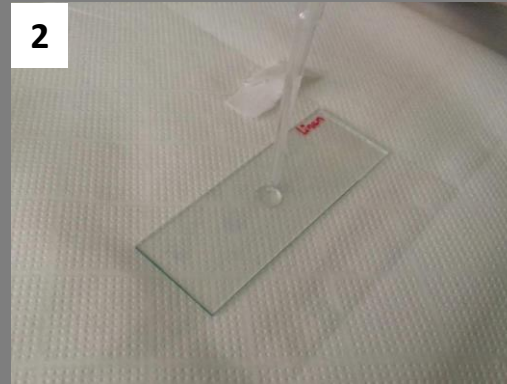
Known fibre samples (cotton, linen, nylon, polyester, rayon, wool)

Evidence#6



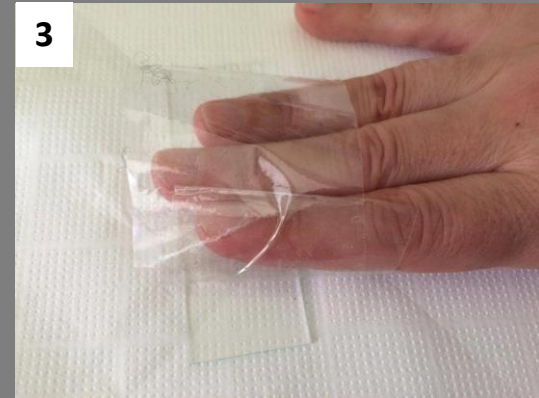
Activity III-A: Physical and chemical tests of fibres

Microscopic examination of fibres



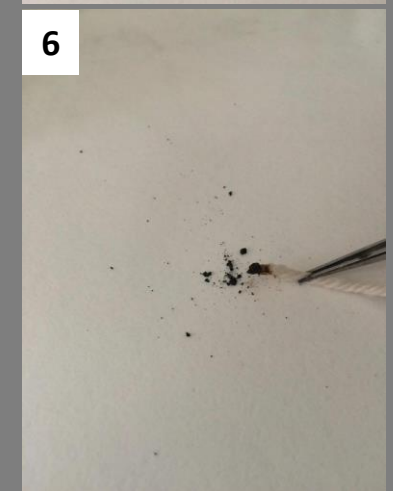
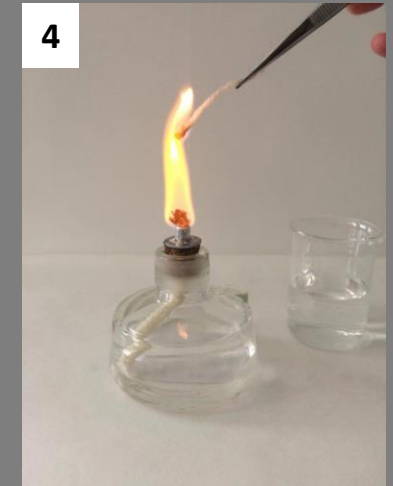
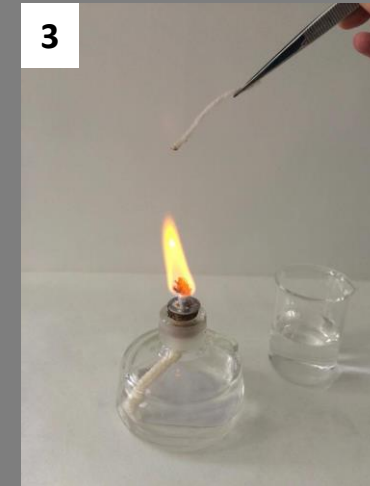
Activity III-A: Physical and chemical tests of fibres

Comparing fibres from your clothing



Activity III-A: Physical and chemical tests of fibres

Burning testing fibre analysis



Activity III-B: Invisible ink

The materials included in the Toolbox for this activity are:

UV light

Cotton swabs

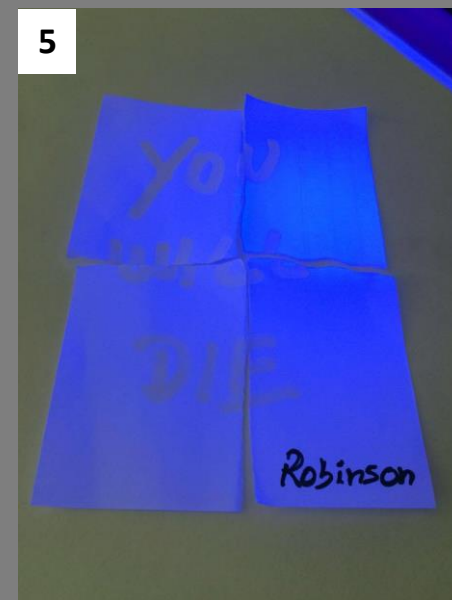
Invisible ink (sunscreen 2:10 dilution)

Evidence#7



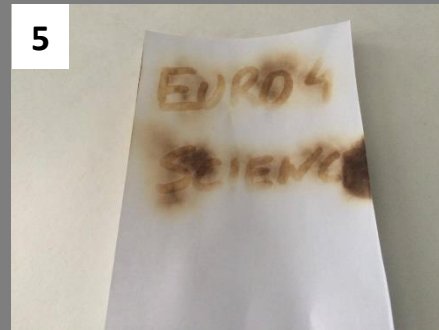
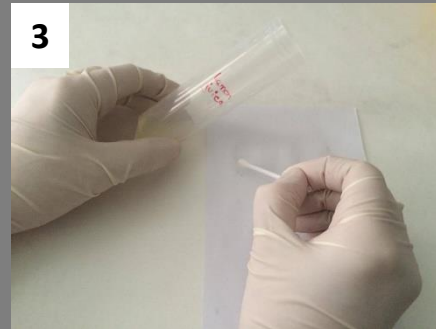
Activity III-B: Invisible ink

Analysis unknown sample

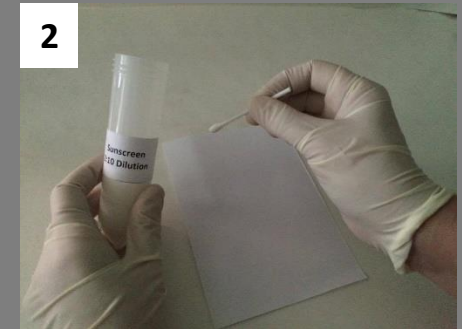


Activity III-B: Invisible ink

Lemon juice



Sunscreen



Activity III-C: The colour of guilt – Chromatography

The materials included in the Toolbox for this activity are:

Chromatography paper

Evidence#7

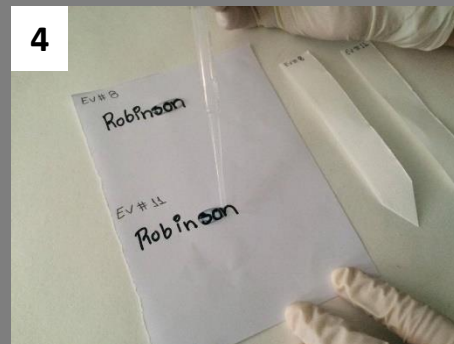
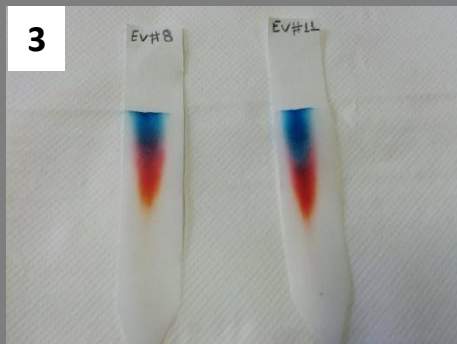
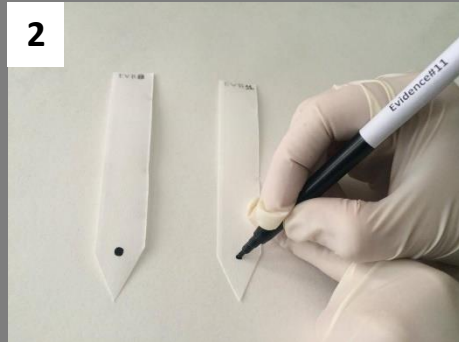
Evidence#8

Evidence#11



Activity III-C: The colour of guilt – Chromatography

Separating pen ink



Activity III-D: Blood doping

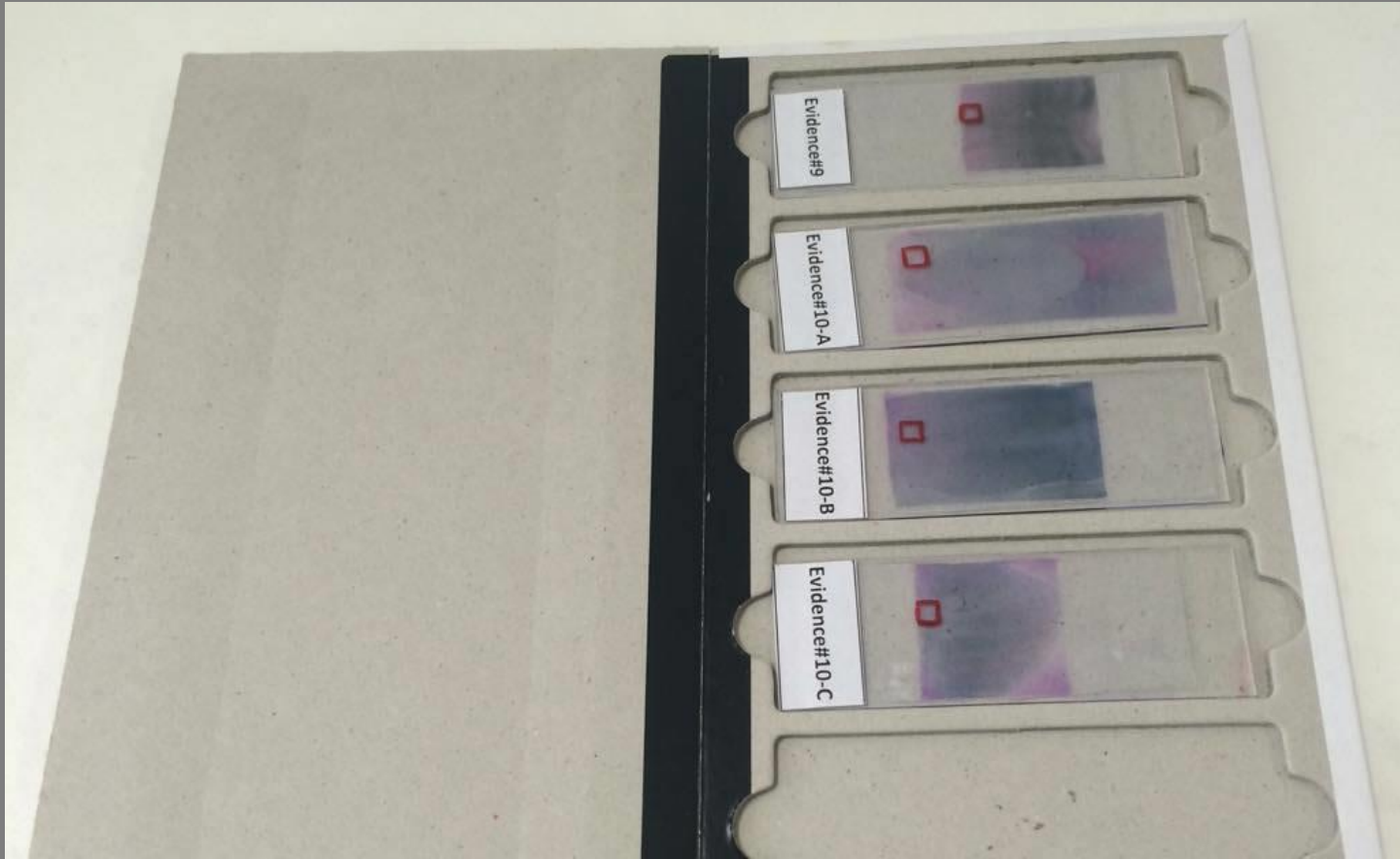
The materials included in the Toolbox for this activity are:

Evidence#9

Evidence#10-A

Evidence#10-B

Evidence#10-C



Activity III-D: Blood doping

1



2



Events in which the Toolbox was used

