ACROSS

1 money to guarantee court appearance
2 type of noncriminal law
4 type of jury with more than twelve jurors
6 evidence that proves something
9 secondhand testimony not admissible in criminal court
11 type of law that excludes hearsay
14 federal agency dealing with drugs
15 agency that investigates mail fraud
16 pseudoscience
17 a serious crime
18 originator of the rule that evidence is always exchanged in an encounter

DOWN

1 the study of projectiles, especially with regard to firearms
2 case or ______ law
3 law based on opinions and precedents
5 the study of cause of death
7 “general acceptance” standard
8 major U.S. law enforcement agency
10 legislative acts prohibiting something
12 your rights as defined in a famous 1966 law case
13 ______ contendere
14 revision of the Frye standard
Puzzle

ACROSS

2 ______ nitrate for use in developing prints on wood
5 a fingerprint pattern
6 reacts with iodine to form a blue color
9 a government agency
11 a minutia
15 a minutia
16 early pioneer in use of fingerprints
18 fine structure of ridge characteristics
19 number of types of arch
20 area of body with distinctive patterns
22 used to record fingerprints
23 type of loop pattern
24 a minutia

DOWN

1 area of body with ridge patterns
3 type of fingerprint
4 area of a fingerprint
7 subgroup of whorls
8 a map of friction ridges
9 area of body with ridge patterns
10 a minutia
12 one-millionth of an inch
13 removing a fingerprint from an object
14 ______ loop, a whorl
17 a minutia
18 type of fingerprint
21 area of the epidermis

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Chapter 4: Figure 11 (Identification Algorithm)
Chapter 4: Assessment #1 – Matching Fingerprints

From the 20 impressions below, match the ones that are made by the same finger. In some cases, one print may appear two or three times. Some will not match. Example: A and Z match. E does not have a match. Write your answers in your notebook as shown on page 71.
### Chapter 4: Fingerprint Lab Activity, Grading Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10-PRINT CARD</strong></td>
<td>all prints clear and readable</td>
<td>8 prints clear and readable</td>
<td>5 prints clear and readable</td>
<td>all prints on the 10-print card</td>
</tr>
<tr>
<td><strong>IDENTIFICATION OF RIDGE CHARACTERISTICS</strong></td>
<td>2 prints with 12 points identified</td>
<td>2 prints with 8 points identified</td>
<td>2 prints with 6 points identified</td>
<td>2 prints with 4 points identified</td>
</tr>
<tr>
<td><strong>LATENT PRINTS LIFTED FROM A DARK SURFACE</strong></td>
<td>2 prints clear and readable with 3 points identified</td>
<td>1 print clear and readable with 3 points identified</td>
<td>1 print clear and readable</td>
<td>3 latent prints lifted from a dark surface</td>
</tr>
<tr>
<td><strong>LATENT PRINTS LIFTED FROM A LIGHT SURFACE</strong></td>
<td>2 prints clear and readable with 3 points identified</td>
<td>1 print clear and readable with 3 points identified</td>
<td>1 print clear and readable</td>
<td>3 latent prints lifted from a light surface</td>
</tr>
<tr>
<td><strong>CHEMICALLY DEVELOPED PRINTS</strong></td>
<td>use of all 4 techniques</td>
<td>use of 3 techniques</td>
<td>use of 2 techniques</td>
<td>use of 1 technique</td>
</tr>
<tr>
<td><strong>RIDGE CHARACTERISTICS ON CHEMICALLY DEVELOPED PRINTS</strong></td>
<td>2 developed prints, clear and readable with 3 points identified</td>
<td>1 developed print, clear and readable with 3 points identified</td>
<td>2 developed prints, clear and readable</td>
<td>1 developed print, clear and readable</td>
</tr>
<tr>
<td><strong>BEST DEVELOPED PRINT</strong></td>
<td>12 points identified</td>
<td>8 points identified</td>
<td>6 points identified</td>
<td>3 points identified</td>
</tr>
</tbody>
</table>
Chapter 4: 10-print Card

<table>
<thead>
<tr>
<th>Name</th>
<th>Nicknames</th>
<th>DOB</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Weight</td>
<td>Eye Color</td>
<td>Hair Color</td>
</tr>
<tr>
<td>Tattoos or Piercings</td>
<td>Moles, Scars, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R. THUMB</th>
<th>R. INDEX</th>
<th>R. MIDDLE</th>
<th>R. RING</th>
<th>R. LITTLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L. THUMB</th>
<th>L. INDEX</th>
<th>L. MIDDLE</th>
<th>L. RING</th>
<th>L. LITTLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEFT FOUR FINGERS</th>
<th>L. THUMB</th>
<th>R. THUMB</th>
<th>RIGHT FOUR FINGERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dear Parent/Guardian:

During the week of _____________, we will be studying fingerprints in Forensic Science. Your son or daughter will be asked to create a set of prints, lift latent prints from various surfaces, and use physical and chemical techniques to develop latent prints. Several identification systems will be used to compare fingerprints.

The fingerprints will be kept in your student’s notebook. I will not keep or reproduce any of the prints for my records. Due to state privacy laws, your permission is needed for your son or daughter to participate. Please sign the bottom of this letter and return it to me by _____________.

Thank you,

I, _________________, give my permission for my son/daughter ______________________ to participate in the fingerprinting activities in Forensic Science class.

Date ________________
ACROSS
4 found in hair root
7 the part of the hair in the follicle
8 a hair configuration
9 key to solving the Ross case
10 the inner portion of a hair
12 possible evidence
15 hair from epidermis to top
16 important property of animal hairs
18 protein polymer common to hair
19 chemical by-product in the body

DOWN
1 tough outer layer of hair shaft
2 a tip condition
3 a cross section
5 found in Napoleon's hair
6 cosmetic treatment
9 telogen hair ends
11 commonest stage of hair growth
13 possible cause of deafness
14 a hair configuration
17 that part of a hair containing fusi
## Chapter 5: Hair Examination Form

### Table 1 Human Hair Examination and Comparison Form

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Known</th>
<th>Questioned</th>
<th>The Same? Y or N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Type (human, animal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Color</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Body Location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Tip Condition (frayed, cut, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. Length</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name: ________________________

Copyright © Kendall/Hunt Publishing Company
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Known</th>
<th>Questioned</th>
<th>The Same? Y or N</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI. Shaft Diameter (at root, tip, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII. Configuration (wavy, straight, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIII. Root (bulbous, absent, sheathed, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>IX. Cross Section (round, oval, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>X. Medulla (continuous, none, etc)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>XI. Medullary Index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>XII. Scale Pattern (imbricate, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
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<tr>
<td>XIII. Cosmetic Treatment (bleached, dyed, etc)</td>
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<tr>
<td>---------------------------------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>notes:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

USE DRAWINGS AND NOTES TO FILL OUT THIS TABLE AND SUPPORT YOUR CONCLUSIONS. REMEMBER, YOU MAY HAVE TO USE THIS IN COURT TO REFRESH YOUR MEMORY OR TO SUBMIT AS EVIDENCE.

Case Number or Name: ____________________________________________________

Date of Examination: ____________________________________________________

Conclusions:

Signature of Examiner: ____________________________________________________

Hair Evidence Information:

1. Label on known hair samples: ____________________________________________

2. Label on questioned hair samples: ________________________________________
### Chapter 6: Table - Burn Test Results

<table>
<thead>
<tr>
<th>FIBER</th>
<th>BEHAVIOR NEARING FLAME</th>
<th>BEHAVIOR IN FLAME</th>
<th>BEHAVIOR REMOVED FROM FLAME</th>
<th>ODOR</th>
<th>ASH OR RESIDUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>cotton</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>linen</td>
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<tr>
<td>silk</td>
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<tr>
<td>wool</td>
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<tr>
<td>acetate</td>
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<td>acrylic</td>
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<tr>
<td>nylon</td>
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<tr>
<td>polyester</td>
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<td>rayon</td>
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<td>olefin</td>
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<tr>
<td>fiberglass</td>
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</tbody>
</table>
# Chapter 6: Table - Thermal Decomposition Results

<table>
<thead>
<tr>
<th>FABRIC</th>
<th>LEAD ACETATE</th>
<th>RED LITMUS</th>
<th>BLUE LITMUS</th>
<th>RESIDUE</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>cotton</td>
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<tr>
<td>linen</td>
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<td>silk</td>
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<td>wool</td>
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<td>acetate</td>
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<td>acrylic</td>
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<td>nylon</td>
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<td>fiberglass</td>
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<tr>
<td>unknown</td>
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</tbody>
</table>
### Chapter 6: Table - Chemical Tests

<table>
<thead>
<tr>
<th>FIBER</th>
<th>ACETONE</th>
<th>NaOCl</th>
<th>NaOH</th>
<th>HCl</th>
<th>H₂SO₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>cotton</td>
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<td>linen</td>
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<td>silk</td>
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<td>nylon</td>
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<td>polyester</td>
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<td>rayon</td>
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<td>olefin</td>
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<tr>
<td>fiberglass</td>
<td></td>
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</tr>
<tr>
<td>unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In blends, the warp or woof only may dissolve. Note which one because that can be a significant characteristic.
ACROSS

2 cocaine
7 a unit of measure in mass spectrometry
8 what this chapter is all about
9 pill dictionary
10 a stimulant
15 charged particle
16 “Just say ___”
17 reagent for developing salicylates
20 a type of medicine
22 a Mideastern stimulant
25 possible end of a bad trip
27 abbreviation for marijuana
28 found in a molecule, or James
29 a lysergic acid derivative
30 an analytical spectroscopy method
31 abbreviation for part of the EMS
32 reagent used in spot testing

DOWN

1 a hallucinogen
2 required for 21 down
3 part of the name for a presumptive color test
4 Saturday night’s supper or ____
5 “Angel ____”
6 a common diluent for heroin
11 contains oxycodon
12 name of a test for 26 down
13 abbreviation for an instrument used in confirmatory testing
14 type of spectrophotometer
18 abbreviation for part of the EMS
19 name of a screening test for 27 across
21 abbreviation for a separatory technique
23 active ingredient of marijuana
24 a very small amount
26 LSD
27 a club drug

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Chapter 7: Appendix A

Infrared Spectra

Source: www.aist.go.jp/RIODB/SDBS
Source: www.aist.go.jp/RIODB/SDBS
Mass Spectra

Source: www.aist.go.jp/RIODB/SDBS
ARSENIC TRIOXIDE

1. Product Identification

   Synonyms: Arsenic (III) oxide; arsenic sesquioxide; arsenous trioxide, white arsenic
   CAS No.: 1327-53-3
   Molecular Weight: 197.84
   Chemical Formula: As₂O₃
   Product Codes: 0061

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic Trioxide</td>
<td>1327-53-3</td>
<td>99–100%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3. Hazards Identification

   Emergency Overview

   DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. CANCER HAZARD. CONTAINS
   INORGANIC ARSENIC WHICH CAN CAUSE CANCER. Risk of cancer depends on duration
   and level of exposure. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.
   MAY CAUSE LIVER AND KIDNEY DAMAGE. USE ONLY WITH ADEQUATE VENTILATION
   AND RESPIRATORY EQUIPMENT.

   J.T. Baker SAF-T-DATA™ Ratings (Provided here for your convenience)

   Health Rating: 4—Extreme (Cancer Causing)
   Flammability Rating: 0—None
   Reactivity Rating: 1—Slight
   Contact Rating: 1—Slight
   Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES
   Storage Color Code: Blue (Health)
Potential Health Effects
--------------------------------

**Inhalation:** Arsenic may cause inflammation of the mucous membranes with cough and foamy sputum, restlessness, dyspnea, cyanosis, and rales. Symptoms like those from ingestion exposure may follow. May cause pulmonary edema.

**Ingestion:** Arsenic is highly toxic! May cause burning in esophagus, vomiting, and bloody diarrhea. Symptoms of cold and clammy skin, low blood pressure, weakness, headache, cramps, convulsions, and coma may follow. May cause damage to liver and kidneys. A suspected fetal toxin. Death may occur from circulatory failure. Estimated lethal dose 120 milligrams.

**Skin Contact:** May cause irritation, symptoms including redness, itching, and pain.

**Eye Contact:** May cause irritation with itching, burning, watering of eyes; may cause conjunctiva damage.

**Chronic Exposure:** Arsenic on repeated or prolonged skin contact may cause bronzing of the skin, edema, dermatitis, and lesions. Repeated or prolonged inhalation of dust may cause damage to the nasal septum. Chronic exposure from inhalation or ingestion may cause hair and weight loss, a garlic odor to the breath and perspiration, excessive salivation and perspiration, central nervous system damage, hepatitis, gastrointestinal disturbances, cardiovascular damage, and kidney and liver damage. Arsenic compounds are known human carcinogens and may be teratogenic based on effects in laboratory animals.

**Aggravation of Pre-existing Conditions:** No information found.

4. First Aid Measures

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse. Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to this substance.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:** If emesis if unsuccessful after two doses of Ipecac, consider gastric lavage. Monitor urine arsenic level. Alkalization of urine may help prevent disposition of red cell breakdown products in renal tubular cells. If acute exposure is significant, maintain high urine output and monitor volume status, preferably with central venous pressure line. Abdominal X-rays should be done routinely for all ingestions. Chelation therapy with BAL, followed by n-penicillamine is recommended, but specific dosing guidelines are not clearly established.

5. Fire-Fighting Measures

**Fire:** Not considered to be a fire hazard. Toxic fumes of arsenic trioxide and arsine may be formed in fire situations.

**Explosion:** Not considered to be an explosion hazard.
Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL): 10 ug(As)/m3 ppm (TWA)
- ACGIH Threshold Limit Value (TLV): 0.01 mg(As)/m3 (TWA), listed as A1, confirmed human carcinogen.

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded, a half-face high efficiency dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-facepiece high-efficiency dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Other Control Measures: Any area where inorganic arsenic is stored, handled, used, etc., must be established as a ‘Regulated Area’ with controlled access, limited to authorized persons. Containers of inorganic arsenic and Regulated Areas must be labeled to show a CANCER SUSPECT AGENT is present. Eating, drinking, and smoking should not be permitted in areas where solids or liquids containing arsenic or lead compounds are handled, processed, or stored. See OSHA substance-specific standard for more information on personal protective equipment, engineering and work practice controls, medical surveillance, record keeping, and reporting requirements. (arsenic: 29 CFR 1910.1018; lead: 29 CFR 1910.1025).

9. Physical and Chemical Properties

Appearance: Transparent crystals, or white powder.
Odor: Odorless.
Solubility: 3.7 g/100 ml water @ 20C (68F)
Specific Gravity: 3.74
pH: No information found.
% Volatiles by volume @ 21C (70F): 0
Boiling Point: 465C (869F)
Melting Point: 315C (599F)
Vapor Density (Air=1): No information found.
Vapor Pressure (mm Hg): No information found.
Evaporation Rate (BuAc=1): No information found.

10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products: Emits toxic fumes of arsenic when heated to decomposition.
Hazardous Polymerization: Will not occur.
Incompatibilities: Oxidizers, tannic acid, infusion cinchona and other vegetable astringent infusions and decoctions, iron solutions, rubidium carbide, chlorine trifluoride, fluorine, hydrogen fluoride, oxygen difluoride, acids, bases, sodium chlorate, zinc filings, other reactive metals and mercury. Corrosive to metals in the presence of moisture.
Conditions to Avoid: Incompatibles.

11. Toxicological Information

Toxicological Data: Oral rat LD50: 14.6 mg/kg; investigated as a mutagen, tumorigen, reproductive effector.
Reproductive Toxicity: Has shown teratogenic effects in laboratory animals.

<table>
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12. Ecological Information

Environmental Fate: When released into the soil, this material may biodegrade to a moderate extent. When released into water, this material may biodegrade to a moderate extent. This material is not expected to significantly bioaccumulate.

Environmental Toxicity: No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: RQ, ARSENIC TRIOXIDE
Hazard Class: 6.1
UN/NA: UN1561
Packing Group: II
Information reported for product/size: 500G

International (Water, I.M.O.)

Proper Shipping Name: ARSENIC TRIOXIDE
Hazard Class: 6.1
UN/NA: UN1561
Packing Group: II
Information reported for product/size: 500G

International (Air, I.C.A.O.)

Proper Shipping Name: ARSENIC TRIOXIDE
Hazard Class: 6.1
UN/NA: UN1561
Packing Group: II
Information reported for product/size: 500G
15. Regulatory Information

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**WARNING:** THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

**Australian Hazchem Code:** 2Z

**Poison Schedule:** S6

**WHMIS:** This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

**NFPA Ratings:** Health: 3  Flammability: 0  Reactivity: 0

**Label Hazard Warning:** DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. CANCER HAZARD. CONTAINS INORGANIC ARSENIC WHICH CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE LIVER AND KIDNEY DAMAGE. USE ONLY WITH ADEQUATE VENTILATION AND RESPIRATORY EQUIPMENT.

**Label Precautions:** Do not get in eyes, on skin, or on clothing. Do not breathe dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Label First Aid: If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use: Laboratory Reagent.

Revision Information: No Changes.

Disclaimer:
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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)
Chapter 9: Figure 4 – Qualitative Analytical Scheme

Modified from Solomon et. al., Qualitative Analysis of Eleven Household Chemicals
# Chapter 9: Identification of Metals

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<thead>
<tr>
<th>Metal</th>
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Chapter 9: Chromatography Visualization

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Chapter 10: Angle of Impact of Blood Drops

![Diagram showing the angle of impact of blood drops at different angles (90°, 60°, 30°, 20°). The diagram includes labels for vertical, impact angle, drop of blood, and paper (target surface).]
Chapter 10: Assessment

15 Calculate the angle of impact for the bloodstains below:

A

B

C

D

E

F

16 Identify what may have caused these types of stains:

A

B

C

17 Deduce what happened here:

A

B

C
Sometimes a transfer pattern can indicate the weapon used in an assault. Guess what made the following:
Chapter 11: DNA Sequence for Use in Activity “Simulation of DNA Replication Using PCR”

**Matt:**
- AACTGTTGGCAGGCATTACCGGTTCACT
- GCTAGCCATGGTAATCCGGACTACGCTA
- TACCGGATCACTATCCGGGCATATCCGGCAT

**Tommy:**
- CGTAGGTCATTGCAATGACTTATCCGGTAGCTA
- ACCTAGCATTAAATGTCGGGCGATTAGGTA
- GCCGGCAACTAGTCCGGCTTAGACCGGATA

**Cindy:**
- GCTATTACATTCAATAGGTATGTCCGGC
- AGGTATCGCTCCGGTACGCTATACTAGTAA
- GACCGGATCAGCTACCGGAGTAGCCGGCTC

**Mike:**
- ATAGCGTTAGTTACCATATGTACCAGGAT
- TAGCATTAAATGGATCCCGGTACTGATAGT
- ACCGGTAGCATATCCGGCTACTCCGGCAT

**Katie:**
- TTAGCAGGTAATCCGGTAATGCTACCGGAT
- TCTATGTTCCGATCGCCGGTAGCTTAGAT
- ACCGGCATCTAAGCCGGTGACATACCGGCT

**Nuk:**
- ATGGGATAGCTATCGAGGTTAGCCGGC
- TAAGCTTACCATGATCCGGTAGCATATG
- ATCCGGATCATATGCGGGTACTTTACCCG

**DNA from the crime scene:**
- TACTGTAGGCAGGCATTGCCGGTTGACTC
- GCTAGCCATGGTAATCCGGACTACGCTA
- TACCGGATCACTATCCGGGCATATCCGGCAT
Chapter 12: Skeleton
Chapter 12: Activity - Determining Sex Using the Os Pubis
Chapter 12: Activity - Determining Age Using the Epiphyses

4 Determine the age of the model skeleton based on the various epiphyses.

Ci

Cii

Ciii

Civ

Cv
Use Table 2 to determine the approximate age of each specimen in the photo below.
Look at the two skull diagrams below, noting the differences. Circle the differences and use an anatomy textbook to name the points circled. Determine the sex of the skeleton provided for class observation based on skull features.
Chapter 13: Figure 3 - Topographic Map of the Martinsville-Mount Horeb Area
Chapter 13: Figure 4 - The Mount Horeb Swamp
Chapter 15: Activity - Simulated Forgery

A. Write your name (signature):

B. Write your name again:

C. (Leave blank):

D. (Leave blank):

E. Have someone copy your signature (after practicing on scrap paper):

F. Have someone else copy your signature (after practicing on scrap paper):

G. Disguise your signature:

H. Write “Cleopatra”:

I. Have person E copy this:

J. Write “Cleopatra” but disguise your handwriting:

K. Write “ninety-six”:
L. Have person F copy this:

M. Write “ninety-six”, but disguise your handwriting:

N. Write the numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9:

O. Have E copy the numerals:

P. Have F copy the numerals:

Q. Write the numerals in disguised writing:

R. Go back to C and D and write your signature again. Examine your four signatures and note the differences based on the 12 characteristics described in the text:

S. Note similarities in your normal handwriting and your disguised handwriting in G, J, M, and R. Normally you alter the major characteristics of your handwriting, but the minor ones give you away. What major characteristics from the 12 points did you change? What minor ones remain?

T. Examine some of the signatures made by your classmates in E, F, L, I, O, and P. Comment on some of the primary signs of forgery, which ones have:
   a. the appearance of being written slowly
   b. blunt line endings and beginnings
   c. poor line quality with wavering and tremors of the line
   d. retracing and patching
   e. stops in places where writing should be free and smooth
   f. inconsistent letter formation
Chapter 15: Letter Angle Template