**Laboratory Instructions**

**Laboratory: Crime Scene Sketch**

**Materials**

**Supplied**
- Student Guide
- Laboratory Guidelines

**Optional**
- graph paper (4 grids per inch is best)
- clipboard
- string, tape, or chalk

**Also Needed**
- pencil
- index cards, 3" × 5" (10 to 20)
- protractor
- ruler
- tape measure
- magnetic compass (or another device to tell which direction is north, such as a GPS)
- notepad

**Advance Prep (2 days)**

Review the list of materials for the lab prior to the lesson, because there are several items that you must supply.

**Safety**

Review the Laboratory Guidelines before conducting the lab.

You will stage a crime scene in this lab. Discuss your plans with your Learning Coach before staging your crime scene.

**Overview**

In this activity, you will imagine that a room in your house or an area of your yard or driveway is a crime scene.

In Part 1, you will stage your crime scene. You will imagine where evidence might be and place markers to represent the evidence. In Part 2, you will measure your crime scene and the location of your evidence. You should also make notes both on your notepad and later on the rough sketch if necessary. In Part 3, you will use the measurements to draw a rough sketch of your crime scene. Choose either an overhead
view or a cross-projection for your rough sketch. You will then use your rough sketch to create a finished, scaled sketch in Part 4.

**Part 1: Stage the Crime Scene**

**Procedure**

1. Choose a room or an outdoor area to stage a crime scene. Here are some examples:
   - Basement—break-in or burglary
   - Living room—a fight
   - Backyard—a body discovered in a field
   - Driveway—hit-and-run accident

   You can choose one of these examples, or you can create your own. Keep in mind that you will need to sketch the scene—you may want to limit your scene to a simple rectangular area.

2. Imagine what the crime scene would look like. For example, there might be a broken window in a bedroom with glass pieces on the floor. A fight in the living room might show signs of a struggle, such as overturned furniture, overturned glasses, bloodstains, or a weapon. (Don’t actually break a window or scatter bloodstains!)

3. Stage your crime scene. Think about the crime, what type of evidence might be present, and where that evidence might be located. Use index cards to place markers in the scene at evidence locations. Label each piece of evidence with a number (1, 2, 3, …) Include at least three pieces of evidence.

   **Remember:** Discuss your plans to stage a crime scene with your Learning Coach.

**Part 2: Measure the Crime Scene**

In this part, you will record measurements and notes that you will use later in your rough and final sketches.

**Procedure**

1. Decide whether you will draw an Overhead View or a Cross-Projection.

2. Measure the perimeter of your crime scene. For example, if your scene is in a rectangular room, measure the width and length of the room. If you are outdoors, you may need to lay out a perimeter. You can use string to mark a perimeter if necessary. If you plan to do a Cross-Projection sketch, measure the height of your crime scene (e.g., the height of the walls).

   Record your measurements below, including the units (inches, feet, meters, centimeters, or degrees):

   **Dimensions of Crime Scene:** ________________________________

   ___________________________________________________________________________

3. Identify your fixed baselines or reference points. If necessary, mark a baseline with a string, tape, or chalk.

4. Define the location of your evidence, using accurate measurements. Use one or more of the following methods:
   - transecting baseline
   - rectangular coordinates
   - triangulation
   - polar coordinates
Choose measurement methods that are appropriate for your scene. Use a tape measure to measure distances and a protractor to measure angles. You may need someone to assist you.

Write your measurements down in a log or table. Make sure to include the number from the index card to identify your evidence. Also include the units of measure, for example, inches, feet, centimeters, meters, or degrees. You can use or make the following data tables.

### Transecting Baseline

<table>
<thead>
<tr>
<th>Label</th>
<th>Description of Evidence</th>
<th>Perpendicular Distance from Baseline (units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Rectangular Coordinates

<table>
<thead>
<tr>
<th>Label</th>
<th>Description of Evidence</th>
<th>Perpendicular Distance from Baseline A (units)</th>
<th>Perpendicular Distance from Baseline B (units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
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<td></td>
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<tr>
<td>3</td>
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</tr>
</tbody>
</table>

### Triangulation

**Distance between Reference Point A and Reference Point B:** __________ units

<table>
<thead>
<tr>
<th>Label</th>
<th>Description of Evidence</th>
<th>Distance from Reference Point A (units)</th>
<th>Distance from Reference Point B (units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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</tbody>
</table>

### Polar Coordinates

<table>
<thead>
<tr>
<th>Label</th>
<th>Description of Evidence</th>
<th>Distance from Reference Point (units)</th>
<th>Angle (degrees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
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<tr>
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</table>
Part 3: Make a Rough Sketch (Overhead or Cross-Projection) of the Crime Scene

Now that you have taken notes and recorded measurements, you are ready to make a rough sketch of the crime scene. You can draw your rough sketch on a plain piece of paper, or you can use the quarter-inch grid paper supplied as a material for this lab. Refer to the sample sketches in the lesson if necessary.

Procedure

1. Draw the perimeter of your crime scene. Make sure it is large enough to contain your crime scene. Use arrows to show the dimensions of your crime scene, which you recorded in Part 2.
2. Use the compass to determine the direction of north. Mark the direction of north on your sketch with an arrow and "N."
3. Use rectangles, circles, or simple shapes to represent objects in your scene. Approximate the relative size of each object. If you are indoors, draw doors and windows in their proper position. If necessary, take additional measurements to help you sketch the main objects in the room. *(Tip: You do not need to include everything in your sketch. Include the main objects. Outside, the main objects might include trees, vehicles, or buildings. Inside, the main objects might include chairs, sofas, or tables.)*
4. Sketch your pieces of evidence in place. Label the evidence with the number on the index card. Add the measurements that you took in Part 2 for each piece of evidence. Use a dashed line to show a distance from a baseline or a reference point.
5. Make a legend to describe the evidence.
6. At the top of the sketch, add the key information. Include the following. *(Since this is a mock crime scene, you can make up all the key information except the sketch artist. Add your name as the artist.)*
   - Date of the rough sketch
   - Name of sketch artist
   - Affiliation of the sketch artist
   - Address of crime scene
   - Name of any victims
   - Type of crime suspected
   - Name of the lead investigator

Part 4: Make a Finished Sketch of the Crime Scene

Use your rough sketch to make a finished sketch. The finished sketch will be a scaled drawing.

Procedure

1. Use the quarter-inch grid paper (or paper of your own choosing) for the finished sketch. Record the scale you plan to use on the paper. If you use the scale ¼ in. = 1 ft, each square on the grid paper will represent 1 ft. Write “All measurements are approximate” under the scale.
2. Draw the dimensions of your crime scene to scale. For example, if your crime scene is a 20 ft by 15 ft room, you can draw a rectangle that is 20 squares by 15 squares on the quarter-inch grid paper. You may need to adjust your scale to fit your scene. For example, if your room looks too small, try ½ in. = 1 ft. In this case, two squares on the grid paper represent a foot. If your room is too large to fit, try ¼ in. = 2 ft.
3. Draw the rectangles, circles, or other shapes from the rough sketch. Include any measurements that you took for these main objects. Be as precise as you can, using any drawing tools at your disposal.
4. Label the baselines or the reference points that you used for your measurements. Use a ruler and/or protractor to locate each piece of evidence on the drawing. Remember to use the scale. If you need to draw a line at an angle, convert the measurement to a single unit first, then multiply by the scale factor.

   **Example:** Suppose you are using a scale of \( \frac{1}{4} \text{ in.} = 1 \text{ ft} \), and you need to convert 4 ft 6 in. to a scaled measurement.

   First convert the measurement to feet only:
   
   \[
   4 \text{ ft 6 in.} = 4 \frac{6}{12} \text{ ft} = 4 \frac{1}{2} \text{ ft}
   \]

   Then multiply the measurement in feet by the scale factor:

   \[
   \frac{1}{4} \times 4 \frac{1}{2} = \frac{1}{4} \times \left( 4 + \frac{1}{2} \right) = \frac{1}{4} \cdot 4 + \frac{1}{8} = 1 \frac{1}{8} \text{ in.}
   \]

5. Make sure to include the following information on the final sketch:
   - Key information
   - Direction north
   - Dimensions of the crime scene
   - Main objects in the crime scene
   - At least three pieces of evidence labeled with numbers
   - A legend describing each piece of evidence
   - Measurements locating each piece of evidence
   - A scale on the drawing

6. Add the date of the finished sketch.

Submit the Graded Assignment along with the finished crime scene sketch to your teacher.