

## Exercise #6: Environmental Measurement Worksheet

Student Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Data Collection Practice:** With the instruments you now have basic procedures for we will collect some simple measurements in order to practice measurements and understand each instrument's use. Use the list below and collect measurements from the locations described.

### SECTION 1

#### Combustion Gas Detector:

Using a Combustion Gas detector, check the following systems if available:

1. Monitor along the main gas line in the home as it enters from outside and comes to any appliance.

Did you detect any gas? Yes \_\_\_\_\_ No \_\_\_\_\_ If so, where on the gas line: \_\_\_\_\_

2. Monitor along the gas line that leads to any gas appliance that is available. Appliance: \_\_\_\_\_

Did you detect any gas? Yes \_\_\_\_\_ No \_\_\_\_\_ If so, where on the gas line: \_\_\_\_\_

**!!! If no gas is detected, inform class that it is now safe to perform combustion appliance testing !!!**

Using the Dragon Puffer Vapor Generator, check the following

Hot Water Natural Ventilation: Turn on hot water. When the hot water heater comes on, check the exhaust airflow at 45 seconds and again at 60 seconds

Exhaust Vent: Flow Direct. @ 45 seconds: \_\_\_\_\_, Exhaust Vent: Flow Direct. @ 60 seconds: \_\_\_\_\_

Carbon Monoxide: Using a portable CO detector, check the following systems if available:

#### Stove

Turn on all stove burners, and oven to 325 °F, if possible

Wait 15 seconds, hold detector (firmly) 24-36" above stove burners and collect reading, CO: \_\_\_\_\_ppm

Wait 45 seconds, hold detector (firmly) 24-36" above stove burners and collect reading, CO: \_\_\_\_\_ppm

Turn off all burners, but leave oven on-

Wait 30 seconds, open oven door ~2 inches and collect reading above 2 in. opening, CO: \_\_\_\_\_ppm

#### Gas Hot Water Heater with Natural Ventilation

Turn on hot water,

Wait 45 sec., place CO detector ~2 - 4" from opening in draft hood & collect reading, CO: \_\_\_\_\_ppm

Wait 60 sec., place CO detector ~2 - 4" from opening in draft hood & collect reading, CO: \_\_\_\_\_ppm

#### Gas Furnace with Natural Ventilation

Turn on furnace,

Wait 45 seconds, place CO detector ~2 - 4" from opening in draft hood & collect reading, CO: \_\_\_\_\_ppm

Wait 60 seconds, place CO detector ~2 - 4" from opening in draft hood & collect reading, CO: \_\_\_\_\_ppm

If you have time, try this exercise to find the hidden CO source: In the basement or kitchen of the home have one team member open the provided coffee container while all others are out of the room. When told, return to the room and try to determine where the container was opened by measuring the CO starting anywhere in the room.

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**SECTION 2**

Portable Psychrometer:

In the Kitchen, measure the following:

Room Temp: \_\_\_\_\_ (°F) Relative Humidity (RH): \_\_\_\_\_ % Calc. Temp. Dew Point: \_\_\_\_\_ (°F)

Surface Temp., interior wall: \_\_\_\_\_ (°F), Surface Temp., Exterior wall: \_\_\_\_\_ (°F)

Notes and Comments: \_\_\_\_\_

Water Temperature: **WAIT! UNTIL YOU ARE INFORMED IT IS SAFE TO TURN ON THE HOT WATER**

Turn on hot water. Wait 30 seconds after it starts to become hot, then measure with IR thermometer

Kitchen Faucet Hot Water Temp. \_\_\_\_\_ (°F), Bathroom Faucet Hot Water Temp. \_\_\_\_\_ (°F)

Moisture Meter:

In the kitchen, measure the moisture content of the inside of the sink cabinet

Location: 1. \_\_\_\_\_ Moisture Readings: \_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_

Location: 2. \_\_\_\_\_ Moisture Readings: \_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_

Location: 3. \_\_\_\_\_ Moisture Readings: \_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_

If you observe a moisture stain anywhere in this home, collect a reading below. If none present, collect readings from the bathroom walls near toilet and/or vanity

Location: 4. \_\_\_\_\_ Moisture Readings: \_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_

Location: 5. \_\_\_\_\_ Moisture Readings: \_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_

Location: 6. \_\_\_\_\_ Moisture Readings: \_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_

Dragon Puffer Vapor Generator:

Check the exhaust flow of the following (be sure to turn on the fan):

Bath Exhaust Vent: Flow Direction: \_\_\_\_\_, Kitchen Exhaust Vent: Flow Direction: \_\_\_\_\_

Room Air flow: Pick a bedroom, close the door leaving a 1" gap, puff vapor at the top, middle, and bottom of this gap. What airflow direction do you see for each?

Top of Door AirFlow Direct.: \_\_\_\_\_ Middle of Door airflow: \_\_\_\_\_ Bottom of Door airflow: \_\_\_\_\_

Turn fan switch for the furnace/AC to the "on" position, wait for the blower to come on. Then, check:

Return vent AirFlow Direct.: \_\_\_\_\_ Room supply vent airflow: \_\_\_\_\_ Re-check door test above:

Top of Door AirFlow Direct.: \_\_\_\_\_ Middle of Door airflow: \_\_\_\_\_ Bottom of Door airflow: \_\_\_\_\_

Instructor Verification of Skills Training: \_\_\_\_\_ Date: \_\_\_\_\_