



**UNIT: H08A TITLE: Fire Environment Triangle and Fire Spread**

**TYPE: Student Worksheet**

<b>Name:</b>	<b>Class/Period:</b>	<b>Date:</b>
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**Group's Name:**

**Fire Safety in the Laboratory**

<b>1)</b>
<b>2)</b>
<b>3)</b>
<b>4)</b>
<b>5)</b>
<b>6)</b>
<b>Others:</b>

**Discussion Notes:**

**Experimental Design:**

1) Experimental question: What is the effect of \_\_\_\_\_ on fire behavior?

2) What aspect(s) of fire behavior will be measured?

3) What is your group's hypothesis or null hypothesis?

4) What is your group's second hypothesis or null hypothesis?

5) What is your group's third hypothesis or null hypothesis?

6) Describe the independent variable in your experiment and how it will be varied for each treatment?

7) Describe some of the controlled factors for your experiment. Remember, the controlled conditions should not change from one trial to the next.

8) What is the dependent variable that will be measured in each trial and how it will be measured. If you have more than one dependent variable list them all and describe how each will be measured.

9) Prepare a table for recording data below (or on the other side of this worksheet), or prepare a spreadsheet appropriately. If using a spreadsheet, you must show this to your instructor before you begin.

Teacher's initials indicating your group's experiment has been approved: \_\_\_\_\_

### Conducting the Experiment

- 1) Do a practice run to become familiar with the lighting and data collection processes. At this point monitor for safety and correct appropriately.
  - a) All students help with "resetting" the matchstick model
  - b) Possible student roles:
    - i) Lighting
    - ii) Timing
    - iii) Videoing (could be used in the presentation)
    - iv) Measuring with ruler
    - v) Counting
    - vi) Safety monitoring
- 2) Make any necessary adjustments to your experiment or procedures.
- 3) Collect and record data for all necessary trials.
- 4) Graph and analyze data using a spreadsheet application if possible. Ask for assistance if needed.
- 5) Use graphical results to draw conclusions about the hypothesis/hypotheses.
- 6) Prepare for class presentation. There is a rubric at each laboratory station to assist with presentation preparations. Be sure to include the following:
  - a) State your group's name.
  - b) Describe the variables for this experiment.
    - i) Describe the independent variable and how it was changed between treatments.
    - ii) Describe the dependent variable(s) investigated and how measurements were made.
  - c) State the hypothesis.
  - d) Describe the procedure used by the group to conduct the burns and to collect data. A video could be used.
  - e) Present a graph of each data set.
    - i) Describe the relationship(s) between the independent variable and dependent variable(s). (Best fit line or curve used?)
      - (1) **Positive correlation** - as one variable increases so does the other.

(2) **Negative correlation** - as one variable increases, the other decreases.

(3) **No correlation** - there is no apparent relationship between the variables.

- ii) Describe any thresholds shown in the graph(s).
- iii) If you had more time, more materials, different experimental setup, etc., could there be a different correlation between the variables tested?

f) Discuss whether or not the hypothesis was supported or disproved.

**Notes for Your Presentation**

**Table for Class Presentations** - While other groups give their presentation, take notes using this table.

Group Name	Hypothesis	Independent Variable	Dependent Variable	Results	Conclusion
