

5-E Inquiry Model – Fire Extinguishment

Robert Brown, Grundy Area Vocational Center

E-1 ENGAGE

T: Engage student interest.

T: Convey the context of the lesson/unit through an opening activity (e.g., hook).

S: Engage in investigations that reveal their thinking.

S: Record initial ideas.

What is the teacher doing?

1. Opening Activity–Could a backdraft explosion, like the ones we see in movies, actually happen?

–In this classroom?

–On a covered patio?

–In a wild land fire?

What are the students doing?

Reflecting on their knowledge/experience.

Group discussion.

Record their conclusions.

E-2 EXPLORE

S: Test ideas and develop knowledge using explorations, investigations, and experiments.

S: Record ideas and modify ideas based on activities.

S: Develop new questions and testable hypotheses.

Activities List:

1. Research suggested web content.
2. Research suggested YouTube videos.
3. Complete vocabulary worksheet.
4. Jigsaw Learning, Research textbook, Ch. 3.

Engineering Practice Question:

Does the configuration (geometry) of the location of a fire have an effect on fire growth and extinguishment?

Scientific Practice Question:

Which stage of fire development is absent in wild land fires?

Student Assessment:

Oral Presentation. Students are assigned specific topics to research and present to the class, with input, assistance, and further explanation from the instructor as needed.

1. Group discussion.

2. Written exam.

E-3 EXPLAIN

T: Provide relevant vocabulary, formal definitions, and explanations of concepts as needed.

S: Explain answers to Key Question(s).

Content Media: Written Materials, Video, Technology, Lecture, etc.

This step is incorporated into the presentation described in E-2 above.

Student Assessment:

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Unit test.

1. Oral presentations with instructor guidance and clarification as needed.
2. Group discussion.
3. Vocabulary worksheet.

E–4 ELABORATE / EMPLOY

S: Extend conceptual understanding through application or practice in new settings.

Content Media: [Written Materials, Video, Technology, Teacher lecture, etc.]

1. Scenario-based exercises and field demonstration/drill.

Extension / Application Questions for Whole / Small Group Discussion:

1. What effect does oxygen concentration have on fire development in enclosed structures?
2. Which stage of fire development indicates the potential for a backdraft explosion, and what tactical procedure is required to prevent it?

Student Assessment:

1. Direct observation.

E–5 EVALUATE

T: Assess student understanding of the learning objectives.

S: Assess understanding of the learning objectives.

Skill / Reasoning Learning Objectives (e.g., model building, iMovie production, writing narration, choosing best items and procedures for a project, etc.)

1. Choose best method to extinguish fires in each of the four stages of fire development.

Assessment Instrument (e.g., rubric, final product, effective communication, etc.)

1. Simulations
2. Field Observation.

Knowledge Learning Objectives (e.g., action verbs, taxonomies, etc.)

1. Knowledge of the stages of fire development in structure (compartment) fires and the appropriate methods of extinguishment for each.

Assessment Instrument (e.g., accuracy of product and product components, test, etc.)

1. Chapter Quiz.
2. Vocabulary (Key Terms) Quiz.
3. Quarter Exam.