

The Science of Fire with Professor Sparks and Spot 2000



A Distance Learning Program
Presented by the FASNY
Museum of Firefighting

Educators' Overview

Brief Overview:

The Science of Fire with Professor Sparks and Spot 2000

Join Professor Sparks in her lab as she and her robot canine companion, Spot 2000, take your class through concepts such as the elements of fire, heat and fuel sources, chemical reactions, and much more. This fast pace program with music and sound effects will be an experience your class will not forget. For grades 2-3: meets NY State Learning Standards for Science.

Standards met in this program include, but are not limited to:

Science Standard 1 Analysis, Inquiry and Design

Standard 1 Scientific Inquiry

Key Idea 1

S1.1

S1.1a

S1.1b

S1.2

S1.3

S1.3a

Key Idea 2

S2.3

S2.3a

Key Idea 3

S3.4

S3.4a

S3.4b

Standard 4: The Physical Setting

Key Idea 4.1

4.1d

4.1f

4.1g

4.2

4.2b

Also Standard 6: Interconnected Common Themes

Key Idea 2: Models are simplified representations of objects, etc.

Analyze...

Discover...

Use different types of models

Also teaches core curriculum concepts including classifying, communicating, comparing and contrasting, gathering and organizing data, generalizing, inferring, making decisions, observing and predicting.

The Science of Fire

This Distance Learning Program is a part of the education program at the FASNY Museum of Firefighting. This program will help you and your students explore and learn science concepts while learning about fire safety. The purpose of this learning program is to raise awareness and instill understanding of the science of fire, promoting scientific discovery and fire safety and prevention. By exploring this distance learning segment, you can help your students better comprehend basic, scientific concepts and the fundamental facts about fire. With this knowledge your students will have a raised awareness about fire safety.

(For grades 2-3

Duration: Approx. 45 minutes)

The Science of Fire: Investigating Fire and Smoke

The Distance Learning Program is broken down into the following themes. These are:

- The four components of fire
- Chemical reactions
- Behavior of smoke

I. The elements needed for fire to ignite and sustain itself.

Key Concepts: Controlling the components of fire can extinguish a fire and reduce the effects of fire and burns.

- Fire facts: To start and sustain a fire, oxygen, fuel, heat and a chemical reaction are needed. Fire cannot exist without all of these elements being present.

Overview of Activities: After a demonstration using a model of the fire triangle and discussion of the necessary conditions for a fire to occur, students will develop an understanding of fire, and an appreciation for preventing fires from starting and an understanding of extinguishing a fire. Students will also develop an understanding that the fuel for fires and oxygen are always present in our homes, so controlling heat is key for fire prevention.

II. Chemical Reactions

Key Concepts: A chemical chain reaction is needed to start a fire and keep it going. By means of demonstration the nature of chemical reactions will be shown.

- A burning fire is a chemical reaction that consumes fuel and oxygen to produce heat and light as byproducts.

Overview of Activities: By means of demonstration students will gain an understanding of the nature of chemical reactions. Students will gain added insight into the nature of fire.

III. Behavior of Smoke

Key Concept: Smoke can be poisonous and can damage eyes and lungs. Smoke rises and leaves a little crawl space near the floor in a burning room. Staying low in smoke while exiting saves lives.

- Smoke inhalation is the primary cause of death in victims of indoor fires.

Overview of Activities: By means of demonstration students will gain a greater understanding of the behavior of smoke and a raised awareness about fire safety.

Evaluation: Oral Evaluation

Worksheets and Activities for the Distance Learning Program: The Science of Fire

Pre program worksheets include: a Fire Science Word Search to introduce vocabulary, and Fuel or Heat? to identify heat and fuel sources.

Post Program worksheets include: problem solving activity sheets What's Missing?, What to do? and You're Out! to reinforce the elements of fire.

There is a post program craft: making a 3 dimensional Fire Triangle and an interactive Fire Science Jeopardy Game for reinforcement and review.

PLEASE NOTE: All materials and worksheets are provided by the Museum for EACH child. There is no copying required on your part: everything you need to administer the pre and post program activities will be sent to you at your school.