Using a Sandbox for Prescribed Burn Education

A sandbox can be used as a teaching tool for prescribed burning education. Often learning is best achieved when participants can visually work out a procedure rather than simply discussing it.

The sandboxes created for the Kansas Joint-Agency Burn Workshops are made of aluminum and are about 40" x 40" and contain about 3-5 gallons of clean sand. Each instructor will have a sandbox, with two to four sandboxes used at a workshop depending upon class size. About seven class members, plus the instructor, can use each box comfortably. The class will be divided up and assigned to one of the sandboxes. Approximately the same instruction will be provided by each instructor. Each box is provisioned with a variety of objects to be used as symbols that can be manipulated while illustrating various prescribed burning topics.

Two or three burn plans are provided on paper which can be used as examples for burn plan execution. After illustrating the burn plans and other topics listed below, allow the class to set up a simple burn example in the sandbox and discuss how they would carry out the burn. Suggest alternative methods where those proposed pose logistical or safety problems. Create additional challenge by altering burn unit lines or adding topography or hazards and letting the class figure out how it might change their plan.

Topics that should be covered using the sandbox include:

Burn Plan Execution Using a Prescribed Burn Plan
- Create by outlining the burn unit
- Add hazards as identified in the burn plan
- Add crew and equipment specified in the burn plan
- Add wind direction specified in the burn plan
- Illustrate procedure for conducting the burn

Topography:
- Create by mounding sand (water spray bottle will be provided)
- Illustrate how fire behaves when encountering hills, box canyons, and saddles
- Illustrate potential entrapment areas for fire crew and techniques to burn these areas safely
- Illustrate how wind direction can affect fire behavior in relation to topography

Hazards
- Create by placing objects that represent hazards or protection areas
- Illustrate burn techniques such as wider firebreaks, additional fire lines, or certain wind directions that are needed to safely burn these areas
- Illustrate how complex burn outlines may most safely be burned by breaking the unit up into several smaller burns

Firebreaks
- Create using toy equipment or draw line in sand
- Illustrate how crew and equipment should be moved to create firebreak
- Illustrate how a firebreak can be widened though burning off the mowed/tilled firebreak

Ignition Procedure
- Create by establishing fireline using materials provided
- Illustrate where the fire would begin
- Illustrate how crew and equipment move as ignition progresses

Safety
- Create by locating crew in areas that may be unsafe
- Illustrate how crew could best move into safe zones
- Illustrate how safe zones are identified (can use topography)
- Illustrate how crew may be endangered by spot fires or changes in fire intensity

Smoke
- Create by extending yarn lines at a 30-degree angle out from each corner of the burned area for an estimated length (at whatever scale you are using) for 12 miles
- Illustrate how smoke may affect houses, roads, airports, and other sensitive areas that fall within the area outlined
- Illustrate how smoke from multiple fires can have trajectories that cross and lead to high levels of smoke affecting a sensitive area

Emergency Situation
- Create an escape on the fireline
- Illustrate how crew members are notified and respond
- Illustrate how to best contain fire
- Illustrate access route for emergency vehicle