**Density Burn Boards**

*Chris Pugh-Ukiah Daily Journal 2015*

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**Goal:** *To demonstrate and understand the influence of fuel density (aka tree density) on fire behavior*

**Fire intensity:** *Similar to a 30-year-old’s birthday cake*

**Space Requirements**

* Indoor or outdoor
	+ If outside, low wind conditions
	+ If inside, open windows and potentially have fan
* Burn-proof table (or place fire blanket between boards and table)
* Participants 6ft back from table

**Supplies**

* Burn boards (enough for groups of 3-6)
* Matches (plenty, strike-on-box type)
* Cotton balls (surface/ladder fuels) – ***only if inside***
* Water spray bottle
* Long-handled lighter
* Fan (optional)
* Glass loaf pan for extinguishing matches
* Water spray bottle for extinguishing matches

**Personal Protective Equipment**

* Protective goggles
* Nomex lab coat or jacket
* Leather gloves
* Long cotton/nomex pants
* Hard hat
* Fire extinguisher
* Fire blanket (optional, for protecting table)

**Standard Operating Procedure**

* Explain basics of fire behavior
	+ Fire triangle
* How does density influence fire?
* Split kids into groups of 3-6 (at least 4 groups)
* Hand out matches (but not match striker) to groups of kids and ask them to make more/less dense forest
	+ Emphasize that they are supposed to make the forest NOT light the matches – this usually isn’t a problem
	+ Make sure kids are supervised so they don’t light the matches
* Collect the boards and bring them to the front
* Put on PPE and explain safety – DON’T TRY THIS AT HOME!
* Arrange them in order of density
* Ask kids which will the most trees survive
	+ Where will some trees survive?
	+ Where will all trees die?
* light boards, starting with least dense (if using cotton balls, light cotton)
* once all boards have been lit, talk about slope and wind – relight less dense forest and try to make fire move more with slope and wind (tip up and use fan/face it into ambient wind)
* Which board has tree densities like forests today?
* What did forests look like 100 years ago? Same?
* Show photos of same location past and present
* Do you think fires behave the same way now as they did in the past?

**Video:** [*https://youtu.be/sA2QoBPmbFk*](https://youtu.be/sA2QoBPmbFk)