

## Answer Key to Handout M06-2. Tinker Tree Model vs. Reality

**Question 1.** List at least 3 changes you would make to your Tinker Tree or surface fuels to increase the tree's chances of surviving a surface fire. Explain why you would make each change. **Assess changes individually.**

**Question 2.** List at least 3 ways in which the Tinker Tree model does not resemble a real tree. Here are some examples of model shortcomings:

- Tinker tree's metal trunk cannot be damaged by fire.
- Tinker tree is two-dimensional (has foliage only on 2 sides of trunk).
- Foliage is not alive, so it has no moisture and is not changing with the seasons.
- Tinker tree has no roots that could be damaged by fire.
- Tinker tree does not grow taller, gain new branches, or shed old ones as years go by and succession occurs.

**Question 3.** Write a paragraph that answers these questions. Use the following terms correctly in your explanation: surface fire, crown fire, ladder fuels, stand density.

- How are the fuels in "A" different from those in "B"? **A has more surface fuels, larger surface fuels, more ladder fuels, and more closely-spaced tree crowns than B.**
- How are the different fuels likely to affect the kind of fire that would occur there on a dry, windy day? **A is more likely to have a crown fire on a dry, windy day than B. B is likely to have only surface fire.**
- How is stand density (the Matchstick Forest Model, covered in the last activity) likely to affect the kind of fire that would occur in each stand on a dry, windy day? **Fire can move more easily from one crown to another in Stand A, which has higher stand density, than in Stand B. Surface fire could occur in either stand. Surface fire is likely to spread more rapidly in Stand B than Stand A because B is more open (i.e., lower stand density), which means that wind at the ground surface is likely to be stronger. In addition, surface fuels in B are likely to be hotter and drier than in A because of exposure to sun and wind.**

Here is an additional idea not covered in this activity: Because of its heavy fuels, a surface fire in A is likely to be much more severe than in B (releasing more heat into tree trunks and the ground). This could kill the trees without burning their crowns.