

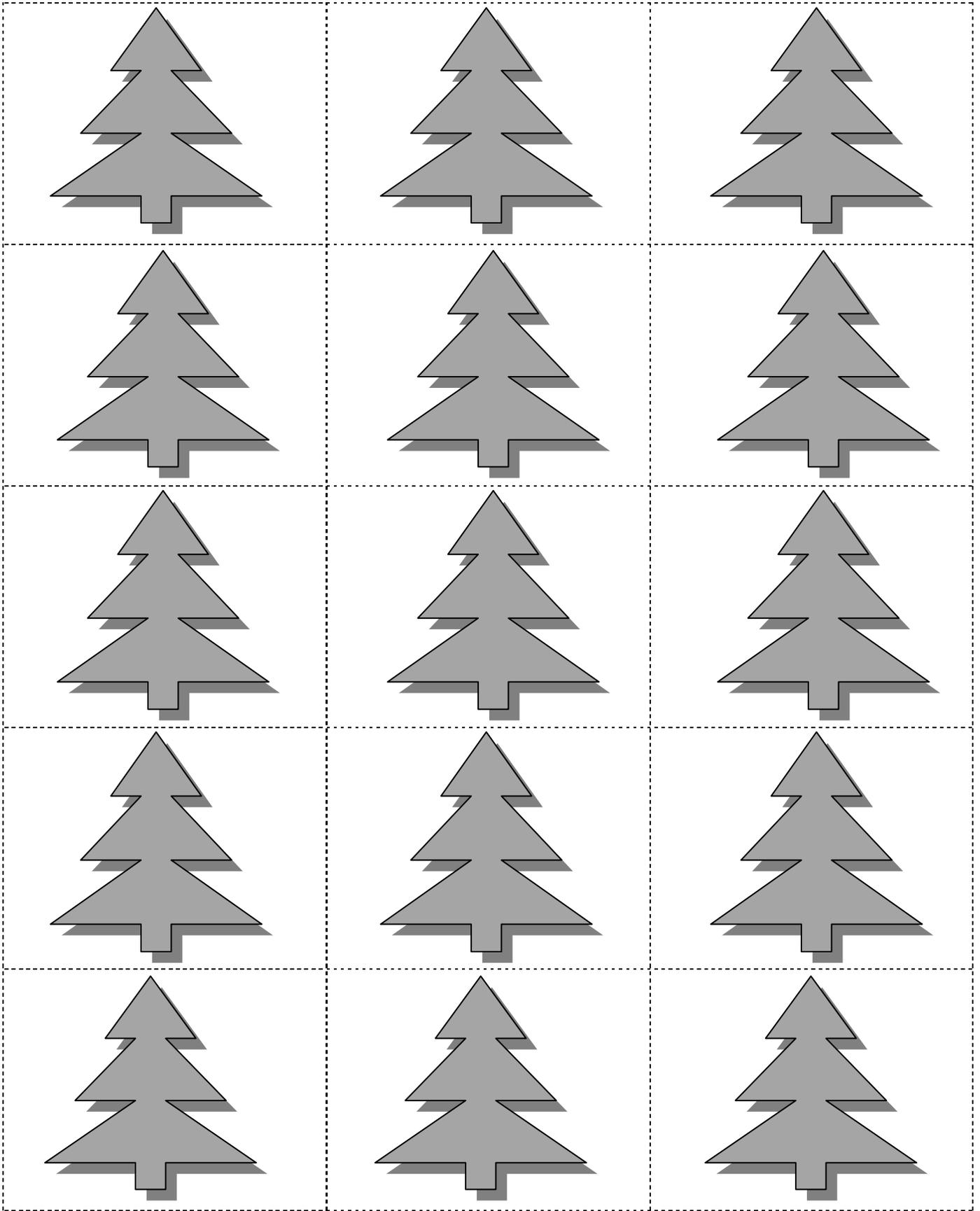
## Bark Beetle Outbreak Game

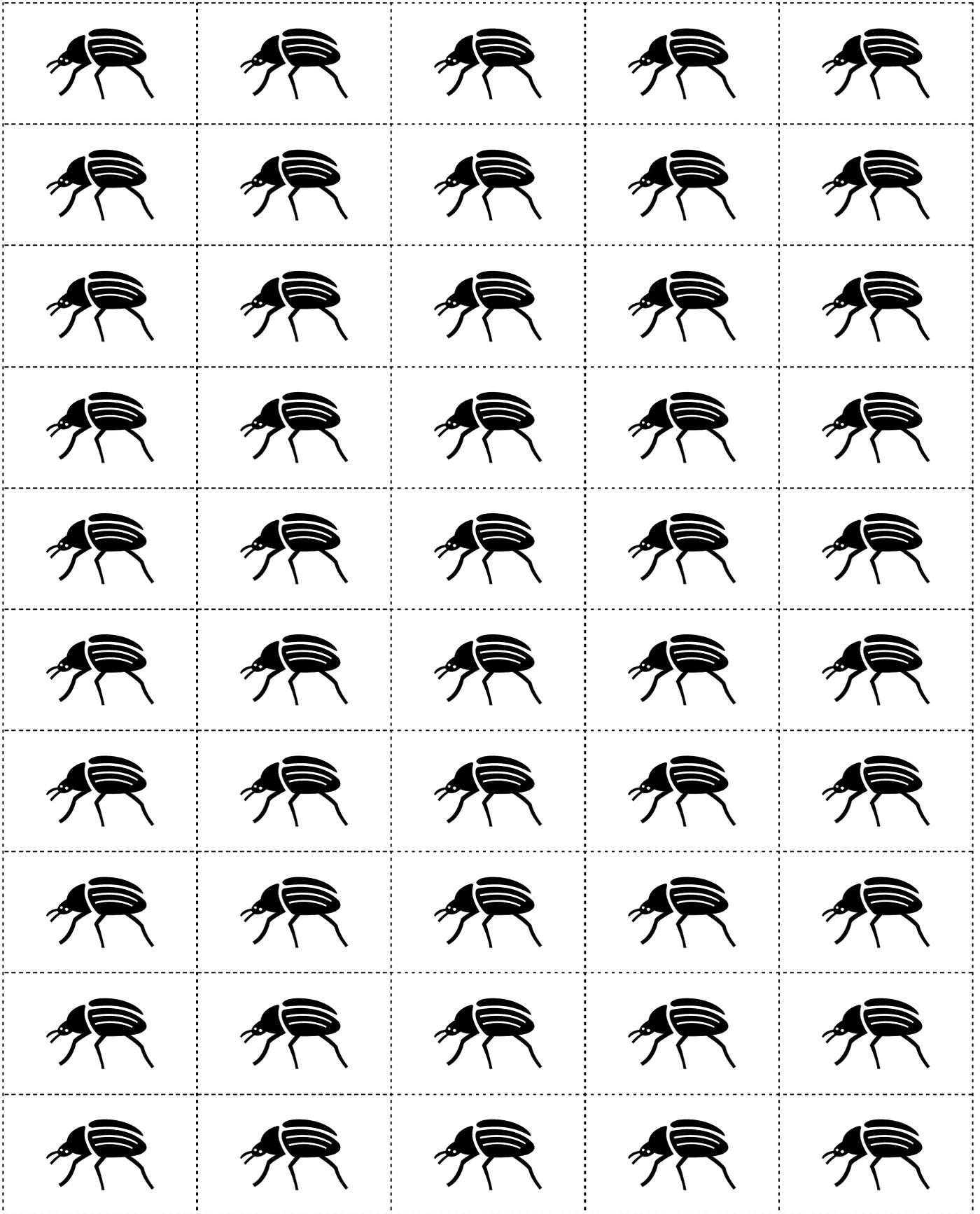
### Game Objective:

To model the plight of pine trees because of mountain pine beetle outbreaks

### Procedures and Rules of the Game:

- Students can be paired off against each other (trees against beetles) or 2 students (trees) can go against 2 students (beetles).
- Copy a set of game pieces for each group of two or four players. Ask students to cut apart all the game pieces. There are 30 Action cards; 15 Pine Trees; and 50 Mountain Pine Beetles.
- Shuffle all the action cards before playing.
- Begin play with 15 trees in the forest spread out on a desk or table.
- Play begins when a beetle draws a card, and proceeds with the action. Next, a tree draws a card and proceeds with the action (even if the action is detrimental to the trees in the forest).
- If a tree has 5 beetles on it, it is considered dead.
- Play continues until the trees are all killed off by the mountain pine beetles. Keep track of the amount time it takes to kill off all the pine trees. Action cards may need to be reshuffled and used again in order to complete the game. Players should keep notes as the game progresses so they can reflect upon the game in detail once the game is over.
- Put each set of game pieces in a separate envelope for future use.







Beetle lands on tree and decides to stay  
**Action:** Place one beetle on one tree



Beetle lands on tree and decides to stay  
**Action:** Place one beetle on one tree



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Beetle lands on tree and decides to stay  
**Action:** Place one beetle on one tree



Climate Change allows population to double  
**Action:** Add double the amount of beetles to all trees. If a tree does not have a beetle, then add only one to that tree



Climate Change allows population to double  
**Action:** Add double the amount of beetles to all trees. If a tree does not have a beetle, then add only one to that tree



Beetle lands on tree and flies away

**Action:** Remove one beetle from one tree



Beetle lands on tree and flies away

**Action:** Remove one beetle from one tree



Beetle lands on tree and flies away

**Action:** Remove one beetle from one tree



Beetle lands on tree and flies away

**Action:** Remove one beetle from one tree



Beetle lands on tree and flies away

**Action:** Remove one beetle from one tree



Surviving beetle creates a pheromone and attracts other beetles to the tree

**Action:** Add 4 beetles to a tree



Surviving beetle eggs hatch, larvae grow, and attack another tree

**Action:** Add 10 beetles to the forest, scattered throughout the trees



Surviving beetle eggs hatch, larvae grow, and attack another tree

**Action:** Add 10 beetles to the forest, scattered throughout the trees



Surviving beetle eggs hatch, larvae grow, and attack another tree

**Action:** 5 more trees infested with 1 beetle each



Surviving beetle eggs hatch, larvae grow, and attack another tree

**Action:** 5 more trees infested with 1 beetle each



Surviving beetle eggs hatch, larvae grow, and attack another tree

**Action:** 5 more trees infested with 1 beetle each



Scientists develop a way to prevent beetles from producing pheromones

**Action:** Remove beetles from 10 trees



Scientists develop a way to prevent beetles from producing pheromones

**Action:** Remove beetles from 10 trees



Pine tree reacts against burrowing beetle

**Action:** Remove beetles from any tree with one beetle



Pine tree reacts against burrowing beetle

**Action:** Remove beetles from any tree with one beetle



Pine tree reacts against burrowing beetle

**Action:** Remove beetles from any tree with one beetle



Pine tree reacts against burrowing beetle

**Action:** Remove beetles from any tree with one beetle



Pine tree reacts against burrowing beetle

**Action:** Remove beetles from any tree with one beetle