

APES BIODIVERSITY ACTIVITY

When a habitat is very diverse with a variety of different species, it is much healthier and more stable. One of the reasons for this is that disease doesn't spread as easily in a diverse community. If one species gets a disease, others of its kind are far enough away (due to the amount of other organisms) that the disease is often stopped at one or two individuals.

Simulation #1

- 1) Each student receives a card marked with **D** to represent Douglas Firs.
- 2) Each person is to meet three other people and write their names on the card.
- 3) All are to remain standing after they write down the names.
- 4) The teacher symbolizes the disease and will touch one of the students. That person will sit down (because they are "dead") and read the names on their card. As the names are read, those students sit as well because they have been "touched" by the disease.
- 5) Ask another one of those sitting (dead) to read the names on their card, and all those students named will sit. Continue until all those sitting have read the names on their cards.
- 6) Number of students left standing: _____

Simulation #2

- 1) Each student will receive a card that is marked with a letter that represents a particular species of tree: 2 with **D** for Douglas Firs, the rest with other letters: **N** for Noble Fir, **C** for Western Red Cedar, **M** for Vine Maples, **H** for Western Hemlocks, **W** for White Fir, **L** for Lodge Pole Pine, **WP** for Western White Pine, **B** for Bigleaf Maple, **WD** for Western Dogwood.
- 2) Repeat steps 2-6 as for Simulation 1. This time, only those students that are the same variety as the diseased tree that touched them will sit. Different variety trees don't sit (don't die) even if they are touched by a diseased tree.
- 3) Number of students left standing: _____

FOLLOW-UP QUESTIONS

- 1) What does biological diversity mean?
- 2) Why didn't all the different trees get the disease?
- 3) Why didn't the disease spread as fast among the Douglas Firs in Simulation #2 as it did in Simulation #1?
- 4) In which forest would you need to use more chemicals to control disease: the Douglas Fir forest or the more diversified, old growth forest? Why?
- 5) Summarize what this simulation symbolized.
- 6) Which forest would have more diversity of wildlife? Why?
- 7) Many species can only live and reproduce in one type of forest. The spotted owl is an example: it can only live and successfully reproduce in old growth forests (big, old cedars, hemlocks, etc.). If these old growth forests are cut down, it's unlikely this owl will survive. Environmentalists call it an "indicator species." What does this mean? Why be concerned about one species?
- 8) Growing one plant, as is the case of growing only Douglas Fir, is called monoculture. Give examples of monocultures in your home and in agriculture.
- 9) Why would you need to use more pesticides in monoculture? Is this good or bad?
- 10) If you wanted to help wildlife, what would you do with regards to the landscaping of your own home?