



SCOUT ENVIRONMENT AWARENESS PROGRAM



Raining Tennis Balls

Participants are able to visualize the effect that clearing trees has had on the landscape and in particular the effect on water usage.

Suitable for Cubs, Scouts, Venturers, Rovers

Award Scheme Links

Cubs:

- Gold Boomerang – Natural Environment
- Waterwise Badge – Game

Scouts:

- Pioneer - Environment
- Explorer - Environment
- Adventurer - Environment

Outcomes

- Participants visualize the effect of land clearing on groundwater levels.
- Participants discover causes of salinity and low groundwater levels and solutions.

Materials

- 20 or more tennis balls
- Any open area, on a slope is beneficial but not necessary
- A group of at least 10 participants

Activity

(Adapted from Ribbons of Blue)

1. Place the participants in a small group with a bit of space between each one, so that they cannot touch each other with outstretched arms. Have 2 or 3 Leaders or parents on hand to help out, or alternatively, leave a couple of participants out. Get these 'extras' to stand in a rough circle around the participants.
2. Explain to the group that they are standing in a mini catchment. A catchment is a natural drainage area, bounded by sloping ground, hills or mountains, from which all run-off water flows to a low point which may be a creek, river, lake etc. Use a shower as an analogy – shower screen and walls are the higher area that flows into the drain hole. Fremantle is the 'drain-hole' for the Swan-Avon catchment.
3. Explain that each person within the group represents a tree within this catchment. Being trees, they are 'rooted' to the ground and cannot move their feet. They can however 'sway in the breeze', moving their arms (branches). They cannot however bend in half, as trees can not do this.
4. The 'extras' on the outside are rain clouds. Give these members the tennis balls, distributing them evenly if possible. The tennis balls represent rain. Together, the members on the outside form a thunderstorm.
5. Instruct the 'thunderstorm' that on the count of three, they have to throw the balls up in the air above the 'trees' standing in the catchment. The 'trees' have to catch as many tennis balls as they can, without moving of course, when the rest of the group throws them in the air. The trees can only catch rain in the

air; they cannot collect it off of the ground. Emphasise the importance of throwing the tennis balls up as opposed to at the members in the middle, and not to throw hard.

6. Once all of the tennis balls have been thrown, get the trees to hold up the ones that they have caught. Observe how many each member has caught and how many are on the ground.
7. Explain that water entering the system (i.e. rain) is called recharge. The water that is not captured by the trees either soaks into the ground or stays on the surface as run-off, eventually making it's way to a water way.

This part of the activity should result in only a small number of tennis balls not being caught, therefore there should be little 'run-off'. This is because deep rooted trees (as opposed to shallow rooted crops) capture and are able to use the majority of the rainfall that falls on them. There is only a small amount of run-off that flows to the bottom of the catchment or valley floor. This also means that the groundwater level remains low.

8. The idea of the next part of the activity is to simulate the clearing of woodlands throughout the agricultural regions of the state. Approximately 18.5 million ha of land has been cleared in WA since 1826. In the wheat belt there is only 2 million ha of remnant (original) bushland remaining. The Shire of Tammin is one of the most cleared Shires in the state, with approximately 2% remnant woodland remaining. The trees have been cleared to enable farmers to grow crops such as wheat, barley etc and allow pasture to grow for livestock.
9. 'Cut down' a couple of trees from the catchment, ie. Take out a couple of participants, generally the ones that caught the least amount of tennis balls. These participants now become part of the thunderstorm.
10. Continue with this routine – raining and clearing - until only one person is left in the catchment. At each stage, get members to observe the number of tennis balls that are caught (recharge) and the number that land on the floor (runoff). This should result in progressively more run-off as more trees are cleared. More run-off results in the water table rising, bringing dissolved salts to the surface. As the water is evaporated, the salts are left behind. This is the problem of salinity.
11. At the end of the activity, highlight the need to keep deep-rooted trees to help recharge the land. Discuss the reasons for clearing and the importance of replacing the trees.

Note: This activity is often run in conjunction with the Water Cycle Activity and Water Quiz Game.