Teacher-led demonstration: the importance of soil quality for drainage

In this demonstration, students will observe how soil filters through different types of soil. This demonstration compares how water filters through soil, clay and a combination of the two. However, you could also extend the number of soils you test by introducing sand and creating combinations of clay and sand, and soil and sand also to test water filtration.

Resources required:

- three draining pots
- two different soil types (soil and clay)
- a watering device (even a bottle of water is fine)
- plates/bowls to catch the water.

Instructions:

1. The teacher must have soil in one pot, clay in the second and a mixture of the two in the third. The plates/bowls should be positioned underneath to catch the water runoff, and the water is alongside ready for use.

2. Using their workbooks, students should:

- Predict: Students are to predict what they think will happen in each of the three pots when water is poured through.

3. Then the teacher asks the class which of the three pots they think best represents soils in their local area - why do they think this? What evidence do they have?

4. Students then observe as the teacher pours water through the three pots. Hold them high so that students can see how long it takes for water to flow through the soil/pot and how it flows. When the main flow has finished, show students what has been caught in the bowl/plate and allow them to discuss their observations:

- Observe: What happened in which pot when the water was poured through?

5. Finally, again using their workbooks, students should:

- Record: Did the water behave as you thought it might? What do you think this means for plants in these types of soils? What did you learn from this simple experiment?