

CAN PLANTS BREAK ROCKS?

A. Question: How strong are plants?

B. Materials Needed:

1. Dried lime beans, red beans, or corn seeds.
2. Two small flowerpots and soil.
3. Plaster of Paris (or 'Polyfilla').
4. A piece of window glass (the size of the pot).

C: Procedure:

1. Soak six to ten beans or seeds in water and let stand overnight.
2. Plant the seeds just under the soil surface in the pot, and water.
3. Cover the soil with 1cm thick layer of plaster of Paris (or Polyfilla); cover the other pot (with planted seeds) with window glass.
4. Observe and examine the two pots daily (in pot 1, cracks will appear in the plaster; in pot 2, the glass will be lifted).

D: Anticipated Results:

Students should observe the strength of the sprouting seeds by the new positions of the window of glass and the plaster of Paris.

E: Thought Questions for Class Discussion:

1. Why did the seeds have to be soaked before planting?
2. What happened to the plaster of Paris after a few days?
3. What did you observe the window of glass was doing after a few days?
4. Can we find places where plants have broken through asphalt, brick or cement?
5. If sprouting seeds have such strength, can you imagine how strong the roots of tall trees are?

F: Explanation:

This demonstration may be used as an activity for students to discover the strength of sprouting seeds, and how they can cause rocks to move out of their path of growth or break them up into smaller pieces.

Take the students out on the school yard to find plants that have grown through cracks in the sidewalk, lower edges of the wall, or other such places.

Roots of tall trees can easily break foundations of concrete when the trees are planted too close to the buildings. Large rocks can similarly be broken up by the growth of roots, causing pulverization or erosion of the rocks.