Experiment 1: Soil compaction

Why is it so hard to dig a hole in some places but so easy in other places? Hard soil is often compacted, which means the particles are close together with little air, organic matter or water between them. This makes it difficult to dig in, not only for you but also for plants and soil organisms. Let's find out how compated the soil around your school is!

Materials required:

- thread spool
- knitting needle
- rubber bank
- marker
- ruler.

Instructions:

1. Wrap the rubber band around the knitting needle just below the top.
2. Put the spool on a table and put the knitting needle in, pointy end down.
3. You can use the marker to draw a line on the knitting needle to show where the top of the spool sits.
4. Choose different sites around your school to test. Look for a mix of bare, dry ground, grass cover and garden beds.
5. Place the spool on the ground at each location, with the pointy end of the knitting needle facing down. Push down hard on the knitting needle until it stops entering the soil. Slide the rubber band down to the top of the spool to mark your measurement.
6. Take the knitting needle out of the spool and measure the distance between the line you drew and the rubber band. Record your results.
7. Continue this experiment at different sites and compare the different soils around your school.

Adapted from: https://www.sciencebuddies.org/science-fair-projects/project-ideas/Geo_p010/geology/soil-compaction