Schoolyard Permeability Investigation

Engage
You have been learning about how water travels off various surfaces. As you recently learned, over 200 years ago, your local watershed looked very different. The big 4 filters (trees, wetlands, oysters and grasses) dominated your local environment. These permeable surfaces percolated the water slowly into the ground through their natural filtration process. Today those have been replaced by impervious surfaces, which have changed the way water flows across the land.

Your task for this investigation is to answer the following **Testable and Supporting** question:
Which surfaces are less permeable than others?

Prediction
Write a prediction to your question. Support your prediction with 1 reason based on your prior knowledge.

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Hypothesis
Write a hypothesis—a testable explanation (if/ then statement) based on observation, experience or scientific reason.

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Materials:
- ✓ Percolation testing instruments (cans with both ends removed)
- ✓ Gallon jug of water
- ✓ Stop watch
- ✓ Graduated cylinder
- ✓ Ruler
- ✓ Pen to record results

Procedure
1. Choose 4 different surfaces on the schoolyard to test. List them in the data chart below.
2. Record 1 general observation per surface in the chart. Use descriptive adjectives to enable your reader to experience what they cannot see.
3. At each designated spot, conduct a "Perc. Test":
   - Push the can into the ground surface to the line or as far as you can, if the surface is especially hard.
   - Pour 200 milliliters of water into your graduated cylinder.
   - **Pour** the 200 milliliters of water into the can and **time** how long it takes the water to sink into the ground surface.
   - Record the time on your data chart, along with other observations about the area.
   - If the water takes longer than 5 minutes, or is simply not sinking into the ground at all, record this data on the chart.

Variables

Before conducting your experiment, think about 1 variable that might affect this experiment. Record the variable below.

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Explore and Examine
Data Collection
Permeability Data Chart

Location/ Surface Type	Time for 200 milliliters of water to permeate surface	General Observations (1 per surface)

Evaluate

Conclusion

Now that you have completed your perc tests and recorded your results, go back to your question. Was your prediction correct? Provide 2 reasons based on your investigation to support your answer.

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Generate two new supporting questions that were generated from doing this experiment.

1. _____

   _____

2. _____

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