

The Muddy City Problem

Once upon a time there was a city that had no roads. Getting around the city was particularly difficult after rainstorms because the ground became very muddy—cars got stuck in the mud and people got their boots dirty. The mayor of the city decided that some of the streets must be paved, but didn't want to spend more money than necessary because the city also wanted to build a swimming pool. The mayor therefore specified two conditions:

1. Enough streets must be paved so that it is possible for everyone to travel from their house to anyone else's house only along paved roads, and
2. The paving should cost as little as possible.

Here is the layout of the city. The number of paving stones between each house represents the cost of paving that route. Find the best route that connects all the houses, but uses as few paving stones as possible.

Journal Entry: Complete the 4 Problem Solving Steps...then share with partner and class.

- How many paving stones did you use to connect all the houses? ____
- Review and Reflect on the strategy that you and your partner used. Now create a new Algorithm or plan to solve the problem and Execute the plan once again.
- Was your new strategy more efficient - How many paving stones did you cross to connect all the houses?

