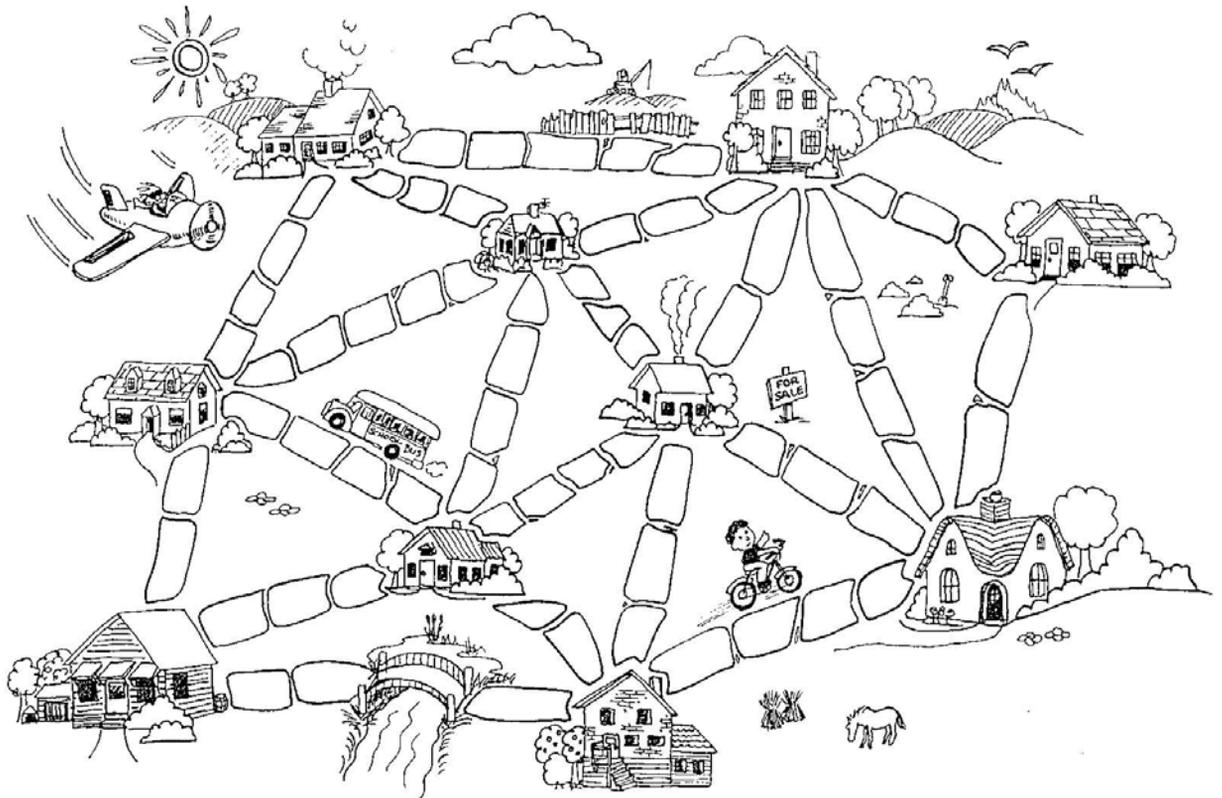


# Worksheet Activity: The Muddy City Problem

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 counters (paving stones) as possible.



# Worksheet Activity: Efficient Halloween Decorations

Halloween is coming! Your class at school is in charge of decorating the streets. You've been given money to do the decorating, and any money that you don't spend is yours to keep.

The layout below shows what type of candy each house is giving out. The numbers between the houses represent the cost of decorating that street. You use the layout to decide which streets to decorate, based on two conditions:

1. Enough streets must be decorated so that it is possible for everyone to travel from their house to anyone else's house only along decorated roads (so everyone can get all types of candy), and
2. The decorating should cost as little as possible.

On the layout below, circle all the streets that you plan to decorate.

