

## Connecting Math to Our Lives and Communities

### What Route Will You Take? (Shortest Distance)

#### Introduction:

When you are walking, biking or driving to a school, work, extracurricular activities or stores is there a route you always take? Is this the fastest route, or do you just like the journey? Maybe you like to pass by your friends or families houses, a local garden, or you prefer to drive near the coast or in wooded areas. For whatever reason it is, many people like to take similar routes to common destinations. Often, the fastest way to reach a point is by a straight line from your point of origin to your point of destination. However, this line could pass through homes, yards, rivers, trees, or other places that are not accessible. We need to look at the path of least resistance. This is the path that is the fastest accessible path to take. Mi'kmaq people moved with the seasons, they would move to coastal areas when it was warmer, and inland areas when it was cooler. They were using the same established travel routes year to year. Mi'kmaq people were travelling very light as they were relying on the natural environment for their needs and would set up camp when needed.

#### Math Connections:

- Spatial and logical reasoning
- Measuring
- Patterns
- Circumference

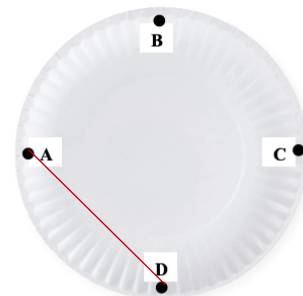
#### Materials:

- 2 Paper plates
- Markers
- Yarn
- Plastic needle
- Ruler

#### Activity:

For this activity, you will be determining the shortest path to reach a specific destination. However, the shortest path is not always the path you will take. We will begin by looking at different patterns to create longer or shorter paths to reach the final destination, and then we will jump into some real world examples.

- 1) Take your paper plate and on the back side draw a point A on the left side, a point B at the top, a point C on the right side, and a point D at the bottom. (See reference photo)



- 2) Take your yarn and put it through the needle so that you can manoeuvre the yarn through the paper plate.
- 3) We will say that point A is our starting point, and point D is our final destination.
- 4) To start, poke a hole with the needle through point A on the plate, and drag the yarn to point D to create a straight line. This is the shortest path from A to D, or from the starting point to the final destination on the plate. Measure the amount of yarn used in the table below (be sure to include units).
- 5) Now, we will go from point A, to point B, and then to point D. Again, measure the amount of yarn used, or the distance travelled and record it in the table.
- 6) Now, we will go from point A, to point B, to point C, and finally to point D. Measure the distance travelled and record it in the table.
- 7) Now, we will go from point A, to point C, and then to point D. Measure the distance travelled and record it in the table.
- 8) Now, we will go from point A, to point C, to point B, and finally to point D. Measure the distance travelled and record it in the table.

Path from A to D	Distance Covered
Point A to D (straight line)	
Point A to B to D	
Point A to B to C to D	
Point A to C to D	
Point A to C to B to D	

What do you notice about this table?

- 1) To try some real-world examples, draw a rough sketch of your community on the back of the paper plate. Be sure to include your home, roads, woods or trees, landmarks as well as places that you may travel. This could include your school, a grocery store or a market, houses of friends or family, or anywhere else you would like to include. As you can see in the example, you can be as creative with this as you like. It is your perspective on your community.
- 2) Choose your home as the starting point, and you decide where your final destination will be.
- 3) Now, using your needle and yarn go from your starting point, straight to your final destination and measure the amount of yarn used or the distance travelled and record it in the table below.  
Does this path cut through woods and maybe other people's yards? Or does it stay on the road? Is the shortest path available for you to take?



- 4) Now, using your yarn and following the roads on the plate, go from your home to your final destination by the path that you usually take. Measure the distance and record it in the table.
- 5) Is there another path to your final destination? If so, take the alternate route this time and measure the distance and record it in the table.

<b>Path from Home to Final Destination</b>	<b>Distance Covered</b>
Straight Line	
Path you usually take	
Alternate path if applicable	

**Questions:**

For the first part of this activity, if point A is your starting point *and* your final destination, and you go from point A, to point B, to point C, to point D, and finally back to point A what shape do you create? Draw it out!

If you measure the amount of yarn used, or the distance what does this relate to in reference to the shape?

**Send us a photo of paper plate community to Connecting Math To Our Lives and Communities email ([cmtolcstfx@gmail.com](mailto:cmtolcstfx@gmail.com))! ☺**