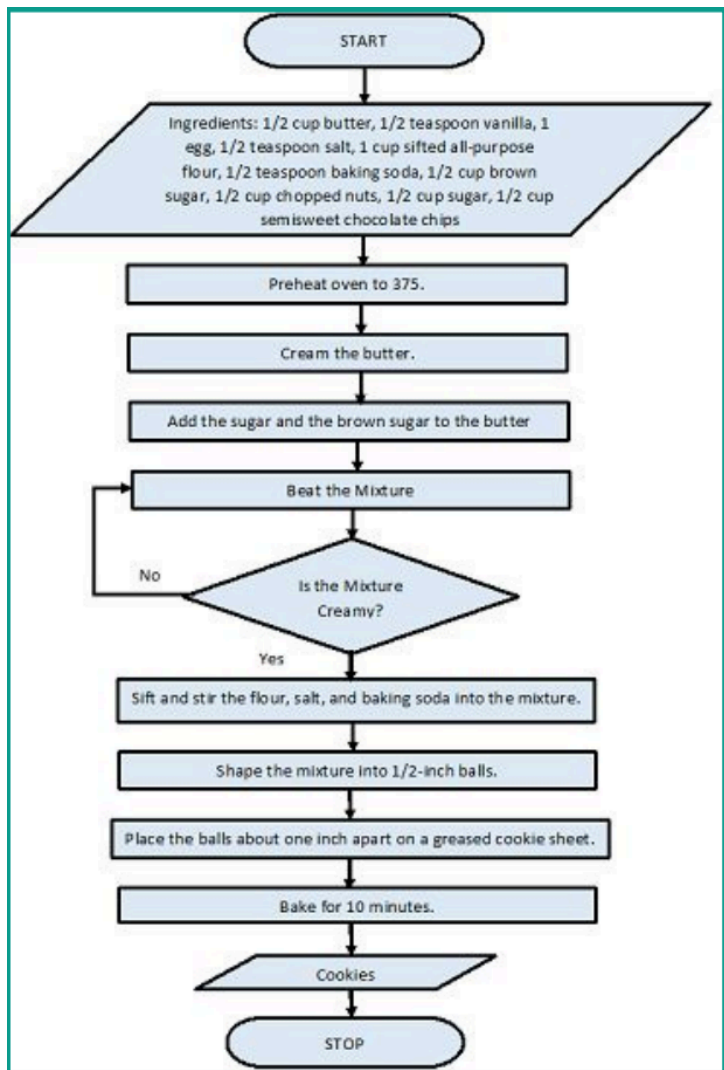


Practicing Algorithms:

Using a Flow Chart




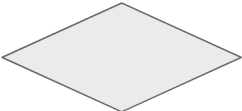

As we saw in a previous activity on algorithms, sometimes we show the steps and logic of an algorithm by making what we call a **flow chart**. The idea of a flow chart is that it's an easy-to-understand picture of all the steps and decisions you have to make to do something. For example we had the baking cookies flow chart.

The purpose of this activity is to get you used to using a flow chart to think through the steps of any algorithm. We aren't going to start with fancy computer or mathematical algorithms—instead, let's stick more to algorithms that you know from everyday life.



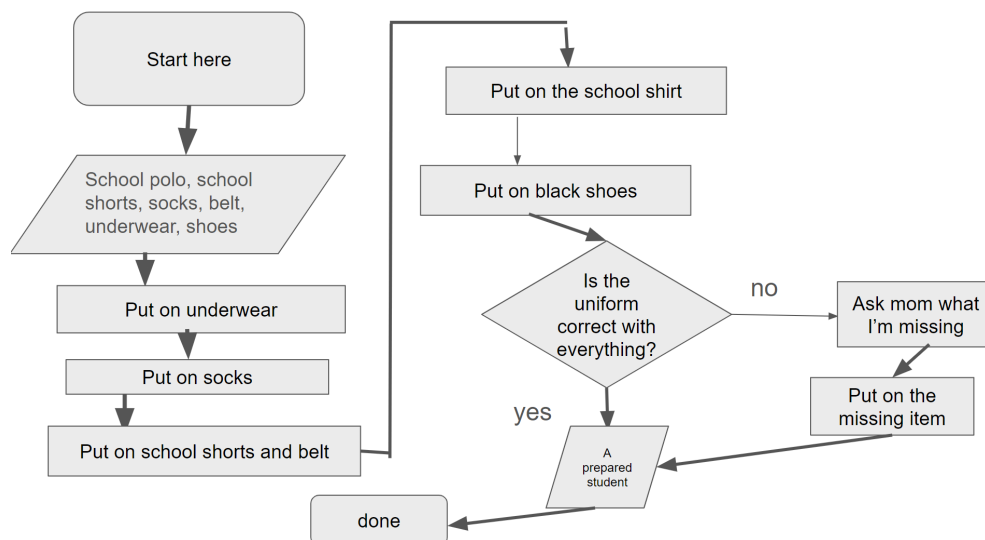
The symbols we are going to use:

There are many more complicated symbols that computer scientists use to think about flow charts, but we are going to use these basic ones to get us started:

	Arrow	Shows the order the steps are in
	Rectangle	"Process" each <i>step</i>
	Rounded rectangle or oval	Shows where your algo starts and stops
	Diamond	Decision. true/false or yes/no situation
	parallelogram	"Inputs/outputs" all the things your algo needs or produces

Example:

Here is an example my year 8 class made yesterday for "how to put on my school uniform." See how each step uses a different kind of shape to show what kind of step it is.



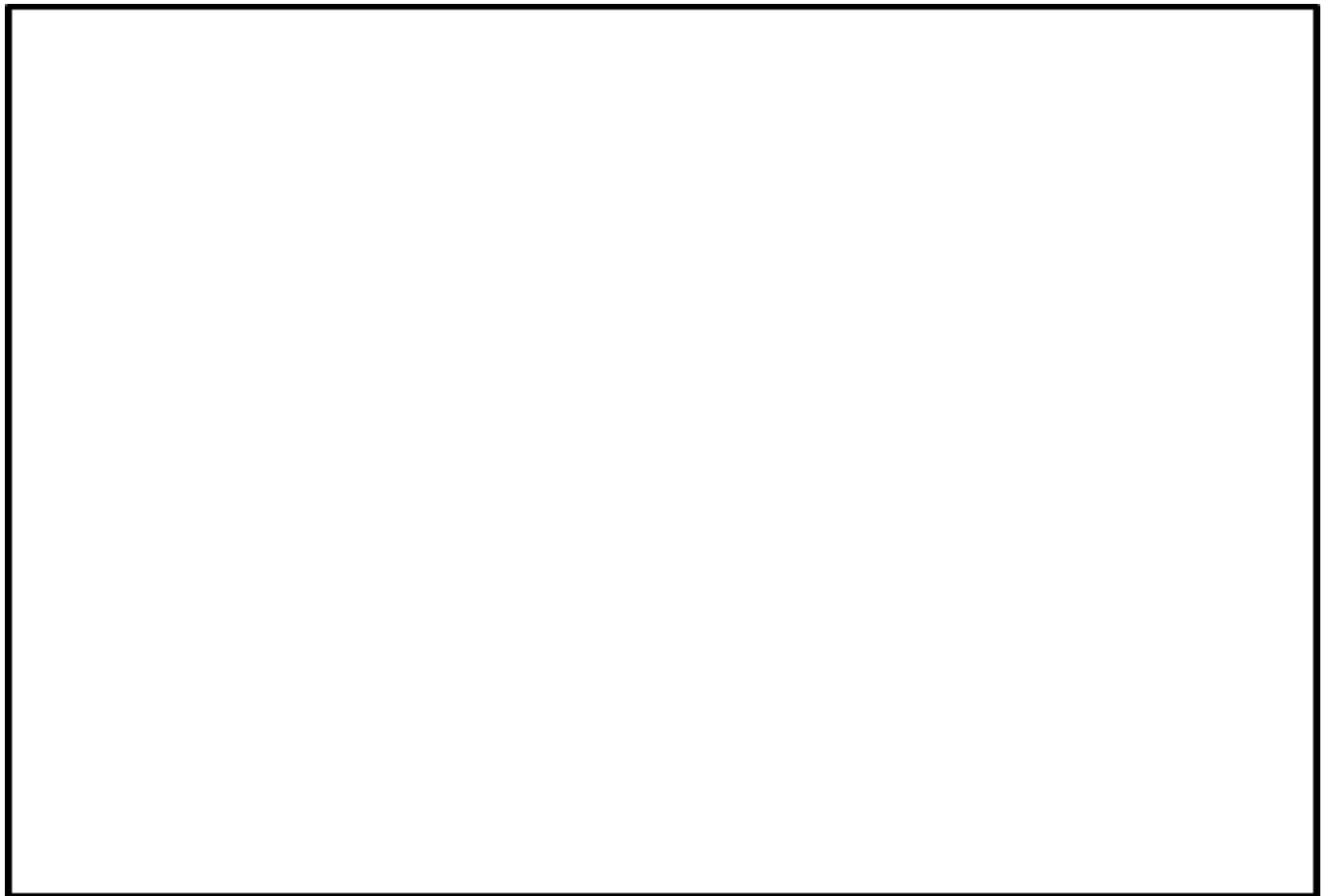
Now it's our turn!

Here is a list of activities that you might do on a regular basis. Let's start with a guided example with these steps. Make sure you get each step in the right place.

"Brushing Your Teeth"

- Start
- Inputs: toothbrush, toothpaste, teeth
- Get toothbrush and toothpaste (action)
- Put toothpaste on toothbrush (action)
- Have you brushed for 2 minutes? (decision)
- If yes:
 - Rinse (action)
- If no: keep brushing (action)
- Output: clean teeth
- End

Draw the flowchart in this space:

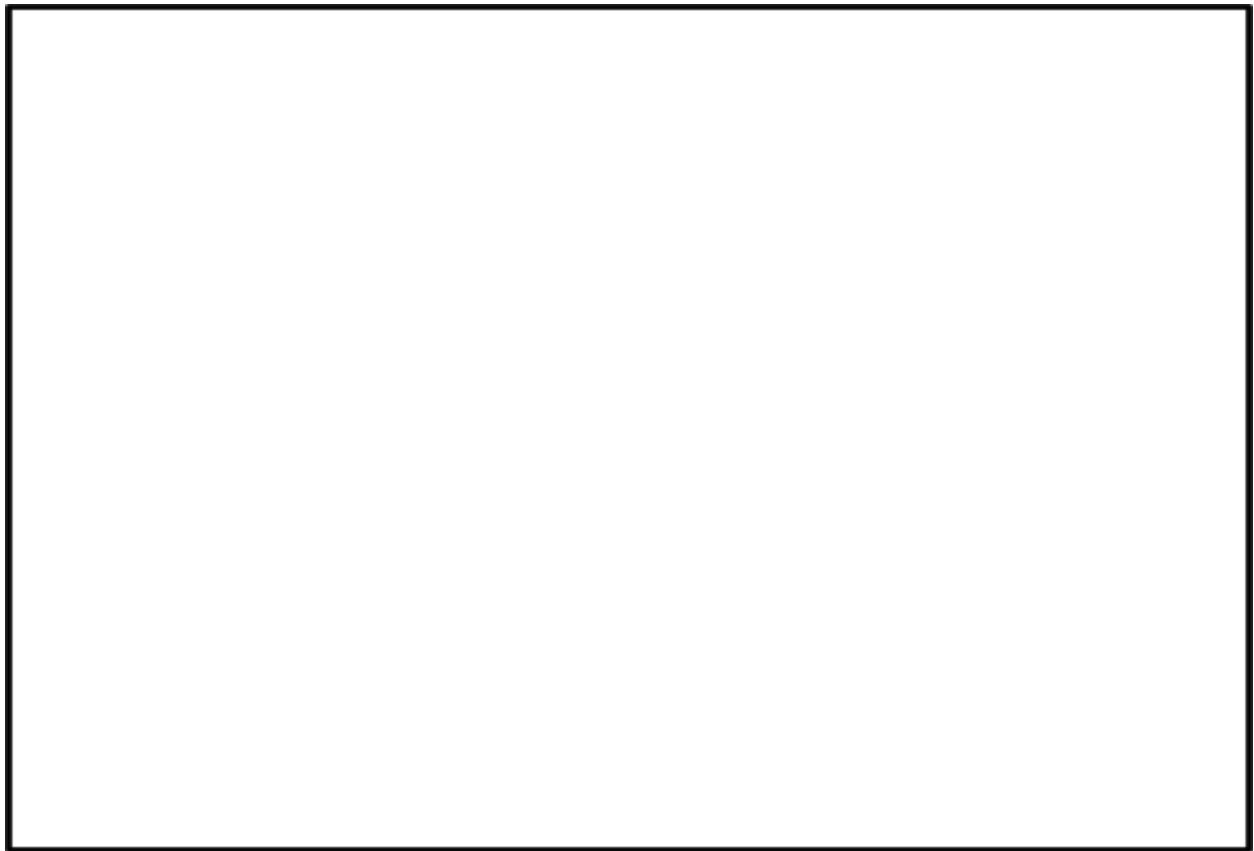


Having seen and practiced examples, make your own flowcharts based on your own steps for the following activities:

Making a Sandwich

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____

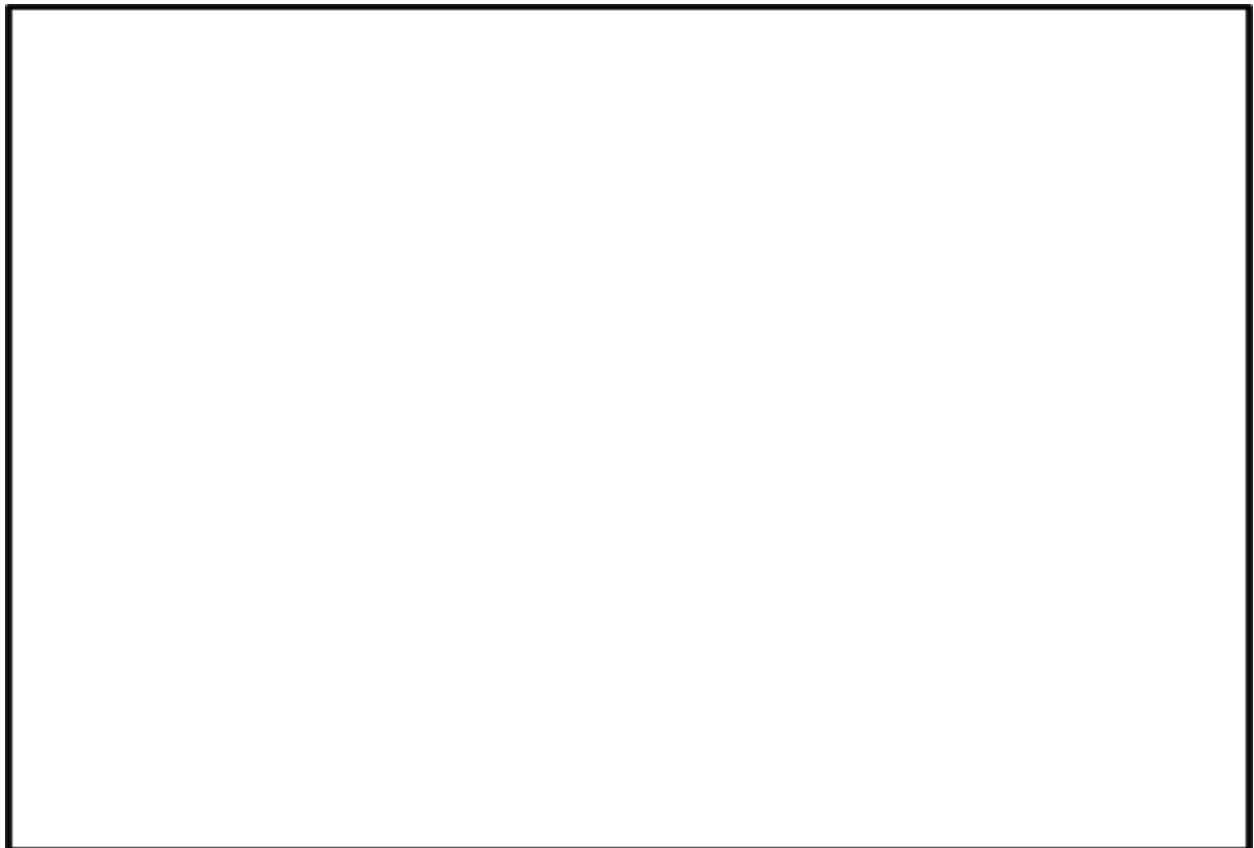
(you may need more steps. If you run out of space on this list, add more lines)

A large, empty rectangular box with a black border, intended for drawing a flowchart. It occupies the lower half of the page.

Going to the Movies

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____

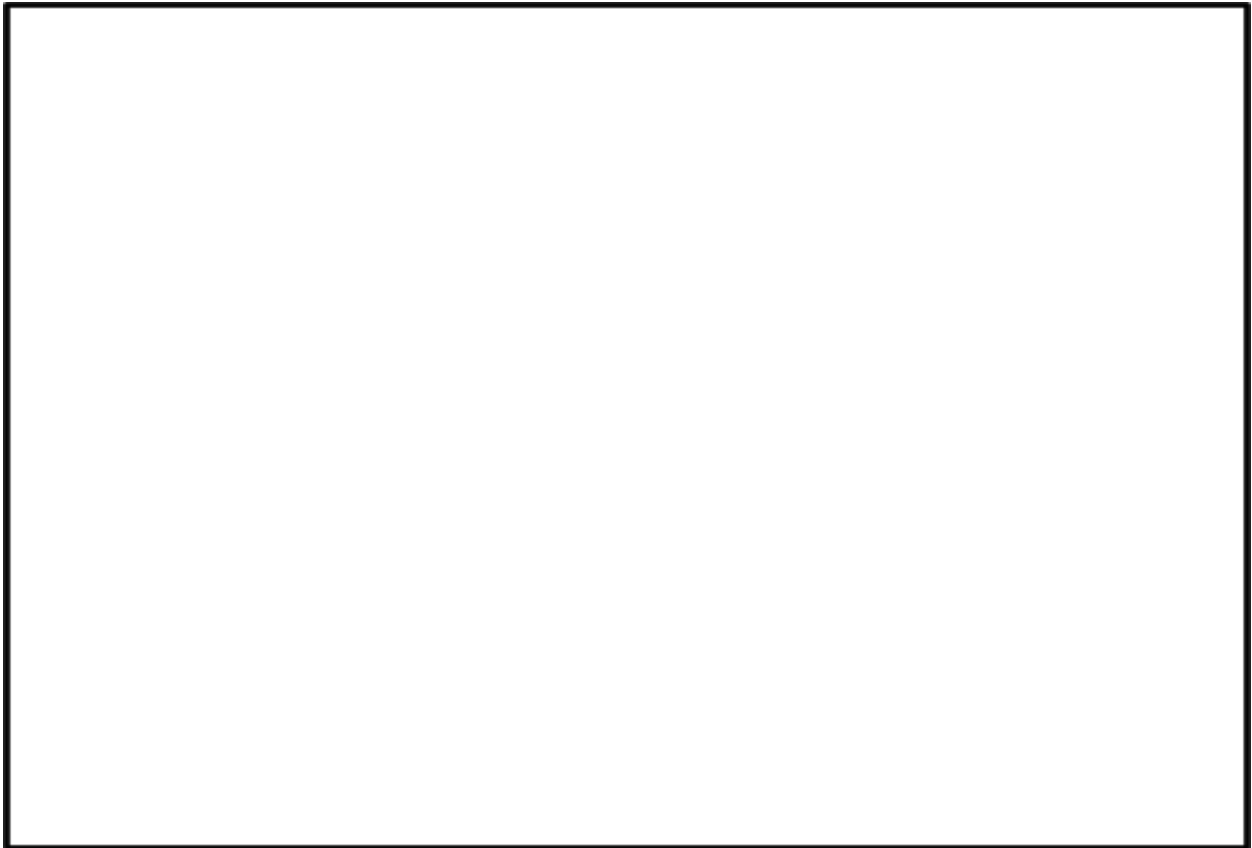
(you may need more steps. That's okay)

A large, empty rectangular box with a black border, occupying the lower half of the page. It is intended for a drawing or additional notes related to the 'Going to the Movies' activity.

Doing my homework

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____

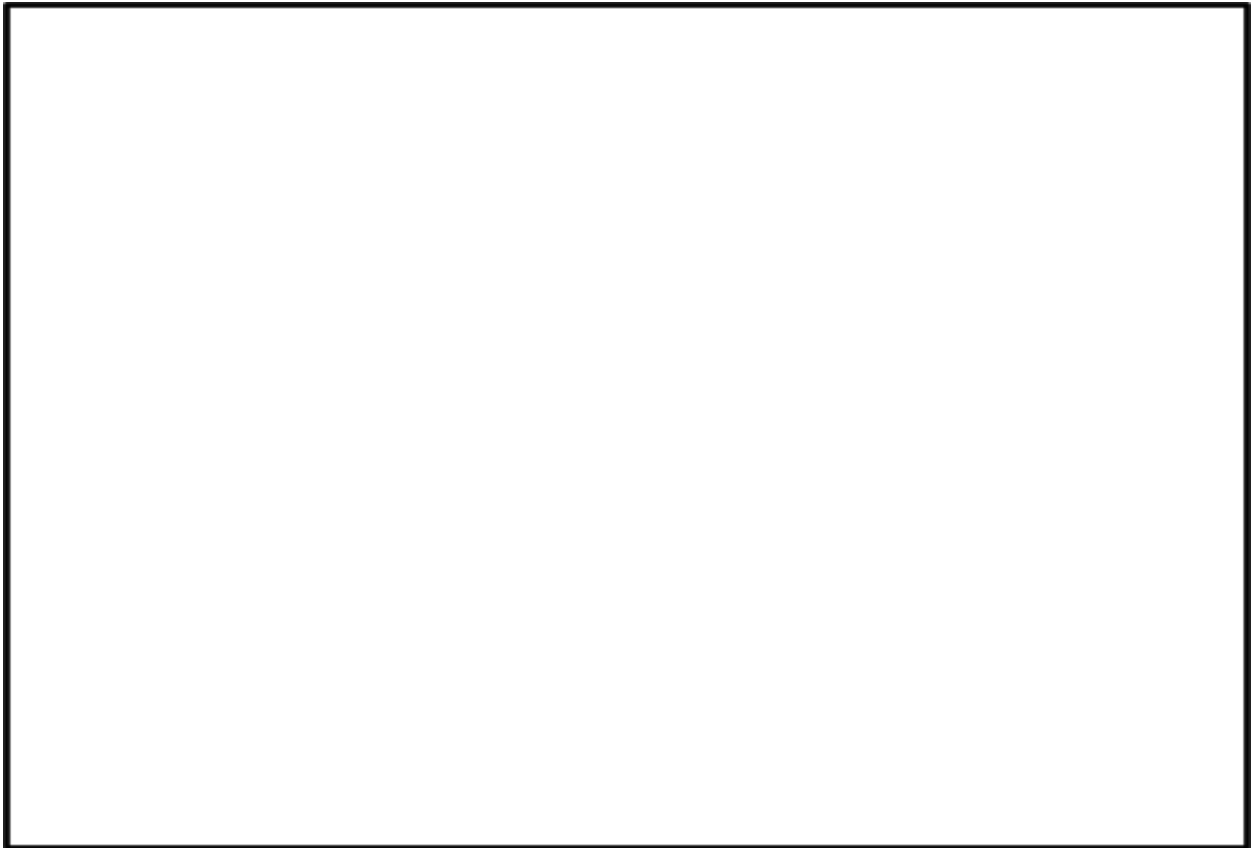
(you may need more steps. That's okay)

A large, empty rectangular box with a black border, occupying the lower half of the page. It is intended for a student to draw a picture or write a story related to their homework steps.

Planning a Party

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____

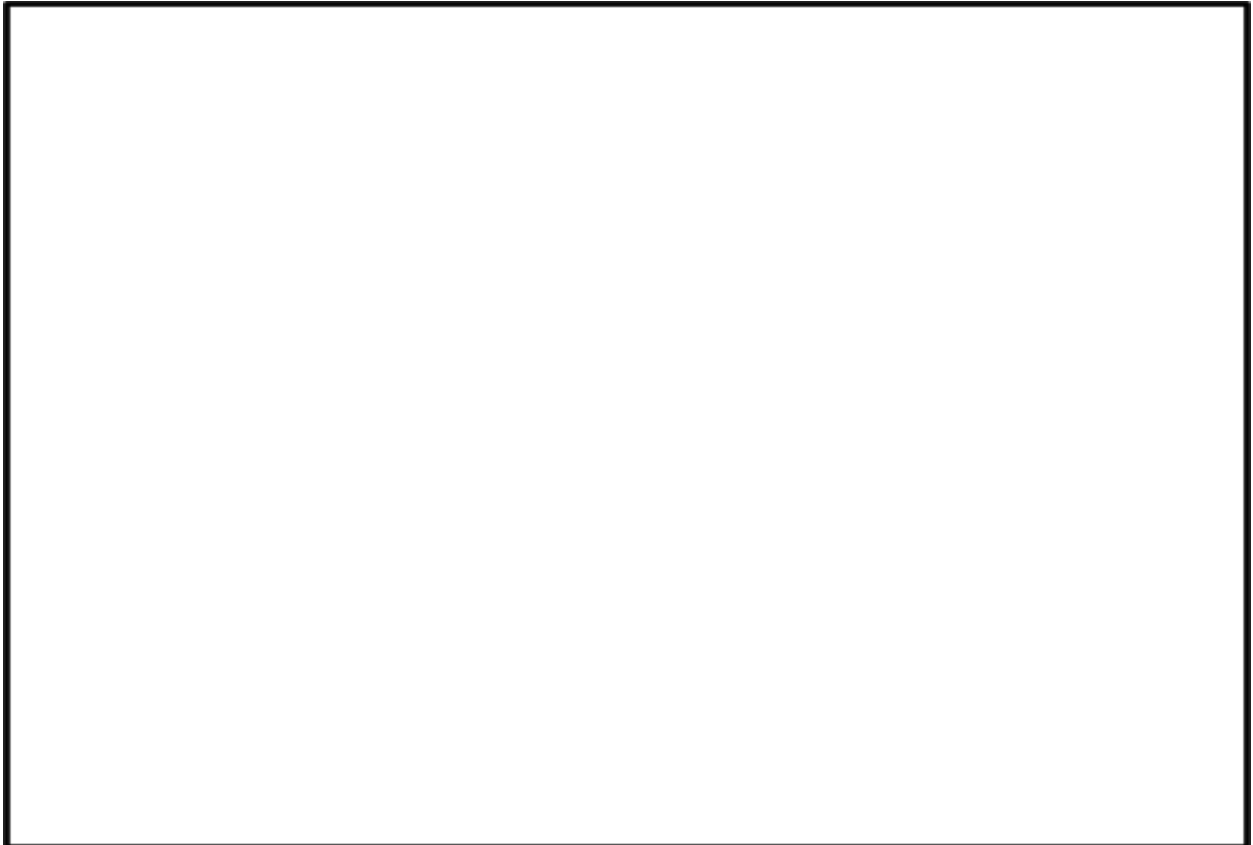
(you may need more steps. That's okay)

A large, empty rectangular box with a black border, intended for a drawing or additional notes related to the party planning activity.

Taking the metro to Podil (Pechersk) OR Taking the trolley to the Dnipro river bank (Dnipro)

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____

(you may need more steps. That's okay)

A large, empty rectangular box with a black border, occupying the lower half of the page. It is intended for a drawing or a detailed written response.