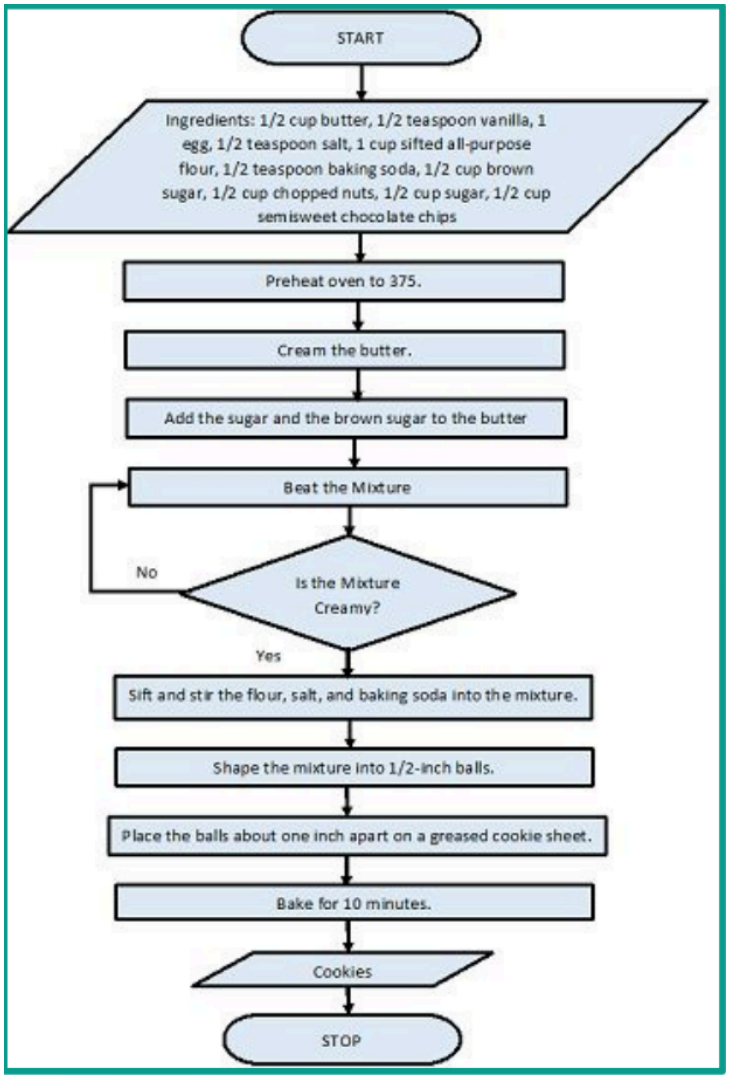
Practicing Algorithms: Using a Flow Chart

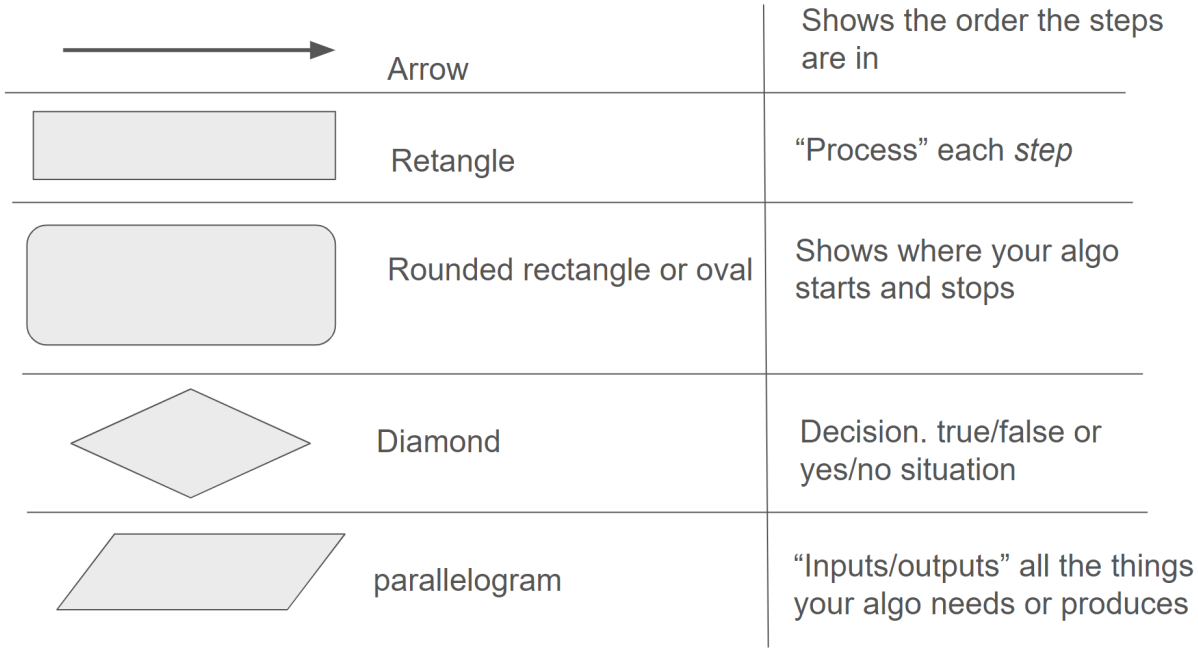
As we saw in a previous activity on algorithms, sometimes we show the steps and logic of an algorithm by making what we call a **flow chart.** The idea of a flow chart is that it's an easy-to-understand picture of all the steps and decisions you have to make to do something. For example we had the baking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

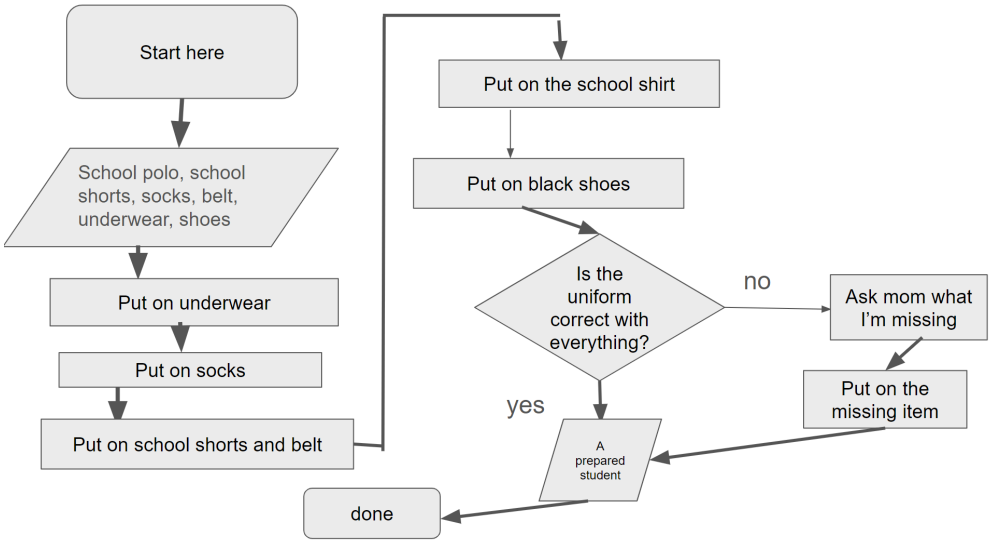
The symbols we are going to use:

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:



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.



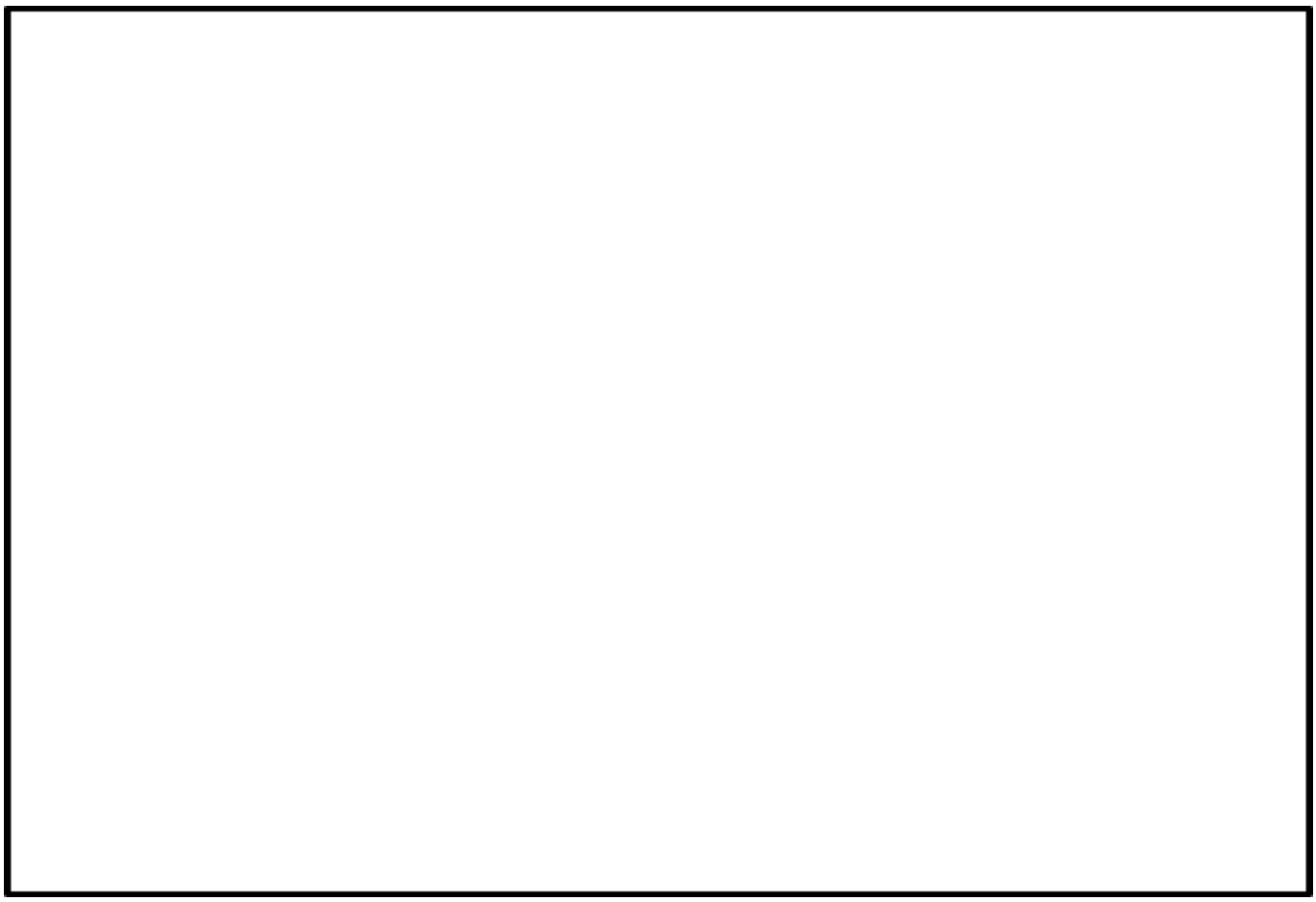
Now it’s our turn!

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:

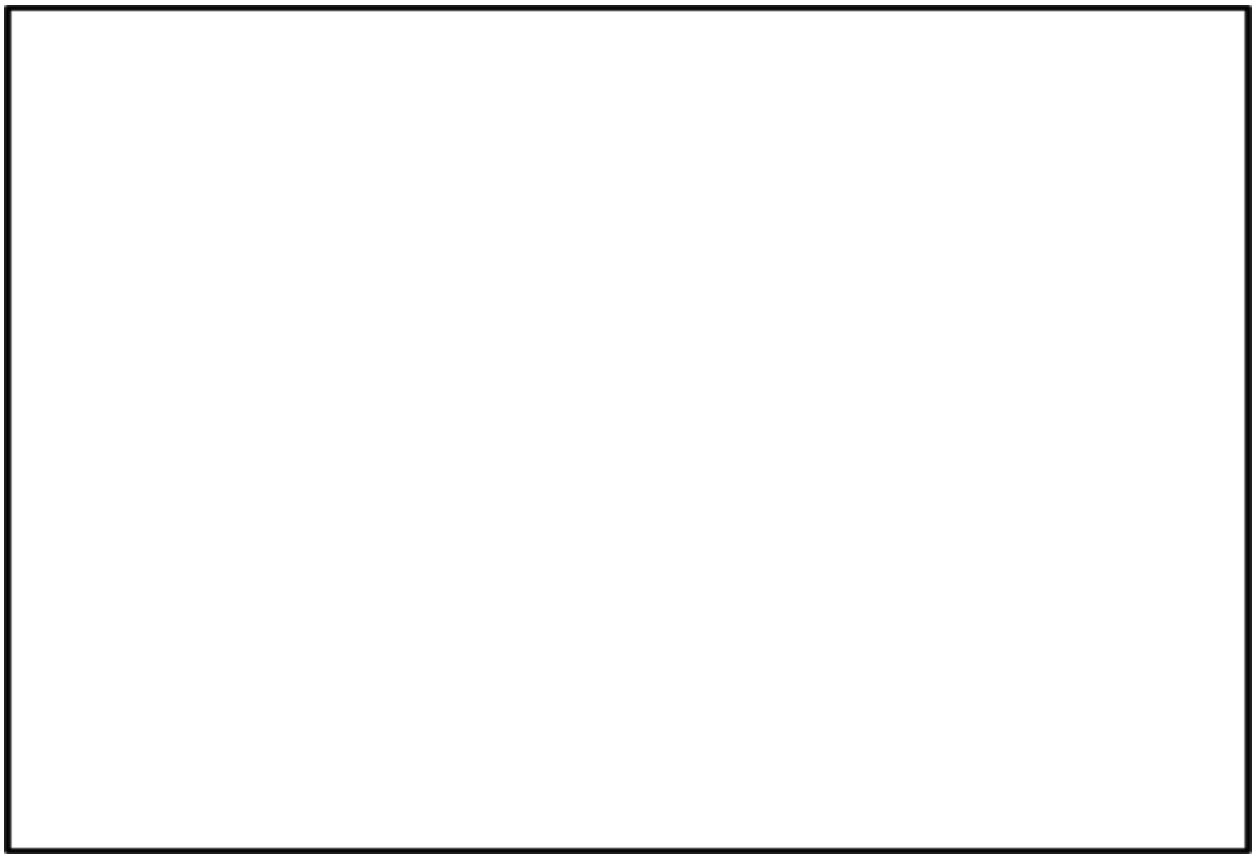


Having seen and practiced examples, make your own flowcharts based on your own steps for the following activities:

Making a Sandwich

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

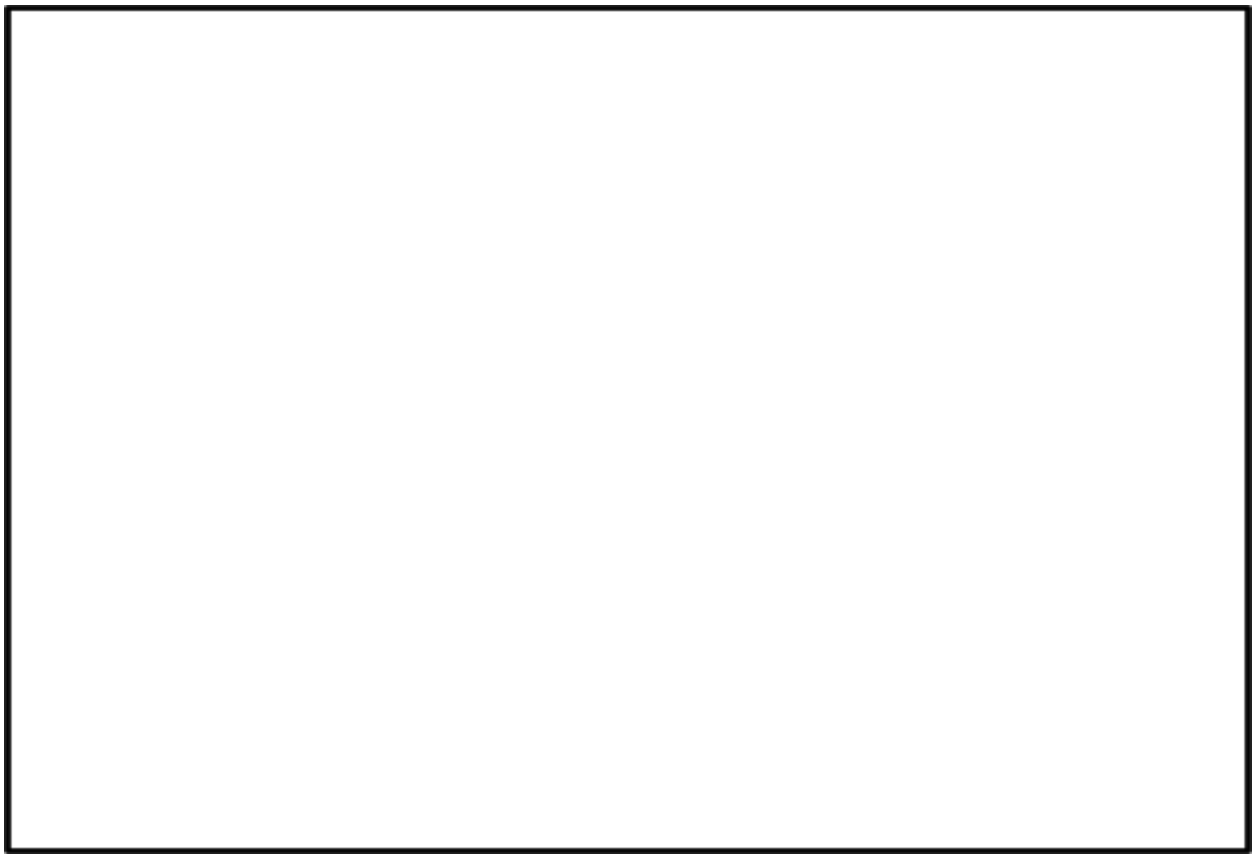
(you may need more steps. If you run out of space on this list, add more lines)



Going to the Movies

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

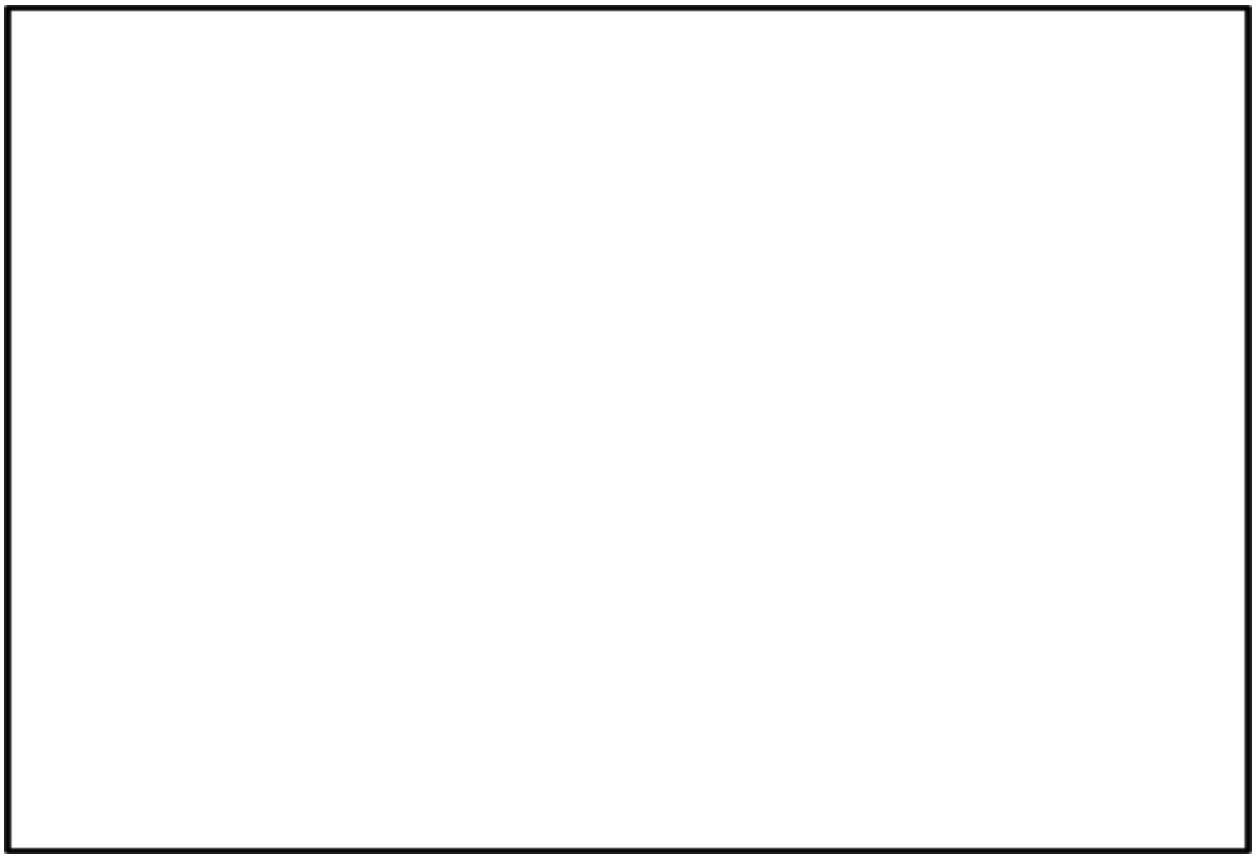
(you may need more steps. That's okay)



Doing my homework

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

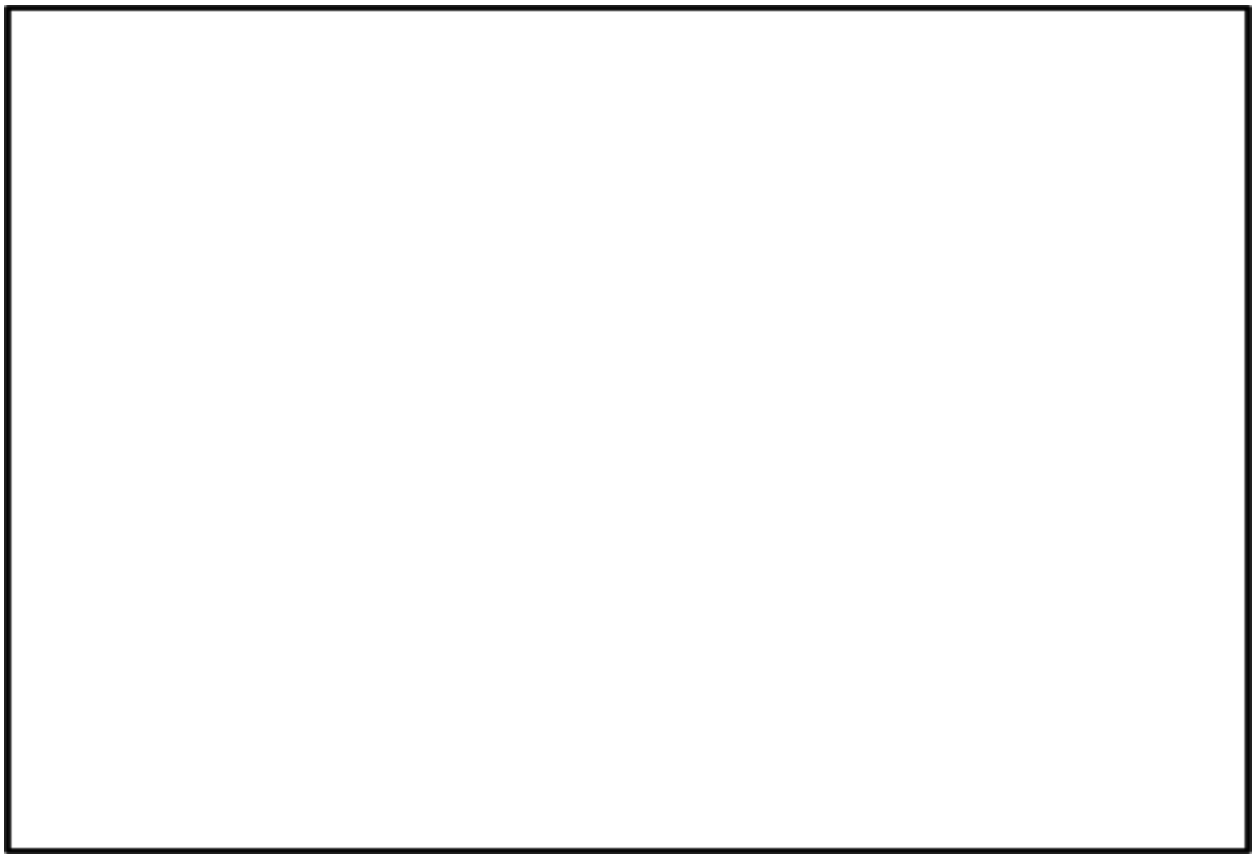
(you may need more steps. That's okay)



Planning a Party

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

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



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)