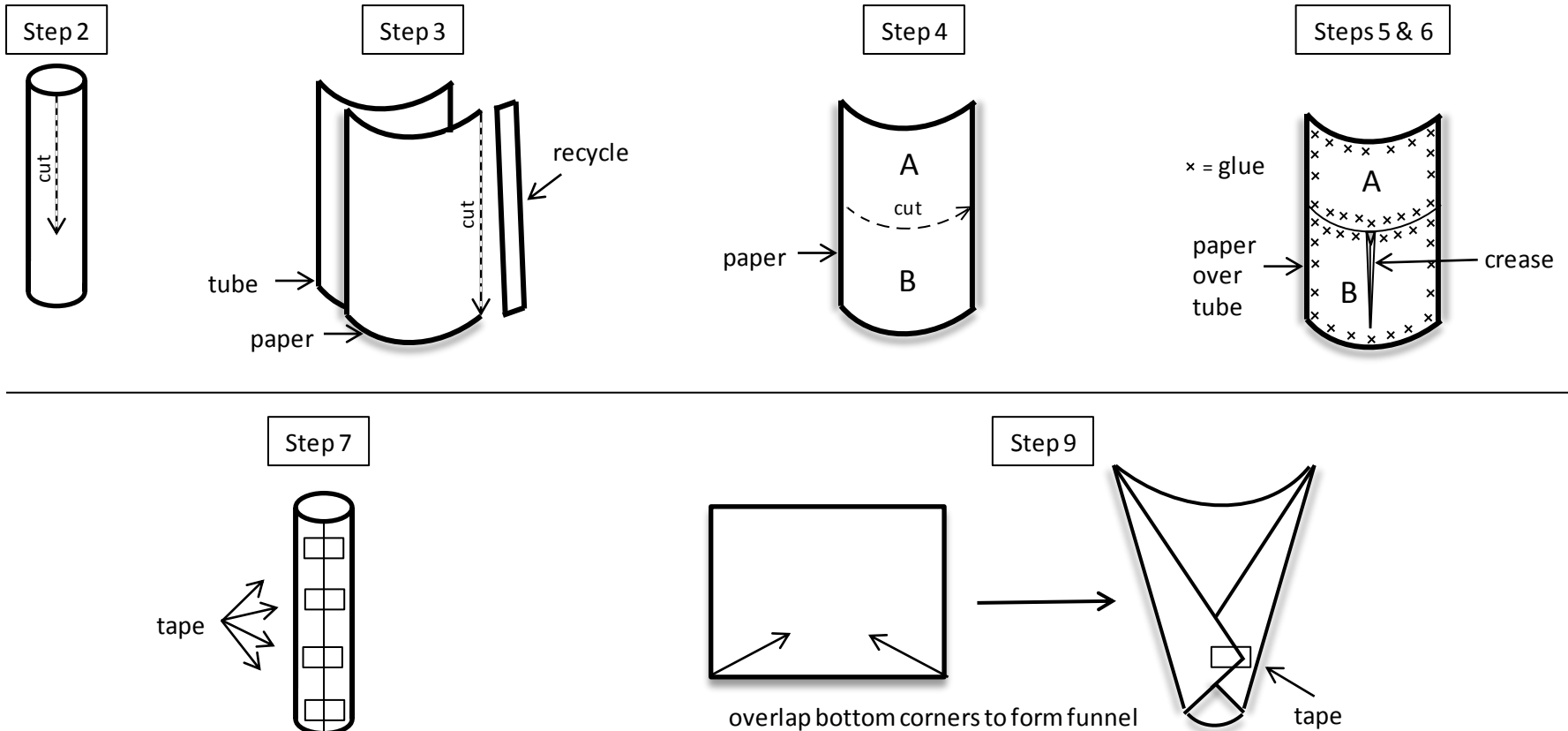


# MAKING AN ARTERY MODEL

1. Gather materials. You will need a cardboard tube, scissors, paper, glue, and tape.
2. Cut the paper towel tube lengthwise (from one opening to the other) in a straight line.
3. Cut a piece of scrap paper to fit the INSIDE of their cardboard tube.
4. Next, cut the paper in half, along the narrow width, into pieces "A" and "B".
5. Glue "A" into the inside of the tube, aligning it with the top half of the tube.
6. Put a crease in "B" and glue it into the bottom half of the tube. Glue it on all sides BUT be careful not to glue the crease. The crease should leave a small opening in the center of the tube. (Think of it as making a little tunnel in the paper that begins at the center of the tube and ends at the bottom of the tube where the paper is glued to close the exit.)
7. Tape the completed model back into a tube. Paper A is at the top. This models an artery with a damaged wall.
8. Make a large-mouth funnel by twisting another piece of paper in on itself and taping it. The opening should be only SLIGHTLY smaller than the tube.



# MODELING ATHEROGENESIS

Atherogenesis is the beginning of plaque formation within an artery wall. This is where molecules in the blood enter the space between the artery wall layers through damage caused by smoking, diabetes, high blood pressure, or a number of other factors. LDL (low-density lipoproteins – protein molecules with fats, including cholesterol, attached) are particularly damaging molecules because they are attacked by white blood cells (macrophages) as intruders within the artery wall, adding to the material in the artery wall.

1. Gather materials. You will need your artery model, seeds (or any tiny, numerous materials), a paper plate or bin, and your paper funnel.
2. Place a paper plate (or bin) on your table/desk under the artery model to catch seeds as they fall through.
3. One student holds the model upright while another holds the funnel with the mouth as closely aligned to the top of the tube as possible.
4. Pour the seeds through the funnel quickly.
5. Repeat as many times as necessary depending upon how many seeds you have. (You want to pour about a liter of seeds through.)
6. Open up your model (peel or cut the tape) and observe what happened. What do the seeds represent? What does the crease represent? What happened in the crease? Why?

