

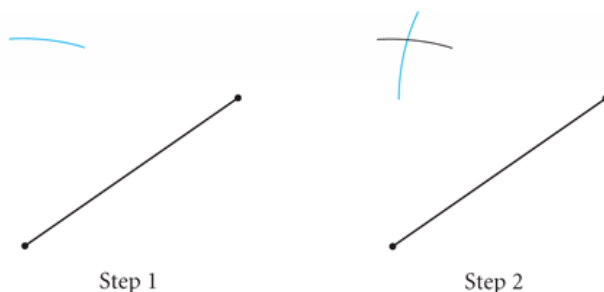


INVESTIGATION 2

► YOU WILL NEED

Constructing the Perpendicular Bisector

If a point is **equidistant**, or the same distance, from two endpoints of a line segment in a plane, will it be on the segment's perpendicular bisector? If so, then locating two such points can help you construct the perpendicular bisector.



▼ Step 1

Draw a line segment. Set your compass to more than half the distance between the endpoints. Using one endpoint as center, swing an arc on one side of the segment.

▼ Step 2

Using the same compass setting, but using the other endpoint as center, swing a second arc intersecting the first.

▼ Step 3

The point where the two arcs intersect is equidistant from the endpoints of your segment. Just as you did on one side of the segment, use your compass to find another such point. Use these points to construct a line. Is this line the perpendicular bisector of the segment? Explain. Use the paper-folding technique of Investigation 1 to check.

I have provided you with a copy of the investigation we worked on in class today to construct a perpendicular bisector using a compass and a straightedge (ruler).

- 1) Please review the investigation, then write or draw the steps to construct a perpendicular bisector.
- 2) Today we learned the Perpendicular Bisector Conjecture, and its converse.

Perpendicular Bisector Conjecture

If a point is on the perpendicular bisector of a segment, then it is equal distance from both endpoints of the segment.

- 3) Please explain this statement in your own words, and draw a figure if it helps you explain.
- 4) Write the **Converse of the Perpendicular Bisector Conjecture**