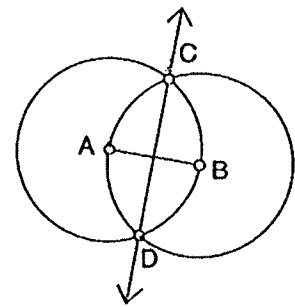


Constructing a Perpendicular Bisector Name(s): _____

In this activity, you'll use only Sketchpad's freehand tools to construct perpendicular bisectors. Then you'll investigate properties of perpendicular bisectors. In Explore More, you'll devise a shortcut for constructing a perpendicular bisector using Sketchpad's Construct menu.

1. Construct \overline{AB} .
2. Construct circle AB . (Make sure you use point A for the center and point B for the radius endpoint.)
3. Construct circle BA . (Use point B for the center and point A for the radius point.)



Press and hold down the mouse button on the current **Straightedge** tool, then drag to choose the **Line** tool.

4. Construct \overleftrightarrow{CD} , where C and D are the circles' points of intersection.
5. Drag points A and B to make sure your construction stays together.

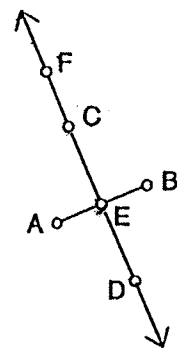
Q1 Line CD is the perpendicular bisector of \overline{AB} . Without measuring, what can you say about the distances AC and BC and the distances AD and BD ?

6. Construct E , the point of intersection of \overline{AB} and \overleftrightarrow{CD} .

Q2 What's special about point E ? Move points A and B to confirm your answer.

7. Hide the circles.
8. Construct a point F on \overleftrightarrow{CD} .
9. Measure the distances FA and FB .

Q3 Drag point F up and down the line. Make a conjecture about any point on a segment's perpendicular bisector.



To measure a distance, select two points; then, in the Measure menu, choose **Distance**.

Explore More

1. In a new sketch, construct a segment. Figure out how to construct the perpendicular bisector of the segment using the Construct menu. When you've succeeded, make a custom tool and save it in the Tool Folder (next to the application itself on your hard drive). Write a description of the way you did the construction.

For tips on making and using custom tools, choose **Toolbox** from the Help menu, then click on the Custom Tools link.