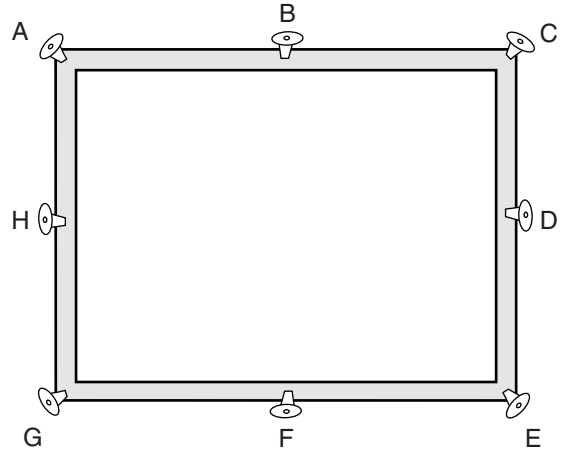
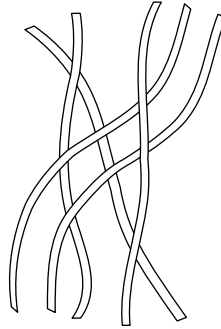


# Challenge

## Lines and Strings

You can tie pieces of string onto a board to make geometric figures. If you tied a piece of string from peg A to peg E, you would label it  $\overline{AE}$ . The symbol for parallel lines is  $\parallel$ . For example  $\overline{AG} \parallel \overline{BF}$ . The symbol for perpendicular lines is  $\perp$ . For example  $\overline{AG} \perp \overline{GE}$ .



Use the board above to solve the exercises.

1. Find as many ways as you can to tie on pieces of string that are parallel to each other. Write your answers using symbols.

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2. Find as many ways as you can to tie strings to form perpendicular line segments. Write your answers using symbols.

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3. How many ways can you make intersecting line segments by crossing a piece of string with a string tied from peg C to peg G? Write your answers using symbols.

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4. **Compare and Contrast** Compare perpendicular lines with intersecting lines. How are the lines alike? How are they different?

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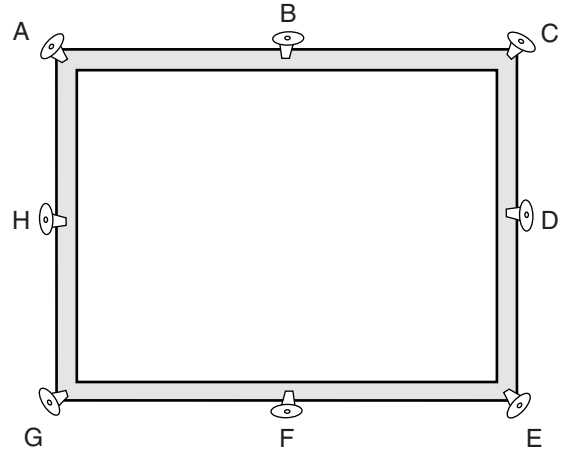
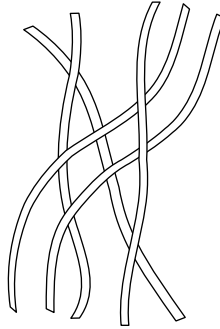


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# Challenge

## Lines and Strings

You can tie pieces of string onto a board to make geometric figures. If you tied a piece of string from peg A to peg E, you would label it  $\overline{AE}$ . The symbol for parallel lines is  $\parallel$ . For example  $\overline{AG} \parallel \overline{BF}$ . The symbol for perpendicular lines is  $\perp$ . For example  $\overline{AG} \perp \overline{GE}$ .



Use the board above to solve the exercises.

1. Find as many ways as you can to tie on pieces of string that are parallel to each other. Write your answers using symbols. **Answers may vary. Sample answer:**  $\overline{AG} \parallel \overline{BF}$ ;  $\overline{BF} \parallel \overline{CE}$ ;  $\overline{AC} \parallel \overline{HD}$ ;  $\overline{DH} \parallel \overline{EG}$ ;  $\overline{HF} \parallel \overline{AE}$ ;  $\overline{AE} \parallel \overline{BD}$ ;  $\overline{HF} \parallel \overline{BD}$ ;  $\overline{AC} \parallel \overline{GE}$ ;  $\overline{AG} \parallel \overline{CE}$ ;  $\overline{BH} \parallel \overline{CG}$ ;  $\overline{CG} \parallel \overline{DF}$ ;  $\overline{BH} \parallel \overline{DF}$

2. Find as many ways as you can to tie strings to form perpendicular line segments. Write your answers using symbols.

**Answers may vary. Sample answer:**  $\overline{HD} \perp \overline{AG}$ ;  $\overline{BF} \perp$

$\overline{HD}$ ;  $\overline{HD} \perp \overline{CE}$ ;  $\overline{BF} \perp \overline{GE}$ ;  $\overline{BF} \perp \overline{AC}$

3. How many ways can you make intersecting line segments by crossing a piece of string with a string tied from peg C to peg G? Write your answers using symbols.

**Answers may vary. Sample answer:**  $\overline{AD}$ ,  $\overline{AE}$ ,  $\overline{AF}$ ,  $\overline{BD}$ ,  $\overline{BF}$ ,  $\overline{DH}$ ,  $\overline{BE}$ ,  $\overline{HE}$ ,  $\overline{HF}$

4. **Compare and Contrast** Compare perpendicular lines with intersecting lines. How are the lines alike? How are they different?

**Answers may vary.**