

Try This

1. Use opposite sides of an index card to draw a set of parallel lines. Then use opposite sides of a ruler to draw a second set of parallel lines that intersects the first. Label the points of intersection as A , B , C , and D , in that order. Quadrilateral $ABCD$ has two pairs of parallel sides. It is a *parallelogram*.

2. Place a second piece of patty paper over the first and trace $ABCD$. Label the points that correspond to A , B , C , and D as Q , R , S , and T , in that order. The parallelograms $ABCD$ and $QRST$ are congruent. Name all the pairs of congruent corresponding sides and angles.

3. Lay $ABCD$ over $QRST$ so that \overline{AB} overlays \overline{ST} . What do you notice about their lengths? _____

What does this tell you about \overline{AB} and \overline{CD} ? _____

Now move $ABCD$ so that \overline{DA} overlays \overline{RS} . What do you notice about their lengths? _____

What does this tell you about \overline{DA} and \overline{BC} ? _____

4. Lay $ABCD$ over $QRST$ so that $\angle A$ overlays $\angle S$. What do you notice about their measures? _____

What does this tell you about $\angle A$ and $\angle C$? _____

Now move $ABCD$ so that $\angle B$ overlays $\angle T$. What do you notice about their measures? _____

What does this tell you about $\angle B$ and $\angle D$? _____

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6-2 **Explore Properties of Parallelogram** continued

5. Arrange the pieces of patty paper so that \overline{RS} overlays \overline{AD} . What do you notice about \overline{QR} and \overline{AB} ? _____

What does this tell you about $\angle A$ and $\angle R$? _____

What can you conclude about $\angle A$ and $\angle B$? _____

6. Draw diagonals \overline{AC} and \overline{BD} . Fold $ABCD$ so that A matches C , making a crease. Unfold the paper and fold it again so that B matches D , making another crease.

What do you notice about the creases?

What can you conclude about the diagonals?

Try This

1. Repeat the above steps with a different parallelogram.

Do you get the same results? _____

2. **Make a Conjecture.** How do you think the sides of a parallelogram are related to each other? Write your conjecture as a conditional statement.

How do you think the sides of a parallelogram are related to the angles? Write your conjecture as a conditional statement.

How do you think the sides of a parallelogram are related to the diagonals? Write your conjecture as a conditional statement.
