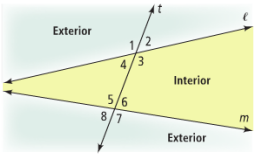
3-1 Lines and Angles

Content Standards
G.CO.1 Know precise definitions of . . . parallel line.
Prepares for G.CO.9 Prove theorems about lines and angles.

Objectives To identify relationships between figures in space
To identify angles formed by two lines and a transversal

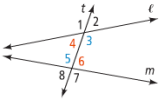
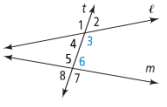
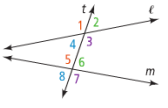
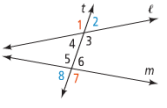
Essential Understanding When a line intersects two or more lines, the angles formed at the intersection points create special angle pairs.

A **transversal** is a line that intersects two or more coplanar lines at distinct points. The diagram below shows the eight angles formed by a transversal t and two lines ℓ and m.



Notice that angles 3, 4, 5, and 6 lie between ℓ and m. They are *interior* angles. Angles 1, 2, 7, and 8 lie outside of ℓ and m. They are *exterior* angles.

Take note **Key Concept** **Angle Pairs Formed by Transversals**

Definition	Example	
Alternate interior angles are nonadjacent interior angles that lie on opposite sides of the transversal.	∠4 and ∠6 ∠3 and ∠5	
Same-side interior angles are interior angles that lie on the same side of the transversal.	∠4 and ∠5 ∠3 and ∠6	
Corresponding angles lie on the same side of the transversal t and in corresponding positions.	∠1 and ∠5 ∠4 and ∠8 ∠2 and ∠6 ∠3 and ∠7	
Alternate exterior angles are nonadjacent exterior angles that lie on opposite sides of the transversal.	∠1 and ∠7 ∠2 and ∠8	

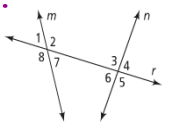
Example 1: Name pairs of:

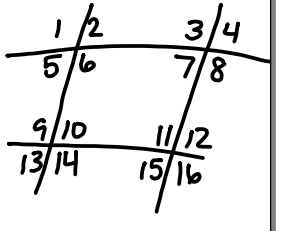
a. corresponding angles
∠8 and ∠6 ∠7 and ∠5
∠4 and ∠2 ∠1 and ∠3

b. alternate interior angles
∠2 and ∠6
∠7 and ∠3

c. alternate exterior angles
∠8 and ∠4
∠1 and ∠5

d. same-side interior angles
∠2 and ∠3
∠7 and ∠6





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Name

3.1 Day 2

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Notes 3.2