Unit 1

- **Angles and Parallel Lines**

MGSE8.G.5:

Use informal arguments to establish facts about the angle sum and exterior angle of triangles, when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

Remember these words? Write them!!

Complementary Angles – 2 angles that = 90°

Supplementary Angles – 2 angles that = 180°

Vertical Angles – 2 angles across the vertex

Parallel Lines – 2 lines that never touch

Congruent – Geometry word for equal ($\cong$)

What is the angle measure of a straight line? 180°

Think About these words!!

Alternate – **opposite or different**

Consecutive – **in a row or order**

Exterior – **outside**

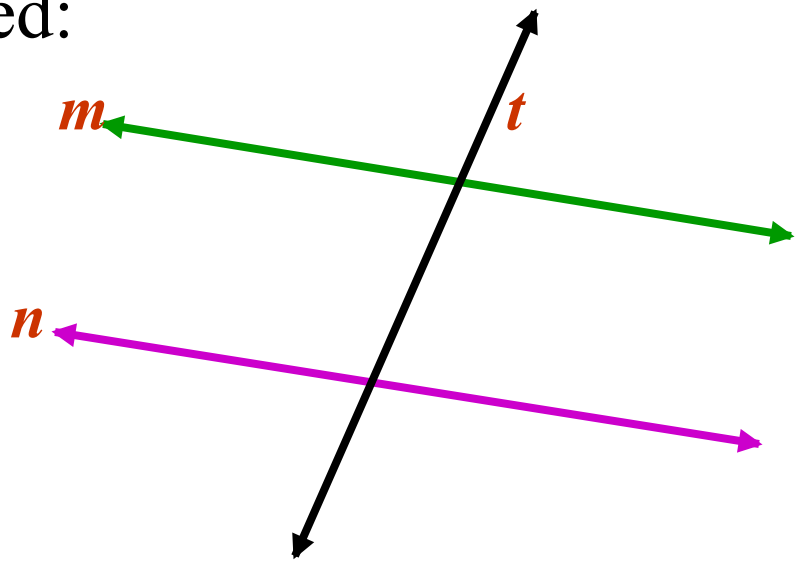
Interior – **inside**

Transversal

Definition: A line that intersects two or more lines in a plane at different points is called a transversal.

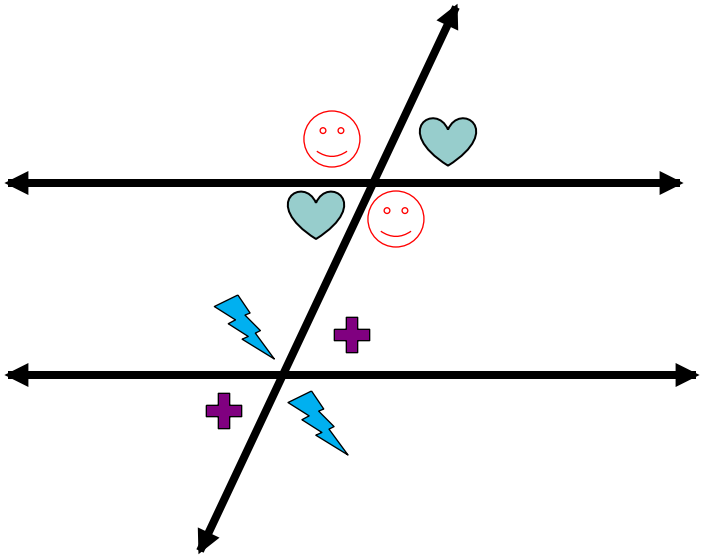
- When a transversal *t* intersects line *n* and *m*, angles of the following types are formed:

Vertical angles
Linear Pairs
Consecutive interior angles
Alternate interior angles
Consecutive exterior angles
Alternate exterior angles
Corresponding angles



Vertical Angles

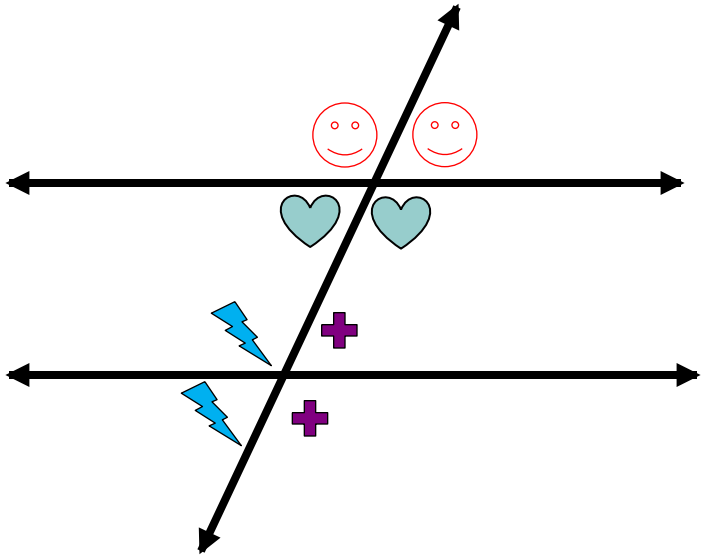
Two angles in the ***same group*** that are ***across the vertex*** from each other. These angles are ***congruent***.



Linear Pair

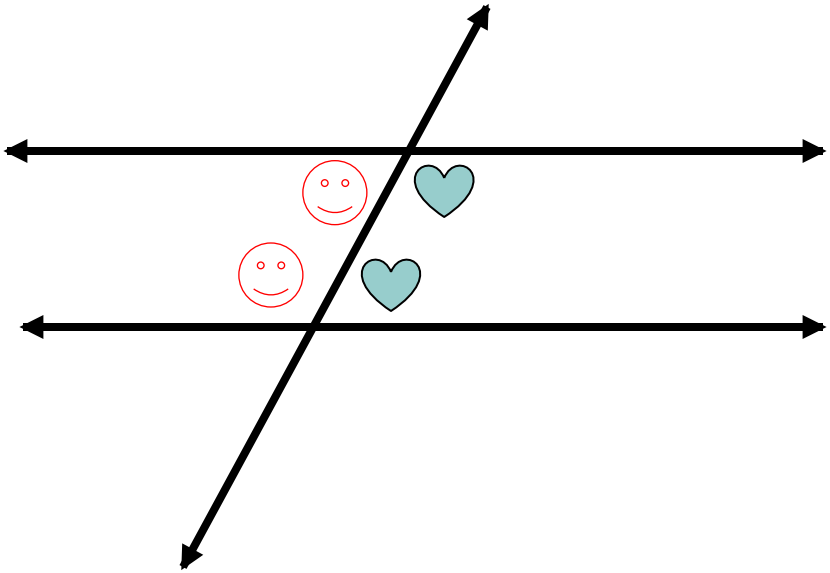
- **Linear Pair:**

  Two angles in the ***same group*** that are ***side-by-side***. A Linear Pair is ***supplementary*** [angles that form a **line** (sum = 180°)].



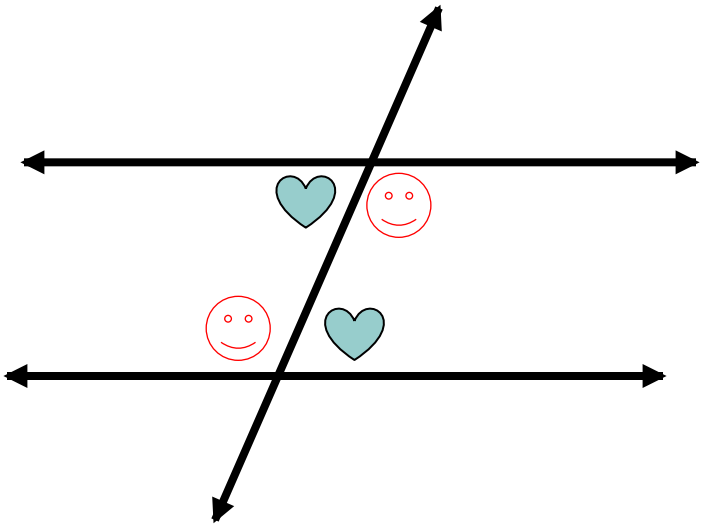
Consecutive Interior Angles

Consecutive Interior Angles: Two angles in a ***different groups*** , ***inside*** the parallel lines and are on the ***same side*** of the transversal. These angles are ***supplementary*** (=180°).



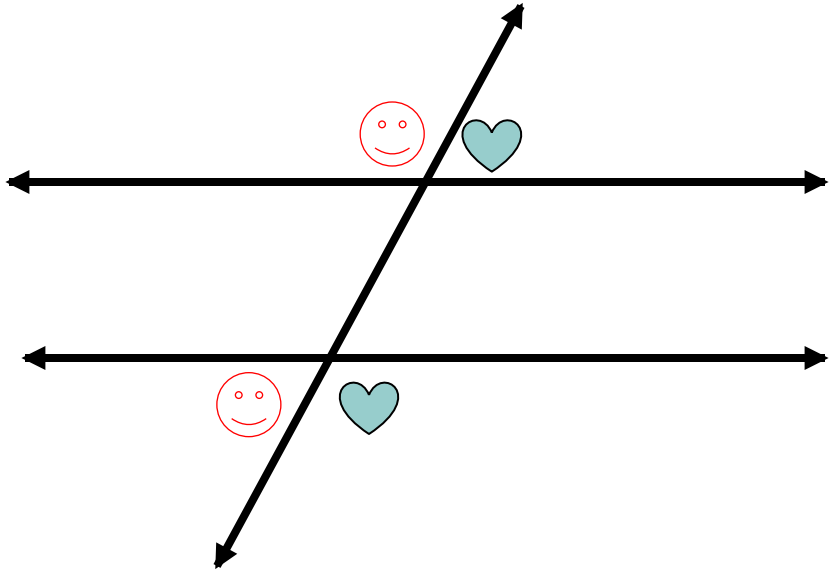
Alternate Interior Angles

- **Alternate Interior Angles:** Two angles that are in ***different groups*** , ***inside*** the parallel lines and are on ***different sides*** of the transversal. These angles are ***congruent***.



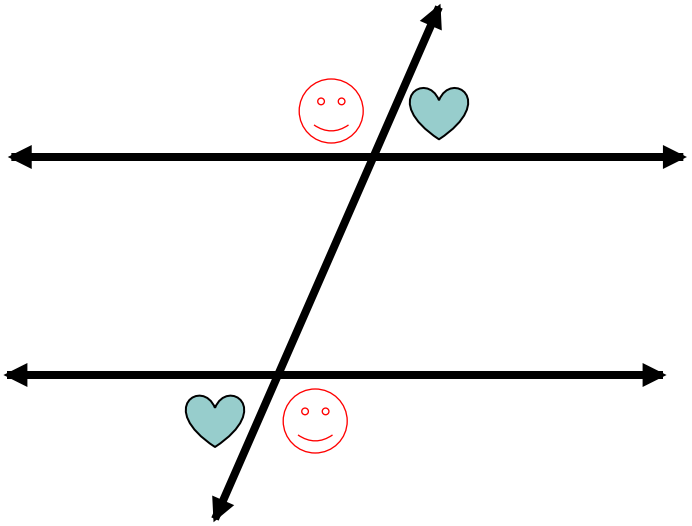
Consecutive Exterior Angles

- **Consecutive Exterior Angles:** Two angles in ***different groups***, ***outside*** the parallel lines and are on the ***same side*** of the transversal. These angles are ***supplementary*** (= 180°).



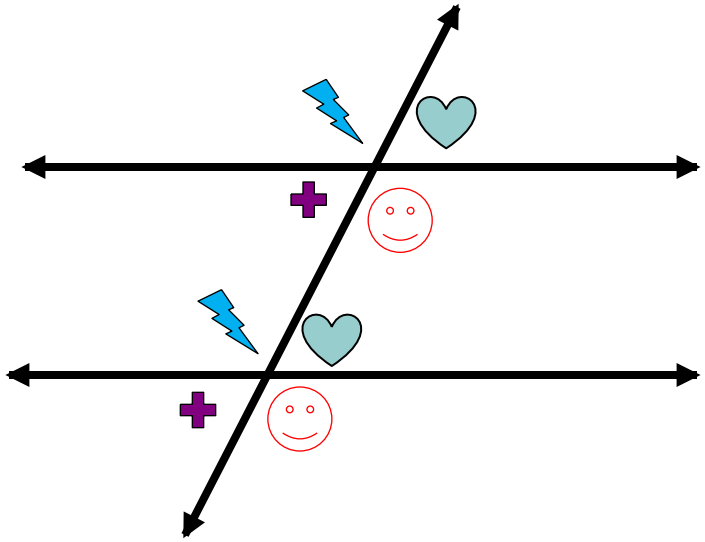
Alternate Exterior Angles

- **Alternate Exterior Angles:** Two angles in ***different groups***, ***outside*** the parallel lines and are on ***different sides*** of the transversal. The angles are ***congruent***.



Corresponding Angles

Corresponding Angles: Two angles in ***different groups***, but in the same position in their group. One angle is ***inside*** the parallel lines and the other angle is ***outside*** of the parallel lines. These angles are ***congruent***.



Angles and Parallel Lines

- If two parallel lines are cut by a transversal, then the following pairs of angles are **congruent**.

1. Corresponding angles
2. Alternate interior angles
3. Alternate exterior angles

- If two parallel lines are cut by a transversal, then the following pairs of angles are **supplementary**.

1. Consecutive interior angles
2. Consecutive exterior angles
3. Linear Pair