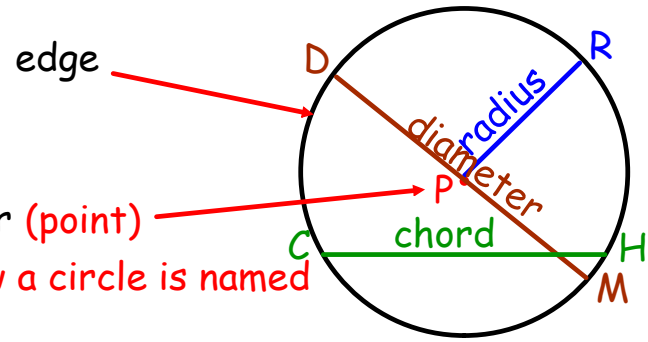
## Basic parts of circles:




## segments in circles

radius - center to point on edge
$\overline{PR}$

diameter $\overline{DM}$
- endpoints on edge and through the center

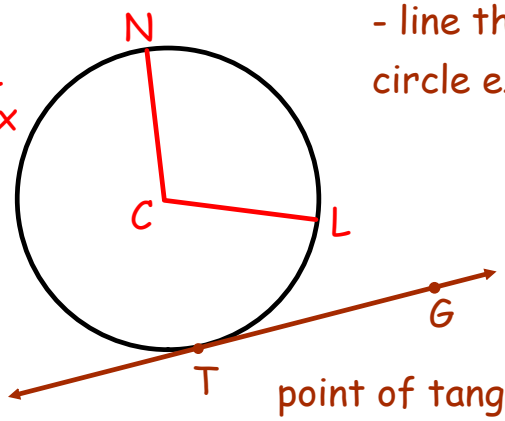
chord $\overline{CH}$
- endpoints on edge

## tangent line

- line that touches the circle exactly once

$\overleftrightarrow{TG}$

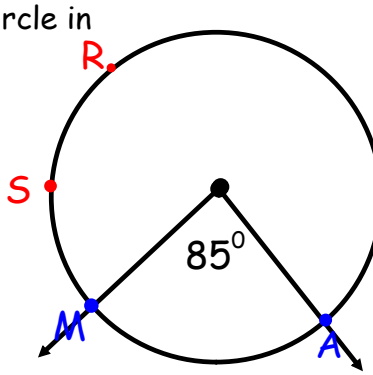
central angle ∠NCL
- angle with vertex at the center



## arcs on a circle

arc - two endpoints on the edge and the part of the circle in between

arcmeasure
- the degrees of the central angle through the same endpoints




## types of arcs

semicircle $\overset{\frown}{SRC}$
- arc with endpoints that make a diameter
$m\overset{\frown}{SRC} = 180^0$

minor arc $\overset{\frown}{MA}$
- arc smaller than a semicircle $m\overset{\frown}{MA}=85^0$

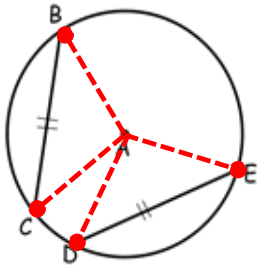
major arc
- arc bigger than a semicircle

- Properties of chords and tangent lines:

Congruent chord properties:

- If two chords on a circle are congruent, they determine congruent central angles and congruent arcs.

so, $\angle CAB \cong \angle DAE$ and $\overset{\frown}{BC} \cong \overset{\frown}{DE}$



Investigation I :

Step 1: Draw a chord on the coffee filter.

Step 2: Fold the chord in half and make a crease across the coffee filter. Trace the crease.

Step 3: Draw a different chord on the coffee filter.

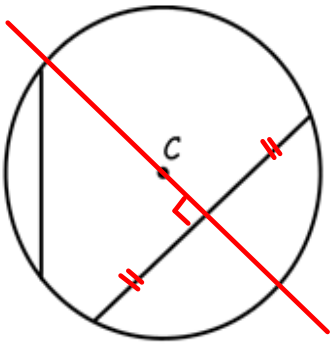
Step 4: Fold the second chord in half and make another crease across the coffee filter.

Trace that crease.

Step 5: Label the point of intersection of the two creases, C.

The perpendicular bisector of a chord ALWAYS

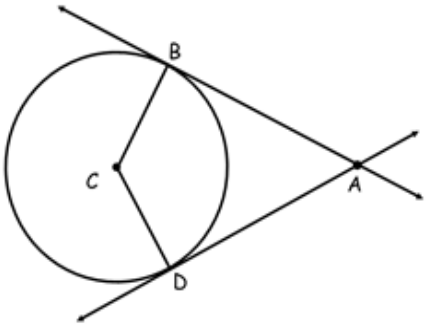
goes through the center.




With two chords you can find the center of any circle

Tangent line properties:

- A tangent line to a circle is ALWAYS perpendicular to the radius.
  so. $m\angle ABC = 90^0$
- Tangent segments to a circle from a point outside the circle are congruent.




so, $\overline{AB}$ $\overline{AD}$