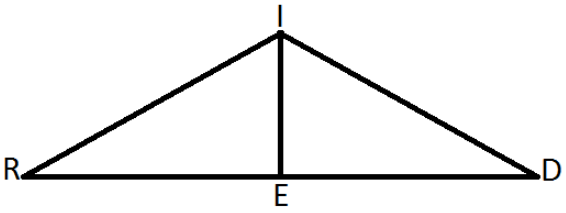
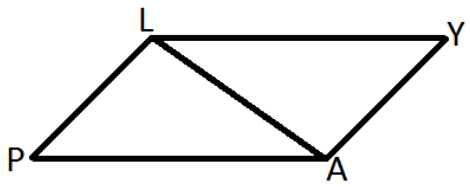
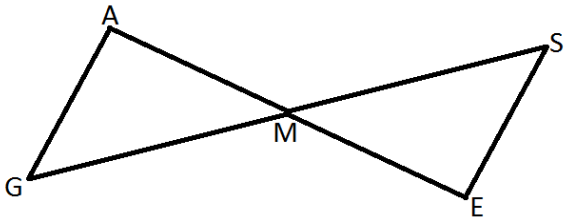
CONGRUENT TRIANGLES PROOF PUZZLES

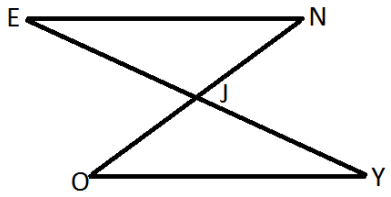
Directions

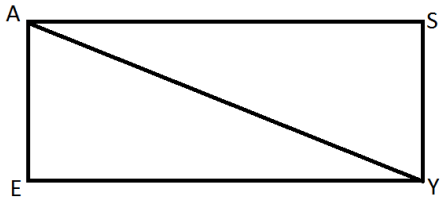
On each of the following pages, cut each card apart and place into a cup or Ziploc baggie. Students are to take the baggie and determine how to arrange the cards into a coherent proof. They can then copy the proof into their notebooks or on paper to turn in.

GIVEN: E is the midpoint of RD; $\overline{RI} \cong \overline{DI}$ **PROVE**: $\Delta REI \cong \Delta DEI$	
E is the midpoint of RD	Given
$\overline{RE} \cong \overline{DE}$	Definition of Midpoint
$\overline{IE} \cong \overline{IE}$	Reflexive Property of Congruence

$\overline{RI} \cong \overline{DI}$	Given
$\Delta REI \cong \Delta DEI$	SSS Triangle Congruence Theorem
GIVEN: $\overline{PL} \parallel \overline{AY}$; $\overline{PA} \parallel \overline{LY}$ **PROVE:** $\Delta ALP \cong \Delta LAY$	
$\overline{PL} \parallel \overline{AY}$; $\overline{PA} \parallel \overline{LY}$	Given
$\angle PLA \cong \angle YAL$	If two parallel lines are cut by a transversal, then alternate interior angles are congruent
$\angle PAL \cong \angle YLA$	If two parallel lines are cut by a transversal, then alternate interior angles are congruent

$\overline{LA} \cong \overline{LA}$	Reflexive Property of Congruence
$\Delta ALP \cong \Delta LAY$	ASA Triangle Congruence Theorem
GIVEN: M is the midpoint of $\overline{AE}$ and $\overline{GS}$ **PROVE:** $\Delta ALP \cong \Delta LAY$	
M is the midpoint of $\overline{AE}$ and $\overline{GS}$	Given
$\overline{AM} \cong \overline{ME}$	Definition of midpoint
$\overline{GM} \cong \overline{MS}$	Definition of midpoint

$\angle GMS \cong \angle EMS$	Vertical angles are congruent
$\Delta ALP \cong \Delta LAY$	SAS Triangle Congruence Theorem
GIVEN: J is the midpoint of $\overline{ON}$ $\overline{EN} \parallel \overline{YO}$ **PROVE:** $\Delta JOY \cong \Delta JNE$	
$\overline{EN} \parallel \overline{YO}$	Given
$\angle E \cong \angle Y$	If two parallel lines are cut by a transversal, then alternate interior angles are congruent
$\angle O \cong \angle N$	If two parallel lines are cut by a transversal, then alternate interior angles are congruent
J is the midpoint of $\overline{ON}$	Given

$\overline{OJ} \cong \overline{JN}$	Definition of midpoint
$\Delta JOY \cong \Delta JNE$	AAS Triangle Congruence Theorem
GIVEN: EASY is a rectangle **PROVE:** $\Delta SAY \cong \Delta EYA$	
EASY is a rectangle	Given
$\overline{EA} \cong \overline{SY}$	Opposite Sides of a Rectangle are Congruent
$\overline{AS} \cong \overline{EY}$	Opposite Sides of a Rectangle are Congruent

$\overline{AY} \cong \overline{AY}$	Reflexive Property of Congruence
$\Delta SAY \cong \Delta EYA$	SSS Triangle Congruence Theorem