

MYSTERY PICTURE



CORRESPONDING PARTS OF CONGRUENT FIGURES

Corresponding Parts of Congruent Figures

25 statements, no drawings · read the letters · a picture appears

FREE

1 $\triangle ABC \cong \triangle DFE$ $BC \cong FE$	2 $\triangle JKL \cong \triangle PQR$ $\angle L \cong \angle R$	3 $\triangle MNP \cong \triangle SUT$ $m\angle N = m\angle U$	4 $\triangle DEF \cong \triangle KLJ$ $\triangle EFD \cong \triangle LJK$	5 $\triangle GHJ \cong \triangle QRP$ $GH \cong PQ$
6 $\triangle RST \cong \triangle ACB$ $ST = CB$	7 $\triangle ABC \cong \triangle EFD$ $\angle BAC \cong \angle EFD$	8 $\triangle KLM \cong \triangle XZY$ $\triangle LMK \cong \triangle XZY$	9 $\triangle PQR \cong \triangle FDE$ $\angle Q \cong \angle E$	10 $\triangle JKL \cong \triangle STU$ $\triangle JKL \cong \triangle UTS$
11 $\triangle TUW \cong \triangle HGJ$ $\angle T \cong \angle H$	12 $\triangle BCD \cong \triangle MKL$ $\triangle DCB \cong \triangle LKM$	13 $\triangle EFG \cong \triangle SRT$ $FG \cong RT$	14 $\triangle HJK \cong \triangle BAC$ $\angle HJK \cong \angle BAC$	15 $\triangle CDE \cong \triangle NLM$ $CD \cong LM$
16 $\triangle QRS \cong \triangle CAB$ $\angle RQS \cong \angle CAB$	17 $\triangle GHK \cong \triangle PNM$ $HK \cong NP$	18 $\triangle JKM \cong \triangle UTS$ $\angle K \cong \angle S$	19 $\triangle LMN \cong \triangle QPR$ $NL = RQ$	20 $\triangle PQR \cong \triangle YXZ$ $m\angle P = m\angle Y$
21 $\triangle FGH \cong \triangle KJL$ $\triangle KJL \cong \triangle FGH$	22 $\triangle RST \cong \triangle DFE$ $\angle R \cong \angle D$	23 $\triangle DEG \cong \triangle RQP$ $EG = QP$	24 $\triangle LMP \cong \triangle CBA$ $\triangle MPL \cong \triangle BAC$	25 $\triangle ABC \cong \triangle KLJ$ $\triangle BCA \cong \triangle JKL$

Mystery Picture — how to run it

25–35 minutes

1. **Give each student page 3** and a pencil.
2. **Say this once:** *“Each square has a statement and a claim. Does the statement say the claim is true? If yes, fill the square with slanted lines. If no, leave it white.”*
3. **Let them work.** The picture shows when they are right. Nothing else is needed.

Student sheet page 3, one per student.

Answers page 4 — yours.

No square has a drawing. Students find the matching parts from the congruence statement alone. The claims are pairs of sides, pairs of angles (named by one letter or by three), pairs of measures written with an equals sign, and other ways of writing the whole statement.

Each white square tests a common mistake. Some students put both names in alphabetical order and pair the letters that way. Some name a three-letter angle whose middle letter is not the matching corner. Some reorder one name of the statement and not the other. Some filled squares test the opposite mistake, the belief that a statement can be written only one way. They show a side named backward (NL instead of LN), the two triangles swapped, or both names reordered in the same way. Fifteen squares are filled.

If part of a student's picture looks wrong, the mistake is in that square. Ask: *“Write the two names one above the other. Which letter is under the letter in the claim?”*

Guessing does not work. Every simple guessing rule, such as filling every square with an equals sign, gets at least ten squares wrong. A student who matches letters by place correctly, but believes a statement can never be reordered, still gets three squares wrong.



This is the free lesson this activity came from. The worksheet, the full answers and the lesson plan are on it, at three levels of difficulty.

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Mystery Picture — who goes with whom?

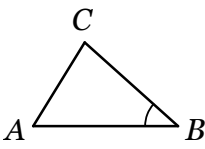
Corresponding parts

Name _____

Period _____

Date _____

Each square has a congruence statement and a claim under it. **Does the statement say the claim is true? If yes, fill the square with slanted lines. If no, leave it white.** No square has a drawing. Use only the letters. When you finish, a picture appears. If part of it is missing, or one square does not fit, check that square again.



The stack test. Write the two names one above the other.

$\triangle$	A	B	C
$\triangle$	D	E	F

Letters in the same column are partners. A goes with D. AB goes with DE.
An angle has its corner in the middle: $\angle ABC$ is the angle at B. It goes with $\angle DEF$.

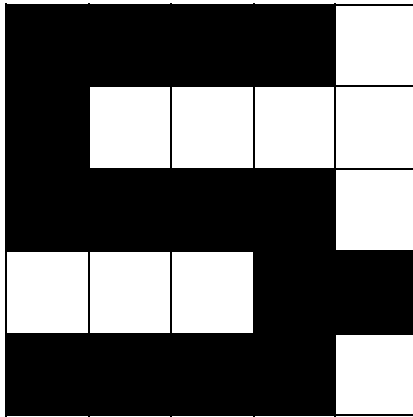
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Mystery Picture — answers

For the teacher



The finished picture is **the number 5**. Fifteen squares are filled.

To find the partners, read the two names of the statement in order. The first letters go together, then the second letters, then the third letters. The table gives the reason for every square.

	Statement	Claim	Answer	Why
1	$\triangle ABC \cong \triangle DFE$	$BC \cong FE$	fill	B goes with F and C with E, so BC goes with FE.
2	$\triangle JKL \cong \triangle PQR$	$\angle L \cong \angle R$	fill	The angle at L goes with the angle at R.
3	$\triangle MNP \cong \triangle SUT$	$m\angle N = m\angle U$	fill	The angle at N goes with the angle at U.
4	$\triangle DEF \cong \triangle KLJ$	$\triangle EFD \cong \triangle LJK$	fill	It keeps every pair: E still goes with L, F with J and D with K.
5	$\triangle GHJ \cong \triangle QRP$	$GH \cong PQ$	white	G goes with Q and H with R, so GH goes with QR, not PQ.
6	$\triangle RST \cong \triangle ACB$	$ST = CB$	fill	S goes with C and T with B, so ST goes with CB.
7	$\triangle ABC \cong \triangle EFD$	$\angle BAC \cong \angle EFD$	white	The angle at A goes with the angle at E, not the angle at F.
8	$\triangle KLM \cong \triangle XZY$	$\triangle LMK \cong \triangle XZY$	white	It pairs L with X, but the statement pairs L with Z.
9	$\triangle PQR \cong \triangle FDE$	$\angle Q \cong \angle E$	white	The angle at Q goes with the angle at D, not the angle at E.
10	$\triangle JKL \cong \triangle STU$	$\triangle JKL \cong \triangle UTS$	white	It pairs J with U, but the statement pairs J with S.
11	$\triangle TUW \cong \triangle HGJ$	$\angle T \cong \angle H$	fill	The angle at T goes with the angle at H.
12	$\triangle BCD \cong \triangle MKL$	$\triangle DCB \cong \triangle LKM$	fill	It keeps every pair: D still goes with L, C with K and B with M.
13	$\triangle EFG \cong \triangle SRT$	$FG \cong RT$	fill	F goes with R and G with T, so FG goes with RT.
14	$\triangle HJK \cong \triangle BAC$	$\angle HJK \cong \angle BAC$	fill	The angle at J goes with the angle at A.
15	$\triangle CDE \cong \triangle NLM$	$CD \cong LM$	white	C goes with N and D with L, so CD goes with NL, not LM.
16	$\triangle QRS \cong \triangle CAB$	$\angle RQS \cong \angle CAB$	white	The angle at Q goes with the angle at C, not the angle at A.
17	$\triangle GHK \cong \triangle PNM$	$HK \cong NP$	white	H goes with N and K with M, so HK goes with NM, not NP.
18	$\triangle JKM \cong \triangle UTS$	$\angle K \cong \angle S$	white	The angle at K goes with the angle at T, not the angle at S.
19	$\triangle LMN \cong \triangle QPR$	$NL = RQ$	fill	N goes with R and L with Q, so NL goes with RQ.
20	$\triangle PQR \cong \triangle YXZ$	$m\angle P = m\angle Y$	fill	The angle at P goes with the angle at Y.
21	$\triangle FGH \cong \triangle KJL$	$\triangle KJL \cong \triangle FGH$	fill	It keeps every pair: K still goes with F, J with G and L with H.
22	$\triangle RST \cong \triangle DFE$	$\angle R \cong \angle D$	fill	The angle at R goes with the angle at D.
23	$\triangle DEG \cong \triangle RQP$	$EG = QP$	fill	E goes with Q and G with P, so EG goes with QP.
24	$\triangle LMP \cong \triangle CBA$	$\triangle MPL \cong \triangle BAC$	fill	It keeps every pair: M still goes with B, P with A and L with C.
25	$\triangle ABC \cong \triangle KLJ$	$\triangle BCA \cong \triangle JKL$	white	It pairs B with J, but the statement pairs B with L.