

MYSTERY PICTURE

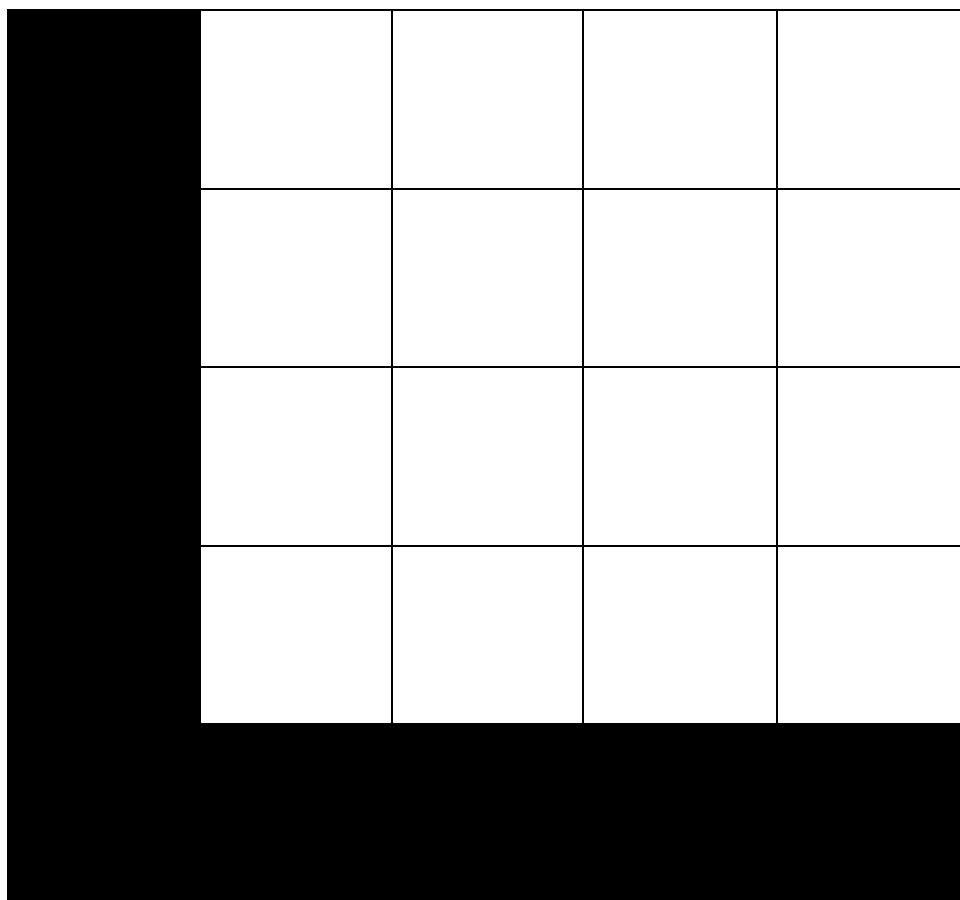


MEASURING AND CLASSIFYING ANGLES

Obtuse or Not? Believe the Number

25 angles · acute, right, obtuse, straight · one wrong square shows in
the picture

FREE



1. **Hand out page 3.** No protractors are needed. Every square can be decided without one.
2. **Say this once:** *“Obtuse means more than 90 and less than 180. If a number is printed, believe the number. Believe it even if the drawing looks different. A little square means exactly 90. If nothing is printed, use your eyes.”*
3. **Fill a square with slanted lines if its angle is obtuse. Leave it white if it is not.** A picture appears. Nine of the 25 are filled.

Student sheet page 3, one per student. The four classes are printed on it as four pictures.
Answers page 4. It shows the finished picture and the reason for every square.

How each square is decided. Twelve squares have a number printed, two have a little square, and eleven have nothing at all. Every angle with nothing printed is drawn at least 20° away from 0° , 90° and 180° , so the eye can decide it. An angle close to 90° or 180° always has its number printed, because only a protractor could tell. **Four angles are drawn on purpose not to scale.** The number names one kind of angle, and the drawing clearly shows another. The number is what counts.

The white squares test common wrong beliefs. Many students think that 89° or 87° is a right angle because it looks like one. Many also think that a right angle must have the little square or must stand upright like an L. Others think that a straight angle must be level. Some judge an angle by how long or thick its arms are. The filled squares change only things that do not matter: the direction, and the length or thickness of the arms. Some of them are just over 90° and look like right angles. Only one of the 25 angles has a horizontal arm.

What goes wrong, and how it shows. A student who judges every angle by its look gets eight squares wrong, and one who fills every square with a number over 90 printed gets seven wrong. A student who does everything right but calls 180° obtuse gets two squares wrong. These mistakes show clearly in the picture.



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

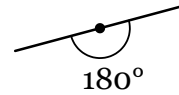
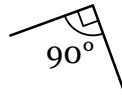
Obtuse or not?

Name _____

Period _____

Date _____

Obtuse means more than 90° and less than 180° . Fill the square with slanted lines if its angle is obtuse. If it is acute, right or straight, leave it white. A number printed on an angle is its measure. Believe it, even if the drawing looks different. A little square means exactly 90° . With nothing printed, trust your eye. A picture appears. If it does not look right, one square is wrong.



acute

right

obtuse

straight

1 	2 	3 	4 	5
6 	7 	8 	9 	10
11 	12 	13 	14 	15
16 	17 	18 	19 	20
21 	22 	23 	24 	25

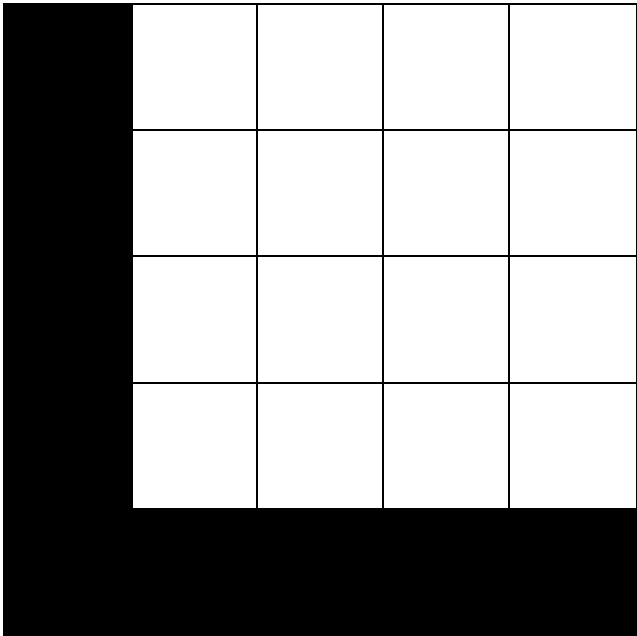


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Mystery Picture — answers

For the teacher

The finished picture is **the letter L — straight down the left side and a bar across the bottom.**
The table reads left to right, the same way as the student's sheet. The squares are numbered on the student's sheet.



1–5	FILL Obtuse, opening downward.	white 89°. It looks like a right angle.	white 87°. It looks like a right angle.	white Right angle (little square), opening left.	white Right angle (little square), drawn at a slant.
6–10	FILL Obtuse, drawn at a slant.	white 90° printed, with no little square.	white Straight angle, drawn at a slant.	white Acute, with long arms.	white Acute, with thick arms.
11–15	FILL Obtuse, with thick arms.	white Acute, with very short arms.	white 50°, drawn obtuse. Believe the number.	white 65°, drawn obtuse. Believe the number.	white Acute, drawn at a slant.
16–20	FILL Obtuse, with very short arms.	white Acute, opening downward.	white Acute, with one arm horizontal.	white Straight angle, drawn at a slant.	white Acute, drawn at a slant.
21–25	FILL 91°. It looks like a right angle.	FILL 94°. It looks like a right angle.	FILL 130°, drawn acute. Believe the number.	FILL 160°, drawn acute. Believe the number.	FILL Obtuse, opening downward.