Name _____

# Agenda 1/28/14

## Standard:

- **8.G.A.** Understand Congruence and similarity using physical models, transparencies, or geometry software.

## Essential Questions:

- **How can I use Symmetry to describe shapes and properties in a design or problem ?**

## Activities

1. **Warm up – Multiplication sheet(5 – 10 min)**
2. **Symmetry Inv 1.1**
3. **CrossWord**
4. **WordSearch**
5. **Exit Ticket**

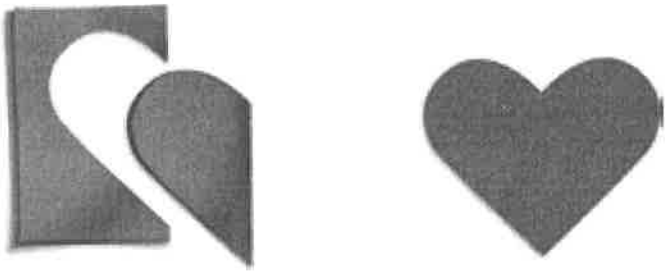
# Multiplication Facts to 81 (C)

Determine each product.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6 × 1 | 4 × 1 | 6 × 3 | 9 × 7 | 1 × 8 | 6 × 6 | 6 × 5 | 9 × 4 | 6 × 8 |
| 9 × 9 | 1 × 6 | 4 × 2 | 2 × 7 | 3 × 1 | 7 × 2 | 4 × 4 | 5 × 9 | 8 × 4 |
| 9 × 1 | 8 × 1 | 6 × 4 | 2 × 3 | 2 × 1 | 3 × 7 | 5 × 7 | 2 × 2 | 7 × 5 |
| 3 × 4 | 5 × 6 | 1 × 1 | 1 × 9 | 9 × 5 | 4 × 8 | 7 × 8 | 2 × 4 | 6 × 9 |
| 3 × 9 | 2 × 8 | 4 × 9 | 8 × 6 | 4 × 6 | 5 × 2 | 1 × 4 | 8 × 8 | 8 × 9 |
| 3 × 8 | 9 × 3 | 7 × 1 | 5 × 3 | 5 × 1 | 7 × 6 | 7 × 3 | 7 × 9 | 7 × 7 |
| 9 × 6 | 1 × 7 | 7 × 4 | 9 × 2 | 2 × 5 | 5 × 4 | 5 × 5 | 9 × 8 | 2 × 9 |
| 8 × 7 | 3 × 5 | 2 × 6 | 8 × 5 | 3 × 3 | 4 × 7 | 4 × 3 | 6 × 2 | 1 × 5 |
| 1 × 2 | 4 × 5 | 5 × 8 | 3 × 6 | 3 × 2 | 6 × 7 | 1 × 3 | 8 × 3 | 8 × 2 |

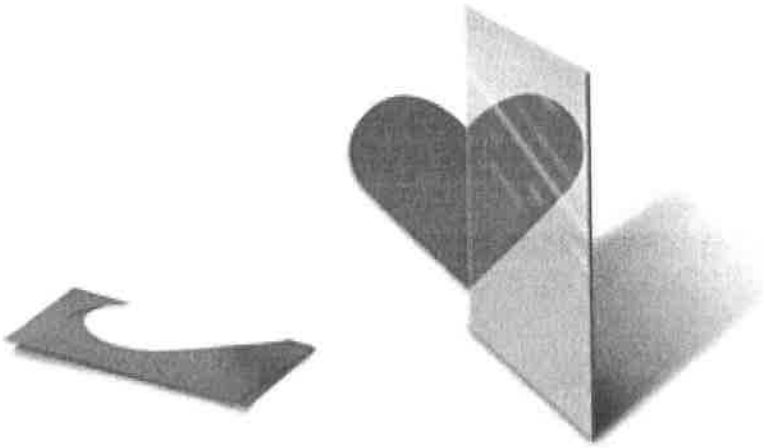
# 1.1 Reflection Symmetry

You have probably made simple heart shapes by folding and cutting paper as shown below.



The resulting heart shape has **reflection symmetry,** which is sometimes called *mirror symmetry* or *line symmetry*. The fold shows the **line of symmetry.** A line of symmetry divides a figure into halves that are mirror images.

If you place a mirror on a line of symmetry, you will see half of the figure reflected in the mirror. The combination of the half-figure and its reflection will have the same size and shape as the original figure. You can use a mirror to check a design for symmetry and to locate the line of symmetry.



You can also use tracing paper to check for reflection symmetry. Trace the figure and the possible line of symmetry. Then reflect the tracing over the possible line of symmetry. If the reflected tracing fits exactly on the original figure, the figure has reflection symmetry.

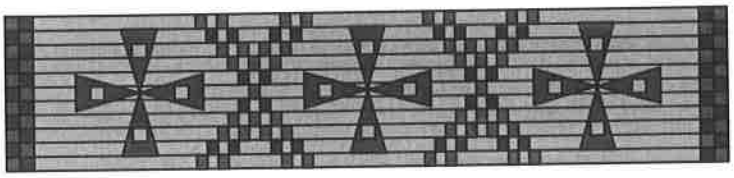
*What happens to the line of symmetry when you reflect the tracing and match it with the original figure? Does its location change?*

## Problem 1.1 Reflection Symmetry

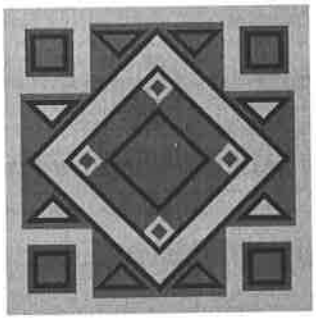
Use a mirror, tracing paper, or other tools to find all lines of symmetry in each design or figure.

**A.**

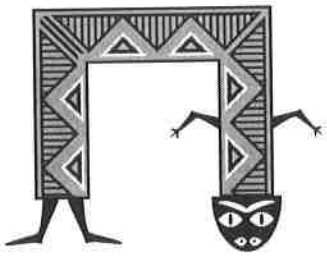
**B.**



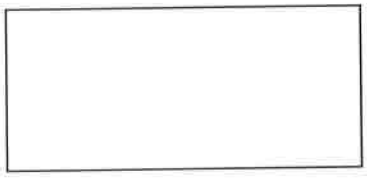
**C.**



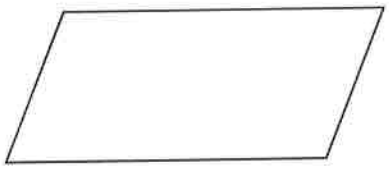
**D.**



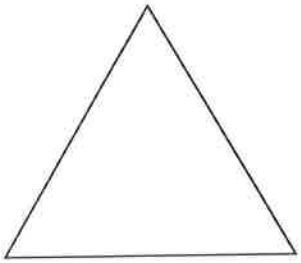
**E.**



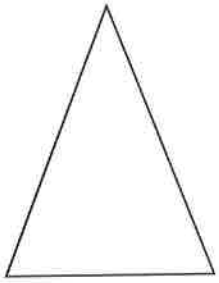
**F.**



**G.**



**H.**

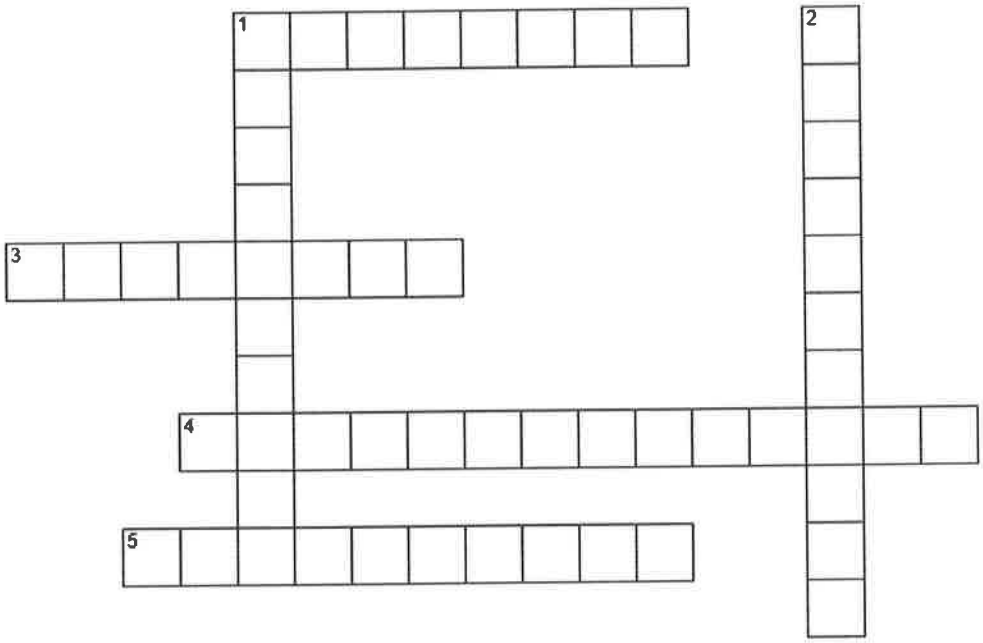


**ACE** Homework starts on page 15.

Name _____

# Crossword Puzzle

## Symmetry




ACROSS
1 If an object can be rotated less than a full turn about a point to a position in which it looks the same as the original.
3 If part of an object is repeated to produce a balanced pattern.
4 The line that divides a figure into halves that are mirror images.
5 If you can be slide, flip, or turn one figure so that it fits exactly on the other.

DOWN
1 If you can draw a line that divides the figure into halves that are mirror images.
2 If you can slide an object to a position in which it looks exactly the same as it did in its original position.

Name _____

# Word Search

## Symmetry

Y R T E M M Y S F O E N I L Z
N O I T A M R O F S N A R T N
N O I T A L S N A R T J J O C
D M G L Y X Y D P G Q N I O D
N O I T A T O R K V Y T N N G
Y D Y Z B W R R T R C G N Q Z
Y M N G Z D L D J E R D Q Q N
L K V T L B R K L U M D L N T
Q N Y Y Z L N F E W Z M T J Q
M Y X T D Z E N Y Y T M Y D D
Z P Z B Q R C J R Q K B G S N
T Z R B G E W B D K D B G Q L

Symmetry
Reflection
Line of Symmetry
Rotation
Translation
Congruence
Transformation

Name _____

# Exit Ticket

**Draw four objects that have rotation symmetry.**