NAME: _____

# M.C. ESCHER AND TESSELATIONS

Follow the instructions on this sheet and use the information at the websites to answer the following questions:

Type in the following address: www.mathacademy.com/pr/minitext/escher/

Click on INTRODUCTION.

1. When did M.C. Escher live? _____

2. What career did Escher first try to learn at school?
   _____

3. In what year did Escher become famous and what magazine wrote an article about him?
   _____
   _____

4. What did mathematicians find "remarkable" about Escher?
   _____
   _____

5. Scroll down to click on TESSELATIONS and read the next page. What are tessellations?
   _____
   _____
   _____

6. What inspired Escher in 1936?_____
   _____
   _____

7. What are the four methods that Escher used to create a greater variety of patterns (HINT: Read the sentence that starts off "Escher exploited these basic patterns…")?

   _____
   _____
   _____
   _____

8. Type in the following address:
   http://wayback.archive-it.org/3635/20130721014507/http://library.thinkquest.org/11750/eschpage/Tess1A.html

Underneath each of these pictures it tells you what the original shape was and what types of the four transformations were used (Your answer for number 7).

Go through the slides of tessellations by clicking on the forward arrow at the bottom and fill out the table below. For the last two lines you can choose any two of the other pictures that you like and fill in the information. Remember, you will be creating some of these yourself so really think about how they are created.

| NUMBER | ORIGINAL SHAPE | SHAPE OF COMPLETED WORK | TRANSFORMATIONS USED |
|---|---|---|---|
| 1A | Parallelograms | Butterflies | Translated (shifted) |
| 1B | Rombi | | |
| 1C | | | |
| 2A | Parallelograms | lizards | Translated and rotated |
| 2C | | | |
| 3A | | | |
| 3B | | | |
| 3C | | | |
| 4B | | | |
| | | | |
| | | | |

9. Type in the following address: www.worldofescher.com/gallery/  Scroll down to look at the art work presented on this page. Name three of Escher's artworks that were created using tessellations:

_____

_____

_____

10. In your opinion was M.C. Escher an artist, mathematician, both or neither? Explain your answer.

_____

_____

_____

_____

_____

ANSWERS:
1. Escher lived from June 17, 1898 to March 27, 1972.
2. He first went to school to be an architect.
3. Escher became famous in 1956 when Time magazine wrote about him.
4. Mathematicians found it remarkable that Escher had no formal math training beyond secondary school.
5. Tesselations are arrangements of closed shapes that completely cover the paper without overlapping or leaving gaps.
6. Escher was inspired by the tile patterns used in Alhambra in Spain.
7. He used reflections, glide reflections, translations and rotations.

| NUMBER | ORIGINAL SHAPE | SHAPE OF COMPLETED WORK | TRANSFORMATIONS USED |
|---|---|---|---|
| 1A | Parallelograms | Butterflies | Translated (shifted) |
| 1B | Rhombi | Insects | Translated |
| 1C | Rectangles | Fish and boats | Translated |
| 2A | Parallelograms | Lizards | Translated and rotated |
| 2C | Rectangles | Crabs | Translated and rotated |
| 3A | Parallelograms | Seahorses | Translated and rotated |
| 3B | Rhombi | Fish | Translated and glide reflected |
| 3C | Rectangles | Lizards | Translated and rotated |
| 4B | Rhombi | birds | Translated and glide reflected |
| | | | |
| | | | |

8. There are many on this page so answers will vary.
9. This is an opinion question so answers will vary-must back up their answer.