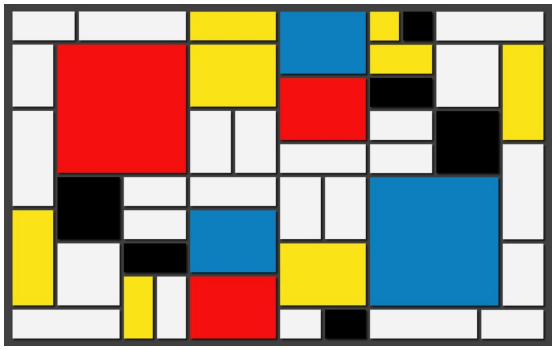
G1: Online Activity 1

Complete the following exercises in your **Math Notebook**. Feel free to discuss work with your group members.

1. Take this link and follow the instructions in the four boxes: http://www.geogebra.org/student/m92362
    a. In the “Reflection” box, describe the relationship between the two shapes when you move the shape on the left.
    b. In the “Reflection” box, describe what happens when you move the line between the two shapes.
    c. There is a mistake in the instructions in the rotation box. What do you think it is?
    d. In the “Translation” box, move the arrow so that it says approximately u = (-2, -2)” What do these numbers mean?

2. Explore a new type of transformation called “dilation”: https://www.geogebra.org/m/y7XgNvCd
    a. Describe what you think it means to *dilate* a shape.
    b. What happens when the dilation slider value is equal to 1?
    c. What happens when the slider value is less than 1?

3. Describe how geometry is involved in the three images below. Be specific as possible.
    a. Discuss transformations: reflection, translation, rotation, dilation.
    b. Describe any patterns you see in the images.



4. Take this link: http://www.geogebra.org/m/1595
    a. Click the “Show Image” box and rotate the object.
        i. Now move the center of rotation (the blue dot) from (-1, 1) to (0, 0) and describe how this changes the rotation of the object.

    b. Rotate the triangle 180 degrees about the point (0, 0).
        i. Is this also a reflection of the object? If so, what is the line of reflection?
        ii. If not, then can you find two reflections that produce this transformation?

    c. Move the center of rotation to (0, 2) and rotate the object 180 degrees. Find two lines of reflection that will produce the image.
        i. Can you find a translation and a reflection of the original that will produce the image?

5. If you finish early, research the artist Wassily Kandinsky.
    a. Is geometry involved in his work? Explain why.

6. Also research MC Escher. Explain how geometry is involved in his work.