Math Art Corner – circles and polygons - project 2

We will easily construct wonderful circle pattern!!!

Students' age:	10 years old student, second month in the new school , grade 5
Subject:	It is an afternoon club, each week 70 min. , Club is called Math and Art – digital and with paper, ruler and compass
Project idea:	Analyzing way of construction with nice given circle pattern, construct it with GeoGebra (changing it) and colourising it with an image editing program e.g. Paint.
Aims:	1) Students were introduced in Geogebra (first time) and should learn simple commands like circle with midpoint and point, semicircle, points of intersection, midpoint, hiding objects, colouring, …
	2) Analyzing geometric figures; discovering lines, segments, midpoints of segments, perpendicular lines that are important for construction
	3) Learning the simple use of an image editing software to colourize the construction (cut out by Snipping Tool and imported to Paint) and beeing creative to modify the original construction in a creative way.
Lesson plan:	1**)** It will be the first time that students use Geogebra. I will show them two nice pattern and tell them that these constructions can be easily done with GeoGebra.
	2) Students work 10 min. on the small tasks on their computers (see worksheet).
	3) Results of work are discussed, questions were answered.
	4) Steps of construction of the first pattern will be discussed commonly, construction will be done step by step on a with one computer using a video projector including cutting out the construction and importing it to paint.
	5) Students work on their own with the first pattern or with one of the other pattern on the worksheet. I have chosen a few because a free choice would cause problems. I only have chosen construction that use midpoints, squares (regular polygons) and semicircles.
	2) The students will write in German about the math behing this constructions (basic level) and their ideas how to create their piece of art., As they have started with English in the beginning of this school year, it will be up to me to translate their texts it in English.
	At the end of this project we will take pictures, exhibit the original work in a corner of our school hall. Students will draft a powerpoint for the TS.

Step 1: This is the original pattern!
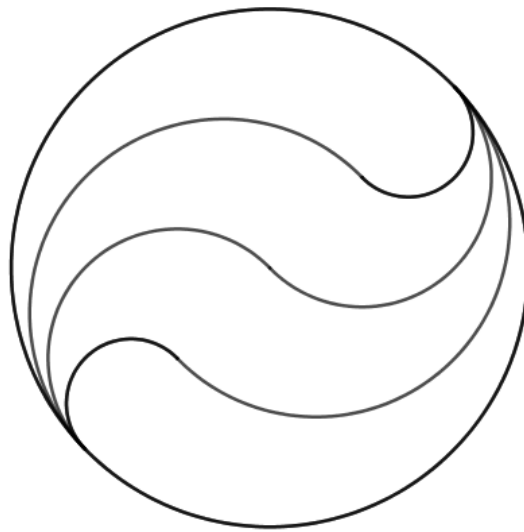
Step 2: Construction with GeoGebra is done!
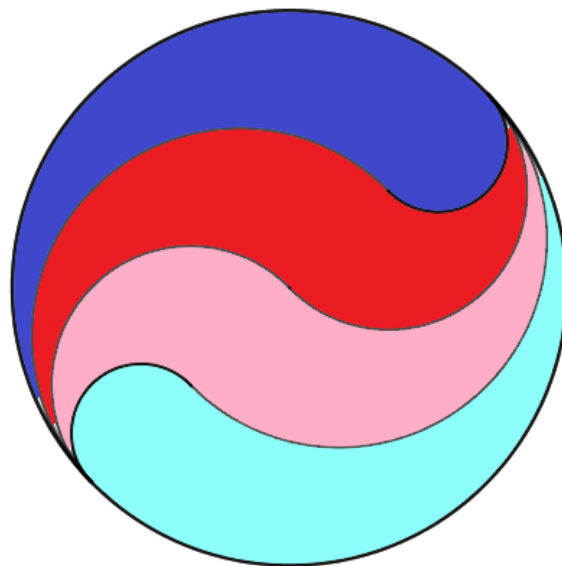
Step 3: The colourful result!

Monika Schwarze, Pestalozzi Gymnasium Unna (Germany), 2018

Project 2: Ying Yang, GeoGebra & wonderful pattern

In this project you will learn how to work with GEOGEBRA. You will get to know how to construct circles, half circles, midpoints and polygons. One of the best keys for beginners is the undo-option.

1) Chose a pattern or create your own one. Try to find all half circles , regular polygons and think what#s the best object to start with and construct the figure.
2) Hide all lines that you do not really need for the pattern. Cut out your construction if you like to color it with an imaging software.
3) Insert the picture in e.g. PAINT program and colour it. So that you will get a nice pattern.
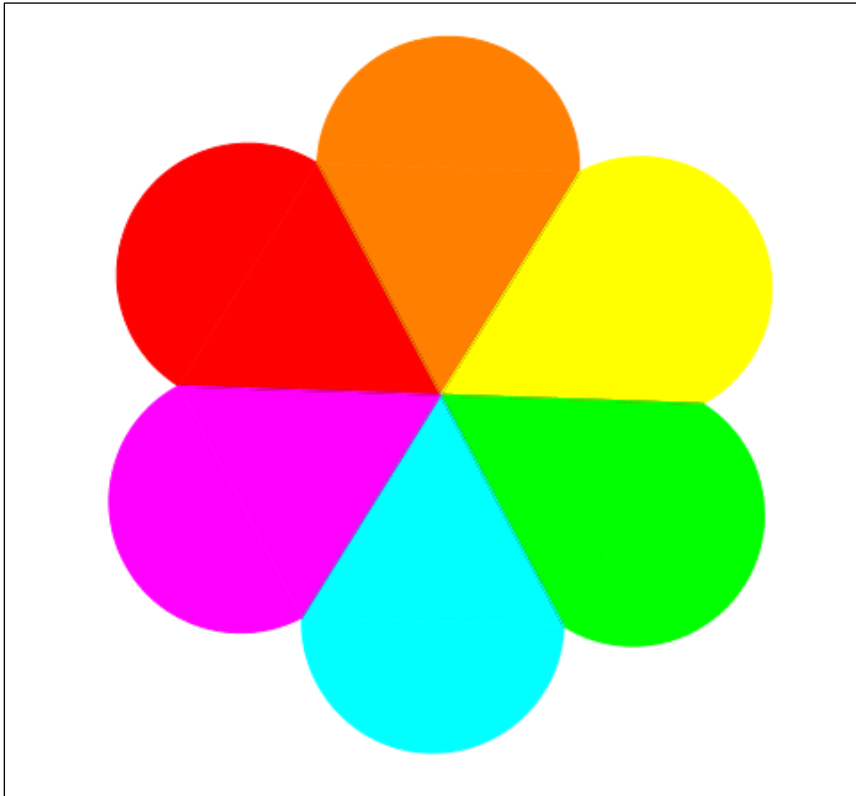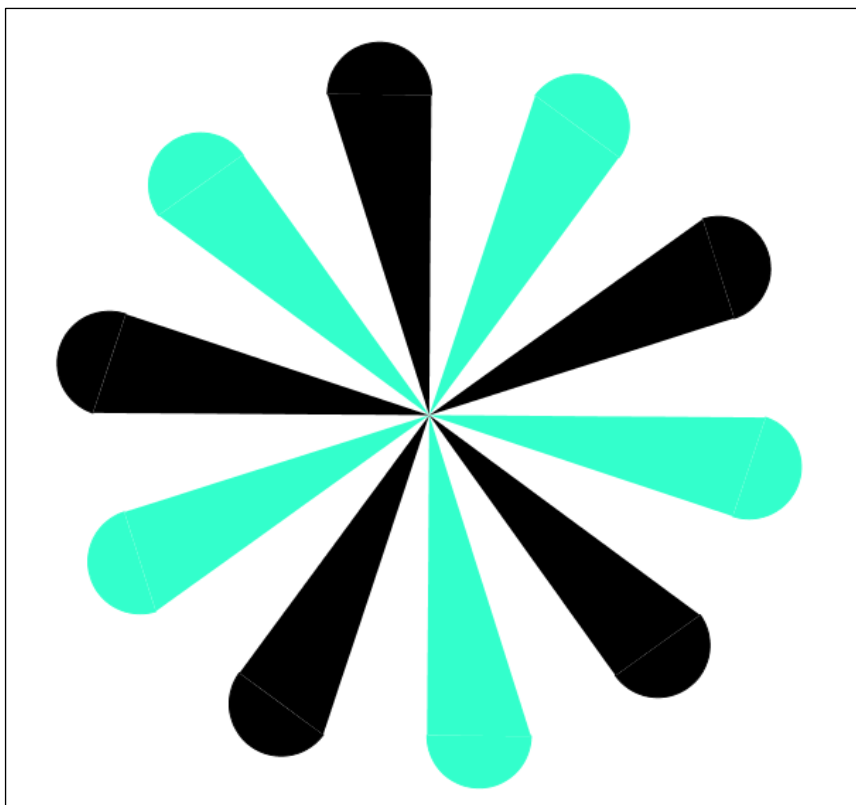
Have fun!

45°   R=0.25D
      R=0.25D
      D
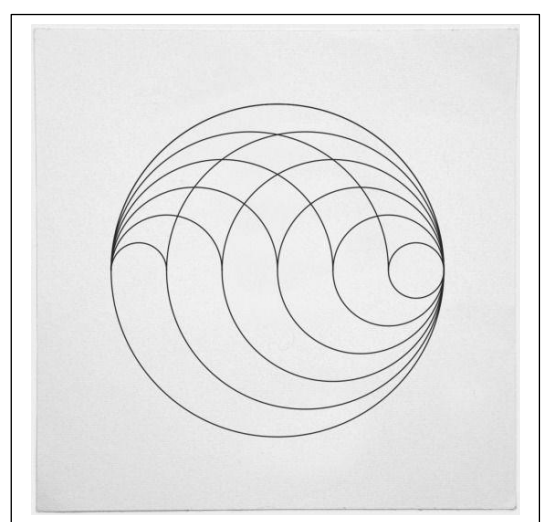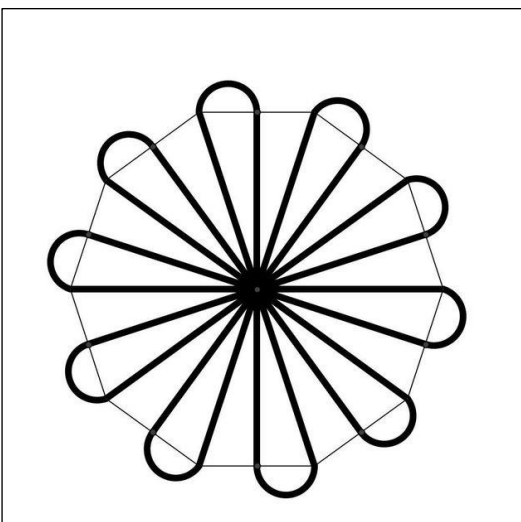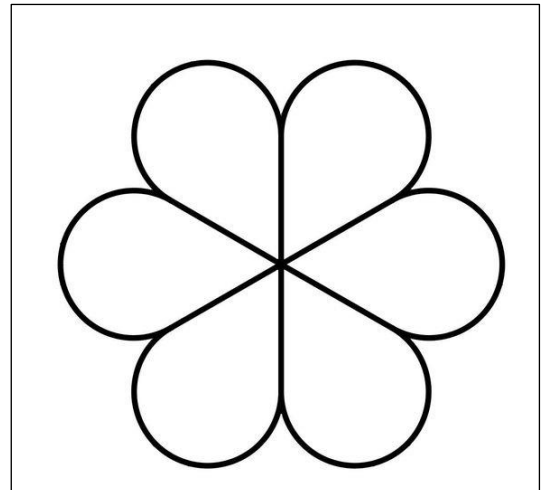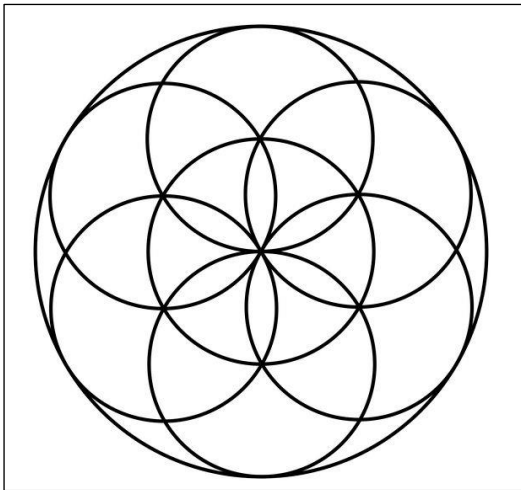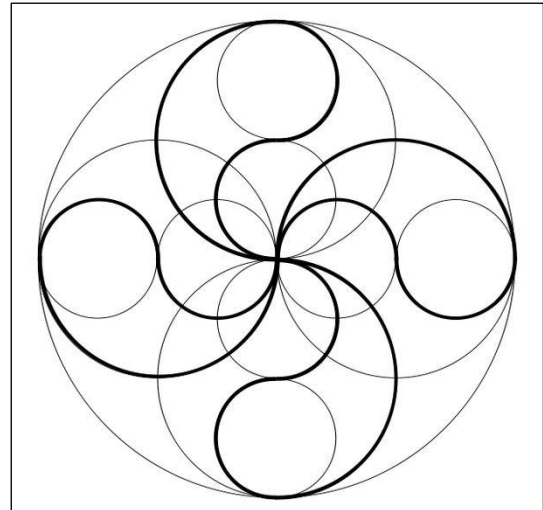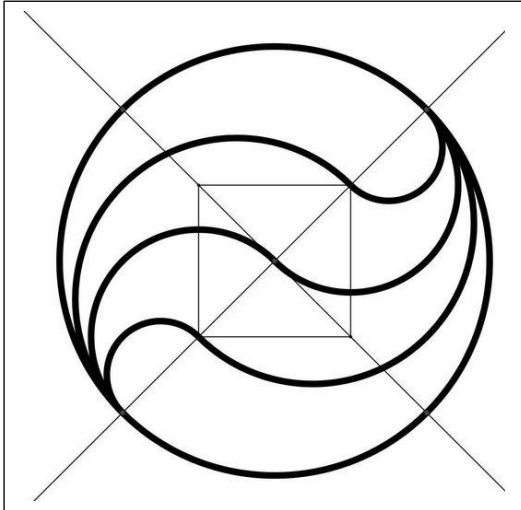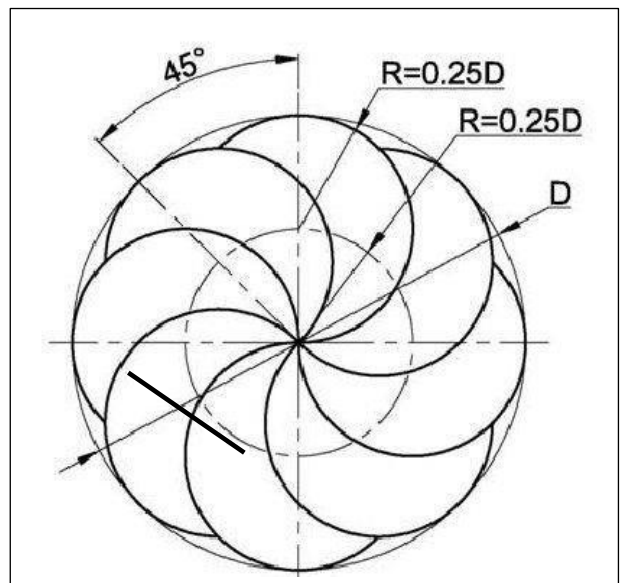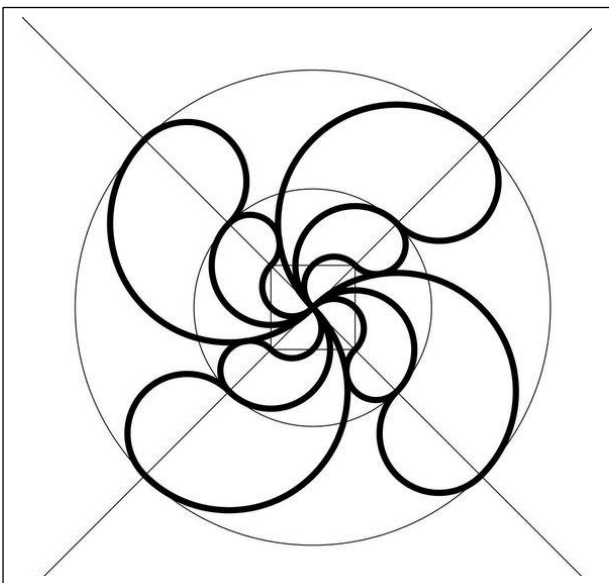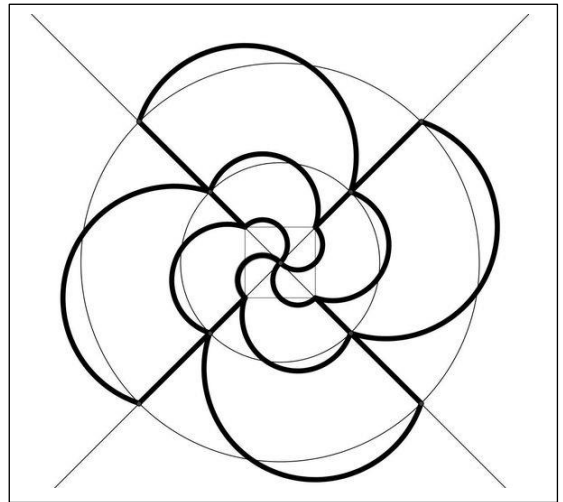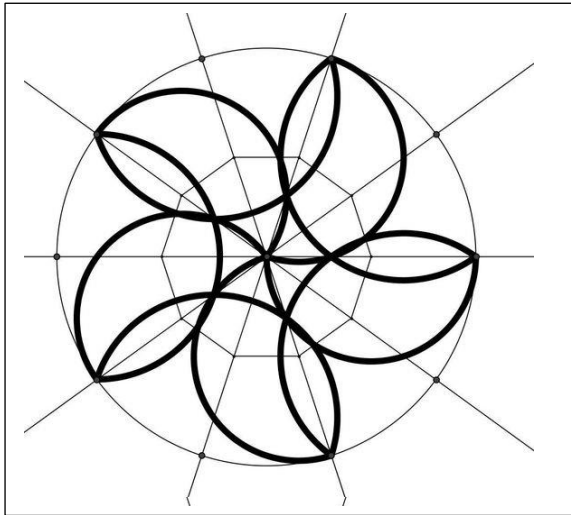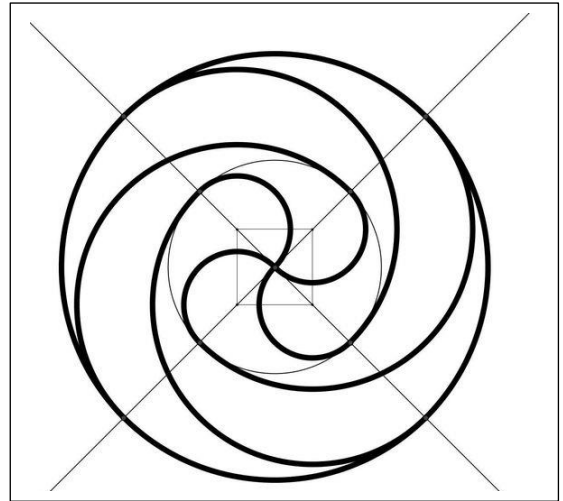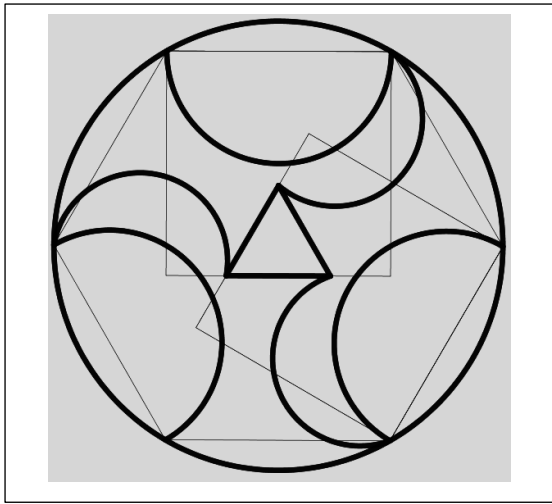
Art with circles and polygons

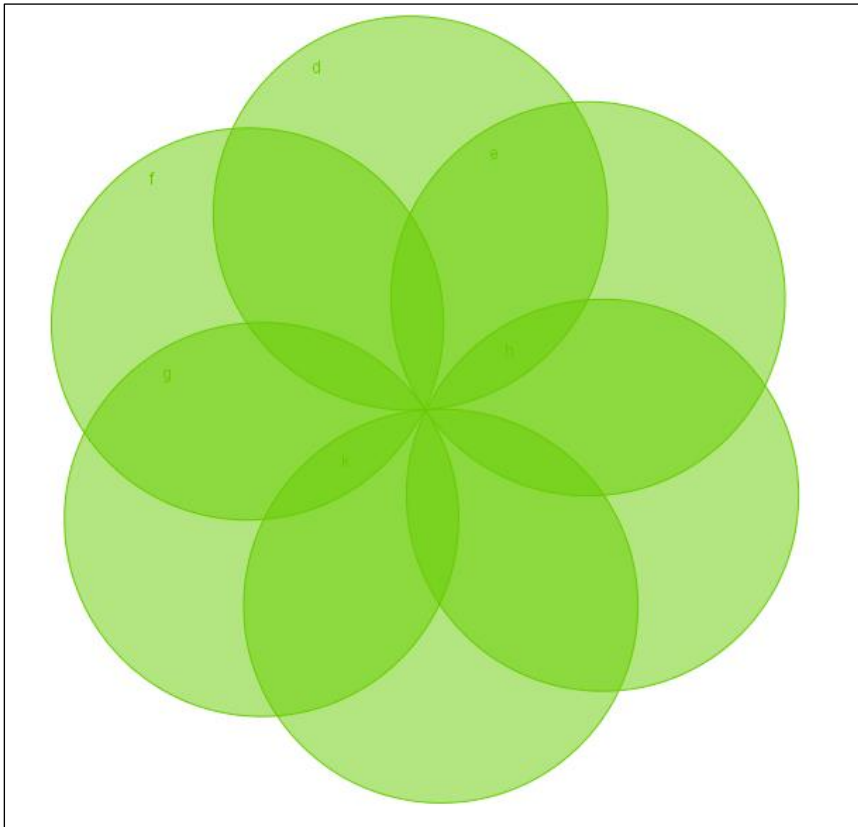## Project 2: students' results (10/11 years old) of PGU Unna (GER)
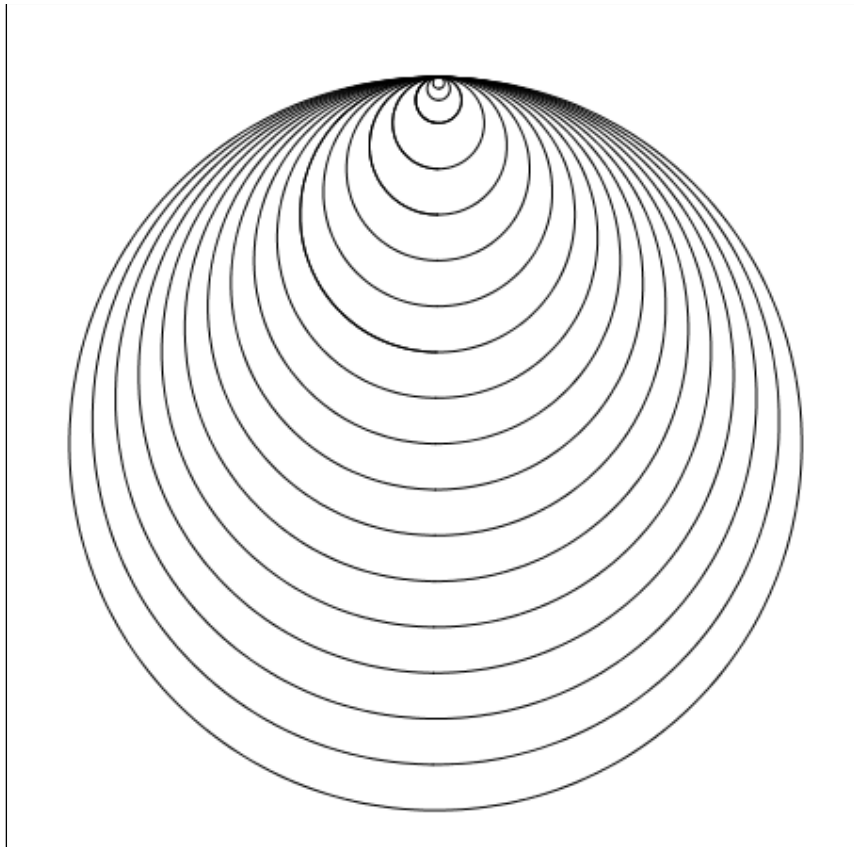
constructed and coloured with GeoGebra

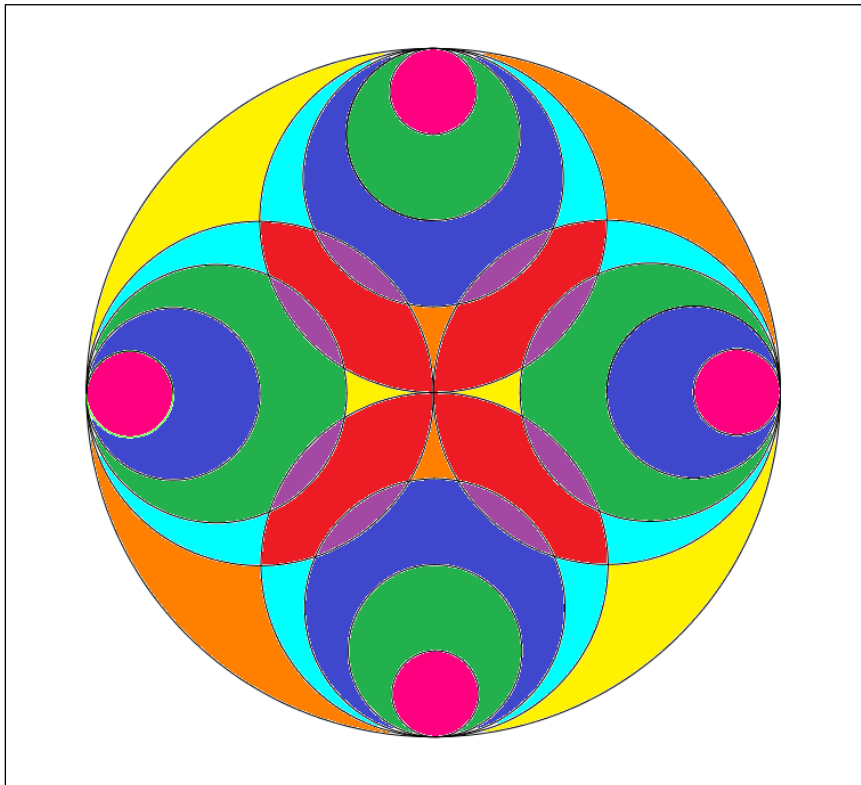**Constructed and coloured with GeoGebra**

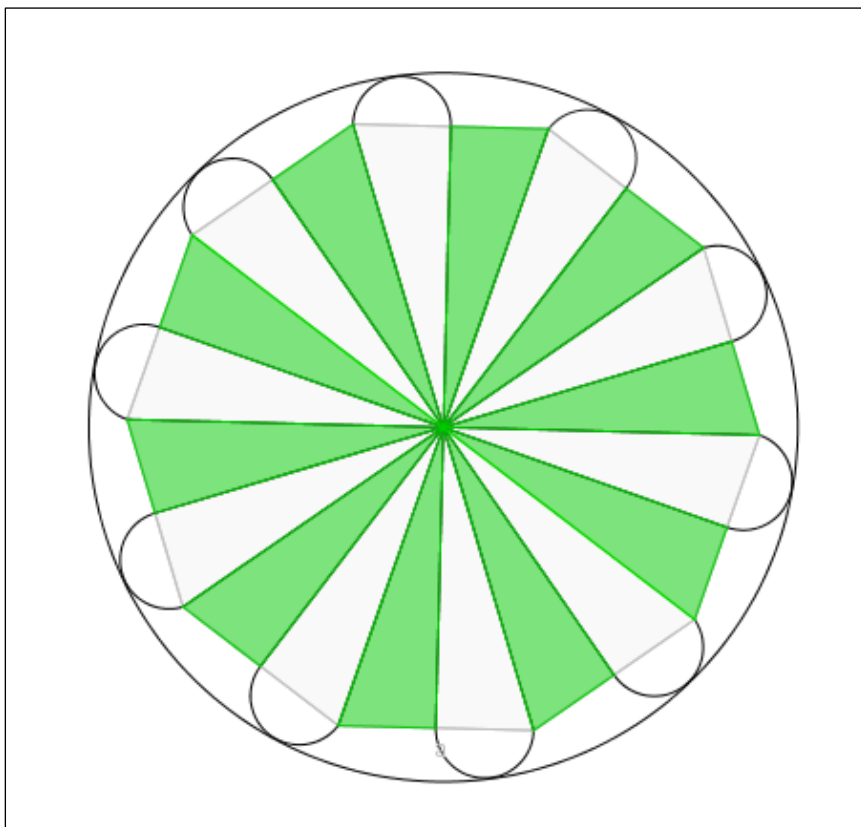# Constructed and coloured with GeoGebra
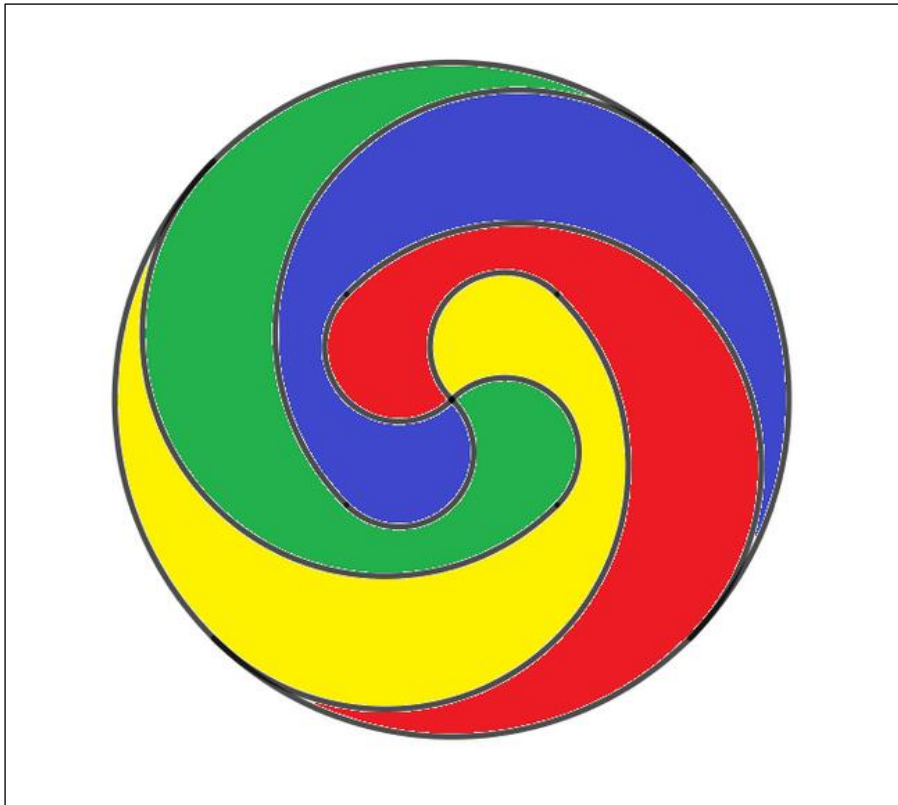

Constructed with GeoGebra

Constructed with GeoGebra, then coloured with Paint (grade 5)
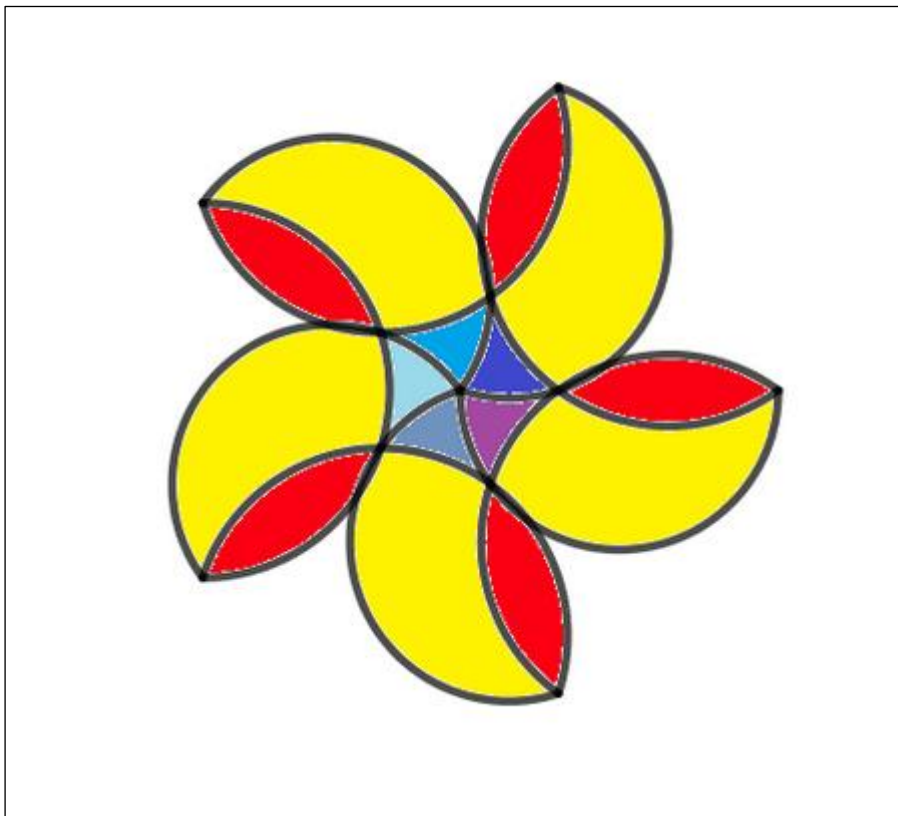

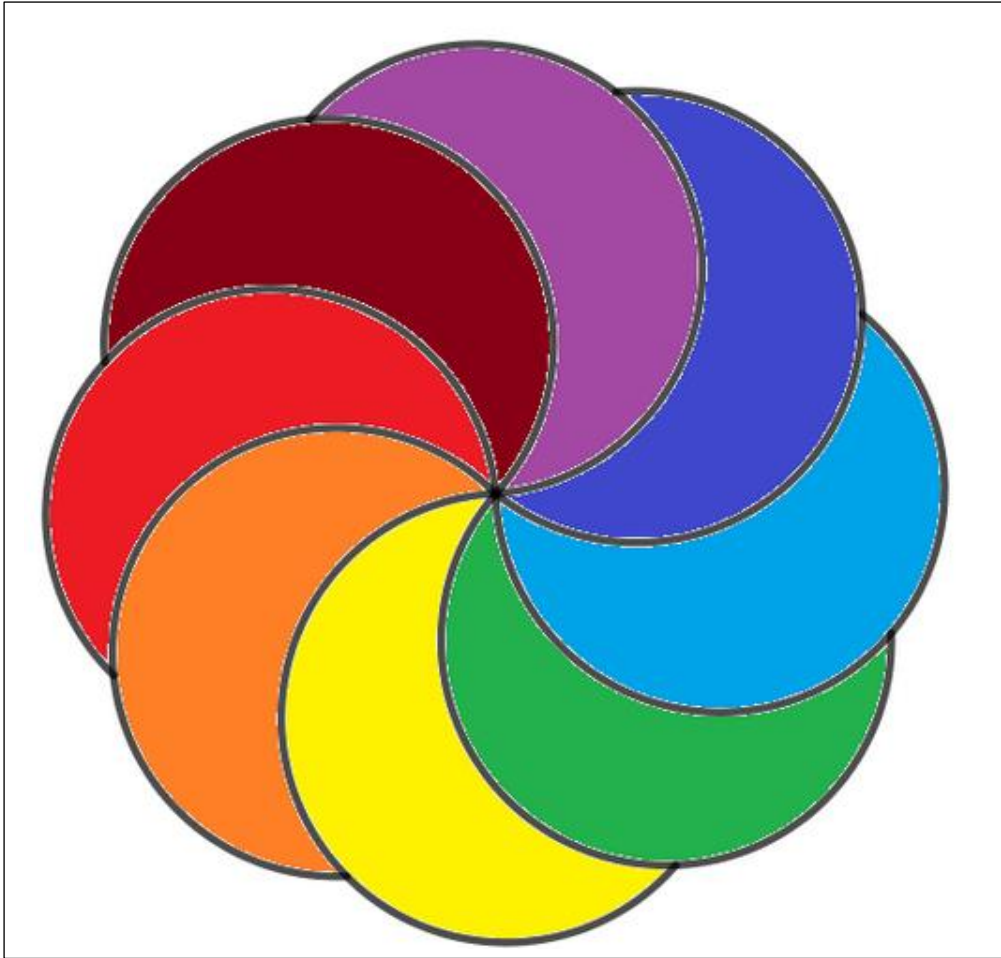**Constructed and coloured with GeoGebra**

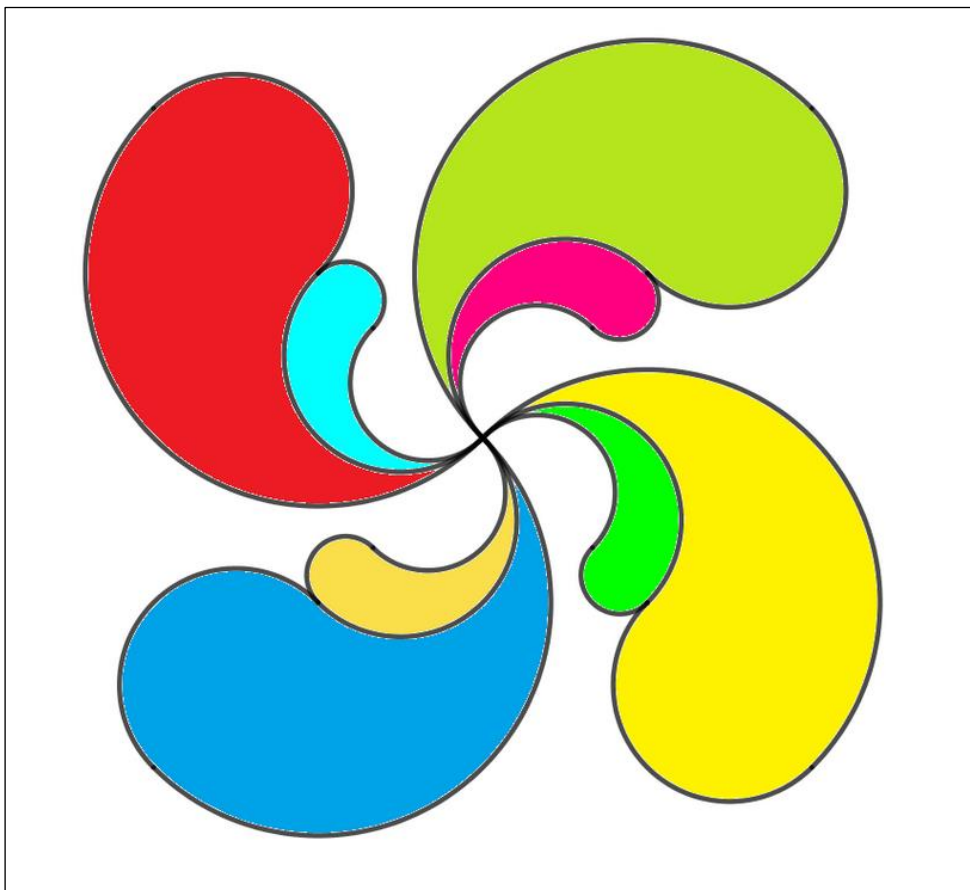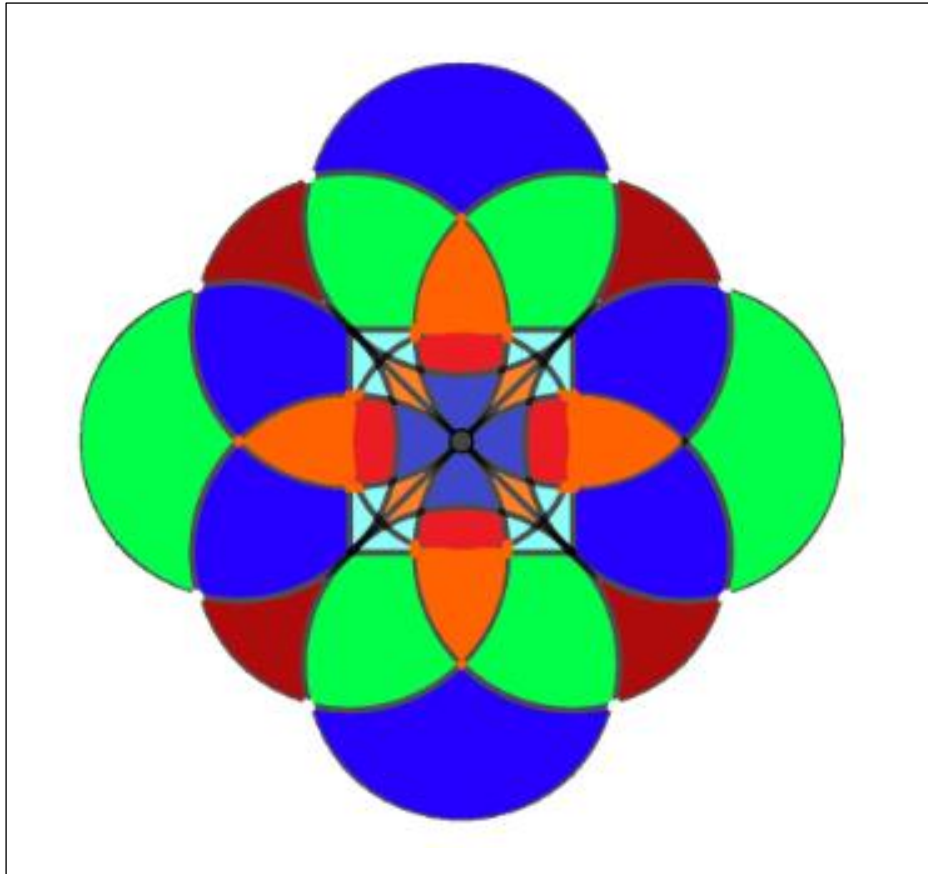**Constructed with GeoGebra, coloured in Paint by Merlin, grade 9**

Constructed with GeoGebra, then coloured with Paint by Merlin(grade 9)

Constructed with GeoGebra, then coloured with Paint by Merlin(grade 9)

Constructed with GeoGebra, then coloured with Paint by Merlin(grade 9)

Constructed with GeoGebra, then coloured with Paint by Merlin(grade 6)

Constructed with GeoGebra, then coloured with Paint by Merlin(grade 9)

Constructed with GeoGebra, then coloured with Paint by Merlin(grade 9)