Color Wheel Mandala

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EDUC 6406

Instructional Materials

Instructional Strategies

The instructional strategies employed in this unit are direct instruction and cues. The first part of the project has the instructor modeling and guiding the students through dividing up their paper into various sections and circles. The students will need scaffolding and review throughout the procedures. The cues provided will help students recall skills previously taught and provide a basis for group discussions. The Systematic Design of Instruction states "immediate feedback on correct execution of the skill is very important, because incorrect rehearsal does not promote skill" (Carey, Carey, & Dick, 2015, p. 190). The instructor should be walking around throughout the instruction to provide feedback. Instructors should model the step and as the students are completing the step the instructor is walking around observing the students to provide the neccesary feedback.

Materials	
Instructor Materials	**Student Materials**
Document camera	8.5" X 11" Card Stock or thick construction paper
Projector	Pencil
8.5" X 11" Card Stock or thick construction paper	Eraser
Pencils	Fine-tip Sharpie
Erasers	Ruler
Fine-Tipped Sharpies	Protractor
Rulers	Compass
Protractors	Markers, Colored Pencils, or Crayons
Compasses	
Markers, Colored Pencils, or Crayons	

Standards

Below are the support standards from the National Core Arts Standards (2015). The Visual Arts Standards below are from the Creating category. A full list of the standards can be found at http://www.nationalartsstandards.org/.

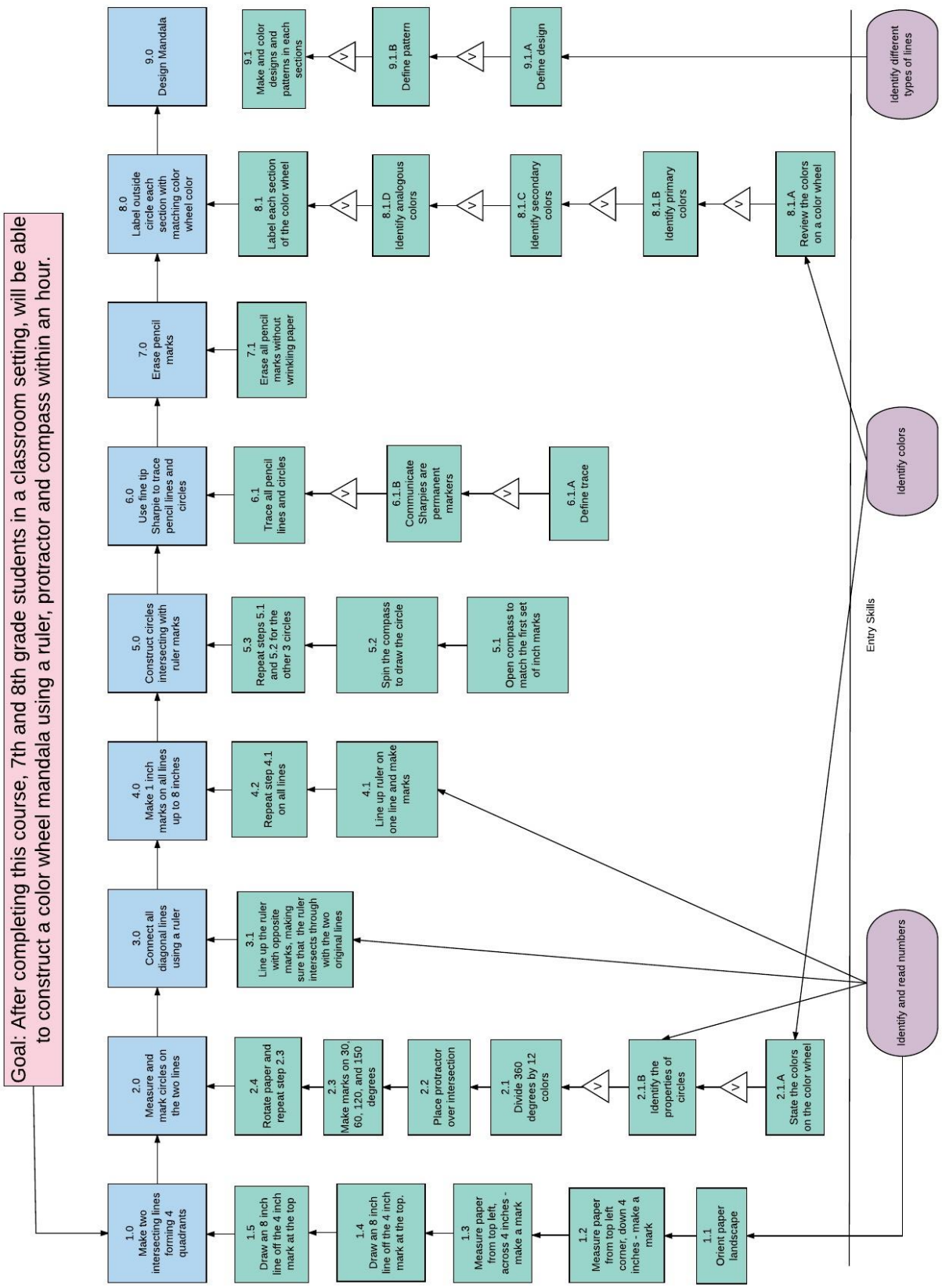
Grade 7	Grade 8
VA:Cr1.1.7 Apply methods to overcome creative blocks.	VA:Cr2.1.8 Demonstrate willingness to experiment, innovate, and take risks to pursue ideas, forms, and meanings that emerge in the process of art-making or designing.
VA:Cr2.1.7 Demonstrate persistence in developing skills with various materials, methods, and approaches in creating works of art or design.	VA:Cr2.3.8 Select, organize, and design images and words to make visually clear and compelling presentations.
VA:Cr2.3.7 Apply visual organizational strategies to design and produce a work of art, design, or media that clearly communicates information or ideas.	

Goal

After completing this course, 7th and 8th grade students in a classroom setting will be able to construct a color wheel mandala using a ruler, protractor and compass within an hour.

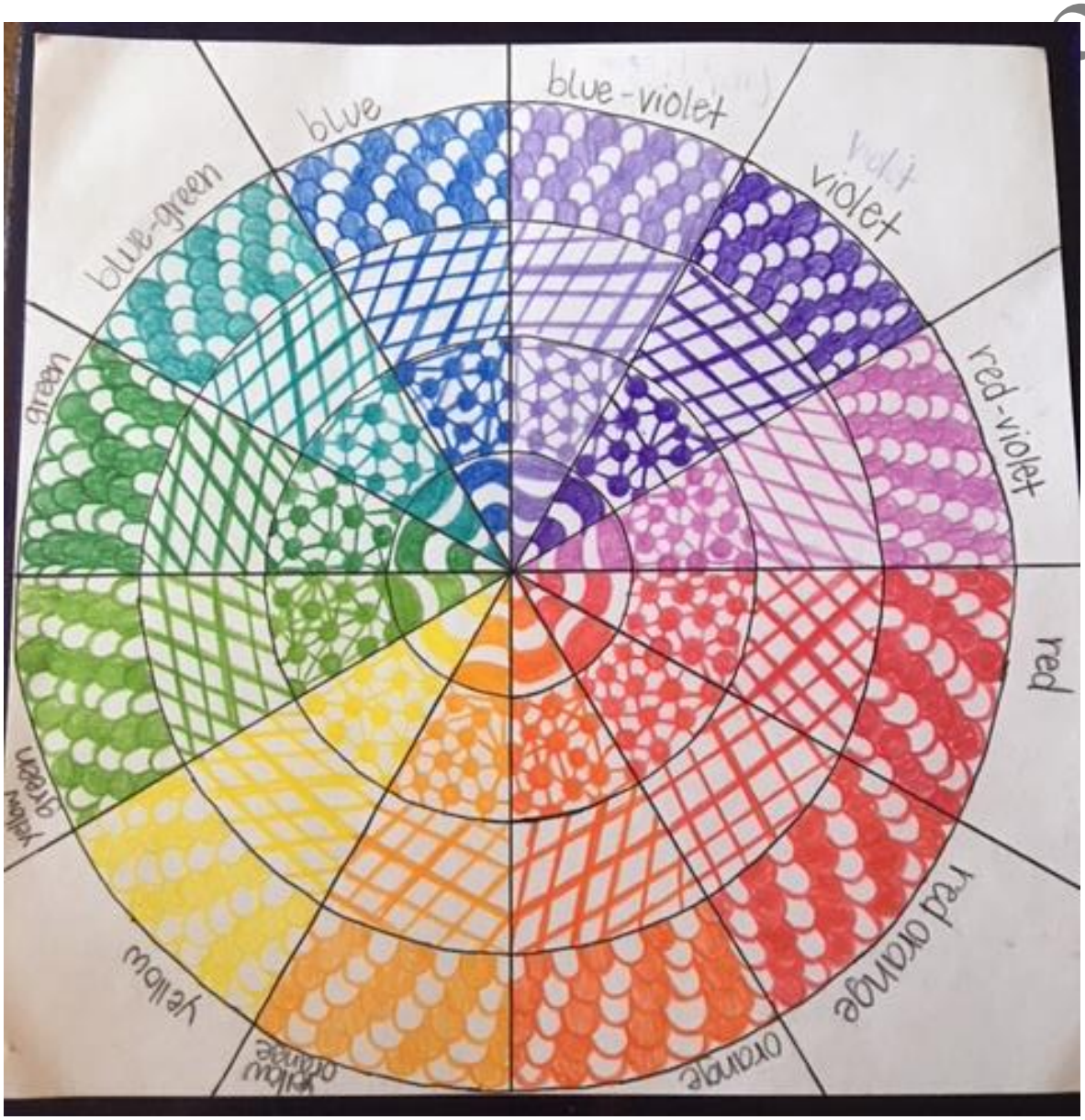
Entry Skills: Students should be able to identify and read numbers, different types of lines, and colors. Students should also be able to use a ruler, compass, and protractor.

The following flow chart outlines all the necessary prior knowledge/skills necessary and how each step relates to one another.



Pre-Instructional Activities

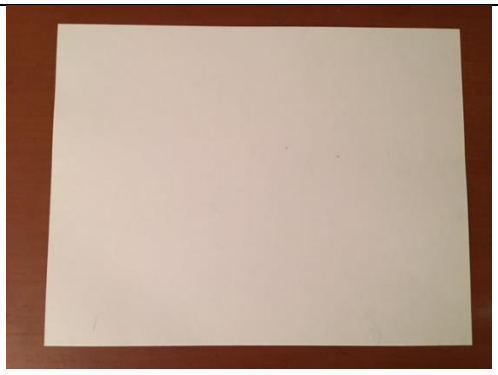
To begin instruction, show the final product. This will grab the students' attention and provide motivation. You will need to reassure them that this is something that they can do, and you will be modeling the steps the whole way. The steps contain curriculum and procedures that have been previously taught. Reminding the students that they know this material will help ease their worry.

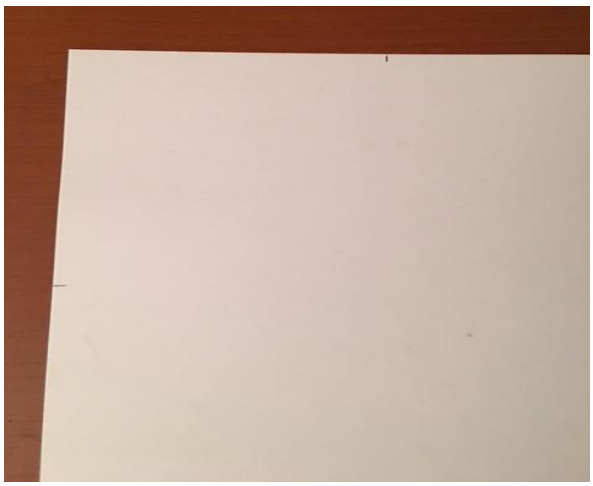


Start by defining the objective. In this case, the objective is the goal for the class. For this module the objective is (1.0) to make two intersecting lines forming 4 quadrants. Before you begin, it is

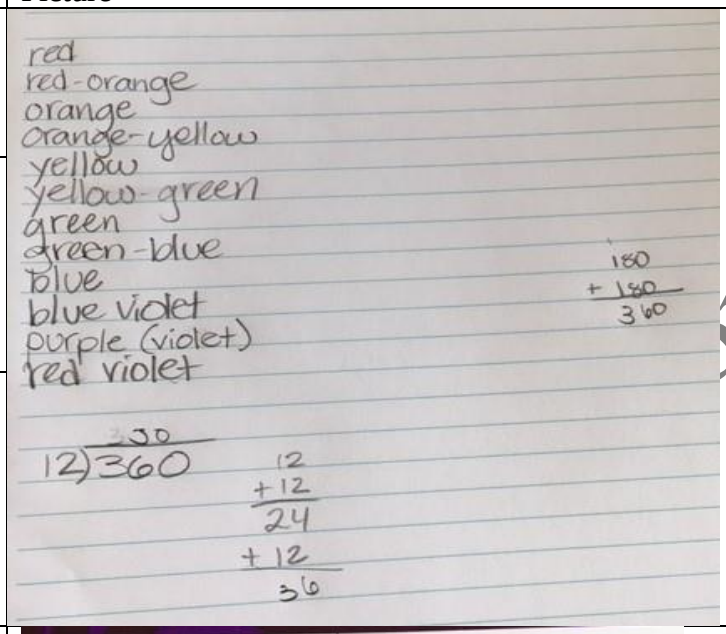
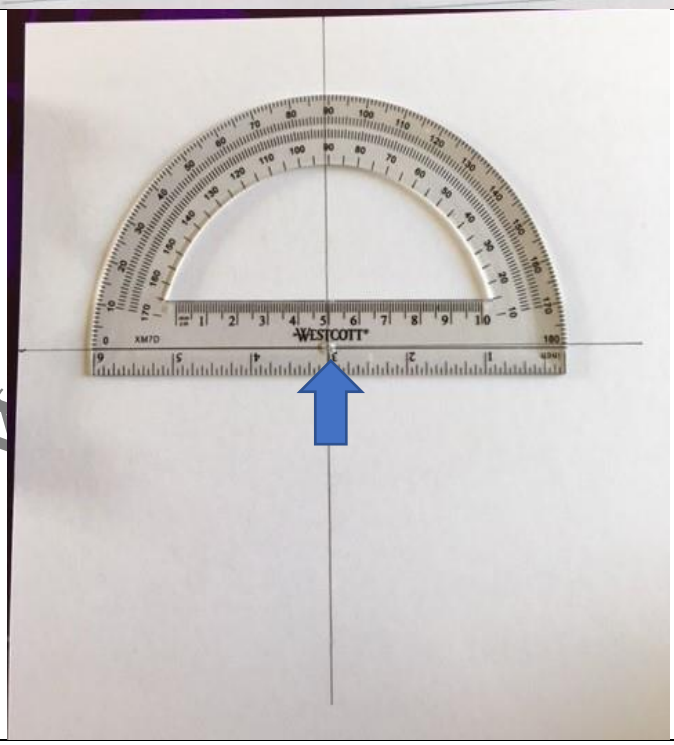
important to review the different parts of a ruler. Be sure to highlight the difference between inches and centimeters. The students will be using the inches side of the ruler throughout the modules. Remind them that they start at the 0 line, which sometimes is not the edge of the ruler. There are some rulers that do not always have a 0, instead they have the unit of measurement labeled there.

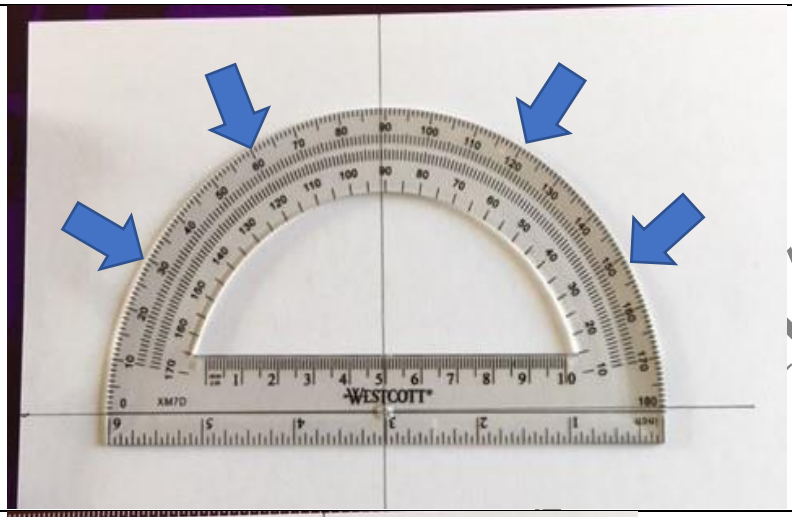
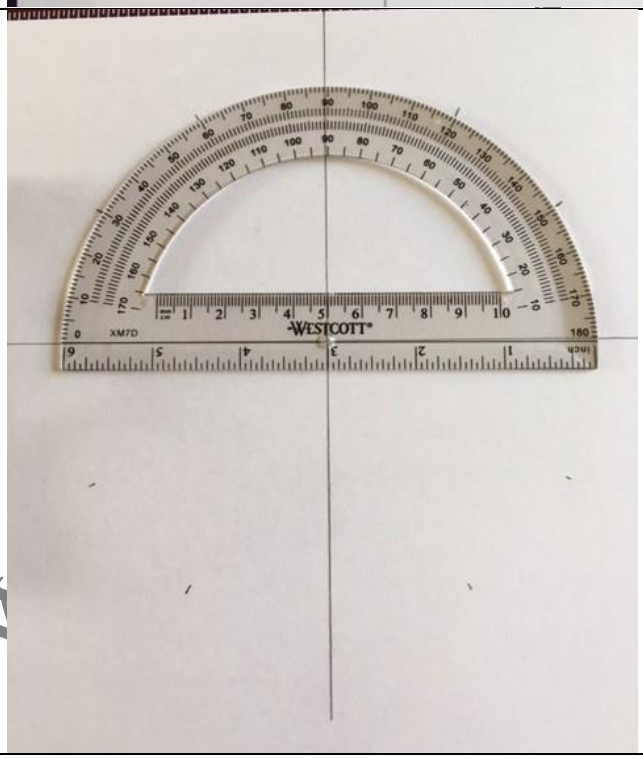
Content Presentation

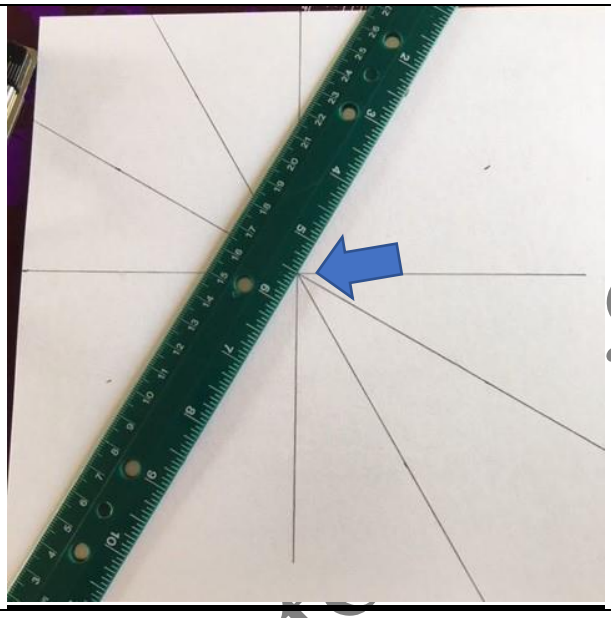
Objective 1.0 Using a ruler and pencil, construct 4 quadrants using two intersecting line that have 90-degree angles.		
Directions		Picture
Step 1.1	Start by orienting your paper landscape or long ways left to right.	

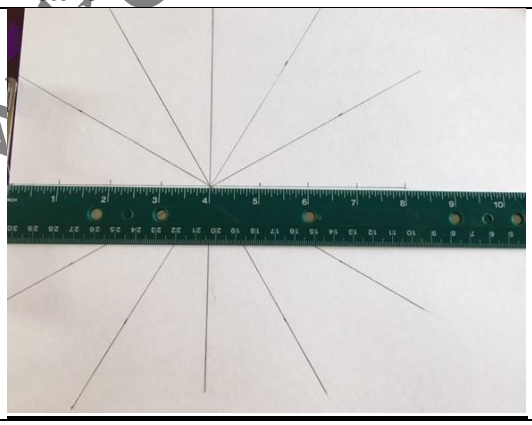
Step 1.2	Measure from the top left corner going 4 inches down. Make a mark.	
Step 1.3	Measure from the top left corner going across 4 inches to the right. Make a mark.	 

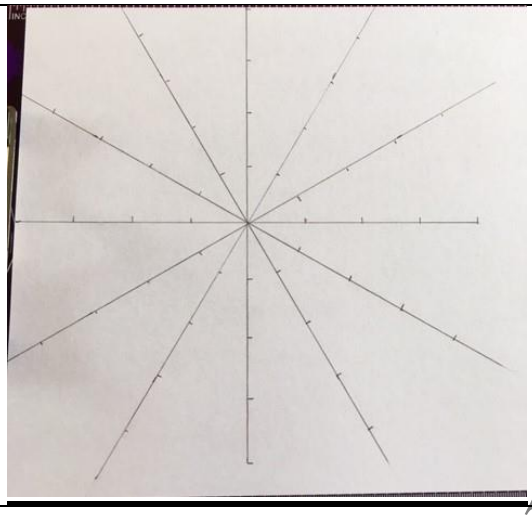
Step 1.4	Draw an 8-inch line off the 4-inch mark at the top of the paper. This line should go from top to bottom for the correct length.	
Step 1.5	Draw an 8-inch line off the left side of the paper, intersecting with the other line. This line should go from left to right for the correct length.	

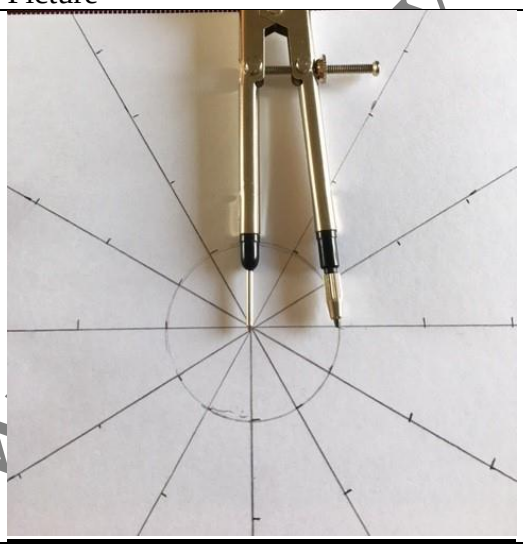
<table>
<tr><td colspan="3"><u>Objective 2.0:</u> Use a protractor and ruler to measure and mark for the circles on the two lines.</td></tr>
<tr><td colspan="2">Directions</td><td>Picture</td></tr>
<tr><td>Step 2.1.A</td><td>Identify the colors on the color wheel.
- How many colors are included?</td><td rowspan="2"> 
</td></tr>
<tr><td>Step 2.1.B</td><td>Identify the properties of circles.
- round
- 360 degrees</td></tr>
<tr><td>Step 2.1</td><td>Using a pencil and scratch paper, divide 360 degrees by 12 colors.</td><td></td></tr>
<tr><td>Step 2.2</td><td>Place the protractor over the intersection of the two lines, being sure to place it in the exact middle and at the 0 degrees line.</td><td> 
</td></tr>
</table>

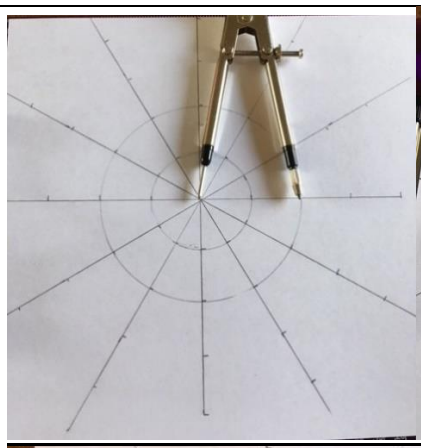
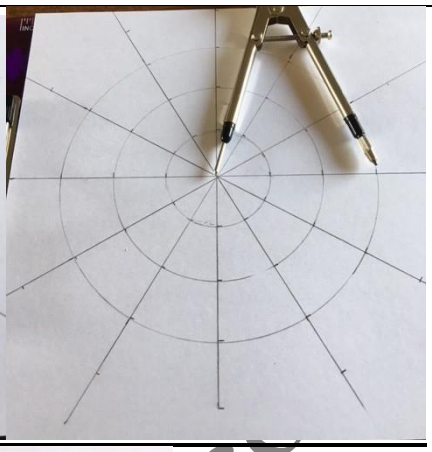
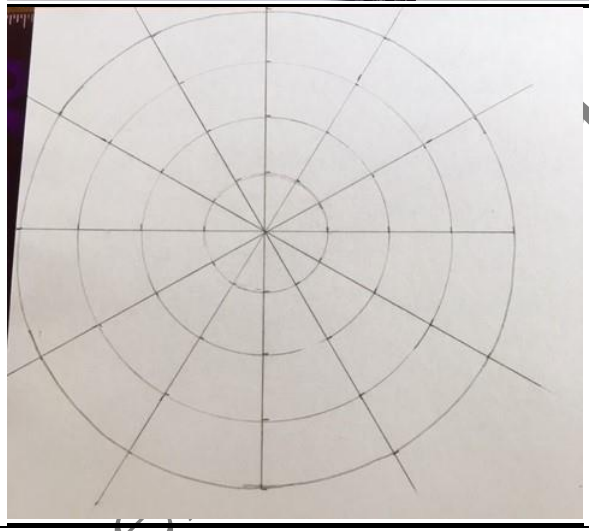
Step 2.3	Based on the division, students should make marks on 30, 60, 120, and 150 degrees.	
Step 2.4	Repeat step 2.3 by rotating the paper.	

Objective 3.0 Using a ruler and pencil, connect all diagonal lines.		
Directions		Picture
Step 3.1	Line up the ruler with opposite marks, making sure that the ruler intersects through with the two original lines.	

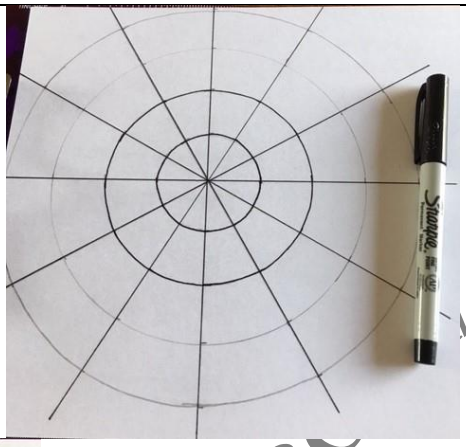
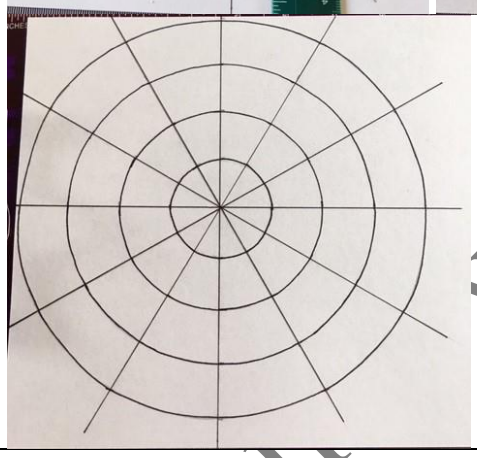
Objective 4.0 Using a ruler and pencil, make marks at the 0-inch, 1-inch, 2-inch, 3-inch, 5-inch, 6-inch, 7-inch, and 8-inch lines on all lines.		
Directions		Picture
Step 4.1	Line up the ruler on one line with 4 inches on the center point. Make marks at the 0-inch, 1-inch, 2-inch, 3-inch, 5-inch, 6-inch, 7-inch, and 8-inch lines.	

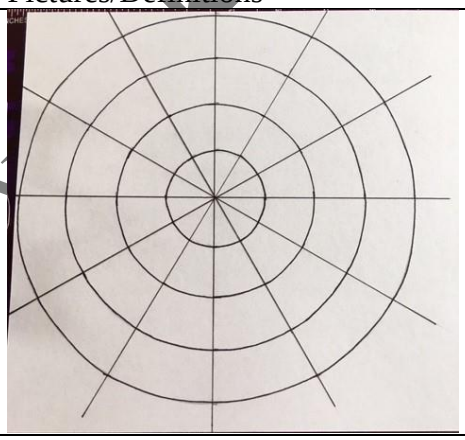
Step 4.2	Repeat step 4.1 on all lines.	

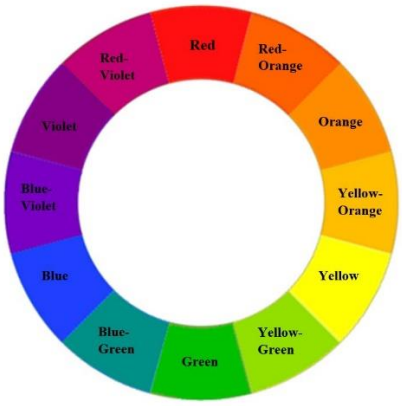
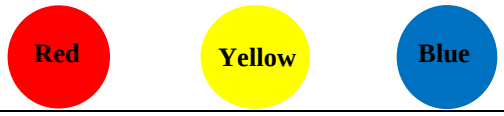
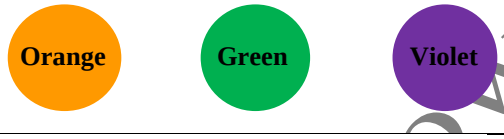
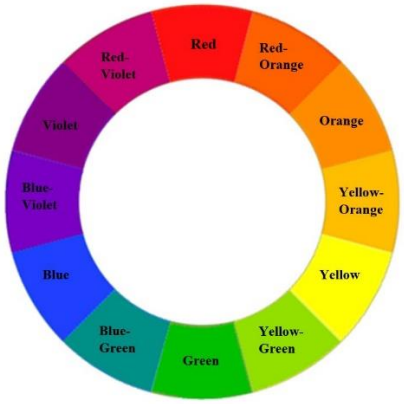
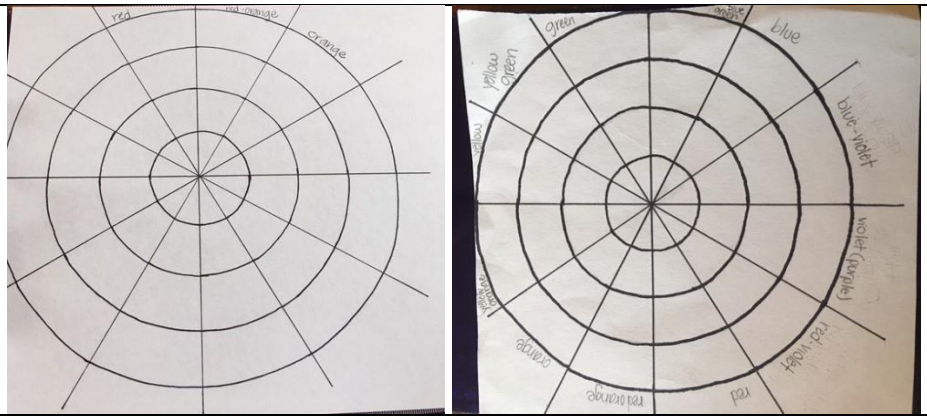
Objective 5.0 Using a compass, construct circles intersecting with the inch marks.		
Directions		Picture
Step 5.1	Open compass to match the first set of inch marks.	
Step 5.2	Carefully spin the compass to draw the circle. NOTE: Some students might find it easier to spin the paper instead of the compass.	

Step 5.3	Repeat steps 5.1 and 5.2 for the other 3 circles.	  

Objective 6.0 Using a fine tip Sharpie trace all pencil lines and circles.		
Directions		Pictures/Definitions
Step 6.1.A	Define trace	"to follow the path or line of (something)" (Merriam-Webster, n.d.).
Step 6.1.B	Communicate Sharpies are permanent markers	Students should be able to articulate that Sharpies will stain clothing and all other materials it comes into contact with.

Step 6.1	Trace all pencil lines and circles	  

Objective 7.0 Erase all pencil marks	
Directions	Pictures/Definitions
Step 7.1 Erase all pencil marks without wrinkling paper	
Objective 8.0 Label the outside of the circle with the matching color for each section on the color wheel.	
Directions	Pictures/Definitions

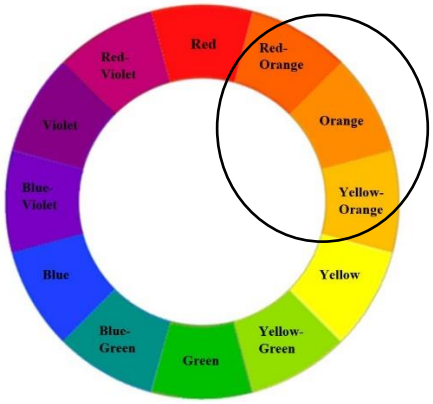
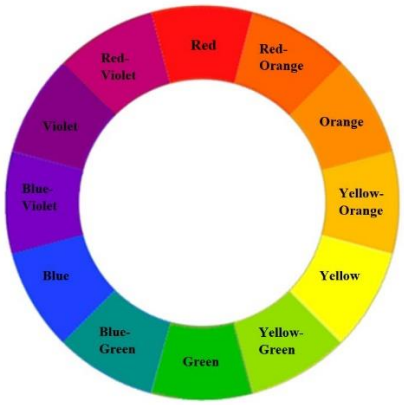
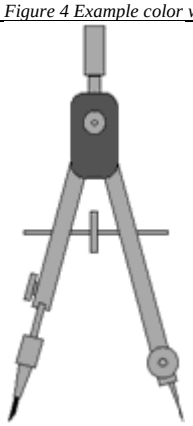
Step 8.1.A	Review the colors on a color wheel	 Figure 1 Example color wheel. (Maulucioni, 2016)
Step 8.1.B	Identify primary colors	
Step 8.1.C	Identify secondary colors	
Step 8.1.D	Identify analogous colors	 *Figure 2 Example color wheel. (Maulucioni, 2016)*
Step 8.1	Label each section of the color wheel	

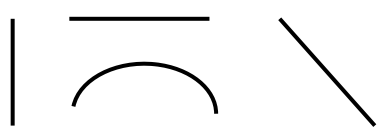
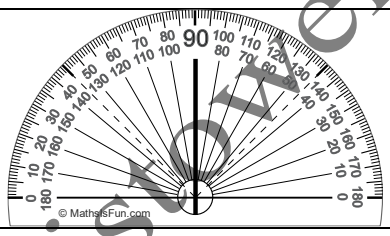
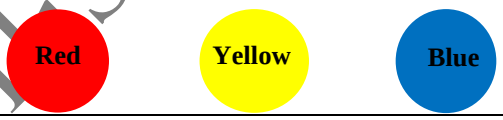
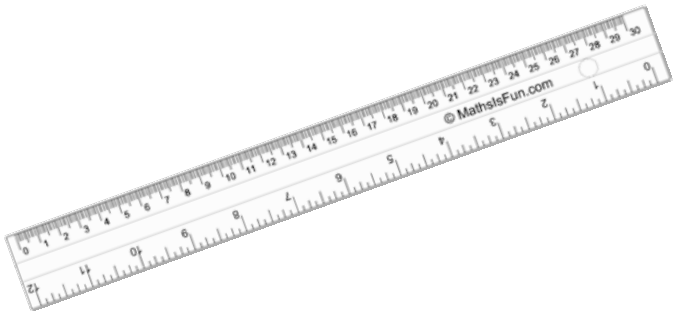
Objective 9.0 Design Mandala

Directions		Pictures/Definitions
Step 9.1.A	Define pattern	Repeating shapes, colors, lines or symbols.
Step 9.1.B	Define design	"To plan and make decisions about (something that is being built or created): to create the plans, drawings, etc., that show how (something) will be made" (Merriam-Webster, n.d.).
Step 9.1	Make and color designs and patterns in each section	

Student Guide

Vocabulary

Word	Definition	Example
Analogous Colors	Three colors beside each other on the color wheel. Example: red-orange, orange, and yellow-orange,	 *Figure 3 Example color wheel. (Maulucioni, 2016)*
Color Wheel	12 different colors (as read clockwise from the top circle): red, red-orange, orange, yellow-orange, yellow, yellow-green, green, blue-green, blue-violet, violet, and red-violet.	 *Figure 4 Example color wheel.* (Maulucioni, 2016)
Compass	"An instrument with two arms, one sharp and one with a pencil that can be used to draw circles or arcs" (Pierce, Definition of compass (drawing), 2016).	

Design	"To plan and make decisions about (something that is being built or created): to create the plans, drawings, etc., that show how (something) will be made" (Merriam-Webster, n.d.).	
Line	A mark created by a pen, pencil, brush, or any tool	
Pattern	Repeating shapes, colors, lines or symbols	
Protractor	"An instrument used in measuring or drawing angles" (Pierce, 2017).	
Primary Colors	Red, yellow, and blue	
Ruler	"A tool used to rule straight lines and measure distances. This ruler is marked in **cm** (centimeters) along the top and **inches** along the bottom" (Pierce, 2014).	
Secondary Colors	Orange, green, and purple; colors that are made from the primary colors	

Trace	"to follow the path or line of (something)" (Merriam-Webster, n.d.)	

Assessment

Instructions for Instructor

NOTE: Assessment should be given after the unit is complete.

Materials needed for assessment (1 per student):

1. copy of the assessment
2. a pencil
3. set of crayons or colored pencils

Items that are being assessed:

1. Recall knowledge

- types of lines
- primary colors
- secondary colors
- analogous colors

2. Completion of premade color wheel

Scoring Protocols

Points are indicated on the assessment next to each question. Test is worth 30 points. Scoring rubric is below, which is based on the district grading policy.

Grade	Percentages	Grade Points

A	90% - 100%	4.0
B	80% - 89%	3.0
C	70% - 79%	2.0
D	60% - 69%	1.0
F	0% - 59%	0.0

Color and Line Design Assessment

Directions: Draw the described line or design in the box provided. (1 point each)

Vertical Line	**Spiral**	**Diagonal Line**	**Crosshatch**
Dotted	**Concave**	**Zig Zag**	**Convex**

Directions: Write one answer on each line.

List the primary colors (3 points)

1. _____

2. _____

3. _____

List Secondary Colors (3 points)

1. _____
2. _____
3. _____

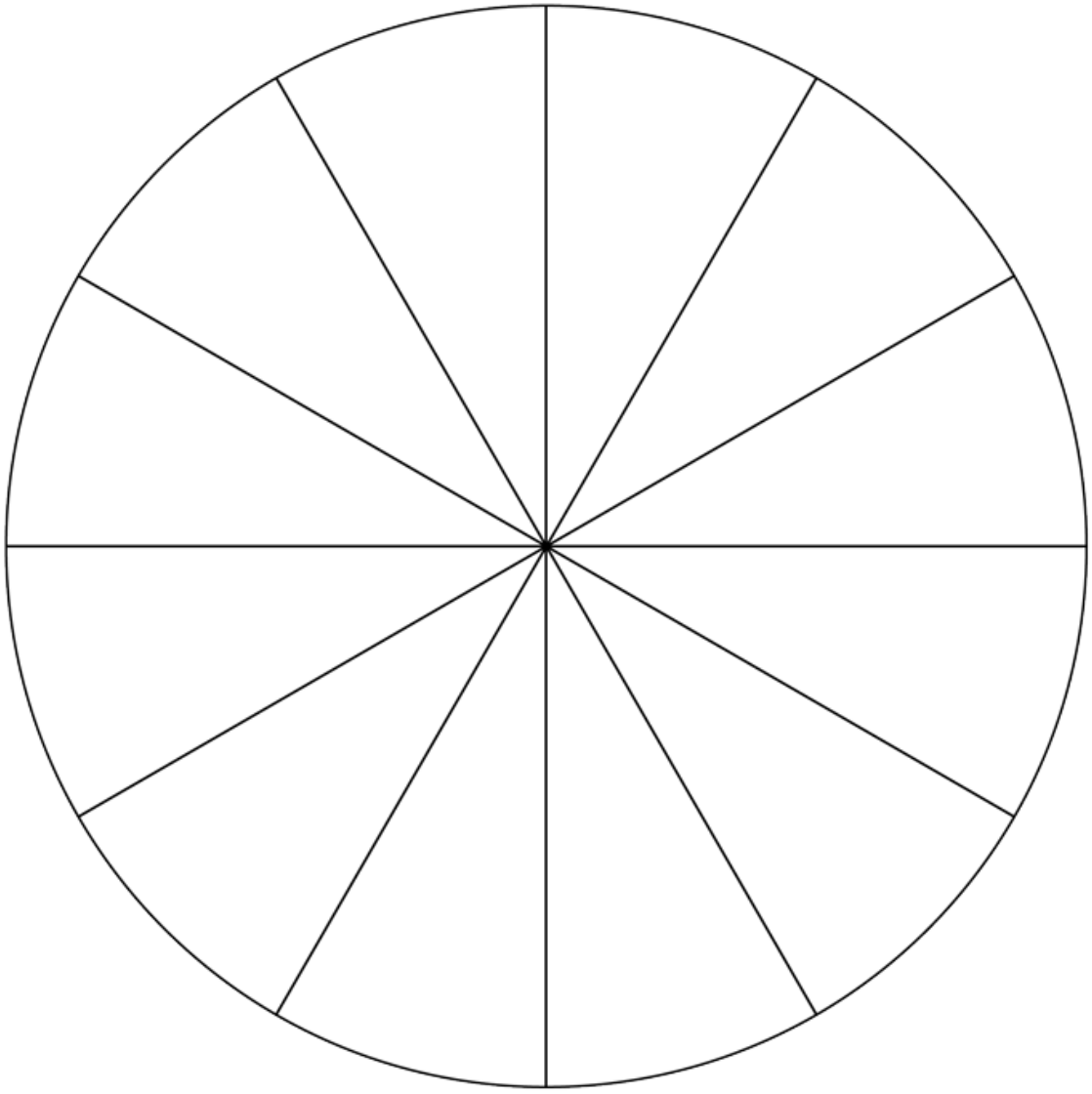
Give an example of analogous colors. (4 points)

1. _____
2. _____
3. _____
4. _____

Directions: Finish labeling and coloring the color wheel. (12 points)

Please write outside the slice and color in the slice.

RED



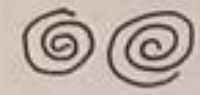
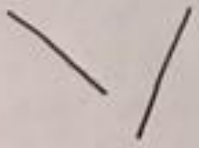
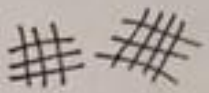
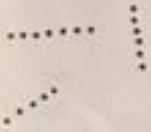
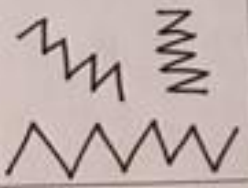
Mandala Rubric

Category	4.0	3.0	2.0	1.0	Total
Use of color	The mandala has all the colors from the color wheel, in the correct order.	The mandala has some of the colors, but they are in the correct order. OR The mandala has all the colors, but they are not in the correct order.	The mandala is missing some colors and are not in the correct order.	The mandala is not completely colored in.	___/4
Use of patterns and designs	The mandala uses the same design/pattern in each section as you go around the wheel and has a different design/pattern as you go up and down the slice.	The mandala uses the same design/pattern in each section, with one or two sections	The mandala uses many of the same designs and patterns.	The mandala has only one design or pattern.	___/4
Mandala Construction	The mandala is equally sectioned off into 12 equal slices of pie. It also has 4 sections in each slice.	The mandala is not equally sectioned off, but has 12 slices and 4 sections in each slice.	The mandala is missing two or more sections or slices. It may or may not be equally sectioned off.	The mandala is not equally sectioned off and is missing many slices or sections.	___/4
Grand Total					**___/12**
Notes:					

Answer Key

Any answer below is acceptable.

Directions: Draw the described line or design in the box provided. (1 point each)

Vertical Line	Spiral	Diagonal Line	Crosshatch
			
Dotted	**Concave**	**Zig Zag**	**Convex**
			

Directions: Write one answer on each line.

List the primary colors (3 points) (Any order is acceptable.)

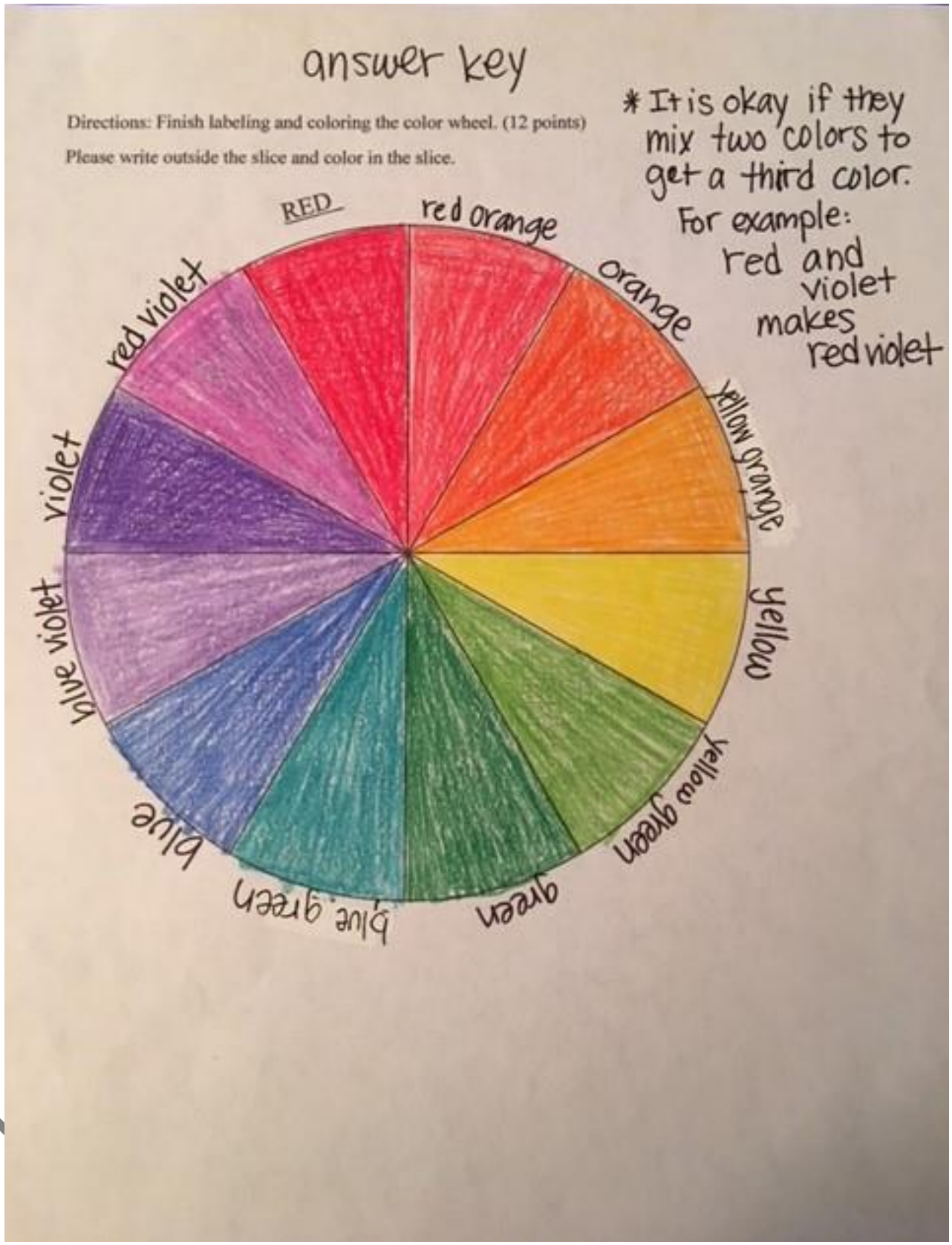
1. red
2. yellow
3. blue

List Secondary Colors (3 points)

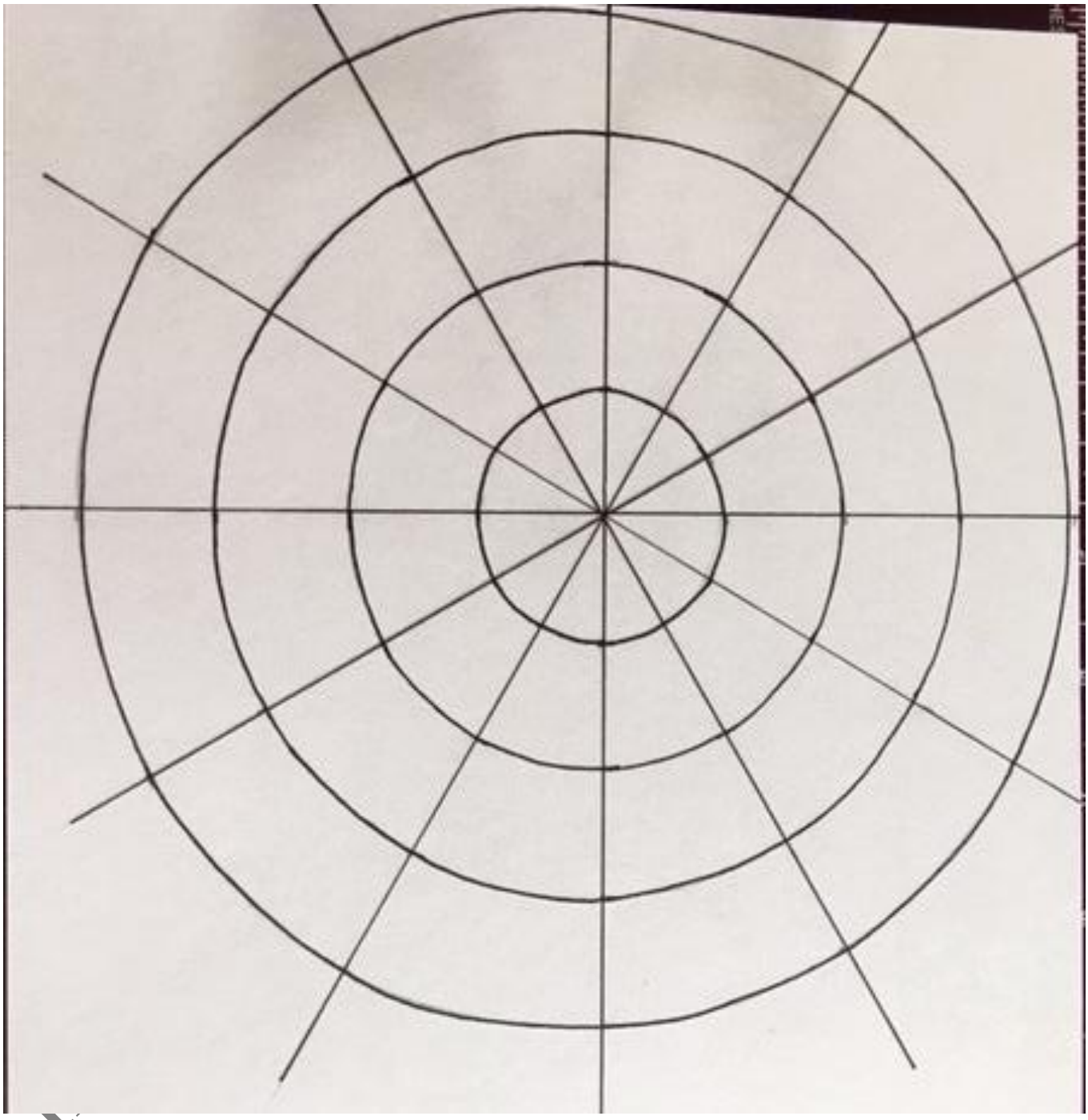
1. orange
2. green
3. purple

Give an example of analogous colors. (4 points) - Any four colors side by side.

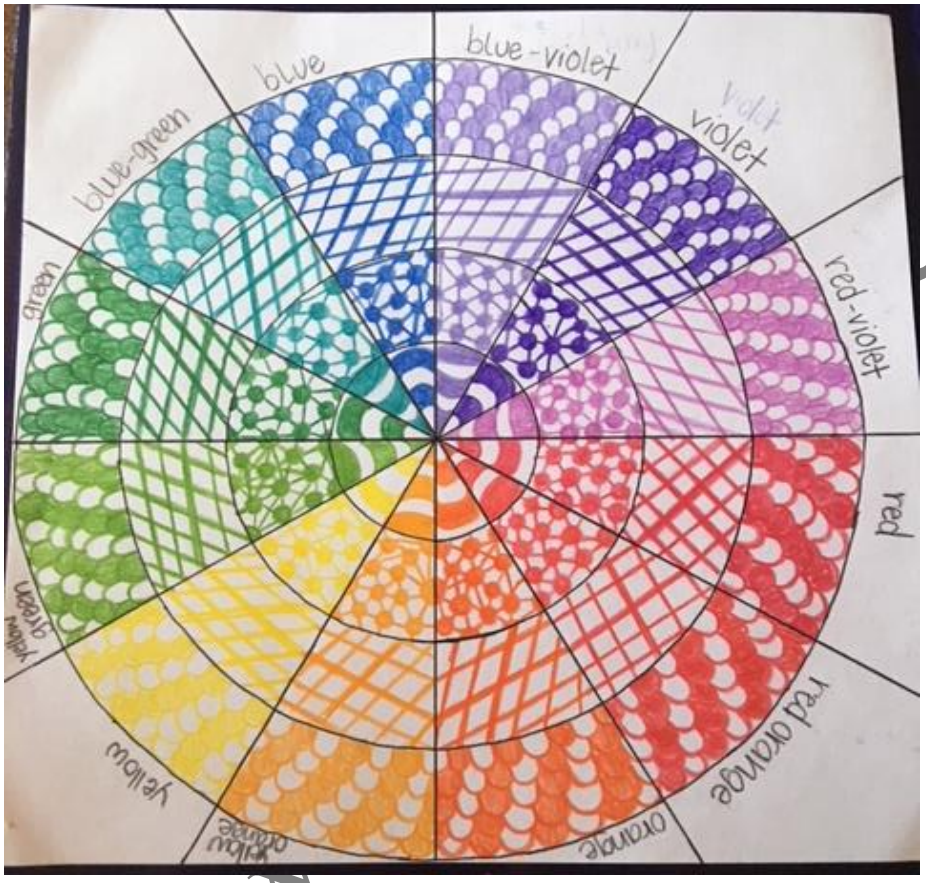
example
1. green
2. blue green
3. blue
4. blue violet



Template Mandala



Completed example mandalas below.



Formative Evaluation Report

One-on-one Evaluation

The first one-on-one evaluation was conducted with a 12-year-old, 7th grade, girl. This student was of average ability and was not enrolled in an art class. She has had an art lesson with me before, so she understood the different types of lines and designs required for this activity. The second evaluation was completed with a 13-year-old, 8th grade, boy. This student was below average and was enrolled in art class. He had never had a specific art class with me, but understood some of the basic vocabulary and designs required. All materials were provided for the students.

Interestingly, both students gave similar feedback. They both seemed to struggle with the vocabulary and directions for steps 1.0 and 2.0. They both found that the project was initially

intimidating due to the example mandala being very complex; however, both students were able to complete the project and expressed that they liked their final product.

Criteria	
Clarity of Instruction	**Message, Links, and Procedures**
	• More vocabulary review was needed. • Introduction motivated the female evaluator, while the male evaluator was indifferent. • For both sessions clarification was needed on the directions for steps 1.0 and 2.0. • Side-by-side demonstration allowed the students to complete each step with ease. • Sequencing of the project was successful. • Time spent on reviewing vocabulary during the demonstrations extended the timeframe allotted.
Impact on Learner	**Attitudes and Achievement**
	• The example mandala initially intimidated the students. • Posttest was easily understood. The students were able to complete it independently using the supplies provided.
Feasibility	**Learner and Resources**
	• The students were able to complete the mandala independently. • All materials were provided for them. They had the choice between markers, colored pencils, and markers. • The time to complete the project went past the allotted 60 minutes. • The environment was in a regular classroom, but there were no students in it. This may have impacted the quality of instruction and final product, possibly making it better.

Small Group Evaluation

The students that participated were part of the after-school program. There was a total of nine students who participated: four students were from 7th grade and five from 8th grade. The students were motivated to help me, but were not necessarily happy to be completing an art project.

As the students were making their circles, I expected the level of frustration to go up due to the compasses continually opening wider as they moved it. They were frustrated, but they were still motivated to complete the project. The students enjoyed the lesson and their final product.

Subject Matter Expert Evaluation

The subject matter expert (SME) that evaluated the materials was my collaboration teacher. She currently teaches music, but has taught a variety of art lessons to 3rd-5th graders as a general education classroom teacher. She is familiar with art content, standards, and requirements and the instructional process used. She is also very familiar and experienced with the target audience.

The SME found that the instructional materials were fun, creative, and age appropriate. She felt that it was structured and scaffolded enough for the students to create the mandala, while still allowing for student choice and personalization. She herself was able to create independently a mandala. She provided ongoing feedback throughout the unit development process. She made suggestions for rewriting different learning objectives.

Lessons Learned

The feedback provided by all evaluators was very useful while moving forward throughout the instructional process. The evaluation process is essential for creating quality materials. I have also realized that this will become an ongoing process. While I have completed the instructional materials for this project, I may realize that there needs to be changes made in the future. It is something that is a continuous process. I knew the project wasn't perfect, but until you see someone from the target audience, you do not know which parts need to be clarified. I did not expect to spend so much time clarifying the different vocabulary words, so that has caused me to add a reference list to my student guide. Working with a subject matter expert is not always going to be the way it was for me this time.

The SME I worked with is my teaching partner and roommate. I would often, informally, run objectives and steps by her. In a professional setting, this may not be the way projects will be run.

When conducting formative evaluations, it is essential to provide materials that work properly. While conducting the small group evaluation, we attempted to use compasses to construct the circles for the mandala. The compasses were not of good quality and kept opening wider while the students moved them. This raised everyone's frustration level. As the instructional designer, it is vital to test all materials before handing them to the evaluators. Another challenge I faced was finding the target learners. I work with the target audience age range, but I had a hard time getting over to the middle school to work with the students as I was assigned to other schools. It was also hard to replicate the actual classroom setting. These evaluations were conducted outside the regular class hours. This may or may not have impacted the work output. The next step would be to complete a field study to receive feedback.

Revision Plan

Throughout the creation of the material, I found that it was a very fluid process. Based on the feedback received from the evaluations, I created a vocabulary reference sheet for students to have as the instructor is reviewing them. The initial example mandala intimidated the students, so I made a simpler designed mandala. When I teach this unit in the future or recommend this unit, I will make sure that students have compasses that will not move, or they will have a copy of the template. The template will also provide a modification for different leveled classes or time constraints. I also rewrote objectives 1.0 and 2.0 to clarify them.

- *Original objective* 1.0 – Make two intersecting lines forming 4 quadrants.
- Rewritten objective 1.0 - Using a ruler and pencil construct 4 quadrants using two intersecting lines that have 90-degree angles.

- *Original objective* 2.0 – Using a protractor and a pencil, measure and mark at 30, 60, 120, and 150 degrees.
- Rewritten objective 2.0 - Use a protractor and ruler to measure and mark for the circles on the two lines.

I also included a couple different tips or notes based on the debriefs after each evaluation session. For instance, students might find it easier to move the paper in circles rather than the compass. As I said above in the Formative Evaluation Report, the instructional materials may need change in the future.

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