

Janessa Pope
5th Grade

Objectives:

- During preparation for this activity, students will learn how to cut a whole circle in order to visually represent different fractions.
- While creating their fish, students will understand that they are creating abstract, geometric creatures.
- After completing this activity, students will be able to multiply fractions of different denominators to create a single fraction.

Visual Standards Addressed:

- **Fifth Grade – Visual Arts**
 - **Standard 2 (Perceiving):** The student will analyze, reflect on, and apply the structures of art.
 - **Objective 1:** Analyze and reflect on works of art by their elements and principles.
 - D. Classify works of art as realistic, abstract, geometric, or organic.

Other Standards Addressed:

- **Fifth Grade – Mathematics**
 - **Domain: Number & Operations-Fractions**
 - Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
 - 4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
 - 6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.



“Fraction Fish”

5-6: Fifth Grade

Students will learn about multiplying fractions by creating underwater creatures out of fraction pieces. The students will then multiply the number of all the fraction pieces of one color in a single fish by the number of fraction pieces of the same color in a second fish to create a single product for the color used.

Materials Needed:

- Large piece of blue paper for each student (9X12 or larger if desired)
- Five different colored whole circles cut from construction paper for each student
- Scissors
- Markers or Crayons
- Glue Stick or Elmer’s Glue
- Paper and Pencil for name plate and table.

Vocabulary:

- Fraction: A number that is usually expressed in a/b form. Small fractions are parts of a whole.
- Abstract: Not realistic art. In the case of our fish, they are abstract because we are creating them by emphasizing geometric forms.
- Geometric: Resembling or employing the simple rectilinear or curvilinear lines or figures used in geometry.

Pedagogy:

- In preparation for this activity, cut out five whole circles from different colored pieces of construction paper and make enough for each student to receive all five. Also, cut out or buy a large piece of blue paper to the desired size (9X12 or larger).
- On the day of the art lesson, before starting the actual lesson, draw five whole circles on the white board to use at the beginning. Also, set up a table in the back of the classroom with piles of the large blue paper and separate piles of the different colored circles and the box of scissors.
- At the beginning of the lesson, focus their attention to the board and the five circles drawn there. Ask for a volunteer to represent $\frac{1}{2}$ using the first circle. Next ask a student to show how to represent $\frac{1}{4}$ with the next circle, then $\frac{1}{6}$ and $\frac{1}{8}$. If the students are unsure how to do some of them, help guide them through it.
- After showing the visual representation of the fractions, write a corresponding color above each circle to a color of the construction paper used in the circles. For example, if you have five circles in the colors red, orange, yellow, green and blue, write red above the $\frac{1}{2}$ circle, orange above the $\frac{1}{4}$ circle and so on. This way students know what fractions should be cut out of what color.
- Next, explain to the students that for our art project today we will be creating underwater creatures or things out of the fraction pieces we will be cutting out of circles. Ask the students to line up in the back of the classroom, one line on each side of the table and ask them to grab one of everything on the table then to quietly return to their seats and await further instructions.
- Once every child has received their supplies and are sitting patiently in their seats, start explaining the assignment by asking the students to grab their $\frac{1}{2}$ circle color and hold it up so you can make sure that every student has the correct color (This is very important that they have the correct color for EVERY fraction!). Next, show them how to fold the circle in half, open in up and cut along the line. Once every child has done that, put the pieces to the side and grab the next circle. Make sure that you show the children how to cut and fold every circle so they have a correct representation of the fraction. Remember to have them hold up the correct color before they start cutting. Explain that the fifth circle can be but into a fraction of their choice. This may be $\frac{1}{3}$, a whole, $\frac{1}{16}$, etc. and tell them to raise their hand if they need help cutting the last circle into their desired fraction.
- When every student has cut all of their pieces, explain that they will now be creating underwater creatures and other things found under the sea. Explain that they can create anything they wish. This means that they create fish, star fish, a sea monster, a jelly fish and plants, etc. However, they will need to create at least two creatures with three colors

in common. (Write this direction on the board so the students can reference it.) At this point you can show some of the provided examples to give the students an idea of what to do, but make sure to emphasize that they will need two creatures with three colors in common. Point this out on various examples. They don't need to necessarily look like fish they might see every day because our creatures will be geometric and blockier looking.

- Before they begin creating, explain the math portion of the assignment. Explain that when they are finished they will adding up all of the fraction pieces of one color in one fish and will times that fraction by the fraction pieces of the same color used on their second fish. For example, they may have two fish with yellow, blue and red in common and say yellow = $\frac{1}{4}$, blue = $\frac{1}{8}$ and red = $\frac{1}{2}$ they will be multiplying the fractions of those colors used in the two fish together. So in this example they may have one fish 2 yellow and one with 1 yellow so they will multiply $\frac{2}{4} \times \frac{1}{4}$ with a product of $\frac{2}{16}$ which can be simplified to $\frac{1}{8}$ so their product of yellow is $\frac{1}{8}$. If their fish then has 3 blue and the other fish has 4, they will multiply $\frac{3}{8} \times \frac{4}{8}$ which equals $\frac{12}{64}$ which can be reduced to $\frac{3}{16}$ so their product of blue = $\frac{3}{16}$. Finally they may have one fish with one red and the other with one red so they multiply $\frac{1}{2} \times \frac{1}{2}$ with a product of $\frac{1}{4}$ so the product of their red = $\frac{1}{4}$. They will then write this out on a table (Example at the bottom).
- Ask for any questions and if there are none let the creativity begin!
- While the students work, ask one student from each table group to come forward and grab a couple of glue sticks or Elmer's glue for the table to use when they are ready to glue their creations down (or pass them out yourself).
- Give the students ample time to do this portion of the activity. While they work, walk around and ask students what they are creating, how they decided to create that, etc. Remind them that they can draw eyes or scales for their creations using markers if they want. Ask them if they need any help figuring out the math portion and help where needed.
- When every student has finished their creations, ask them to clean up their workspace by putting the glue, scissors and markers back and cleaning off their desks with a wet piece paper towel if glue has dried on them.
- When they are done cleaning up, ask the students to create their own name plate for their work of art which includes the title of their work and their first name. At this time, also remind them to fill out their math table if they have not already done so.

Math Table Example:

Color	Fish 1	Fish 2	Product
Yellow	$\frac{2}{4}$	$\frac{1}{4}$	$\frac{1}{8}$
Blue	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{3}{16}$

Red	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$
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Assessment:

- Formative: Asking the students for help dividing the whole circles on the board into fractions.
- Summative: Working out the math for their table.